REPORT

Annual Coal Combustion Residuals Groundwater Monitoring and Corrective Action Report - 2024

Great River Energy, Stanton Station

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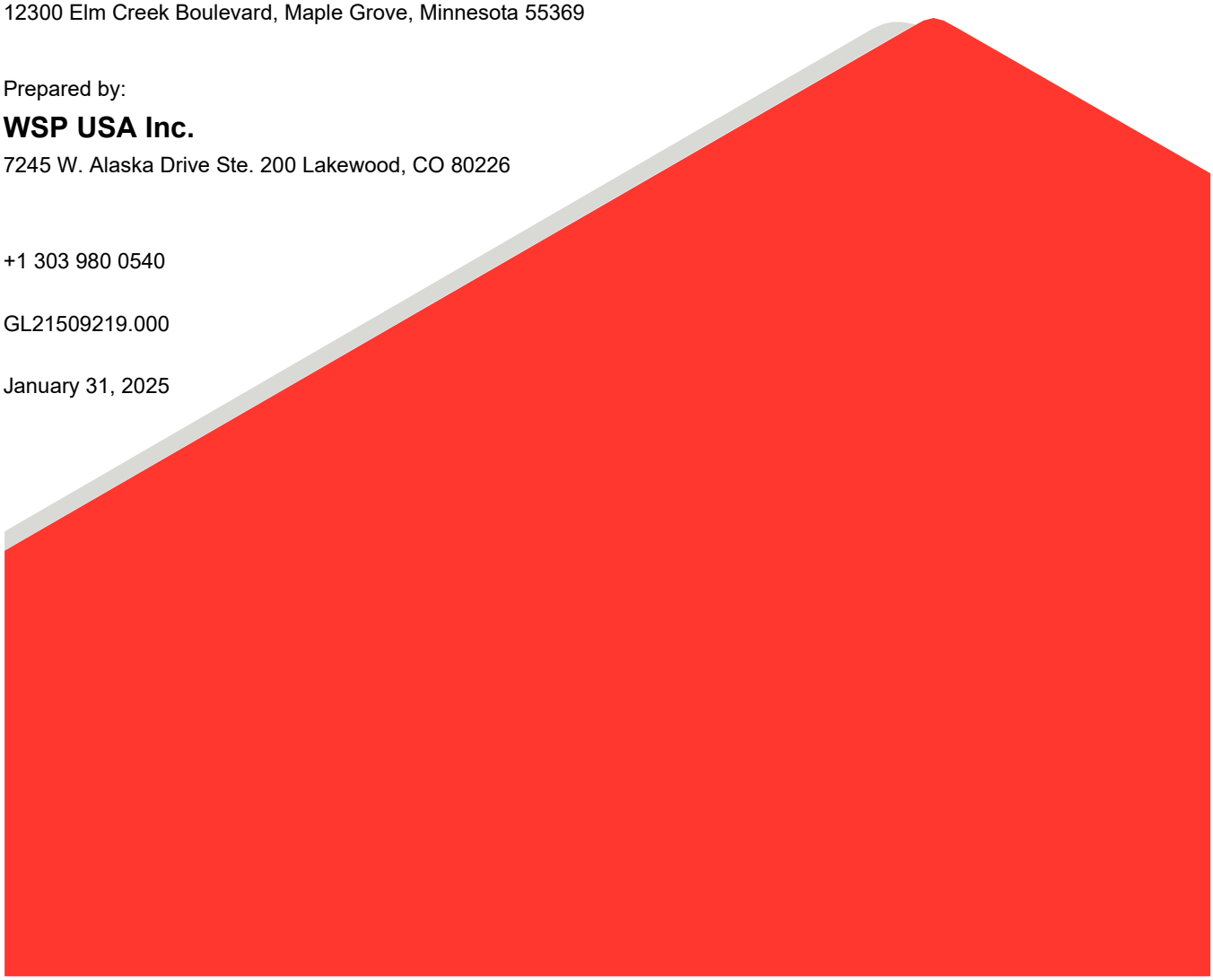
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Program Summary

This report presents the results from groundwater monitoring and corrective action events that occurred at Great River Energy's Stanton Station in 2024 to meet the requirements of the United States Environmental Protection Agency's Coal Combustion Residuals rule (40 Code of Federal Regulations 257.90 through 257.98) and the North Dakota Department of Environmental Quality's Coal Combustion Residuals rule (North Dakota Administrative Code 33.1-20-08).

The Bottom Ash Landfill entered 2024 in assessment monitoring under a corrective measures program with samples collected in the first quarter (Q1), second quarter (Q2), and fourth quarter (Q4) of 2024, and remains in assessment monitoring at the end of 2024. An evaluation of corrective measures is ongoing.

Assessment monitoring at the Bottom Ash Impoundment started in Q1 of 2024, with samples collected in each quarter of 2024. The Bottom Ash Impoundment remains in assessment monitoring at the end of 2024.

Detection Monitoring Summary

Comparative statistics for detection monitoring samples collected in Q4 2023 and Q2 2024 were completed in 2024. Identified statistically significant increases (SSIs) are summarized in the table below. Comparative statistics for the Q4 2024 detection monitoring sampling event will be completed within 90 days of receipt of the final analytical results in Q1 2025.

Table PS-1: Summarized Statistically Significant Increases

Unit	Well	Location	Parameter	Q4 2023 Statistical Event	Q2 2024 Statistical Event
Background	MW-6B	Sidegradient	Chloride	Ongoing Verified SSI	Ongoing Verified SSI
			Field-Measured pH	--	Potential Exceedance – False Positive
	MW-7A	Upgradient	Field-Measured pH	Potential Exceedance – False Positive	Potential Exceedance – False Positive
	MW-7B	Upgradient	Chloride	Ongoing Verified SSI	Ongoing Verified SSI
	MW-105	Upgradient	Field-Measured pH	Potential Exceedance – False Positive	--
Bottom Ash Landfill	MW-9N	Downgradient	Calcium	Ongoing Verified SSI	Ongoing Verified SSI
			Chloride	Ongoing Verified SSI	Ongoing Verified SSI
			Fluoride	Ongoing Verified SSI	Ongoing Verified SSI
			Total Dissolved Solids	Ongoing Verified SSI	Ongoing Verified SSI
	MW-102	Downgradient	Field-Measured pH	Ongoing Verified SSI	Ongoing Verified SSI

Unit	Well	Location	Parameter	Q4 2023 Statistical Event	Q2 2024 Statistical Event
	MW-103	Downgradient	Boron	Ongoing Verified SSI	Ongoing Verified SSI
			Calcium	Ongoing Verified SSI	Ongoing Verified SSI
			Chloride	Ongoing Verified SSI	Ongoing Verified SSI
			Fluoride	Ongoing Verified SSI	Ongoing Verified SSI
			Field-Measured pH	Potential Exceedance – New SSI	Ongoing Verified SSI
			Sulfate	Ongoing Verified SSI	Ongoing Verified SSI
			Total Dissolved Solids	Ongoing Verified SSI	Ongoing Verified SSI
Bottom Ash Impoundment	MW-203	Downgradient	Boron	Ongoing Verified SSI	Ongoing Verified SSI
			Sulfate	Ongoing Verified SSI	Ongoing Verified SSI
			Total Dissolved Solids	Ongoing Verified SSI	Ongoing Verified SSI

Assessment Monitoring Summary

Comparative statistics following the Q4 2023, Q1 2024, and Q2 2024 assessment monitoring sampling events for the Bottom Ash Landfill were completed in 2024. No new statistically significant levels (SSLs) were detected in 2024. Arsenic was detected at an SSL above the groundwater protection standard (GWPS) at MW-103 for the Q4 2023, Q1 2024, and Q2 2024 assessment monitoring comparative statistical events. Comparative statistics following the Q4 2024 assessment monitoring sampling event will be completed within 90 days of receipt of the final analytical results in Q1 2025.

The Bottom Ash Impoundment entered 2024 in assessment monitoring with samples collected in each of the four quarters of 2024. Based on the statistical methods selected for assessment monitoring, final determination of SSLs for samples collected in 2024 for the Bottom Ash Impoundment will be conducted within 90 days of receipt of the analytical results from the Q4 2024 samples, in Q1 2025. Comparisons to the site GWPS will be made at that time.

Assessment of Corrective Measures

An assessment of corrective measures to address the arsenic SSL at the Bottom Ash Impoundment was initiated in June 2022 and completed in November 2022, with evaluation of corrective measures continuing throughout 2024. The following key efforts were completed in 2024:

- A Tier II and Tier III Monitored Natural Attenuation evaluation was completed (WSP 2024d) for the assessment of corrective measures.
- A semi-annual report describing progress in remedy selection was completed in July 2024 (WSP 2024e).
- Additional geochemical modeling was completed in support of analysis of chemical injection as a possible corrective measure (WSP 2024f).

- A sampling and analysis plan was prepared for collecting groundwater samples for a bench-scale study for chemical injection (WSP 2024g).
- Samples were collected for a bench-scale study for chemical injection downgradient of the Bottom Ash Landfill as a potential corrective measure in November 2024.
- Preliminary results of the Phase 1 bench-scale study for chemical injection were received.

A public meeting was not held in 2024. A final remedy was not selected in 2024, and remedial actions were not implemented in 2024.

Evaluation of corrective measures will continue in 2025 with the following activities planned in the next 6-months prior to the next semi-annual report.

- Continue to evaluate the extent of the arsenic plume downgradient of the Bottom Ash Landfill including continued analysis of both total and dissolved metal concentrations, and evaluation of options for the nature and extent wells with ongoing high turbidity issues.
- Further evaluation of geochemical injection through sampling of aquifer solids and groundwater near the monitoring wells of concern and conducting jar testing with the collected site groundwater and aquifer solids with the addition of reactant to evaluate reaction time and response to different dosage rates.
- Begin development of a model to support chemical injection design based on results from previously collected hydrogeologic information, hydraulic testing information, and chemical injection lab testing.

Table of Contents

1.0 INTRODUCTION 1

1.1 Purpose 1

1.2 Site Background 1

1.3 Site Closure and Restoration 1

2.0 GROUNDWATER MONITORING NETWORK PROGRAM STATUS 2

2.1 Completed Key Actions in 2024 3

2.2 Installation and Decommissioning of Wells 4

2.3 Problems and Resolutions 4

2.3.1 Q1 2024 Sampling Event 4

2.3.2 Q2 2024 Sampling Event 5

2.3.3 Q3 2024 Sampling Event 5

2.3.4 Q4 2024 Sampling Event 5

2.3.5 Reporting of Radiochemical Results 6

2.4 Key Activities for 2025 6

3.0 GROUNDWATER MONITORING ANALYTICAL PROGRAM STATUS 7

3.1 Collected Samples 7

3.1.1 Groundwater Elevation and Flow Rate 8

3.2 Monitoring Data (Analytical Results) 8

3.3 Comparative Statistical Analysis for Detection Monitoring Parameters 9

3.3.1 Definitions 9

3.3.2 Q4 2023 Detection Monitoring Comparative Statistical Analysis 10

3.3.2.1 Potential Exceedances 10

3.3.2.2 False Positives 10

3.3.2.3 Verified Statistically Significant Increases 10

3.3.3 Q2 2024 Detection Monitoring Comparative Statistical Analysis 11

3.3.3.1 Potential Exceedances 11

3.3.3.2 False Positives 12

3.3.3.3 Verified Statistically Significant Increases 12
3.4 Groundwater Protection Standards 13
3.5 Comparative Statistical Analysis for Assessment Monitoring Parameters 13
3.5.1 Statistical Approach 13
3.5.2 2024 Findings 14
4.0 PROGRAM TRANSITIONS 15
4.1 Detection Monitoring 15
4.2 Assessment Monitoring 15
4.2.1 Assessment Monitoring Trigger 15
4.2.1.1 Alternative Source Demonstrations 15
4.2.2 Assessment Monitoring Program 16
4.3 Evaluation of Corrective Measures 16
4.3.1 Assessment of Corrective Measures 17
4.3.1.1 Source Control Corrective Measures 17
4.3.1.2 Groundwater Remediation Corrective Measures 17
4.3.2 Summary of Work Completed – August 2024 to January 2025 18
4.3.2.1 Groundwater Monitoring Activities 19
4.3.2.2 Efforts to Address Well Turbidity and Plume Delineation 19
4.3.2.3 Further Evaluation of Geochemical Injection 20
4.3.3 Summary of Remedy Selection Process Activities 21
4.3.3.1 Work Completed to Date 21
4.3.3.2 Remedy Selection 22
4.3.4 Planned Activities 23
5.0 CLOSING 24
6.0 REFERENCES 26

NO TABLE OF FIGURES ENTRIES FOUND.

TABLES

Table PS-1: Summarized Statistically Significant Increases ii

Table 1: Stanton Station Monitoring Well Summary

FIGURES

Figure 1: Monitoring Well Locations and Q1 2024 Groundwater Elevations and Contours

Figure 2: Monitoring Well Locations and Q2 2024 Groundwater Elevations and Contours

Figure 3: Monitoring Well Locations and Q4 2024 Groundwater Elevations and Contours

Figure 4: Bottom Ash Landfill Assessment of Corrective Measures and Remedy Selection Timeline

APPENDICES

APPENDIX A
Monitoring Data

APPENDIX B
Detection Monitoring Comparative Statistics

APPENDIX C
Assessment Monitoring Comparative Statistics

APPENDIX D
ACM Arsenic Plume Delineation Figures

APPENDIX E
1-Dimensional Geochemical Modeling

APPENDIX F
Bench-Scale Treatability Testing Groundwater Sampling and Analysis Plan

APPENDIX G
Phase 1 Chemical Injection Testing

1.0 INTRODUCTION

WSP USA Inc. (WSP) has prepared this report of the 2024 groundwater sampling and comparative statistical analysis and corrective actions for Great River Energy's (GRE) Stanton Station to meet the requirements of the United States Environmental Protection Agency's (USEPA) Coal Combustion Residuals (CCR) rule (40 Code of Federal Regulations [CFR] 257.90 through 257.98) and the North Dakota Department of Environmental Quality's (NDDEQ) CCR rule (North Dakota Administrative Code [NDAC] 33.1-20-08), hereafter referred to as the Federal and State CCR rules. The CCR units discussed in this report are regulated by the NDDEQ under Permit Number 0043 in accordance with NDAC Article 33.1-20, Solid Waste Management and Land Protection. This report has been prepared in accordance with the requirements of NDDEQ Permit 0043, the current site *Groundwater Monitoring Plan* (GMP; GAI 2019a), the current *Coal Combustion Residuals Groundwater Monitoring System Certification* (GAI 2020), the current *Coal Combustion Residuals Groundwater Statistical Method Certification* (GAUSA 2021), and both the Federal and State CCR rules pertaining to the disposal of CCRs in landfills and surface impoundments.

1.1 Purpose

The Federal CCR rule established specific requirements for reporting of actions related to groundwater monitoring and corrective actions in 40 CFR 257.90 to 40 CFR 257.98. In accordance with Part (e) of 40 CFR 257.90, owners and operators of CCR landfills and surface impoundments that received CCR waste on or after October 17, 2014 must prepare a groundwater monitoring and corrective action report annually.

NDAC Chapter 33.1-20-08-06 established North Dakota-specific requirements for reporting of actions related to groundwater monitoring and corrective actions associated with CCR landfills and surface impoundments, which mirror the reporting requirements of the Federal CCR rule (Part (e) of NDAC 33.1-20-08-06.1).

1.2 Site Background

Stanton Station was a coal-fired electric generation facility located along the Missouri River in Mercer County, approximately 3 miles southeast of Stanton, North Dakota. Stanton Station began generating power in 1966 and CCRs were managed in composite-lined surface water impoundment cells and dry waste units regulated and permitted by the NDDEQ. Stanton Station ceased power production in February 2017, demolition of the industrial site was finished in 2019, and site restoration completed in 2020.

Stanton Station has two CCR units covered by the Federal and State CCR rules:

- Bottom Ash CCR Landfill (Bottom Ash Landfill)
- Bottom Ash CCR Surface Impoundment (Bottom Ash Impoundment)

Locations of the CCR units and groundwater monitoring wells are shown in Figure 1 through Figure 3.

1.3 Site Closure and Restoration

CCR unit closure and site restoration activities began in 2019 and were completed in the summer of 2020. Activities included closure of the Bottom Ash Landfill and Bottom Ash Impoundment and regrading the former industrial site to promote stormwater drainage and vegetative growth.

The north and center cells of the Bottom Ash Impoundment were closed by removal of CCR and liner systems in the fall of 2019. Bottom ash in the north and center cells along with the geomembrane liner and clayey soils underlying the geomembrane liner were excavated and placed either in the south cell of the Bottom Ash

Impoundment or the Bottom Ash Landfill. The south cell of the Bottom Ash Impoundment was closed with permitted wastes remaining in place and in accordance with the final cover design outlined in the *Closure and Post-closure Plan* (GAI 2019b).

The Bottom Ash Landfill was closed by consolidating the landfill footprint, then closing with permitted wastes remaining in place and in accordance with the final cover design outlined in the *Closure and Post-closure Plan* (GAI 2019c). This included removing CCR and soil from the west end of the permitted footprint and placing the removed materials on the east end where disposal had historically occurred. A new soil berm was also constructed along the new west edge of CCR placement.

As part of the power plant demolition, the bottom ash and economizer ash from the plant and construction and demolition material from plant demolition activities, as well as coal and coal yard soil, were placed in the Bottom Ash Landfill or the south cell of the Bottom Ash Impoundment, as approved through the NDDEQ state permit program.

2.0 GROUNDWATER MONITORING NETWORK PROGRAM STATUS

Prior to Q2 2019, the CCR groundwater monitoring system at Stanton Station consisted of a total of 12 monitoring locations (five background and seven downgradient wells). During site restoration, two monitoring wells were abandoned downgradient of the Bottom Ash Landfill, leading to an interim period in 2019 and 2020 where the network consisted of five background and five downgradient wells. Following completion of site restoration in 2020, three additional downgradient monitoring wells were installed. The current monitoring locations are shown in Figure 1 through 3 and listed in Table 1. Additional information on the groundwater monitoring system can be found in the *Coal Combustion Residuals Groundwater System Certification* (Rev. 1, GAI 2020). Each CCR unit is currently part of monitoring network consisting of at least one upgradient and three downgradient wells.

The groundwater monitoring system at Stanton Station is currently divided as follows:

- The background monitoring wells are located south and west of the CCR units. Based on groundwater elevations, groundwater flow directions, and the distance from the CCR units (see Figures 1 through 3), the background wells are not expected to have been influenced by past or current CCR deposition. There are four upgradient monitoring wells (MW-7A, MW-7B, MW-8B, and MW-105) and one side-gradient monitoring well (MW-6B) shared between the CCR units.
- The Bottom Ash Landfill has three downgradient monitoring wells (MW-102, MW-9N, and MW-103).
- The Bottom Ash Impoundment has three downgradient monitoring wells (MW-201, MW-202, and MW-203).
    - MW-1R and MW-104 were removed from the monitoring network for the Bottom Ash Impoundment in June 2023 with the approval of NDDEQ (NDDEQ 2023), due to the distance of the wells from the current unit boundary. The two wells have been removed from the monitoring network but were retained to provide additional downgradient information. MW-1R and MW-104 were sampled throughout 2024.

In addition to the monitoring networks, additional wells have previously been installed in support of the nature and extent investigation both upgradient and downgradient of the Bottom Ash Landfill, as well as at the downgradient property boundary (WSP 2023, WSP 2024a). These wells were installed to meet the requirements of 40 CFR 257.95(g)(1)(i) and (g)(1)(iii) and NDAC 33.1-20-08-06(5)(g)(1)(a) and (5)(g)(1)(c). Names and locations of the additional wells are shown in Figures 1 through 3 and listed in Table 1. These additional wells have not been included in the monitoring network for detection and assessment statistical monitoring. Samples from the

additional wells are primarily intended for plume delineation associated with the assessment monitoring program at the Bottom Ash Landfill, but may also be used in evaluating corrective measures. Statistical analysis is not performed for these wells.

2.1 Completed Key Actions in 2024

The following key actions were completed in 2024:

- The 2023 annual CCR groundwater monitoring and corrective action report was completed and placed in the operating record and on the publicly accessible CCR website (WSP 2024a).
- Comparative statistical analysis was completed for the November (fourth quarter [Q4]) 2023 detection monitoring samples for the network wells within 90 days of receipt of the final analytical results.
    - Resamples were collected in February 2024 for the parameters identified as potential exceedances for the Q4 detection monitoring statistics during a monitoring event separate from the regularly scheduled detection monitoring samples.
- Comparative statistical analysis was completed for the November [Q4] 2023 assessment monitoring samples for the Bottom Ash Landfill downgradient network wells within 90 days of receipt of final analytical results.
- Assessment monitoring was initiated for the Bottom Ash Impoundment in the first quarter (Q1) of 2024 following the inconclusive alternative source demonstration conducted for boron at MW-203 (WSP 2024b), which was included in the 2023 annual report (WSP 2024a).
- Assessment monitoring samples were collected in March (Q1) 2024, June (second quarter [Q2]) 2024, and November (Q4) 2024 for the background locations, the Bottom Ash Landfill downgradient wells, the Bottom Ash Landfill nature and extent wells, the property boundary locations, and the Bottom Ash Impoundment downgradient wells. An additional assessment monitoring sample was collected from the Bottom Ash Impoundment downgradient wells in September (third quarter [Q3]). Samples collected for assessment monitoring were analyzed for the assessment monitoring constituent list in the Federal and State CCR rules.
- Comparative statistical analysis was completed for the Q1 2024 and Q2 2024 assessment monitoring samples from the Bottom Ash Landfill downgradient network wells within 90 days of receipt of the final analytical results.
- Dedicated low-flow sampling pumps were installed in April 2024 in the Bottom Ash Landfill nature and extent wells and the property boundary locations.
- Detection monitoring samples were collected in June (Q2) 2024 and November (Q4) 2024 for the background locations, the Bottom Ash Landfill downgradient wells, the Bottom Ash Landfill nature and extent wells, the property boundary locations, and the Bottom Ash Impoundment downgradient wells. Samples collected for detection monitoring were analyzed for the detection monitoring constituent list associated with the Federal and State CCR rules.
- Comparative statistical analysis was completed for the June (Q2) 2024 detection monitoring samples from the network wells within 90 days of receipt of the final analytical results.

  - Resamples were collected for the parameters identified as potential exceedances for the Q2 detection monitoring statistics during a monitoring event separate from the regularly scheduled detection monitoring samples in October 2024.
- Analysis was completed for hydraulic conductivity testing that occurred in 2023 (WSP 2024c).
- An investigation to mitigate excess turbidity identified in samples collected from the Bottom Ash Landfill nature and extent wells and the property boundary locations was conducted throughout 2024.
- A Tier II and Tier III Monitored Natural Attenuation evaluation was completed (WSP 2024d) for the assessment of corrective measures for the Bottom Ash Landfill.
- A semi-annual corrective measures report was completed in July 2024 for the Bottom Ash Landfill (WSP 2024e).
- Additional geochemical modeling was completed in support of analysis of chemical injection as a possible corrective measure for the Bottom Ash Landfill (WSP 2024f).
- A sampling and analysis plan was prepared for collecting groundwater samples for a bench-scale study for chemical injection as a possible corrective measure for the Bottom Ash Landfill (WSP 2024g).
- Samples were collected for a bench-scale study for chemical injection downgradient of the Bottom Ash Landfill as a potential corrective measure in November 2024.
- Preliminary results of the Phase 1 bench-scale study for chemical injection as a potential corrective measure for the Bottom Ash Landfill were received.

2.2 Installation and Decommissioning of Wells

No wells were installed or decommissioned from the Stanton Station CCR monitoring well networks in 2024.

2.3 Problems and Resolutions

There were no significant issues during the sampling and analysis conducted in 2024. The minor problems identified throughout 2024 and the associated resolutions are discussed in the following subsections.

2.3.1 Q1 2024 Sampling Event

Property boundary well MW-PB1 was purged dry during collection of the Q1 2024 samples, preventing collection of the required sample volume for radiochemical analysis. Enough sample volume was present during sample collection for the remainder of the Appendix III and Appendix IV parameters to be collected.

Chemical analysis was conducted at the MVTL location in Bismarck, North Dakota, with radiochemical analysis subcontracted to Energy Laboratories, Inc. (ELI), in Casper, Wyoming. The laboratory narrative for the radiochemical analysis associated with the background samples indicated that there was a discrepancy in the numbering between the labels on the sample containers and those listed on the preliminary chain-of-custody between MVTL and ELI. A revised chain-of-custody was provided to match the sample containers, with both forms included in the final analytical report.

The radiochemical sample bottle collected for MW-215 was broken in transit from MVTL to ELI, with all sample volume lost. ELI contacted MVTL on April 1, 2024. A replacement sample was collected on April 11, 2024 for radiochemical analysis.

No further issues were encountered with the sampling or analysis during the Q1 2024 sampling event.

2.3.2 Q2 2024 Sampling Event

During the Q2 2024 sampling event, the bottle for the sample collected on June 18, 2024 from MW-201 for radiochemical analysis was broken in transit from MVTL to ELI, with all sample volume lost. A replacement sample was collected on July 3, 2024 for radiochemical analysis.

Q2 2024 results for MW-7A (upgradient) for the following parameters were noted in the laboratory analytical narrative as having recovery of the internal standard outside of acceptance limits, resulting in the associated results being reported as non-detects with elevated reporting limits:

- Arsenic, elevated reporting limit equals 0.008 milligrams per liter (mg/L), typical reporting limit equals 0.001 mg/L
- Beryllium, elevated reporting limit equals 0.002 mg/L, typical reporting limits equals 0.0005 mg/L
- Chromium, elevated reporting limit equals 0.008 mg/L, typical reporting limit equals 0.002 mg/L
- Cobalt, elevated reporting limit, equals 0.008 mg/L, typical reporting limit equals 0.002 mg/L
- Selenium, elevated reporting limit equals 0.02 mg/L, typical reporting limit equals 0.005 mg/L

The elevated reporting limits are not consistent with past results for the well, but are considered appropriate for reporting of the Q2 2024 results for MW-7A based on the associated quality control information provided by the laboratory. The associated results have been marked with qualifiers in the tables included in Appendix B.

For the Q2 2024 sample collected from MW-PB1, barium was reported with a qualifier indicating that recovery from the matrix spike and/or matrix spike duplicate was above the associated quality control limits. MVTL noted that because recovery for the laboratory fortified blank sample was within the associated quality control limits, the results were considered acceptable.

Combined Radium 226 and Radium 228 was not included in the Q2 2024 analytical reports. Combined Radium 226 and Radium 228 has been included on the tables included in Appendix B based on the separately reported Radium 226 and Radium 228 results, as calculated via the method detailed by ELI and discussed in Section 2.3.5.

No further issues were encountered with the sampling or analysis during the Q2 2024 sampling event.

2.3.3 Q3 2024 Sampling Event

No issues were encountered with the sampling or analysis during the Q3 2024 sampling event that required resolution.

2.3.4 Q4 2024 Sampling Event

During the Q4 2024 sampling event, the originally provided field sheets listed an incorrect event name. The analytical laboratory issued amended reports to correct the event name listed on the associated field sheets.

Q4 2024 results for MW-7A (upgradient) for the following parameters were noted in the laboratory analytical narrative as having recovery of the internal standard outside of acceptance limit, resulting in the associated sample results being reported as non-detects with elevated limits:

- Antimony, elevated reporting limit equals 0.002 mg/L, typical reporting limit equals 0.001 mg/L
- Arsenic, elevated reporting limits equals 0.004 mg/L, typical reporting limit equals 0.002 mg/L
- Beryllium, elevated reporting limit equals 0.001 mg/L, typical reporting limit equals 0.0005 mg/L
- Cadmium, elevated reporting limit equals 0.001 mg/L, typical reporting limit equals 0.0005 mg/L
- Chromium, elevated reporting limit equals 0.004 mg/L, typical reporting limit equals 0.002 mg/L
- Cobalt, elevated reporting limit equals 0.004 mg/L, typical reporting limit equals 0.002 mg/L
- Selenium, elevated reporting limit equals 0.01 mg/L, typical reporting limit equals 0.005 mg/L

While not reflective of the typical reporting limits, the elevated reporting limits for the current event are similar to other previously reported results with elevated reporting limits for the well. Further, the results are considered appropriate for reporting of the current results based on the associated quality control information provided by the laboratory. The associated results have been marked with qualifiers in the tables included in Appendix B.

No further issues were encountered with the sampling or analysis during the Q4 2024 sampling event.

2.3.5 Reporting of Radiochemical Results

Correspondence with the subcontracted radiochemical laboratory (Energy Laboratories, Inc., ELI) clarified how combined Radium-226 and Radium-228 results have been calculated for the 2024 reporting. The approach described below differs from radiochemical results reported in previous annual reports.

During review of the radiochemical results received for the Q1 2024 sampling event, additional information was requested from ELI, the subcontracted radiochemical laboratory) regarding the process used for reporting of combined Radium-226 and Radium-228 results based on differences identified from prior results provided by the laboratory. In email correspondence with the laboratory, the following information was provided by ELI regarding the process the laboratory uses for reporting of results:

> "The results for the combined Ra226/228 calculation is performed by adding the ^{226}Ra activity to the ^{228}Ra activity. If one or both of these activities is negative or less than the MDC [minimum detectable concentration], one half the MDC is substituted for the respective value below the MDC. This may produce a value for the combined radium activities larger than the sum of the original activities…
>
> Ra226+Ra228 is a summation, MDC and PREC [precision] are 2*SQRT of the sum of the squares of (individual / 2)."

Precision for reporting of the combined Radium-226 and Radium-228 is based on the recorded precisions of the individual Radium-226 and Radium-228 results. Radiochemical results and precisions have been reported as received from the subcontracted radiochemical laboratories.

2.4 Key Activities for 2025

The following key groundwater monitoring activities are planned for 2025:

- The 2024 annual CCR groundwater monitoring and corrective action report will be completed and placed in the operating record and on the publicly accessible CCR website. The report will also be provided to the NDDEQ for review and approval.

- Comparative statistical analysis for the Q4 2024 detection monitoring samples from network wells will be completed within 90 days of receipt of the final analytical results.
- Comparative statistical analysis for the Q4 2024 assessment monitoring samples from network wells will be completed within 90 days of receipt of the final analytical results.
- Detection monitoring sampling events consisting of the detection monitoring parameters will occur semi-annually in 2025 in Q2 and Q4, Comparative statistical analysis for the collected detection monitoring samples from network wells will be completed within 90 days of receipt of the final analytical results.
- Assessment monitoring sampling events, consisting of a minimum of three events (one annual sampling event during Q1 2025 for the complete assessment monitoring sampling list and at least two additional sampling events [Q2 and Q4 2025] consisting of the detected assessment monitoring parameters), will occur for the background wells (upgradient and side-gradient), downgradient Bottom Ash Landfill wells, nature and extent wells associated with the Bottom Ash Landfill, and the downgradient Bottom Ash Impoundment wells. Comparative statistical analysis for the downgradient network wells will be completed within 90 days of receipt of the final analytical results.
- Semi-annual reports detailing progress towards remedy selection under the assessment of corrective measures for the Bottom Ash Landfill will be completed by January 31, 2025 (this report) and July 31, 2025.

3.0 GROUNDWATER MONITORING ANALYTICAL PROGRAM STATUS

Analytical activities associated with the groundwater monitoring program are described in the following sections.

3.1 Collected Samples

Throughout 2024, samples were collected by field staff from Minnesota Valley Testing Laboratory (MVTL), located in Bismarck, North Dakota, on the following dates. Precise dates for the collection of each sample can be found in the tables included in Appendix A.

- Confirmatory resamples associated with the Q4 2023 detection monitoring statistical analysis were collected during a monitoring event separate from the regularly scheduled detection monitoring samples in February 2024.
- Detection monitoring samples were collected from the background locations, the Bottom Ash Landfill downgradient wells, and the Bottom Ash Impoundment downgradient wells in June (Q2) and November (Q4) 2024.
- Confirmatory resamples associated with the Q2 2024 detection monitoring statistical analysis were collected during a monitoring event separate from the regularly scheduled detection monitoring samples in October 2024.
- Assessment monitoring samples were collected from the background locations, the Bottom Ash Landfill downgradient wells, the Bottom Ash Landfill nature and extent wells, the property boundary locations, and the Bottom Ash Impoundment downgradient wells in February (Q1), June (Q2), and November (Q4) 2024.
- An additional assessment monitoring sample was collected from the Bottom Ash Impoundment downgradient wells in September (third quarter [Q3]).

Samples were collected using low-flow methodology. The sampling procedures and field-testing methods are in accordance with USEPA-accepted procedures and the site groundwater monitoring plan (GAI 2019a).

3.1.1 Groundwater Elevation and Flow Rate

Depths to groundwater were measured at sampled wells during each sampling event prior to purging. Groundwater elevations can be found in Appendix A. Groundwater elevations from the Q1 2024, Q2 2024, and Q4 2024 monitoring events are shown in Figure 1 through Figure 3. The groundwater elevations in the uppermost groundwater at the Stanton Station CCR facilities are consistent with historical values and demonstrate that groundwater generally flows to the north and northeast towards the Missouri River.

The groundwater flow rate across each facility was estimated with the equation:

$$V_s = k \times {}^{i}/_{n_e}$$

where:

V_s = the groundwater flow rate in feet per day (ft/day)
k = the hydraulic conductivity in ft/day, estimated from slug testing results from system wells
i = the hydraulic gradient in feet per feet (ft/ft), calculated based on groundwater elevations for the presented monitoring events
n_e = the effective porosity, a unitless parameter, estimated to be 0.25 for a silt/sand (Duffield 2007), reflective of site soils

Hydraulic conductivity (k) values measured on site ranged from 0.023 ft/day to 21.9 ft/day based on site-specific testing conducted in 2023 and analyzed in 2024 (WSP 2024c). As the Bottom Ash Landfill and Bottom Ash Impoundment are adjacent to one another and intersect similar geologic formations within the uppermost water-bearing zone, the groundwater flow rates are assumed to be approximately the same for the facilities during each sampling event and are presented below.

- Q1 2024
  - Average gradient (i) = 0.006 ft/ft
  - Range of groundwater flow velocities (V_s): 0.0006 ft/day to 0.57 ft/day
- Q2 2024:
  - Average gradient (i) = 0.006 ft/ft
  - Range of groundwater flow velocities (V_s): 0.0006 ft/day to 0.56 ft/day
- Q4 2024:
  - Average gradient (i) = 0.008 ft/ft
  - Range of groundwater flow velocities (V_s): 0.0007 ft/day to 0.66 ft/day

3.2 Monitoring Data (Analytical Results)

Analytical results for samples collected in 2024 for monitoring wells within the networks are shown in Appendix A. Collected results for metals are presented as total data.

3.3 Comparative Statistical Analysis for Detection Monitoring Parameters

Comparative statistical analysis is conducted following each detection monitoring event. For both Shewhart-CUSUM (cumulative summation) limits and non-parametric prediction limit (NP-PL), the comparative statistical analysis consists of a comparison of detection monitoring results collected during the period of interest to the statistical limit calculated from the baseline data. At present, no parameters are currently analyzed using alternative comparative methods due to trending datasets. However, if well-constituent pairs with increasing trends were identified during the baseline period, those well-constituent pairs would be evaluated with an alternative trend test, such as that descried by the electric Power Research Institute (EPRI 2015) or a Sen's slope trend test, to determine compliance. For well-constituent pairs with decreasing trends during the baseline period, a Sen's slope test would be used to assess the compliance results. A full description of the steps taken for comparative statistical analysis is provided in the Coal Combustion Residuals Groundwater Statistical Method Certification (GAUSA 2021), available on GRE's publicly accessible CCR website.

Comparative statistical analysis for detection monitoring events occurs within 90 days of receipt of the final analytical data. Based on the timing of the detection monitoring sampling event in Q4 2024 and the date of receipt of the final analytical data, comparative statistical analysis for the Q4 2024 event will be completed in Q1 2025.

For reporting purposes, non-detect results for compliance samples are shown at the primary quantitation limit (PQL) in the tables included as Appendix B.

3.3.1 Definitions

The following definitions will be used in discussion of the comparative statistical analysis for detection monitoring parameters:

- Elevated CUSUM: occurs when the calculated CUSUM value is greater than the Shewhart-CUSUM limit established by the baseline statistical analysis, but the analytical result does not exceed the Shewhart-CUSUM limit. An elevated CUSUM is an indication that concentrations are gradually increasing and that analytical results may exceed the Shewhart-CUSUM limit in the future. For elevated CUSUM values in the case of two-tailed analysis for field-measured pH, the calculated CUSUM value may also be below the lower Shewhart-CUSUM limit established by the baseline statistical analysis.
- Potential exceedance: an initial elevated calculated CUSM value or an initial analytical result that exceeds the parametric prediction limit (PL), the Shewhart-CUSUM limit, or the NP-PL established by the baseline statistical analysis. Confirmatory resampling will determine if the potential exceedance is a false positive or a verified statistically significant increase (SSI). Non-detect results that exceed the statistical limit are not considered potential exceedances.
- False positive: an analytical result that exceeds the statistical limit that can clearly be attributed to laboratory error, changes in analytical precision, or is invalidated through confirmatory resampling. False positives are not used in calculation of any subsequent CUSUM values.
- Confirmatory resampling: the next sample collected for statistical confirmation following identification of a potential exceedance.

- Verified SSI: two consecutive exceedances (the original sample and the confirmatory resample for analytical results, two consecutive elevated CUSUM values, or a combination of an analytical result above the statistical limit and an elevated CUSUM value in either event order) for the same constituent at the same well.

3.3.2 Q4 2023 Detection Monitoring Comparative Statistical Analysis

Results for the comparative statistical analysis for the Q4 2023 detection monitoring event are summarized as follows, with the results presented in Appendix B.

3.3.2.1 Potential Exceedances

Potential exceedances were identified for the following well-constituent pairs during the Q4 2023 sampling event:

- MW-7A (background, upgradient), Field-Measured pH Elevated CUSUM
- MW-105 (background, upgradient), Field-Measured pH Elevated CUSUM

Confirmatory resamples were collected in Q1 2024, with results discussed in the following sections.

3.3.2.2 False Positives

Based on confirmatory resampling, the following results were identified as false-positives:

- MW-7A (background, upgradient), Field-Measured pH Elevated CUSUM
- MW-105 (background, upgradient), Field-Measured pH Elevated CUSUM

3.3.2.3 Verified Statistically Significant Increases

One new verified SSI was identified during the comparative statistical analysis following the Q4 2023 sampling event.

- MW-103 (downgradient, Bottom Ash Landfill), Field-measured pH

For this SSI the Q4 2023 result is a newly verified SSI. Field-measured pH was previously verified a the well in Q4 2021 and Q1 2022. The Q2 2022, Q4 2022, and Q1 2023 analytical values were within the associated statistical limits. The Q2 2022 value was listed as an ongoing verified SSI, while the Q4 2022 and Q1 2023 values were listed as within statistical limits, with the results not considered as SSIs, based on having two or more samples in a row within the associated statistical limits. Both the Q2 2023 and Q4 2023 analytical results and lower CUSUM values are below the lower statistical limits, resulting in a verified SSI for the parameter.

The following ongoing SSIs continued to be detected:

- MW-6B (background, side-gradient), Chloride (ongoing elevated CUSUM, initially verified in Q3 2021)
- MW-7B (background, upgradient), Chloride (ongoing elevated CUSUM, initially verified in Q4 2020)
- MW-9N (downgradient, Bottom Ash Landfill), Calcium (ongoing, elevated CUSUM, initially verified in Q4 2020)
- MW-9N (downgradient, Bottom Ash Landfill), Chloride (ongoing, initially verified in Q2 2019)
- MW-9N (downgradient, Bottom Ash Landfill), Fluoride (ongoing, initially verified in Q2 2021)

- MW-9N (downgradient, Bottom Ash Landfill), Field-measured pH (ongoing elevated CUSUM, initially verified in Q2 2023)
- MW-9N (downgradient, Bottom Ash Landfill), Total Dissolved Solids (ongoing elevated CUSUM, initially verified in Q2 2021)
- MW-102 (downgradient, Bottom Ash Landfill), Field-measured pH (ongoing elevated CUSUM, initially verified in Q2 2023)
- MW-103 (downgradient, Bottom Ash Landfill), Boron (ongoing, initially verified in Q2 2020)
- MW-103 (downgradient, Bottom Ash Landfill), Calcium (ongoing elevated CUSUM, initially verified in Q1 2023)
- MW-103 (downgradient, Bottom Ash Landfill), Chloride (ongoing elevated CUSUM, initially verified in Q2 2019)
- MW-103 (downgradient, Bottom Ash Landfill), Fluoride (ongoing, initially verified in Q2 2019)
- MW-103 (downgradient, Bottom Ash Landfill), Sulfate (ongoing, initially verified in Q1 2021)
- MW-103 (downgradient, Bottom Ash Landfill), Total Dissolved Solids (ongoing, initially verified in Q2 2020)
- MW-203 (downgradient, Bottom Ash Impoundment), Boron (ongoing, initially verified following confirmatory resampling for the Q2 2023 event)
- MW-203 (downgradient, Bottom Ash Impoundment), Sulfate (ongoing, initially verified following confirmatory resampling for the Q2 2023 event)
- MW-203 (downgradient, Bottom Ash Impoundment), Total Dissolved Solids (ongoing, initially verified following confirmatory resampling for the Q2 2023 event)

3.3.3 Q2 2024 Detection Monitoring Comparative Statistical Analysis

Results for the comparative statistical analysis for the Q2 2024 detection monitoring event are summarized as follows, with the results presented in Appendix B.

3.3.3.1 Potential Exceedances

Potential exceedances were identified for the following well-constituent pairs during the Q2 2024 sampling event:

- MW-6B (background, side-gradient), Field-Measured pH Elevated CUSUM
- MW-7A (background, upgradient), Field-Measured pH Elevated CUSUM

Confirmatory resamples were collected in October 2024 separate from the Q4 2024 sampling, with results discussed in the following sections.

For field-measured pH at MW-105, the current CUSUM value for the Q2 2024 event is equal to the upper CUSUM statistical limit. This result is not considered a potential exceedance, as only results that exceed the statistical limit are identified as having statistical significance.

3.3.3.2 False Positives

Based on confirmatory resampling, the following results were identified as false-positives:

- MW-6B (background, side-gradient), Field-Measured pH Elevated CUSUM
- MW-7A (background, upgradient), Field-Measured pH Elevated CUSUM

3.3.3.3 Verified Statistically Significant Increases

No new verified SSIs were identified during the comparative statistical analysis following the Q2 2024 sampling event. The following ongoing SSIs continued to be detected:

- MW-6B (background, side-gradient), Chloride (ongoing elevated CUSUM, initially verified in Q3 2021)
- MW-7B (background, upgradient), Chloride (ongoing elevated CUSUM, initially verified in Q4 2020)
- MW-9N (downgradient, Bottom Ash Landfill), Calcium (ongoing, elevated CUSUM, initially verified in Q4 2020)
- MW-9N (downgradient, Bottom Ash Landfill), Chloride (ongoing, initially verified in Q2 2019)
- MW-9N (downgradient, Bottom Ash Landfill), Fluoride (ongoing, initially verified in Q2 2021)
- MW-9N (downgradient, Bottom Ash Landfill), Field-measured pH (ongoing elevated CUSUM, initially verified in Q2 2023)
- MW-9N (downgradient, Bottom Ash Landfill), Total Dissolved Solids (ongoing elevated CUSUM, initially verified in Q2 2021)
- MW-102 (downgradient, Bottom Ash Landfill), Field-measured pH (ongoing elevated CUSUM, initially verified in Q2 2023)
- MW-103 (downgradient, Bottom Ash Landfill), Boron (ongoing, initially verified in Q2 2020)
- MW-103 (downgradient, Bottom Ash Landfill), Calcium (ongoing elevated CUSUM, initially verified in Q1 2023)
- MW-103 (downgradient, Bottom Ash Landfill), Chloride (ongoing elevated CUSUM, initially verified in Q2 2019)
- MW-103 (downgradient, Bottom Ash Landfill), Fluoride (ongoing, initially verified in Q2 2019)
- MW-103 (downgradient, Bottom Ash Landfill), Field-measured pH (ongoing, initially verified in Q4 2023)
- MW-103 (downgradient, Bottom Ash Landfill), Sulfate (ongoing, initially verified in Q1 2021)
- MW-103 (downgradient, Bottom Ash Landfill), Total Dissolved Solids (ongoing, initially verified in Q2 2020)
- MW-203 (downgradient, Bottom Ash Impoundment), Boron (ongoing, initially verified following confirmatory resampling for the Q2 2023 event)
- MW-203 (downgradient, Bottom Ash Impoundment), Sulfate (ongoing, initially verified following confirmatory resampling for the Q2 2023 event)

- MW-203 (downgradient, Bottom Ash Impoundment), Total Dissolved Solids (ongoing, initially verified following confirmatory resampling for the Q2 2023 event)

3.4 Groundwater Protection Standards

No changes are proposed for the site GWPS at present based on the results collected from the background locations from 2022 through Q2 2024. Changes in the background water quality will continue to be monitored during each sampling event.

The current GWPS used at the site were originally presented in the 2022 annual CCR groundwater monitoring and corrective action report (WSP 2023a) and were developed using groundwater data collected between 2016 and 2021 from the background (both upgradient and side-gradient) monitoring wells. As additional data is collected from the background monitoring wells (MW-6B, MW-7A, MW-7B, MW-8B, and MW-105), the suitability of these GWPS is reviewed following each monitoring event.

During the Q2 2024 monitoring event, the result for cobalt at MW-7A (upgradient) was reported as a non-detect with dilution that exceeds the site GWPS value. The result is considered acceptable from a quality control perspective but will not be used for comparative purposes that would result in changes to the GWPS.

3.5 Comparative Statistical Analysis for Assessment Monitoring Parameters

3.5.1 Statistical Approach

To determine if detected assessment monitoring constituents have statistically exceeded the associated GWPS, a confidence interval approach was used for determining compliance. Per recommendations in the Unified Guidance (USEPA 2009) and detailed by EPRI (2015), a confidence interval statistically defines the upper and lower bound (the upper and lower confidence limit) of the true mean associated with a groundwater population. The Unified Guidance recommends confidence intervals for assessment monitoring. A confidence interval statistically defines the confidence range and the upper and lower bound of a true mean, median, or other statistical measure of a compliance monitoring dataset. Confidence intervals identify SSLs through comparison against a fixed standard, namely the GWPS for each parameter.

The specific type of confidence interval for each well-constituent pair is based on three factors:

1) The detection frequency of the compliance data

2) The distribution of the compliance data

3) The presence of statistically significant trends within the compliance data

Prior to constructing the confidence intervals for each monitoring event, an initial data review was conducted on the compliance data for determining the detection frequency and data distribution, as described in the Coal Combustion Residuals Groundwater Statistical Methods Certification (GAUSA 2021). Additionally, compliance data was tested for trends using Sen's slope methodology prior to constructing confidence intervals.

A parametric confidence interval around the mean was used if the compliance dataset had less than 50% non-detects (ND) and was either normally distributed or transform-normally distributed. A confidence (α) of 95% was used for calculating the parametric upper confidence limit (UCL) and lower confidence limit (LCL) of the compliance data. Parametric confidence intervals (CI) were calculated using the following equation:

$$CI = \bar{x} \pm t_{(1-\alpha,n-1)} \frac{s}{\sqrt{n}}$$

Where:

$\bar{x}$ = the mean of the comparative sample population

s = the standard deviation of the comparative sample population

n = the number of samples in the comparative sample population

t = a value from a student's t-test derived from the desired level of confidence $(1-\alpha)$ and the degrees of freedom $(n-1)$

Summarized values for t are compiled in the Unified Guidance in Table 16-1, Appendix D (USEPA 2009).

A non-parametric confidence interval around the median was used for datasets that did not show normal or transform-normal distributions and for compliance populations with greater than 50% ND. For non-parametric confidence intervals, the UCL and LCL are generally chosen as order statistics of the sample data dependent on the sample size of the compliance dataset (n), the desired confidence level $(1-\alpha)$, and the median of the compliance dataset.

For the determination of SSLs, the LCL is of primary interest. A confidence interval is only considered statistically above the associated GWPS if both the UCL and LCL exceed the GWPS. If only the UCL exceeds the GWPS while the LCL remains below the GWPS, the results of the test are considered inconclusive. The Unified Guidance (USEPA 2009) recommends results of this category be interpreted as "in compliance" and not consider the result to represent an SSL. If both the UCL and CLC are below the GWPS, the data re considered not statistically significant.

Confidence intervals are only constructed on data that do not display statistically significant trends. If the compliance dataset was found to display a statistically significant trend, a confidence band would be constructed around the estimated trend line. Per the Unified Guidance, a confidence band is "essentially a continuous series of confidence intervals estimated along every point of the trend" (USEPA 2009). For determination of an SSL using a confidence band approach, both the upper and lower confidence band must exceed the GWPS to be considered an SSL. If only the upper confidence band exceeds the GWPS while the lower confidence band remains below the GWPS, the results of the test are considered inconclusive. If both the upper and lower confidence band are below the GWPS, the data are considered not statistically significant.

3.5.2 2024 Findings

Based on the comparative statistical analysis following the Q4 2023, Q1 2024, and Q2 2024 assessment monitoring events for the Bottom Ash Landfill, arsenic at MW-103 remains identified as an SSL. The remainder of parameters at MW-103 have been determined to not be statistically significant during each monitoring event. No statistically significant items have been identified for MW-9N and MW-102.

With the comparative points collected through Q1 2024 following the start of assessment monitoring at the Bottom Ash Landfill, no datasets resulted in a statistically significant trend using the Sen's slope test. Compliance data presented for the Q4 2023 and Q1 2024 events have only been compared using confidence intervals. During the Q2 2024 monitoring event, a statistically significant decreasing trend was identified for lithium at MW-9N, and a

confidence band around the trend line was developed for comparative purposes for this well-constituent pair. The results of the confidence band around the trend line are not statistically significant.

Results of the comparative statistical analysis for the downgradient wells at the Bottom Ash Landfill are shown in the tables of Appendix C.

Comparative statistical analysis for the Q4 2024 assessment monitoring event will occur within 90 days of receipt of the final analytical data. Based on the timing of the assessment monitoring sampling event in Q4 2024 and the date of receipt of the final analytical data, comparative statistical analysis for the Q4 2024 event will be completed in Q1 2025.

4.0 PROGRAM TRANSITIONS

4.1 Detection Monitoring

Throughout CCR monitoring, detection monitoring samples are collected on at least a semi-annual basis for each program well. This monitoring began with the samples collected in Q4 2017. GRE plans to collect semi-annual samples for the detection monitoring program in Q2 2025 and Q4 2025. A transition to assessment monitoring does not preclude the continued collection of detection monitoring parameters on at least a semi-annual basis.

4.2 Assessment Monitoring

4.2.1 Assessment Monitoring Trigger

40 CFR 257.94(e) states the conditions under which a CCR unit must transition to assessment monitoring or complete an ASD:

> "If the owner or operator of a CCR unit determines, pursuant to 40 CFR 257.93(h) that there is an SSI over background levels for one or more of the constituents listed in Appendix III to this part at any monitoring well at the waste boundary specified under 40 CFR 257.91(a)(2), the owner or operator must: (1) Except as provided for in paragraph (e)(2) of this section, within 90 days of detecting a SSI over background levels for any constituent, establish an assessment monitoring program meeting the requirements of 40 CFR 257.95. (2) The owner or operator may demonstrate that a source other than the CCR unit caused the statistically significant levels of a constituent or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality." (USEPA 2015)

NDAC 33.1-20-08-6(4)(3) describes similar conditions for transitioning to assessment monitoring or completing an ASD with the additional requirement of NDDEQ review and approval for ASDs and the determination for remaining in detection monitoring.

4.2.1.1 Alternative Source Demonstrations

No new ASDs were developed in 2024. ASDs have not been pursued for either newly verified or ongoing detection monitoring parameter verified SSIs at the Bottom Ash Landfill downgradient wells since the beginning of assessment monitoring in Q1 2021.

ASDs have not been pursued for either newly verified or ongoing detection monitoring parameter verified SSIs at the Bottom Ash Impoundment downgradient wells since initiating an assessment monitoring program for the Bottom Ash Impoundment in Q1 2024.

ASDs are not planned for the verified SSIs for chloride at background wells MW-6B and MW-7B, as the CCR units have been determined to not be the cause of the verified SSIs based on groundwater flow and direction. Per the Coal Combustion Groundwater Statistical Method Certification (GAUSA 2021), an ASD will only be completed for verified SSIs identified in downgradient wells.

4.2.2 Assessment Monitoring Program

Assessment monitoring was initiated for the Bottom Ash Landfill in Q1 2021 consistent with 40 CFR 257.95 and NDAC 33.1-20-08-06(5). Assessment monitoring samples have been collected at the background locations and the Bottom Ash Landfill downgradient wells since Q1 2021 to meet the assessment monitoring sampling frequency requirements detailed in 40 CFR 257.95(b) and (d) and NDAC 33.1-20-08-06(5)(b) and (d).

The Federal and State CCR rules require that concentration of assessment monitoring constituents detected in downgradient wells during assessment monitoring be statistically compared to site-specific GWPS. If an SSL above the GWPS is identified at one or more downgradient wells, both the Federal and State CCR rules require additional groundwater characterization and an Assessment of Corrective Measures, unless the SSL can be attributed to a source other than the CCR unit, an error in sampling, an error in statistical analysis, or natural variation in groundwater quality.

Based on the statistical methods selected for assessment monitoring and detailed in the current revision of the Coal Combustion Residuals Groundwater Statistical Method Certification (GAUSA 2021), an SSL was initially identified for arsenic at Bottom Ash Landfill monitoring well MW-103 following the Q4 2021 sampling. GRE pursued an ASD following identification of the SSL for arsenic at MW-103, which was included in the 2022 annual report (WSP 2023a). The ASD evaluation determined that insufficient evidence was available to make conclusive statements about an alternative source for arsenic at MW-103.

Assessment monitoring was initiated for the Bottom Ash Impoundment in Q1 2024 consistent with 40 CFR 257.95 and NDAC 33.1-20-08-06(5) following identification of detection monitoring SSIs at Bottom Ash Impoundment well MW-203 in 2023 (WSP 2024a). Assessment monitoring samples were collected from the Bottom Ash Impoundment downgradient wells throughout 2024 to meet the assessment monitoring sampling frequency requirements detailed in 40 CFR 257.95(b) and (d) and NDAC 33.1-20-08-06(5)(b) and (d).

4.3 Evaluation of Corrective Measures

Pursuant to 40 CFR 257.97 and NDAC 33.1-20-08-06(6), WSP, on behalf of GRE, is further evaluating the potential corrective measures identified in the ACM Report (GAUSA 2022), to identify a remedy or combination of remedies as soon as feasible. In 2024, significant progress was made on the evaluation of corrective measures in response to the SSL for arsenic downgradient of the Bottom Ash Landfill. This includes completion of monitored natural attenuation (MNA) evaluation, geochemical modeling, and progress evaluating geochemical injection.

Progress related to the selection and design of a remedy is reported semi-annually. Each of the prior reports is available via GRE's publicly accessible CCR website.

- The 2022 annual report (WSP 2023a) include progress between the completion of the ACM in November 2022 and January 2023.
- A semi-annual progress report was prepared for selecting and designing a remedy in 2023 (WSP 2023b), covering activities conducted between January 2023 and July 2023.

- The 2023 annual report (WSP 2024a) covered activities related to remedy selection conducted between August 2023 and January 2024.
- In 2024, a semi-annual progress report was completed covering the activities conducted between February 2024 and July 2024 (WSP 2024e).

As outlined in the following sections, a significant number of actions have occurred to reduce the potential source of the SSL, document the extent of the plume, and evaluate measures to reduce concentrations to below groundwater protection standards.

4.3.1 Assessment of Corrective Measures

Following identification of the SSL for arsenic at MW-103 and the inconclusive ASD evaluation, GRE initiated an assessment of corrective measures (ACM) for the Bottom Ash Landfill in June 2022 consistent with the requirements of 40 CFR 257.96 and NDAC 33.1-20-08-06(6). An extension, as detailed in 40 CFR 257.96(a) and NDAC 33.1-20-08-06(6)(a), was requested in September 2022 prior to completion of the ACM. The extension request was approved by the NDDEQ (NDDEQ 2022), and a copy of the extension approval was included in the 2022 annual report (WSP 2023a). The ACM was completed and submitted to the NDDEQ for approval on November 21, 2022. The ACM was included as an attachment in the 2022 annual report (WSP 2023a). The NDDEQ approved the ACM on February 21, 2023 (NDDEQ 2023).

The purpose of the ACM was to identify potential corrective measures to prevent further releases and to remediate any identified releases to groundwater at the Bottom Ash Landfill. In particular, the ACM evaluated source control corrective measures, and corrective measure alternatives for groundwater corrective action at the site given the specific site conditions and constituent(s) of concern.

4.3.1.1 Source Control Corrective Measures

The previously completed closure in place of the Bottom Ash Landfill and installation of the final cover system provides a source control measure that reduces the potential for migration of CCR constituents to groundwater. Prior to the initiation of assessment monitoring and the ACM, the Bottom Ash Landfill was closed with an engineered final cover placed over CCR left in place. Closure in place was completed in accordance with the closure plan (GAI 2019) and was documented in the Construction Quality Assurance (CQA) Report provided to the NDDEQ (GAUSA 2021). The cover system was designed to minimize infiltration and erosion and to meet or exceed the requirements of 40 CFR 257.102(d)(3) and NDAC 33.1-20-08-07(3)(d)(3). Due to the reduced infiltration through the final cover and the lack of contact between CCR and groundwater, the closure of the Bottom Ash Landfill is anticipated to perform well as a source control.

4.3.1.2 Groundwater Remediation Corrective Measures

In addition to the closure and final cover source control corrective measures, the following groundwater remediation corrective measures were identified in the ACM as potentially feasible for use at the Bottom Ash Landfill:

- Monitored Natural Attenuation (MNA) and Enhanced Monitored Natural Attenuation (Enhanced MNA)
- Hydraulic Containment (Groundwater Pump and Treat)
- Geochemical Approaches (In Situ Injection)
- Permeable Reactive Barriers

- Phytoremediation

As outlined below, certain options are no longer being evaluated for a number of reasons. At present, the following groundwater remediation corrective measures are still being evaluated for implementation at the Bottom Ash Landfill:

- MNA and Enhanced MNA)
- Geochemical Approaches (In Situ Injection)

MNA and Enhanced MNA using in situ injection are continuing to be evaluated based on the findings from the Tier I MNA report (WSP 2023c) and the Tier II and III MNA report (WSP 2024d). The findings from these efforts indicate that MNA is occurring and effective at the site, and preliminary findings that in situ injection may be able to enhance MNA and reduce the time to attain the GWPS.

The other options originally identified in the ACM report are not currently being evaluated for several reasons. Phytoremediation is not currently being evaluated as a corrective measure for the site due to the groundwater depth in the area of concern being deeper than can typically be affected by phytoremediation. Depending on plant type, many root systems for plants used in traditional phytoremediation approaches focus on the upper 1 to 2 feet from the ground surface (ITRC 2009), while groundwater downgradient of the Bottom Ash Landfill is approximately 20 feet below the ground surface.

Permeable reactive barriers are not currently being evaluated due to the depth between bedrock versus the uppermost encountered groundwater. Critically, for a permeable reactive barrier to be effective, the barrier should ideally “extend to and be keyed into a competent bedrock layer or aquitard” to prevent circumvention of groundwater around the installed barrier (ITRC 2011). Downgradient of the Bottom Ash Landfill, materials have been mixed through both natural deposition and alteration to the conditions through closure and removal of the industrial site, making identification of a continuous material suitable for keying a barrier difficult.

Hydraulic containment (groundwater pump and treat) is not currently being evaluated as a stand-alone remedy. Pump and treat extraction technologies tend to be more efficient for constituents that are not readily attenuated by mechanisms such as adsorption. Additional chemical testing, similar to that for in situ injection, is necessary to determine the extraction potential for arsenic with different treatment technologies and can be executed concurrently with testing for other alternatives.

If the currently pursued corrective measures prove not to be adequate, these or other potential corrective measures may be considered in the future.

4.3.2 Summary of Work Completed – August 2024 to January 2025

The following subsections summarize field activities, desktop analyses, and supplemental data collected between August 2024 and January 2025, following completion of the most recent semi-annual report (WSP 2024e). This work further delineates the nature and extent of the SSL and continues the evaluation of the potential groundwater remediation corrective measures presented in the ACM Report (GAUSA 2022) and subsequent reporting.

The collected data continue to be used to evaluate the feasibility, mechanisms, rates, and stability of identified potential corrective measure alternatives to address the SSL for arsenic in groundwater downgradient of the

Bottom Ash Landfill. Evaluations of the data as they relate to remedy selection alternatives are ongoing and will be presented in future report(s).

4.3.2.1 Groundwater Monitoring Activities

As discussed in Section 3.1, samples were collected for the assessment monitoring program from the Bottom Ash Landfill network wells during three monitoring events in 2024. Samples have also been collected and analyzed from additional wells installed for the nature and extent investigation during the three monitoring events in 2024.

4.3.2.2 Efforts to Address Well Turbidity and Plume Delineation

High turbidity in the nature and extent wells downgradient of the Bottom Ash Landfill have made plume delineation challenging. At Stanton Station, samples collected from MW-103 and most of the network wells have had low turbidity measurements over numerous sampling events. However, several of the newer nature and extent wells have either intermittently or continuously had high turbidity and correspondingly high total arsenic concentrations, as discussed in both the 2023 annual report (WSP 2024a) and the most recent semi-annual report (WSP 2024e).

The presence of excess turbidity suggests that measured metals concentrations may be an artifact of solids entering the water column as a consequence of the well construction and/or sampling activity rather than solely the dissolved and naturally suspended particles (i.e., the total groundwater as intended for the monitoring program).

Puls and Barcelona (1996) note that “[s]ampling-induced turbidity problems can often be mitigated using low-flow purging and sampling techniques.” Low-flow sampling techniques are intended to “not artificially bias naturally suspended particle concentrations,” as opposed to the introduction of artificially suspended particles like those introduced through purging under a high-speed or high-volume purging and sampling method (Puls and Barcelona 1996). Samples with high turbidity levels may include “otherwise immobile artifactual particles which produce an overestimation of certain analytes of interest,” such as the Appendix IV metals or hydrous iron, aluminum, and manganese oxides (i.e., the primary components of most soils). Where monitoring of total metals (i.e., both the dissolved and naturally suspended particles) is required, such as required under the CCR program, excess turbidity may result in samples that are not representative of site groundwater conditions.

As discussed in the most recent semi-annual report (WSP 2024e), a number of actions have been taken to address the sample turbidity issues and more accurately delineate the arsenic plume downgradient of the Bottom Ash Landfill. These actions include installing dedicated low-flow pumps in April 2024 at nature and extent wells, similar to those previously installed in the dedicated monitoring network, to minimize the potential for turbidity issues caused by the use of non-dedicated equipment.

To better delineate the plume downgradient of the Bottom Ash Landfill, while simultaneously addressing issues that may arise due to the presence of excess turbidity, both total and dissolved analysis was conducted for a subset of parameters during each of the 2024 sampling events. Total metals analysis is a combined measurement of the dissolved and particulate metal concentrations in a sample. Dissolved concentrations are determined by filtering samples prior to analysis to remove particulates greater than 0.45 microns in diameter. Throughout 2024, Appendix IV metals, and aluminum, iron, and manganese (primary components of most soils) were tested with both total and dissolved analysis.

Comparison of dissolved results to total results for aluminum, iron, and manganese, when made in the context of samples with high turbidity, can help to determine if the associated total results are representative of site groundwater, or the results indicate the presence of excessive artificially mobilized particles (i.e., site soil particles

that have entered the water column as a result of the sampling methods). Analysis of the 2024 aluminum, iron, and manganese data, in conjunction with the site turbidity measurements, suggests that the total results corresponding to high turbidity measurements reflect artificially suspended soil particles and are not representative samples of the groundwater, based on the reported concentrations and the magnitude of the difference between the total and dissolved concentrations of the soil parameters.

Total and dissolved arsenic concentrations were reviewed before and after installation of the dedicated low-flow pumps. Appendix D includes figures presenting the total arsenic concentrations measured during the Q1 2024 event (collected before low-flow pump installation), and Q2 2024 and Q4 2024 events (installed after low-flow pump installation), along with corresponding figures presenting the dissolved arsenic concentrations measured during the same events. In each of the figures, locations that are color-coded orange had concentrations that are greater than the GWPS (0.01 mg/L) but less than twice the GWPS (0.02 mg/L), while locations in red had concentrations that are more than twice the GWPS (0.02 mg/L). Color-coding of the figures has been used as part of the plume delineation effort to narrow in upon and bound the highest site concentrations.

As detailed in the semi-annual report for the Q1 2024 samples (WSP 2024e), locations with samples with low turbidity have continued to have total and dissolved arsenic concentrations that are similar in magnitude to one another during the subsequent Q2 2024 and Q4 2024 assessment monitoring events. Locations with low turbidity have included MW-103 as the well of interest, MW-9N and MW-102 as the other Bottom Ash Landfill dedicated downgradient network monitoring wells, and the background locations. While naturally suspended particles are likely present in the total analysis, the comparison of the total and dissolved concentrations suggest that the results of the total analysis are representative of the groundwater within each of these monitoring wells.

Following installation of the dedicated low-flow pumps, a few of the wells that previously reported sample results with significantly different total and dissolved arsenic concentrations have displayed a reduction in turbidity. This has led to total arsenic results collected in Q2 2024 and Q4 2024 that appear more representative of the groundwater at the corresponding wells, which include MW-215 and MW-300. Other wells, including MW-219 and MW-301 continue to have both high turbidity measurements and total arsenic concentrations that differ significantly from the corresponding dissolved arsenic concentrations. Based on the identified differences, at present, the extent of the delineated plume will continue to be reviewed in context of the comparison between the total and dissolved analysis until the turbidity issue is resolved.

Based on the results of the Q2 2024 and Q4 2024 sampling, collected following installation of the dedicated low-flow pumps, further action is likely needed to address the impacts of turbidity at a subset of the wells installed to define the nature and extent of the arsenic plume. In particular, information from wells MW-219, MW-301, and MW-PB1 will be reviewed to determine next steps. Possible actions include video survey of the installed wells to determine if there are defects in the well casings leading to the excessive turbidity measurements, abandonment or additional redevelopment of certain wells, or other alternatives.

4.3.2.3 Further Evaluation of Geochemical Injection Geochemical Modeling

Following completion of the Tier II and III MNA report (WSP 2024d), 1-dimensional geochemical transport modeling was conducted to determine the potential effectiveness of various in-situ injection remedial actions. The modeling evaluated the impact of increasing the amount of sorption sites through the injection of iron particles and/or air sparging on the modeled concentrations of arsenic around MW-103. The model also evaluated the time

required for the changes to result in arsenic reductions below the GWPS. The results of this modeling effort are included as Appendix E of this report (WSP 2024f).

In the three modeled scenarios, the simulated injection of iron(III) oxide, oxygen gas, and both iron(III) oxide and oxygen gas were each able to decrease arsenic concentrations to below the GWPS along the modeled transect. The times to meet the GWPS varied but were estimated to be faster than MNA alone. The modeling indicated that while this approach could be effective, bench scale laboratory testing using site-specific groundwater and aquifer solids materials are necessary to confirm the effectiveness and determine the volumes of injectate needed for treatment.

Bench Scale Testing of Potential Admixtures on Site Groundwater

Bench scale testing was conducted to evaluate the effectiveness of injecting oxygen, ferrous iron material and a ferric iron material on reducing arsenic in samples of groundwater collected from well MW-103. The testing found that both ferrous and ferric iron have potential to be effective at reducing arsenic below groundwater protection standards (Appendix G).

Following completion of the modeling, a sampling plan was prepared to outline the methods for collecting samples for a bench-scale treatability study (WSP 2024g; Appendix F). To simulate the in-situ redox conditions of the site groundwater during the bench scale testing, the sampling methods include steps to minimize interaction of groundwater with the surface atmosphere. WSP coordinated with MVTL to collect samples for the treatability study on November 18, 2024. Groundwater was collected from MW-103, as the original location of interest downgradient of the Bottom Ash Landfill, and MW-211, representing an additional downgradient location with arsenic concentrations greater than the site GWPS and sent to Terra Systems, Inc.

For the initial phase of the treatability study, two potential admixtures were chosen for testing with the groundwaters from MW-103 and MW-211 for the potential to reduce groundwater concentrations of total arsenic below the site GWPS along with dissolved oxygen. The two potential admixtures consist of a ferrous iron material and a ferric iron material. The two iron admixtures and dissolved oxygen were chosen for the initial round of bench-scale testing based on the results of the 1-dimensional geochemical transport modeling (WSP 2024f) and discussion with the analytical laboratory.

Results and analysis of the initial phase of the bench-scale chemical injection testing are included as Appendix G. Results of the bench-scale testing using the collected groundwaters found the injection of dissolved oxygen did not reduce arsenic concentrations below the GWPS. The ferrous iron material reduced arsenic concentrations in the groundwaters at both MW-103 and MW-211. The ferric iron material also reduced arsenic concentrations in the groundwaters at both MW-103 and MW-211, but to a lesser extent than with the ferrous iron material. Additional testing is necessary to further compare the potential for the ferric and ferrous iron material to facilitate arsenic reduction in the presence of site aquifer solids.

4.3.3 Summary of Remedy Selection Process Activities

4.3.3.1 Work Completed to Date

The following steps have been taken to delineate the plume and progress towards final remedy selection since the identification of an SSL for arsenic at MW-103:

- Completion of the Assessment of Corrective Measures report in 2022.

- Installation, development, and sampling of 15 nature and extent wells and 2 property boundary wells in 2022 and 2023.
- Geochemical and geotechnical testing of aquifer solids collected during drilling in 2022 and 2023.
- In situ hydraulic conductivity testing and analysis in 2023 and 2024.
- Installation of dedicated low-flow pumps in the new wells in 2024.
- Geochemical modeling and evaluation of MNA per the EPA's guidance including Tiers I, II, and III in 2023 and 2024.
- Additional geochemical modeling to supplement chemical injection testing based on site hydrogeological conditions.
- Groundwater sampling and analysis for bench-scale chemical injection testing.
- Initial characterization and bench-scale testing for comparing possible chemical injection additives to site groundwaters.
- Groundwater sampling and analysis from the Bottom Ash Landfill network wells and nature and extent wells to further understand the extent and magnitude of arsenic above the GWPS downgradient of the Bottom Ash Landfill.

Figure 4 presents a simplified Gantt chart of the work conducted to date and planned activities over the next 6 months (until the next semi-annual report), with the intent of holding the public meeting and selecting a remedy as soon as feasible.

4.3.3.2 Remedy Selection

At present, selection of a final remedy is expected to be based on the following information:

- Plume Delineation
  - The arsenic plume downgradient of the Bottom Ash Landfill appears to be small (based on dissolved arsenic the plume is less than 400 feet wide and not extending downgradient beyond the CCR unit boundary by more than 50 to 100 feet).
  - However, with the ongoing identified issues with turbidity at certain nature and extent wells, final delineation of the plume has not been finalized.
- GWPS Attainment
  - Downgradient of the Bottom Ash Landfill, MNA is expected to reduce arsenic sufficiently to attain the GWPS. Expansion of the plume and re-mobilization of arsenic are not expected based on modeling, aquifer solids testing, and monitoring data collected to date. This is supported by the conclusions of the MNA Tier I, II, and III reports developed in alignment with the USEPA guidance.
  - The modeled amount of time needed to attain the GWPS at MW-103 at the unit boundary of the Bottom Ash Landfill is significant. Various conditions not reflected in the modeling may decrease the time to attain the GWPS. Enhanced MNA utilizing geochemical injection will likely reduce this time frame even further.

- Initial modeling and initial bench-scale testing suggests chemical injection with iron will speed up attainment of the GWPS at MW-103. Further evaluation is needed to determine the viability and suitability of chemical injection. This will include additional bench scale testing of groundwater and aquifer soils, and injection modeling.

4.3.4 Planned Activities

On behalf of GRE, WSP is implementing activities to support the corrective action remedy selection process. In particular, an evaluation of geochemical injection is being completed to ensure that a chosen injectate doesn't mobilize other parameters, resulting in additional issues downgradient of the Bottom Ash Landfill. Selection and implementation of corrective measures can be iterative, and GRE and WSP will continue data collection efforts, as necessary, to further refine the site conceptual model and evaluate the feasibility of remedies identified in the ACM Report (GAUSA 2022) in order to select a final remedy.

Supplementary data collection and evaluation activities proposed to be completed in the next 6 months include:

- Arsenic Delineation
  - Continue to evaluate wells with high turbidity and significant differences between total and dissolved arsenic concentrations after previous development and the installation of low flow pumps (MW-219, MW-301, and MW-PB1)). Investigate if well re-development can be used to improve sample quality or if these wells should be abandoned and replaced with new wells.
- Further Evaluation of Geochemical Injection
  - Develop and execute a work plan for drilling the area downgradient of the Bottom Ash Landfill to collect site groundwater and aquifer solids for jar testing.
  - Perform jar testing of the site groundwater and aquifer solids with the addition of reactant to evaluate reaction time and response to different dosage rates. This will provide confirmation of geochemical modeling that concentrations can be lowered with the addition of reactant.
  - Begin development of a transport model in support of injection well design.
- Groundwater Monitoring
  - Collect Q1 2025 annual assessment monitoring samples and Q2 2025 semi-annual detection monitoring and assessment monitoring samples.

On behalf of GRE, WSP will continue to prepare semi-annual progress reports to document the progress in selecting and designing a groundwater remedy in accordance with 40 CFR 257.97 and -98 and NDAC 33.1-20-08-06(6) and (7) until a final remedy is selected. Prior to the final selection of a corrective measure, a public meeting will be scheduled a minimum of 30 days before the selection of the remedy to present the results of the corrective measures assessment, including additional information still to be gathered. The next semi-annual report will be submitted July 31, 2025. On behalf of GRE, WSP will continue to include future semi-annual progress reports with the routine groundwater monitoring and corrective action reports to meet the requirements of 40 CFR 257.105(h)(12), 40 CFR 257.106(h)(9), and 40 CFR 257.107(h)(9) and NDAC 33.1-20-08-08(1)(h)(12), 33.1-20-08-08(2), and 33.1-20-08-08(3).

Upon selection of a remedy, a final report will be prepared describing the selected remedy and how the remedy meets the standards in 40 CFR 257.97 and -98 and NDAC 33.1-208-08-06(6) and (7). The final remedy selection report must be certified by a qualified professional engineer licensed in the state of North Dakota per 40 CFR 257.97(a) and approved by the NDDEQ per NDAC 331.20-08-06(7)(a). Once the remedy has been selected and approved by the NDDEQ, the implementation of the remedy will be initiated in accordance with 40 CFR 257.98 and NDAC 33.1-20-08-06(8).

5.0 CLOSING

This report presents the analytical results for the 2024 monitoring events for the CCR groundwater monitoring programs at Great River Energy's Stanton Station and progress on the evaluation of corrective measures to address the arsenic SSL at MW-103 downgradient of the Bottom Ash Landfill. Comparative statistics for samples collected between Q4 2023 and Q2 2024 at both the Bottom Ash Impoundment and Bottom Ash Landfill are included in the report. Comparative statistics for the Q4 2024 monitoring events conducted in November 2024 will occur within 90 days of final receipt of the data, in Q1 2024.

At the close of 2024, the Bottom Ash Impoundment remains in assessment monitoring.

The Bottom Ash Landfill remains in assessment monitoring under a corrective measures program at the close of 2024. Significant progress on the evaluation of corrective measures was made in 2024. This includes the completion of the evaluation of MNA, improved delineation of the plume, and bench testing of the effectiveness of geochemical injection. Remedy selection for the chosen corrective measures is ongoing.

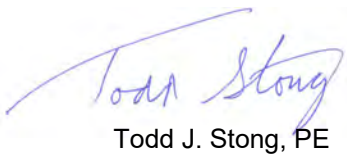
The next semi-annual report detailing the remedy selection process will be completed by July 31, 2025.

Signature Page

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ELH/TJS/

https://wsponlinenam.sharepoint.com/sites/gld-170737/project files/5 technical work/2024- stanton gw/2024 ccr gw report/gl21509219.000_fnl rpt_stanton2024gw_jan2025.docx

6.0 REFERENCES

Duffield, G.M. 2007. AQTESOLV for Windows Version 4.5 User's Guide.

EPRI (Electric Power Research Institute). 2015. Groundwater Monitoring Guidance for the Coal Combustion Residuals Rule – 2015 Technical Report. November.

GAI (Golder Associates Inc.). 2019a. Groundwater Monitoring Plan, Great River Energy – Stanton Station, Permit Number SP-043. February 20, 2019.

GAI. 2019b. Closure and Post-Closure Plan, Revision 1, Bottom Ash CCR Surface Impoundment – Stanton Station. September 2019.

GAI. 2019c. Closure and Post-Closure Plan, Revision 1, Bottom Ash CCR Landfill – Stanton Station. September 2019.

GAI. 2020. Coal Combustion Residuals Groundwater Monitoring System Certification, Revision 1, Great River Energy – Stanton Station. January 29, 2020.

GAI. 2021. Annual Groundwater Report – 2020, Great River Energy – Stanton Station. January 2021.

GAUSA (Golder Associates USA Inc.). 2021. Coal Combustion Residuals Groundwater Statistical Method Certification, Revision 2, Great River Energy – Stanton Station. November 18, 2021.

GAUSA. 2022. Annual Groundwater Report – 2021, Great River Energy – Stanton Station. January 2022.

NDDEQ (North Dakota Department of Environmental Quality). 2020. North Dakota Administrative Code Chapter 33.1-20-08, Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments. Effective July 1, 2020.

NDDEQ. 2022. Letter from Diana A. Trussell to Cassie Johnston RE: ACM Extension Request. Sent via e-mail. September 16, 2022.

NDDEQ. 2023. Letter from Diana A. Trussell to Cassie Johnston RE: Assessment of Corrective Measures, Bottom Ash Landfill at GRE – Stanton Station. Sent via e-mail. February 21, 2023.

NDDEQ. 2023. Letter from Diana A. Trussell to Cassie Johnston RE: Alternative Source Demonstration for Total Dissolved Solids at Monitoring Well MW-104. Sent via e-mail. June 5, 2023.

USEPA (United States Environmental Protection Agency). 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance. EPA 530/R-09-007. March 2009.

USEPA. 2015. Code of Federal Regulations Title 40 Part 257: Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities. April 17, 2015.

WSP (WSP USA Inc.). 2023a. Annual Groundwater Report – 2022, Great River Energy, Stanton Station. January 31, 2023.

WSP. 2023b. Assessment of Corrective Measures – Semi-Annual Report, Great River Energy, Stanton Station, Closed Bottom Ash Landfill. July 31, 2023.

WSP. 2023c. Tier I MNA Evaluation for Arsenic – Bottom Ash Landfill – Stanton Station. April 13, 2023.

WSP. 2024a. Annual Coal Combustion Residuals Groundwater Monitoring and Corrective Action Report – 2023, Great River Energy, Stanton Station. January 31, 2024.

WSP. 2024b. Alternative Source Demonstration Evaluation for Bottom Ash Impoundment Well MW-203, Great River Energy, Stanton Station. January 8, 2024.

WSP. 2024c. Site Hydraulic Conductivity – Stanton Station Bottom Ash Landfill. July 26, 2024.

WSP. 2024d. Tier II and III MNA Evaluation for Arsenic, Bottom Ash Landfill – Stanton Station. July 31, 2024.

WSP. 2024e. Assessment of Corrective Measures – Semi-Annual Report, Great River Energy, Stanton Station, Closed Bottom Ash Landfill. July 31, 2024.

WSP. 2024f. One-Dimensional Geochemical Modeling, Great River Energy, Stanton Station Bottom Ash Landfill. October 28, 2024.

WSP. 2024g. Sampling and Analysis Plan – Initial Phase, Bench-Scale Treatability Testing. November 8, 2024.

Tables

Table 1: Stanton Station Monitoring Well Summary

Location	Well ID	Date Constructed	TOC Elevation[(a)] ft AMSL	Ground Surface Elevation[(a)] ft AMSL	Screen Interval ft bgs	Top of Screen Elevation ft AMSL	Bottom of Screen Elevation ft AMSL	Sand Pack Interval ft bgs	Geologic Unit(s) Completed In
Upgradient/Side-gradient	MW-6B	9/8/1992	1,711.5	1,709.4	28.4-38.4	1,681.3	1,671.3	19.0-38.5	Outwash
	MW-7A	8/27/1992	1,713.7	1,711.3	7.0-17.0	1,704.1	1,694.1	5.0-18.0	Silty sand/clay
	MW-7B	9/9/1992	1,712.9	1,711.2	28.1-38.1	1,682.7	1,672.7	23.0-38.5	Silty sand/outwash
	MW-8B	9/3/1992	1,749.8	1,747.6	54.0-64.0	1,694.4	1,684.4	49.0-64.5	Outwash
	MW-105	11/18/2015	1,717.0	1,714.0	9.0-19.0	1,705.0	1,695.0	7.0-19.0	Clay/outwash
Bottom Ash Landfill Downgradient	MW-9N	7/19/2010	*1,703.5*	*1,701.0*	*11.5-21.5*	1,689.5	1,679.5	*9.5-21.5*	Sand, clayey sand, gravel
	MW-102	11/17/2015	1,712.1	1,708.8	14.0-24.0	1,694.8	1,684.8	12.0-24.0	Silty sand/clay
	MW-103	11/17/2015	1,709.5	1,706.2	14.0-24.0	1,692.2	1,682.2	12.0-24.0	Outwash
Bottom Ash Impoundment Downgradient	MW-201	8/10/2020	1,704.9	1,701.9	9.5-19.5	1,692.4	1,682.4	7.0-19.5	Fat clay, sand w/silt
	MW-202	8/10/2020	1,703.7	1,701.6	8.0 - 18.0	1,693.6	1,683.6	6.0-18.0	Fat clay, lean clay w/sand
	MW-203	8/10/2020	1,705.8	1,702.7	6.0 -16.0	1,696.7	1,686.7	5.0-16.0	Sand w/silt, fat clay
Bottom Ash Landfill Nature and Extent Delineation Wells	MW-1R	11/8/1995	*1,706.7*	*1,703.5*	*23.7-32.7*	1,679.8	1,670.8	*21.7-34.7*	Gravel, fat clay
	MW-104	11/17/2015	1,712.0	1,709.0	14.0-24.0	1,695.0	1,685.0	12.0-24.0	Outwash
	MW-210	5/9/2022	1,703.1	1,699.9	12.0 - 22.0	1,687.9	1,677.9	12.0 - 22.0	Sand w/silt
	MW-211	5/10/2022	1,708.7	1,705.4	12.0 - 22.0	1,693.4	1,683.4	10.0 - 22.0	Lean clay, sand w/silt
	MW-212	5/10/2022	1,709.6	1,706.4	13.5 - 23.5	1,692.9	1,682.9	10.0 - 23.5	Fat clay, lean clay silty sand
	MW-213	5/12/2022	1,706.0	1,702.7	19.5 - 29.5	1,683.2	1,673.2	19.5 - 29.5	Fat clay, lean clay silty sand
	MW-214	5/12/2022	1,709.2	1,705.8	5.0 - 15.0	1,700.8	1,690.8	4.0 - 15.0	Fat clay, silty sand
	MW-215	2/7/2023	1,702.0	1,699.0	9.0 - 19.0	1,690.0	1,680.0	6.0 - 19.0	Silty sand with gravel, poorly graded sand with gravel
	MW-216	2/8/2023	1,702.9	1,699.7	10.0 - 20.0	1,689.7	1,679.7	7.0 - 20.0	Silty sand, poorly graded sand with gravel
	MW-217	2/9/2023	1,700.0	1,697.0	9.5 - 19.5	1,687.5	1,677.5	7.0-19.5	Poorly graded sand with silt and gravel
	MW-218	2/9/2023	1,701.1	1,698.1	9.5 - 19.5	1,688.6	1,678.6	7.0 - 19.5	Silty sand, poorly graded gravel with sand
	MW-219	2/6/2023	1,705.1	1,702.2	10.0 - 20.0	1,692.2	1,682.2	8.0 - 20.0	Silty sand, clayey sand
	MW-220	2/8/2023	1,702.4	1,699.7	25.0 - 35.0	1,674.7	1,664.7	22.0 - 35.0	Poorly graded sand, clayey sand
	MW-221	2/10/2023	1,705.0	1,701.8	22.0 - 32.0	1,679.8	1,669.8	18.0 - 32.0	Poorly graded sand with silt and gravel
	MW-222	2/6/2023	1,721.9	1,719.0	26.0 - 36.0	1,693.0	1,683.0	23.0 - 36.0	Lean clay with sand, poorly graded sand with silt and gravel
	MW-300	2/9/2023	1,700.1	1,696.9	9.0 - 19.0	1,687.9	1,677.9	7.0 - 19.0	Silty sand, poorly graded sand with silt and gravel
	MW-301	2/10/2023	1,698.6	1,695.5	20.0 - 35.0	1,675.5	1,660.5	18.0 - 35.0	Lean clay, lean clay with sand, clayey sand
Property Boundary	MW-PB1	8/11/2020	1,698.8	1,695.9	15.0 - 25.0	1,680.9	1,670.9	13.0 - 25.0	Silt w/sand, silty sand
	MW-PB3	2/9/2023	1,701.6	1,698.5	24.0 - 39.0	1,674.5	1,659.5	18.0 - 39.0	Sandy lean clay

a. TOC (top of casing) and ground surface elevations surveyed by Interstate Engineering, Inc. in September 2020, October 2022, and April 2023.

Notes:

Well construction measurements are from the original bore log, well data sheet, or well construction form.

Well construction information for MW-9N and MW-1R shown in italics are estimates based on the original well logs, accounting for the casing reductions completed in June 2020.

ft AMSL: feet above mean sea level; ft bgs = feet below ground surface; GW = groundwater

Figures



LEGEND - Q1 2024 GROUNDWATER CONTOURS

- UPGRADIENT OR SIDEGRADIENT MONITORING WELL
- LANDFILL DOWNGRADIENT MONITORING WELL
- IMPOUNDMENT DOWNGRADIENT MONITORING WELL
- NATURE AND EXTENT WELLS
- CLOSED BOTTOM ASH LANDFILL/IMPOUNDMENT FOOTPRINT
- GENERAL DIRECTION OF GROUNDWATER FLOW
- GROUNDWATER CONTOURS AND ELEVATIONS

NOTE(S)

1. AERIAL IMAGERY OBTAINED FROM UNITED STATES DEPARTMENT OF AGRICULTURE, NATIONAL AGRICULTURE IMAGERY PROGRAM, 2023.
2. GROUNDWATER CONTOURS ARE BASED ON MARCH 2024 ELEVATION INFORMATION FROM THE SHOWN MONITORING WELLS, AS WELL AS MONITORING WELLS AND PIEZOMETERS NOT SHOWN.
3. THE NORTH AND CENTER CELLS OF THE BOTTOM ASH IMPOUNDMENT WERE CLOSED BY REMOVAL OF WASTE AND LINER.
4. THE SOUTH CELL OF THE BOTTOM ASH IMPOUNDMENT WAS CLOSED WITH A FINAL COVER OVER PLACED WASTE.
5. THE BOTTOM ASH LANDFILL WAS CLOSED BY CONSOLIDATION OF PLACED WASTE INTO A SMALLER FOOTPRINT AND CONSTRUCTION OF A FINAL COVER.



0 200 400
1" = 200' FEET

wsp

MONITORING WELL LOCATIONS AND Q1 2024 GROUNDWATER ELEVATIONS AND CONTOURS GREAT RIVER ENERGY - STANTON STATION

FIGURE 1

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LEGEND - Q2 2024 GROUNDWATER CONTOURS

- UPGRADIENT OR SIDEGRADIENT MONITORING WELL
- LANDFILL DOWNGRADIENT MONITORING WELL
- IMPOUNDMENT DOWNGRADIENT MONITORING WELL
- NATURE AND EXTENT WELLS
- CLOSED BOTTOM ASH LANDFILL/IMPOUNDMENT FOOTPRINT
- GENERAL DIRECTION OF GROUNDWATER FLOW
- GROUNDWATER CONTOURS AND ELEVATIONS

NOTE(S)

1. AERIAL IMAGERY OBTAINED FROM UNITED STATES DEPARTMENT OF AGRICULTURE, NATIONAL AGRICULTURE IMAGERY PROGRAM, 2023.
2. GROUNDWATER CONTOURS ARE BASED ON JUNE 2024 ELEVATION INFORMATION FROM THE SHOWN MONITORING WELLS, AS WELL AS MONITORING WELLS AND PIEZOMETERS NOT SHOWN.
3. THE NORTH AND CENTER CELLS OF THE BOTTOM ASH IMPOUNDMENT WERE CLOSED BY REMOVAL OF WASTE AND LINER.
4. THE SOUTH CELL OF THE BOTTOM ASH IMPOUNDMENT WAS CLOSED WITH A FINAL COVER OVER PLACED WASTE.
5. THE BOTTOM ASH LANDFILL WAS CLOSED BY CONSOLIDATION OF PLACED WASTE INTO A SMALLER FOOTPRINT AND CONSTRUCTION OF A FINAL COVER.

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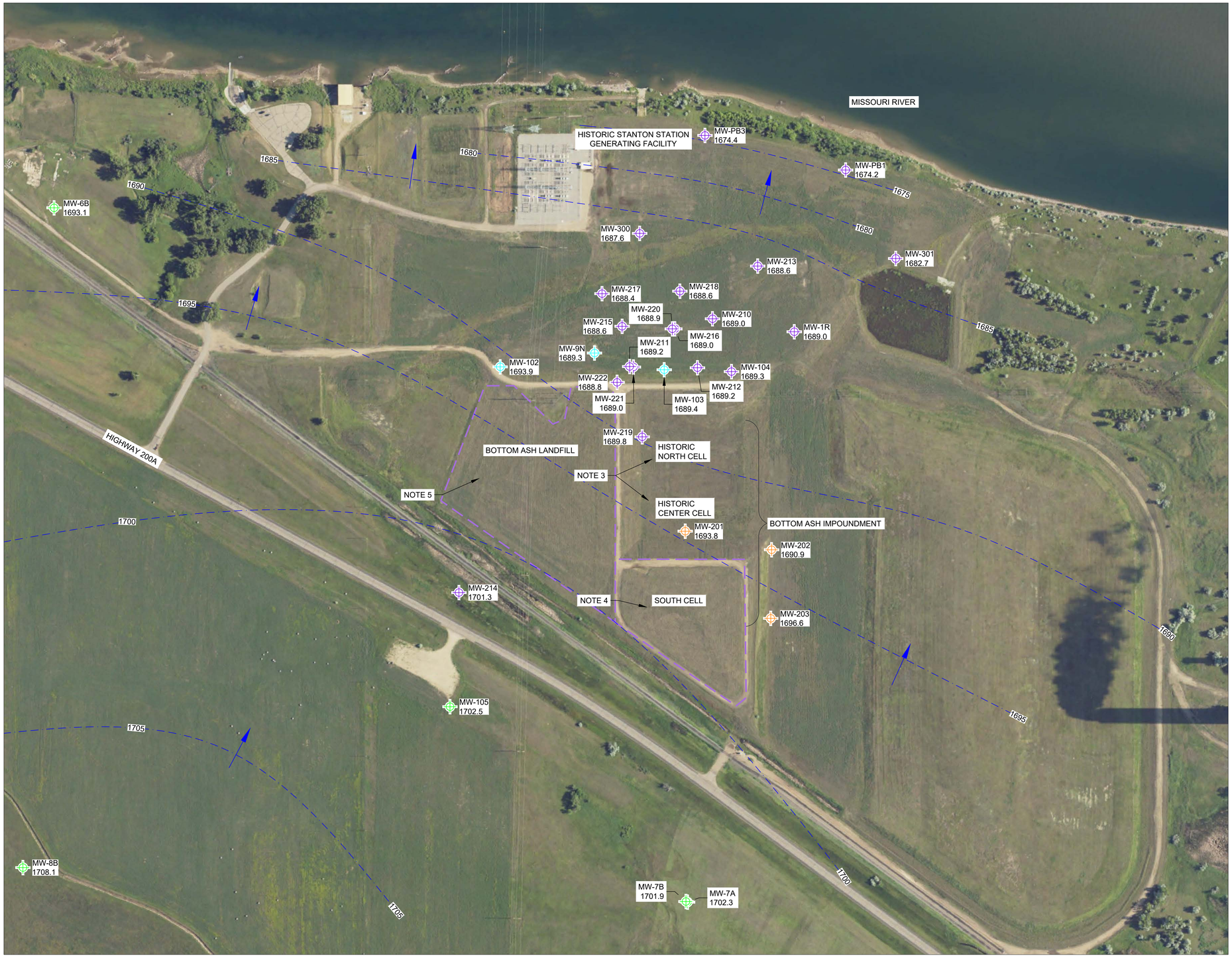
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MONITORING WELL LOCATIONS AND Q2 2024 GROUNDWATER ELEVATIONS AND CONTOURS GREAT RIVER ENERGY - STANTON STATION

FIGURE 2

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LEGEND - Q4 2024 GROUNDWATER CONTOURS

- UPGRADIENT OR SIDEGRADIENT MONITORING WELL
- LANDFILL DOWNGRADIENT MONITORING WELL
- IMPOUNDMENT DOWNGRADIENT MONITORING WELL
- NATURE AND EXTENT WELLS
- CLOSED BOTTOM ASH LANDFILL/IMPOUNDMENT FOOTPRINT
- GENERAL DIRECTION OF GROUNDWATER FLOW
- GROUNDWATER CONTOURS AND ELEVATIONS

NOTE(S)

1. AERIAL IMAGERY OBTAINED FROM UNITED STATES DEPARTMENT OF AGRICULTURE, NATIONAL AGRICULTURE IMAGERY PROGRAM, 2023.
2. GROUNDWATER CONTOURS ARE BASED ON NOVEMBER 2024 ELEVATION INFORMATION FROM THE SHOWN MONITORING WELLS, AS WELL AS MONITORING WELLS AND PIEZOMETERS NOT SHOWN.
3. THE NORTH AND CENTER CELLS OF THE BOTTOM ASH IMPOUNDMENT WERE CLOSED BY REMOVAL OF WASTE AND LINER.
4. THE SOUTH CELL OF THE BOTTOM ASH IMPOUNDMENT WAS CLOSED WITH A FINAL COVER OVER PLACED WASTE.
5. THE BOTTOM ASH LANDFILL WAS CLOSED BY CONSOLIDATION OF PLACED WASTE INTO A SMALLER FOOTPRINT AND CONSTRUCTION OF A FINAL COVER.

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0 200 400
1" = 200' FEET

wsp

MONITORING WELL LOCATIONS AND Q4 2024 GROUNDWATER ELEVATIONS AND CONTOURS GREAT RIVER ENERGY - STANTON STATION

FIGURE 3

Path: \\corp.pbwan.net\US\Central\Data\US_JK100\acad\GREAT RIVER ENERGY\STANTON\99_PROJECTS\215092\19\Annual Monitoring Reports\ | File Name: 215092\19_2024_WQ-StantonNDEQ_Q4_GWSURF.dwg

Figure 4 - Great River Energy - Stanton Station - Bottom Ash Landfill - Assessment of Corrective Measures and Remedy Selection Timeline

Q1 2022	Q2 2022	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	Q2 2024	Q3 2024	Q4 2024	Q1 2025	Q2 2025
Well Sampling and Analysis												Well Sampling & Analysis	
SSL													
	ASD												
		ACM											
Drilling, Well Installation, Well Development - Initial Nature and Extent Wells			Drilling, Well Installation, Well Development - Additional Nature and Extent Wells					Dedicated Low-Flow Pumps for Nature and Extent Wells				Redevelop/Replace Nature & Extent Wells with Turbidity Issues	
	Geochemical and Geotechnical Lab Testing of Soil Samples			Geochemical and Geotechnical Lab Testing of Soil Samples									
								Measure Total and Dissolved Metals in Groundwater Samples				Measure Total and Dissolved Metals in Groundwater Samples	
								Evaluate Well Turbidity, Total vs. Dissolved Metals, and Plume Delineation				Evaluate Well Turbidity, Total vs. Dissolved Metals, and Plume Delineation	
					Slug Testing			Slug Testing Analysis					
			MNA Tier I										
						MNA Tier II/III and Modeling of Geochemical Processes							
										Modeling of Geochemical Injection			
										Collection of Groundwater (liquid) for Testing			
											Geochemical Injection Lab Testing - Liquids		
												Drilling and Collection of Samples for Testing - Liquids & Soil	
												Geochemical Injection Lab Testing - Liquids & Soil	
												Injection Modeling (flow and geochemical)	

APPENDIX A

Monitoring Data

Table 1: Sample Results Summary Table - MW-6B (Sidegradient)

		MW-6B			
		Detection Monitoring / Assessment Monitoring			
	Units	26-Mar-24	17-Jun-24	22-Oct-24	18-Nov-24
				Q2 2024 Resample	
Water Elevation	**ft AMSL**	**1693.5**	**1693.4**	**1692.9**	**1693.1**
Field Parameters					
Temperature, Field	deg C	7.13	11.33	9.18	11.17
Turbidity, Field	ntu	< 0.1	1.59	0.47	< 0.1
Specific Conductance, Field	µmhos/cm	1625.4	1575	1587	1646
Detection Monitoring Parameters					
Boron	mg/L	---	0.31	---	0.3
Calcium	mg/L	---	29.1	---	26.4
Chloride	mg/L	---	16.2	---	15.9
Fluoride	mg/L	0.51	0.55	---	0.57
pH, Field	s.u.	8.77	7.95	7.69	7.62
pH, Lab	s.u.	7.9	8.0	---	7.9
Sulfate	mg/L	---	386	---	430
Total Dissolved Solids	mg/L	---	1070	---	1070
Assessment Monitoring Parameters					
Antimony	mg/L	< 0.001	< 0.001	---	< 0.001
Arsenic	mg/L	0.0033	0.0034	---	0.0035
Barium	mg/L	0.0248	0.0250	---	0.0267
Beryllium	mg/L	< 0.0005	< 0.0005	---	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	---	< 0.0005
Chromium	mg/L	< 0.002	< 0.002	---	< 0.002
Cobalt	mg/L	< 0.002	< 0.002	---	< 0.002
Fluoride	mg/L	0.51	0.55	---	0.57
Lead	mg/L	< 0.0005	< 0.0005	---	0.0012
Lithium	mg/L	0.0445	0.0453	---	0.0461
Mercury	mg/L	< 0.0002	< 0.0002	---	< 0.0002
Molybdenum	mg/L	0.0126	0.0125	---	0.0132
Radium 226	pCi/L	0.1 U ± 0.1	0.3 ± 0.2	---	0.1 ± 0.09
Radium 228	pCi/L	-0.1 U ± 0.6	0.5 U ± 0.7	---	0.1 U ± 0.6
Radium 226 and 228 combined	pCi/L	0.6 U ± 0.6	0.9 U ± 0.7	---	0.7 U ± 0.6
Selenium	mg/L	< 0.005	< 0.005	---	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	---	0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
s.u.: standard units for pH
pCi/L: picocuries per liter
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem): Not detected above the minimum detectable concentration (varies by sample).

Table 2: Sample Results Summary Table - MW-7A (Upgradient)

		MW-7A				
		Detection Monitoring / Assessment Monitoring				
	Units	29-Feb-24	26-Mar-24	17-Jun-24	22-Oct-24	18-Nov-24
		Q4 2023 Resample			Q2 2024 Resample	
Water Elevation	**ft AMSL**	**1702.7**	**1702.7**	**1703.5**	**1702.2**	**1702.3**
Field Parameters						
Temperature, Field	deg C	7.59	3.36	8.96	9.92	8.14
Turbidity, Field	ntu	< 0.1	< 0.1	33.68	0.25	0.09
Specific Conductance, Field	µmhos/cm	16783	17401	16614	16338	17160
Detection Monitoring Parameters						
Boron	mg/L	---	---	0.56	---	0.66
Calcium	mg/L	---	---	457	---	429
Chloride	mg/L	---	---	39.1	---	39.7
Fluoride	mg/L	---	0.47	0.55	---	0.57
pH, Field	s.u.	7.35	7.52	7.39	7.31	7.26
pH, Lab	s.u.	---	---	7.7	---	7.5
Sulfate	mg/L	---	---	11100	---	10800
Total Dissolved Solids	mg/L	---	---	17000	---	17100
Assessment Monitoring Parameters						
Antimony	mg/L	---	< 0.001	< 0.001	---	< 0.002*
Arsenic	mg/L	---	< 0.004	< 0.008 *	---	< 0.004*
Barium	mg/L	---	0.0073	0.0069	---	0.0092
Beryllium	mg/L	---	< 0.001	< 0.002 *	---	<0.001*
Cadmium	mg/L	---	< 0.0005	< 0.0005	---	<0.001*
Chromium	mg/L	---	< 0.004	< 0.008 *	---	< 0.004*
Cobalt	mg/L	---	< 0.004	< 0.008 *	---	< 0.004*
Fluoride	mg/L	---	0.47	0.55	---	0.57
Lead	mg/L	---	< 0.0005	< 0.0005	---	< 0.0005
Lithium	mg/L	---	0.259	0.252	---	0.268
Mercury	mg/L	---	< 0.0002	< 0.0002	---	< 0.0002
Molybdenum	mg/L	---	0.0123	0.0098	---	0.0128*
Radium 226	pCi/L	---	0.1 U ± 0.1	0.2 U ± 0.1	---	0.09 U ± 0.1
Radium 228	pCi/L	---	-0.4 U ± 0.6	0.5 U ± 0.6	---	0.6 U ± 0.6
Radium 226 and 228 combined	pCi/L	---	0.6 U ± 0.6	0.6 U ± 0.6	---	0.6 U ± 0.6
Selenium	mg/L	---	< 0.01	< 0.02 *	---	< 0.01*
Thallium	mg/L	---	< 0.0005	< 0.0005	---	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea leve
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per lite
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit
Metal concentrations represent the total fraction (i.e. samples have not been filtered

Laboratory Provided Qualifiers
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample)
* = Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution

Table 3: Sample Results Summary Table - MW-7B (Upgradient)

		MW-7B		
		Detection Monitoring / Assessment Monitoring		
	Units	26-Mar-24	17-Jun-24	18-Nov-24
Water Elevation	**ft AMSL**	**1701.6**	**1701.5**	**1701.9**
Field Parameters				
Temperature, Field	deg C	4.31	8.67	8.11
Turbidity, Field	ntu	< 0.1	< 0.1	< 0.1
Specific Conductance, Field	µmhos/cm	1629	1568	1663
Detection Monitoring Parameters				
Boron	mg/L	---	0.44	0.43
Calcium	mg/L	---	16.7	16.6
Chloride	mg/L	---	11.5	11.3
Fluoride	mg/L	0.62	0.63	0.62
pH, Field	s.u.	7.93	7.81	7.68
pH, Lab	s.u.	7.9	8.0	7.9
Sulfate	mg/L	---	299	276
Total Dissolved Solids	mg/L	---	1050	1020
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	< 0.002	< 0.002	< 0.002
Barium	mg/L	0.0178	0.0145	0.0163
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.005
Chromium	mg/L	< 0.002	< 0.002	< 0.002
Cobalt	mg/L	< 0.002	< 0.002	< 0.002
Fluoride	mg/L	0.62	0.63	0.62
Lead	mg/L	< 0.0005	< 0.0005	< 0.0005
Lithium	mg/L	0.0492	0.0515	0.0511
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0046	0.0042	0.0043
Radium 226	pCi/L	0.2 ± 0.1	0.2 U ± 0.2	0.1 ± 0.1
Radium 228	pCi/L	0.1 U ± 0.6	0.8 U ± 0.7	0.7 U ± 0.6
Radium 226 and 228 combined	pCi/L	0.8 U ± 0.7	0.7 U ± 0.7	0.6 U ± 0.6
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 4: Sample Results Summary Table - MW-8B (Upgradient)

		MW-8B		
		Detection Monitoring / Assessment Monitoring		
	Units	26-Mar-24	17-Jun-24	18-Nov-24
Water Elevation	ft AMSL	1704.0	1703.3	1708.1
Field Parameters				
Temperature, Field	deg C	5.37	11.47	10.61
Turbidity, Field	ntu	1.33	12.72	1.07
Specific Conductance, Field	µmhos/cm	896	1432	1541
Detection Monitoring Parameters				
Boron	mg/L	---	0.32	0.33
Calcium	mg/L	---	79.7	83.2
Chloride	mg/L	---	11.1	11.8
Fluoride	mg/L	0.25	0.28	0.28
pH, Field	s.u.	7.47	7.53	7.31
pH, Lab	s.u.	7.8	7.8	7.7
Sulfate	mg/L	---	314	330
Total Dissolved Solids	mg/L	---	936	971
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	< 0.002	< 0.002	< 0.002
Barium	mg/L	0.0309	0.0254	0.03
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	< 0.002	< 0.002	< 0.002
Cobalt	mg/L	< 0.002	< 0.002	< 0.002
Fluoride	mg/L	0.25	0.28	0.28
Lead	mg/L	< 0.0005	< 0.0005	< 0.0005
Lithium	mg/L	0.0743	0.0731	0.0805
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	< 0.002	< 0.002	< 0.002
Radium 226	pCi/L	0.2 U ± 0.2	0.3 ± 0.2	0.1 U ± 0.1
Radium 228	pCi/L	-0.05 U ± 0.7	0.9 U ± 0.7	1.0 ± 0.7
Radium 226 and 228 combined	pCi/L	0.7 U ± 0.7	0.9 ± 0.7	1.1 ± 0.7
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 5: Sample Results Summary Table - MW-105 (Upgradient)

		MW-105			
		Detection Monitoring / Assessment Monitoring			
	Units	29-Feb-24	26-Mar-24	17-Jun-24	18-Nov-24
		Q4 2023 Resample			
Water Elevation	**ft AMSL**	**1702.0**	**1702.0**	**1701.8**	**1702.5**
Field Parameters					
Temperature, Field	deg C	8.81	7.79	8.95	10.62
Turbidity, Field	ntu	14.64	< 0.1	2.23	0.72
Specific Conductance, Field	µmhos/cm	1985	1993.7	2000	1864
Detection Monitoring Parameters					
Boron	mg/L	---	---	0.31	0.34
Calcium	mg/L	---	---	42.1	36.7
Chloride	mg/L	---	---	8.0	8.8
Fluoride	mg/L	---	0.85	0.85	0.98
pH, Field	s.u.	7.83	8.5	7.85	7.77
pH, Lab	s.u.	---	8.0	8.0	8
Sulfate	mg/L	---	---	411	378
Total Dissolved Solids	mg/L	---	---	1320	1190
Assessment Monitoring Parameters					
Antimony	mg/L	---	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	---	< 0.002	< 0.002	< 0.002
Barium	mg/L	---	0.0449	0.0438	0.036
Beryllium	mg/L	---	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	---	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	---	< 0.002	0.0021	< 0.002
Cobalt	mg/L	---	< 0.002	< 0.002	< 0.002
Fluoride	mg/L	---	0.85	0.85	0.98
Lead	mg/L	---	< 0.0005	< 0.0005	< 0.0005
Lithium	mg/L	---	0.0471	0.0495	0.0461
Mercury	mg/L	---	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	---	0.0281	0.0218	0.0313
Radium 226	pCi/L	---	0.2 ± 0.1	0.1 U ± 0.1	0.1 U ± 0.1
Radium 228	pCi/L	---	0.6 U ± 0.7	-0.04 U ± 0.6	0.5 U ± 0.6
Radium 226 and 228 combined	pCi/L	---	0.7 U ± 0.7	0.6 U ± 0.6	0.6 U ± 0.6
Selenium	mg/L	---	0.0271	0.0277	0.0225
Thallium	mg/L	---	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 6: Sample Results Summary Table - MW-9N (Downgradient, Bottom Ash Landfill)

		MW-9N		
		Assessment Monitoring		
	Units	28-Mar-24	18-Jun-24	18-Nov-24
Water Elevation	**ft AMSL**	**1689.8**	**1689.8**	**1689.3**
Field Parameters				
Temperature, Field	deg C	5.79	8.49	11.96
Turbidity, Field	ntu	16.03	< 0.1	0.48
Specific Conductance, Field	µmhos/cm	4270	3836	4102
Detection Monitoring Parameters				
Boron	mg/L	---	2.39	2.85
Calcium	mg/L	---	73.6	83.9
Chloride	mg/L	---	25.3	25.7
Fluoride	mg/L	0.63	0.69	0.76
pH, Field	s.u.	7.8	7.18	7.16
pH, Lab	s.u.	7.4	7.6	7.6
Sulfate	mg/L	---	1100	1400
Total Dissolved Solids	mg/L	---	2840	3070
Assessment Monitoring Parameters				
Antimony	mg/L	0.0014	< 0.001	< 0.001
Arsenic	mg/L	< 0.002	< 0.002	< 0.002
Barium	mg/L	0.0917	0.0519	0.0604
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	0.0007	< 0.0005	< 0.0005
Chromium	mg/L	< 0.002	< 0.002	< 0.002
Cobalt	mg/L	0.0159	0.0041	0.0028
Fluoride	mg/L	0.63	0.69	0.76
Lead	mg/L	< 0.0005	< 0.0005	< 0.0005
Lithium	mg/L	0.0456	0.0442	0.0516
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0744	0.0460	0.0503
Radium 226	pCi/L	0.6 ± 0.1	0.3 ± 0.2	0.09 U ± 0.1
Radium 228	pCi/L	1.0 ± 0.6	1.2 ± 0.7	1.0 ± 0.6
Radium 226 and 228 combined	pCi/L	1.6 ± 0.6	1.5 ± 0.7	1.1 ± 0.7
Selenium	mg/L	0.0106	0.0102	0.0143
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 7: Sample Results Summary Table - MW-102 (Downgradient, Bottom Ash Landfill)

		MW-102		
		Assessment Monitoring		
	Units	28-Mar-24	18-Jun-24	18-Nov-24
Water Elevation	ft AMSL	1694.2	1694.3	1693.9
Field Parameters				
Temperature, Field	deg C	8.35	9.23	10.91
Turbidity, Field	ntu	< 0.1	1.36	1.4
Specific Conductance, Field	µmhos/cm	2155	2018	1970
Detection Monitoring Parameters				
Boron	mg/L	---	0.43	0.42
Calcium	mg/L	---	62.2	60.5
Chloride	mg/L	---	15.7	15.2
Fluoride	mg/L	0.46	0.48	0.48
pH, Field	s.u.	7.99	7.62	7.63
pH, Lab	s.u.	7.7	7.9	8
Sulfate	mg/L	---	516	565
Total Dissolved Solids	mg/L	---	1410	1360
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	< 0.002	< 0.002	< 0.002
Barium	mg/L	0.0267	0.0240	0.025
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	< 0.002	< 0.002	< 0.002
Cobalt	mg/L	< 0.002	< 0.002	< 0.002
Fluoride	mg/L	0.46	0.48	0.48
Lead	mg/L	< 0.0005	< 0.0005	< 0.0005
Lithium	mg/L	0.0551	0.0542	0.0551
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0192	0.0188	0.0172
Radium 226	pCi/L	0.2 ± 0.09	0.2 U ± 0.2	0.01 U ± 0.1
Radium 228	pCi/L	-0.01 U ± 0.6	1.1 U ± 0.8	1.3 ± 0.8
Radium 226 and 228 combined	pCi/L	0.7 U ± 0.6	0.7 U ± 0.8	1.4 ± 0.8
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 8: Sample Results Summary Table - MW-103 (Downgradient, Bottom Ash Landfill)

		MW-103		
		Assessment Monitoring		
	Units	28-Mar-24	18-Jun-24	18-Nov-24
Water Elevation	**ft AMSL**	**1691.1**	**1690.0**	**1689.4**
Field Parameters				
Temperature, Field	deg C	7.54	9.02	9.5
Turbidity, Field	ntu	< 0.1	< 0.1	1.04
Specific Conductance, Field	µmhos/cm	3107	2959	2781
Detection Monitoring Parameters				
Boron	mg/L	---	1.50	1.4
Calcium	mg/L	---	32.0	33
Chloride	mg/L	---	17.6	17.1
Fluoride	mg/L	0.48	0.56	0.48
pH, Field	s.u.	8.84	8.87	8.8
pH, Lab	s.u.	8.6	8.8	8.7
Sulfate	mg/L	---	763	847
Total Dissolved Solids	mg/L	---	2060	1950
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0162	0.0184	0.0142
Barium	mg/L	0.0548	0.0449	0.0520
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	< 0.002	< 0.002	< 0.002
Cobalt	mg/L	< 0.002	< 0.002	< 0.002
Fluoride	mg/L	0.48	0.56	0.48
Lead	mg/L	0.0011	0.0015	0.0012
Lithium	mg/L	0.0250	0.0201	0.0268
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0592	0.0587	0.0438
Radium 226	pCi/L	0.3 ± 0.1	0.3 U ± 0.2	0.3 ± 0.1
Radium 228	pCi/L	0.2 U ± 0.8	1.4 ± 0.9	1.1 ± 0.7
Radium 226 and 228 combined	pCi/L	0.9 U ± 0.8	1.6 ± 0.9	1.3 ± 0.7
Selenium	mg/L	0.0112	0.0125	0.0131
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 9: Sample Results Summary Table - MW-1R (Downgradient, Bottom Ash Impoundment)

		MW-1R		
	Units	28-Mar-24	17-Jun-24	20-Nov-24
Water Elevation	**ft AMSL**	**1689.7**	**1689.6**	**1689.0**
Field Parameters				
Temperature, Field	deg C	8.8	10.32	8.13
Turbidity, Field	ntu	490.77	42.18	8.81
Specific Conductance, Field	µmhos/cm	1582.1	1504	1538
Detection Monitoring Parameters				
Boron	mg/L	---	1.13	1.16
Calcium	mg/L	---	91.6	87.2
Chloride	mg/L	---	12.1	11.6
Fluoride	mg/L	0.78	0.78	0.77
pH, Field	s.u.	8.11	7.84	7.83
pH, Lab	s.u.	7.9	7.9	8.0
Sulfate	mg/L	---	408	352
Total Dissolved Solids	mg/L	---	1010	1030
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0020	< 0.002	0.0058
Barium	mg/L	0.0610	0.0423	0.0835
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0021	< 0.002	0.0024
Cobalt	mg/L	< 0.002	< 0.002	0.0046
Fluoride	mg/L	0.78	0.78	0.77
Lead	mg/L	0.0010	< 0.0005	0.0005
Lithium	mg/L	0.0399	0.0401	0.0395
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0148	0.0141	0.0182
Radium 226	pCi/L	0.3 ± 0.1	0.3 ± 0.2	0.09 U ± 0.08
Radium 228	pCi/L	0.1 U ± 0.6	0.6 U ± 0.7	0.8 U ± 0.6
Radium 226 and 228 combined	pCi/L	0.8 U ± 0.6	0.8 U ± 0.7	0.6 U ± 0.6
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 10: Sample Results Summary Table - MW-104 (Downgradient, Bottom Ash Impoundment)

		MW-104		
	Units	28-Mar-24	17-Jun-24	20-Nov-24
Water Elevation	ft AMSL	1690.0	1689.9	1689.3
Field Parameters				
Temperature, Field	deg C	8.92	11.45	8.92
Turbidity, Field	ntu	< 0.1	0.61	< 0.1
Specific Conductance, Field	µmhos/cm	1830.8	1752	1804
Detection Monitoring Parameters				
Boron	mg/L	---	0.69	0.72
Calcium	mg/L	---	72.8	71.9
Chloride	mg/L	---	13.6	13.0
Fluoride	mg/L	0.78	0.79	0.78
pH, Field	s.u.	7.85	7.42	7.33
pH, Lab	s.u.	7.6	7.8	7.7
Sulfate	mg/L	---	412	409
Total Dissolved Solids	mg/L	---	1180	1200
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	< 0.002	< 0.002	< 0.002
Barium	mg/L	0.0488	0.0453	0.052
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	< 0.002	< 0.002	< 0.002
Cobalt	mg/L	0.0023	0.0023	< 0.002
Fluoride	mg/L	0.78	0.79	0.78
Lead	mg/L	< 0.0005	< 0.0005	< 0.0005
Lithium	mg/L	0.0264	0.0245	0.0259
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0470	0.0440	0.0541
Radium 226	pCi/L	0.1 U ± 0.1	0.03 U ± 0.1	0.1 ± 0.09
Radium 228	pCi/L	0.07 U ± 0.7	1.2 ± 0.7	0.8 ± 0.5
Radium 226 and 228 combined	pCi/L	0.7 U ± 0.7	1.3 ± 0.7	0.9 ± 0.5
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 11: Sample Results Summary Table - MW-201 (Downgradient, Bottom Ash Impoundment)

		MW-201				
		Assessment Monitoring				
	Units	28-Mar-24	18-Jun-24	3-Jul-24	16-Sep-24	20-Nov-24
				Radiochemistry Replacement Sample		
Water Elevation	**ft AMSL**	**1694.4**	**1694.7**	**1694.6**	**1694.2**	**1693.8**
Field Parameters						
Temperature, Field	deg C	6.27	9	11.43	13.69	9.16
Turbidity, Field	ntu	4.46	1.92	0.50	3.36	1.02
Specific Conductance, Field	µmhos/cm	3058	3019	2914	3154	2960
Detection Monitoring Parameters						
Boron	mg/L	---	1.38	---	---	1.67
Calcium	mg/L	---	99.6	---	---	96.7
Chloride	mg/L	---	18.5	---	---	18.1
Fluoride	mg/L	0.75	0.74	---	0.79	0.82
pH, Field	s.u.	7.46	7.46	7.45	7.37	7.55
pH, Lab	s.u.	7.8	7.8	---	7.5	7.6
Sulfate	mg/L	---	1150	---	---	1190
Total Dissolved Solids	mg/L	---	2190	---	---	2230
Assessment Monitoring Parameters						
Antimony	mg/L	< 0.001	< 0.001	---	< 0.001	< 0.001
Arsenic	mg/L	< 0.002	< 0.002	---	< 0.002	< 0.002
Barium	mg/L	0.0176	0.0147	---	0.0212	0.0175
Beryllium	mg/L	< 0.0005	< 0.0005	---	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	---	< 0.0005	< 0.0005
Chromium	mg/L	< 0.002	< 0.002	---	< 0.002	< 0.002
Cobalt	mg/L	< 0.002	< 0.002	---	< 0.002	0.0022
Fluoride	mg/L	0.75	0.74	---	0.79	0.82
Lead	mg/L	< 0.0005	< 0.0005	---	< 0.0005	< 0.0005
Lithium	mg/L	< 0.02	< 0.02	---	< 0.02	< 0.02
Mercury	mg/L	< 0.0002	< 0.0002	---	< 0.0002	< 0.0002
Molybdenum	mg/L	0.1656	0.1492	---	0.1966	0.2013
Radium 226	pCi/L	0.2 ± 0.1	* * *	0.1 U ± 0.1	0.2 ± 0.1	0.07 U ± 0.09
Radium 228	pCi/L	-0.03 U ± 0.6	* * *	0.6 U ± 0.6	0.2 U ± 0.7	1.1 ± 0.7
Radium 226 and 228 combined	pCi/L	0.7 U ± 0.6	* * *	0.5 U ± 0.6	0.7 U ± 0.7	1.2 ± 0.7
Selenium	mg/L	< 0.005	< 0.005	---	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	---	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).
* * * - The radiochemistry samples collected for MW-201 during the June 2024 sampling event were broken in transit from the primary analytical laboratory to the subcontracted radiochemical analytical laboratory. A replacement sample was collected in early July and is reported separately.

Table 12: Sample Results Summary Table - MW-202 (Downgradient, Bottom Ash Impoundment)

		MW-202			
		Assessment Monitoring			
	Units	28-Mar-24	18-Jun-24	16-Sep-24	20-Nov-24
Water Elevation	**ft AMSL**	**1692.8**	**1693.2**	**1692.7**	**1690.9**
Field Parameters					
Temperature, Field	deg C	5.72	9.18	13.3	8.91
Turbidity, Field	ntu	95.81	100	41.27	135.21
Specific Conductance, Field	µmhos/cm	2134	2063	2082	2034
Detection Monitoring Parameters					
Boron	mg/L	---	1.74	---	2.1
Calcium	mg/L	---	196	---	202
Chloride	mg/L	---	13.6	---	12.5
Fluoride	mg/L	0.13	0.12	0.12	0.13
pH, Field	s.u.	7.24	7.21	7.24	7.28
pH, Lab	s.u.	7.6	7.6	7.4	7.5
Sulfate	mg/L	---	607	---	654
Total Dissolved Solids	mg/L	---	1530	---	1530
Assessment Monitoring Parameters					
Antimony	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Barium	mg/L	0.0619	0.0675	0.048	0.0721
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0047	0.0054	0.0032	0.0052
Cobalt	mg/L	0.0029	0.0033	0.0027	0.0039
Fluoride	mg/L	0.13	0.12	0.12	0.13
Lead	mg/L	0.0014	0.0015	0.0007	0.0017
Lithium	mg/L	0.0224	0.0238	0.0235	0.0258
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0030	0.0029	0.0039	0.0037
Radium 226	pCi/L	0.09 U ± 0.1	0.2 U ± 0.2	0.1 U ± 0.1	0.1 U ± 0.1
Radium 228	pCi/L	0.8 U ± 0.8	1.8 ± 1.1	0.8 U ± 0.9	0.7 U ± 0.6
Radium 226 and 228 combined	pCi/L	0.8 U ± 0.8	2.0 ± 1.1	0.8 U ± 0.9	0.6 U ± 0.6
Selenium	mg/L	0.0069	0.0075	0.0077	0.0067
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 13: Sample Results Summary Table - MW-203 (Downgradient, Bottom Ash Impoundment)

		MW-203			
		Assessment Monitoring			
	Units	28-Mar-24	18-Jun-24	16-Sep-24	20-Nov-24
Water Elevation	ft AMSL	1697.4	1697.7	1696.9	1696.6
Field Parameters					
Temperature, Field	deg C	4.19	9.77	14.87	10.67
Turbidity, Field	ntu	19.07	3.54	5.67	14.45
Specific Conductance, Field	µmhos/cm	3648	4497	2700	2242
Detection Monitoring Parameters					
Boron	mg/L	---	2.36	---	1.84
Calcium	mg/L	---	80.3	---	17.9
Chloride	mg/L	---	20.9	---	14.8
Fluoride	mg/L	0.67	0.57	0.78	0.88
pH, Field	s.u.	9.15	8.27	9.23	9.55
pH, Lab	s.u.	9.0	8.4	9.2	9.4
Sulfate	mg/L	---	1570	---	507
Total Dissolved Solids	mg/L	---	3340	---	1660
Assessment Monitoring Parameters					
Antimony	mg/L	< 0.001	< 0.001	0.0012	0.0016
Arsenic	mg/L	0.0143	0.0091	0.026	0.0338
Barium	mg/L	0.0464	0.0822	0.0405	0.0449
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	0.0006	0.0008
Chromium	mg/L	< 0.002	< 0.002	0.0022	0.0041
Cobalt	mg/L	0.0030	0.0023	0.0033	0.0047
Fluoride	mg/L	0.67	0.57	0.78	0.88
Lead	mg/L	0.0033	0.0020	0.0076	0.0077
Lithium	mg/L	< 0.02	0.0289	< 0.02	< 0.02
Mercury	mg/L	< 0.0002	0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0558	0.0416	0.0653	0.0703
Radium 226	pCi/L	0.2 ± 0.1	0.5 ± 0.2	0.7 ± 0.2	0.5 ± 0.2
Radium 228	pCi/L	0.4 U ± 0.7	2.1 ± 1.0	0.9 U ± 0.8	1.2 ± 0.8
Radium 226 and 228 combined	pCi/L	0.8 U ± 0.7	2.6 ± 1.0	1.3 ± 0.8	1.6 ± 0.8
Selenium	mg/L	< 0.005	< 0.005	< 0.005	0.0087
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
ft AMSL: feet above mean sea level
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 14: Sample Results Summary Table - MW-210

		MW-210		
	Units	28-Mar-24	19-Jun-24	18-Nov-24
Water Elevation	ft AMSL	1689.6	1689.5	1689.0
Field Parameters				
Temperature, Field	deg C	5.66	10.39	10.18
Turbidity, Field	ntu	122.59	265.06	35.6
Specific Conductance, Field	µmhos/cm	1653	1590	1596
Detection Monitoring Parameters				
Boron	mg/L	---	0.63	0.7
Calcium	mg/L	---	69.5	69.3
Chloride	mg/L	---	12.2	12.1
Fluoride	mg/L	0.54	0.60	0.62
pH, Field	s.u.	7.75	7.79	7.78
pH, Lab	s.u.	7.8	7.9	8
Sulfate	mg/L	---	351	406
Total Dissolved Solids	mg/L	---	1120	1120
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0029	< 0.002	< 0.002
Barium	mg/L	0.0539	0.0325	0.0383
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	< 0.002	< 0.002	< 0.002
Cobalt	mg/L	< 0.002	< 0.002	< 0.002
Fluoride	mg/L	0.54	0.60	0.62
Lead	mg/L	0.0006	< 0.0005	0.0005
Lithium	mg/L	0.0408	0.0385	0.0387
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0115	0.0108	0.0126
Radium 226	pCi/L	0.3 ± 0.1	0.2 ± 0.1	0.1 U ± 0.1
Radium 228	pCi/L	0.9 U ± 0.7	1.4 ± 0.8	0.7 U ± 0.5
Radium 226 and 228 combined	pCi/L	0.9 U ± 0.7	1.6 ± 0.8	0.5 U ± 0.5
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 15: Sample Results Summary Table - MW-211

		MW-211		
	Units	28-Mar-24	19-Jun-24	18-Nov-24
Water Elevation	ft AMSL	1689.8	1689.7	1689.2
Field Parameters				
Temperature, Field	deg C	6.75	8.47	9.24
Turbidity, Field	ntu	3205	13.23	5.13
Specific Conductance, Field	µmhos/cm	2768	2871	2549
Detection Monitoring Parameters				
Boron	mg/L	---	1.6	1.6
Calcium	mg/L	---	69.8	60.8
Chloride	mg/L	---	17.3	17.4
Fluoride	mg/L	0.58	0.6	0.59
pH, Field	s.u.	7.90	7.72	7.97
pH, Lab	s.u.	8.0	7.9	8.1
Sulfate	mg/L	---	911	916
Total Dissolved Solids	mg/L	---	2020	1810
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0256	0.0095	0.013
Barium	mg/L	0.4388	0.1022	0.1211
Beryllium	mg/L	0.0007	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0202	< 0.002	< 0.002
Cobalt	mg/L	0.0102	< 0.002	< 0.002
Fluoride	mg/L	0.58	0.6	0.59
Lead	mg/L	0.0081	< 0.0005	< 0.0005
Lithium	mg/L	0.0325	0.0261	0.0253
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.023	0.0229	0.026
Radium 226	pCi/L	0.1 U ± 0.1	0.2 U ± 0.2	0.1 U ± 0.1
Radium 228	pCi/L	0.5 U ± 0.7	1.2 ± 0.7	0.6 U ± 0.5
Radium 226 and 228 combined	pCi/L	0.6 U ± 0.7	1.3 ± 0.7	0.5 U ± 0.5
Selenium	mg/L	< 0.005	0.0065	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 16: Sample Results Summary Table - MW-212

		MW-212		
	Units	28-Mar-24	19-Jun-24	18-Nov-24
Water Elevation	ft AMSL	1689.9	1689.7	1689.2
Field Parameters				
Temperature, Field	deg C	7.96	9.67	9.95
Turbidity, Field	ntu	44.23	6.29	20.4
Specific Conductance, Field	µmhos/cm	2088	1959	1933
Detection Monitoring Parameters				
Boron	mg/L	---	0.73	0.79
Calcium	mg/L	---	42	37.8
Chloride	mg/L	---	14.8	15.2
Fluoride	mg/L	0.46	0.49	0.46
pH, Field	s.u.	8.37	8.23	8.28
pH, Lab	s.u.	8.3	8.2	8.3
Sulfate	mg/L	---	442	517
Total Dissolved Solids	mg/L	---	1310	1340
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0035	0.0032	0.0036
Barium	mg/L	0.0734	0.0685	0.0901
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	< 0.002	< 0.002	< 0.002
Cobalt	mg/L	0.0025	0.0023	0.0033
Fluoride	mg/L	0.46	0.49	0.46
Lead	mg/L	0.0018	0.0016	0.0024
Lithium	mg/L	0.0205	0.0248	0.0234
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0456	0.0434	0.0448
Radium 226	pCi/L	0.5 ± 0.1	0.3 ± 0.2	0.1 U ± 0.2
Radium 228	pCi/L	0.05 U ± 0.7	2.1 ± 0.9	0.6 U ± 0.7
Radium 226 and 228 combined	pCi/L	1.1 U ± 0.7	2.4 ± 0.9	0.7 U ± 0.7
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 17: Sample Results Summary Table - MW-213

		MW-213		
	Units	28-Mar-24	19-Jun-24	18-Nov-24
Water Elevation	ft AMSL	1689.3	1689.1	1688.6
Field Parameters				
Temperature, Field	deg C	7.21	9.71	10.47
Turbidity, Field	ntu	300.44	18.46	293.89
Specific Conductance, Field	µmhos/cm	1555	1527	1497
Detection Monitoring Parameters				
Boron	mg/L	---	1.07	1.14
Calcium	mg/L	---	86.8	92
Chloride	mg/L	---	12.0	11.8
Fluoride	mg/L	0.82	0.86	0.88
pH, Field	s.u.	7.74	7.82	7.75
pH, Lab	s.u.	7.9	7.9	8.0
Sulfate	mg/L	---	309	352
Total Dissolved Solids	mg/L	---	1030	1050
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0038	< 0.002	0.0047
Barium	mg/L	0.0855	0.0384	0.1012
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0055	< 0.002	0.0077
Cobalt	mg/L	0.0022	< 0.002	0.0035
Fluoride	mg/L	0.82	0.86	0.88
Lead	mg/L	0.0022	< 0.0005	0.003
Lithium	mg/L	0.0374	0.0363	0.0403
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0168	0.0169	0.0179
Radium 226	pCi/L	0.3 ± 0.1	0.2 ± 0.2	0.3 ± 0.2
Radium 228	pCi/L	0.6 U ± 0.8	2.4 ± 1.0	0.7 U ± 0.5
Radium 226 and 228 combined	pCi/L	0.9 U ± 0.8	2.6 ± 1.0	0.7 U ± 0.5
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 18: Sample Results Summary Table - MW-214

		MW-214		
	Units	28-Mar-24	19-Jun-24	18-Nov-24
Water Elevation	**ft AMSL**	**1701.2**	**1701.3**	**1701.3**
Field Parameters				
Temperature, Field	deg C	3.05	9.01	11.04
Turbidity, Field	ntu	52.13	8.47	2.38
Specific Conductance, Field	µmhos/cm	1999	2021	2010
Detection Monitoring Parameters				
Boron	mg/L	---	0.35	0.44
Calcium	mg/L	---	62.0	41.8
Chloride	mg/L	---	34.4	19.2
Fluoride	mg/L	0.46	0.52	0.55
pH, Field	s.u.	7.66	7.66	7.6
pH, Lab	s.u.	7.9	7.9	8.0
Sulfate	mg/L	---	488	515
Total Dissolved Solids	mg/L	---	1380	1330
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	< 0.002	< 0.002	< 0.002
Barium	mg/L	0.042	0.034	0.034
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0047	0.0047	< 0.002
Cobalt	mg/L	< 0.002	< 0.002	< 0.002
Fluoride	mg/L	0.46	0.52	0.55
Lead	mg/L	0.0009	< 0.0005	< 0.0005
Lithium	mg/L	0.0505	0.0528	0.0612
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0112	0.0166	0.0171
Radium 226	pCi/L	0.1 U ± 0.1	0.09 U ± 0.2	-0.06 U ± 0.1
Radium 228	pCi/L	-0.07 U ± 0.6	0.7 U ± 0.7	0.9 ± 0.5
Radium 226 and 228 combined	pCi/L	0.6 U ± 0.6	0.7 U ± 0.7	1.0 ± 0.5
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 19: Sample Results Summary Table - MW-PB1 (Property Boundary Well)

		MW-PB1		
	Units	29-Mar-24	18-Jun-24	20-Nov-24
Water Elevation	ft AMSL	1674.6	1674.7	1674.2
Field Parameters				
Temperature, Field	deg C	5.94	10.9	* *
Turbidity, Field	ntu	1607	176.47	* *
Specific Conductance, Field	µmhos/cm	2000	1960	* *
Detection Monitoring Parameters				
Boron	mg/L	---	1.26	* *
Calcium	mg/L	---	128	* *
Chloride	mg/L	---	20.4	* *
Fluoride	mg/L	0.53	0.53	* *
pH, Field	s.u.	7.19	7.15	* *
pH, Lab	s.u.	7.5	7.8	* *
Sulfate	mg/L	---	514	* *
Total Dissolved Solids	mg/L	---	1390	* *
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	* *
Arsenic	mg/L	0.0203	0.004	* *
Barium	mg/L	0.4629	0.1121 MS	* *
Beryllium	mg/L	0.0013	< 0.0005	* *
Cadmium	mg/L	< 0.0005	< 0.0005	* *
Chromium	mg/L	0.0375	0.0076	* *
Cobalt	mg/L	0.0215	0.0052	* *
Fluoride	mg/L	0.53	0.53	* *
Lead	mg/L	0.0217	0.0036	* *
Lithium	mg/L	0.0589	0.0394	* *
Mercury	mg/L	< 0.0002	< 0.0002	* *
Molybdenum	mg/L	0.0092	0.0088	* *
Radium 226	pCi/L	* * *	0.4 ± 0.2	* *
Radium 228	pCi/L	* * *	0.9 U ± 0.8	* *
Radium 226 and 228 combined	pCi/L	* * *	1.0 U ± 0.8	* *
Selenium	mg/L	< 0.005	< 0.005	* *
Thallium	mg/L	< 0.0005	< 0.0005	* *

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

* * * - MW-PB1 was purged dry during Q1 2024 sampling, with limited recharge preventing collection of a sample for radiochemical analysis.
* * - Insufficient volume for sample collection.

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).
MS = Matrix spike and/or matrix spike duplicate recovery was high; the associated laboratory fortified blank recovery was acceptable.

Table 20: Sample Results Summary Table - MW-215

		MW-215			
	Units	27-Mar-24	11-Apr-24	17-Jun-24	19-Nov-24
Water Elevation	**ft AMSL**	**1689.3**		**1689.3**	**1688.6**
Field Parameters					
Temperature, Field	deg C	7.24	8.06	11.12	9.57
Turbidity, Field	ntu	557.58	135.72	49.8	9.77
Specific Conductance, Field	µmhos/cm	2464	2472	2356	2324
Detection Monitoring Parameters					
Boron	mg/L	---	---	0.8	0.91
Calcium	mg/L	---	---	93.3	87.6
Chloride	mg/L	---	---	19.6	17.9
Fluoride	mg/L	0.44	---	0.44	0.46
pH, Field	s.u.	7.65	7.56	7.48	7.70
pH, Lab	s.u.	7.8	---	7.9	7.8
Sulfate	mg/L	---	---	679	776
Total Dissolved Solids	mg/L	---	---	1700	1640
Assessment Monitoring Parameters					
Antimony	mg/L	< 0.001	---	< 0.001	< 0.001
Arsenic	mg/L	0.0124	---	0.0038	0.0022
Barium	mg/L	0.1195	---	0.0444	0.0369
Beryllium	mg/L	< 0.0005	---	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	---	< 0.0005	< 0.0005
Chromium	mg/L	0.0112	---	< 0.002	< 0.002
Cobalt	mg/L	0.0038	---	< 0.002	< 0.002
Fluoride	mg/L	0.44	---	0.44	0.46
Lead	mg/L	0.0038	---	0.0005	< 0.0005
Lithium	mg/L	0.0447	---	0.0432	0.0446
Mercury	mg/L	0.0002	---	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0137	---	0.0127	0.0165
Radium 226	pCi/L	* * *	0.4 ± 0.2	0.3 ± 0.1	0.3 ± 0.2
Radium 228	pCi/L	* * *	1.1 U ± 0.8	1.6 ± 0.6	4.2 ± 1.2
Radium 226 and 228 combined	pCi/L	* * *	1.0 U ± 0.8	1.9 ± 0.6	4.5 ± 1.2
Selenium	mg/L	< 0.005	---	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	---	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).
* * * - The radiochemistry samples collected for MW-215 during the March 2024 sampling event were broken in transit from the primary analytical laboratory to the subcontracted radiochemical analytical laboratory. A replacement sample was collected in early April and is reported separately.

Table 21: Sample Results Summary Table - MW-216

		MW-216		
	Units	27-Mar-24	18-Jun-24	19-Nov-24
Water Elevation	**ft AMSL**	**1689.7**	**1689.5**	**1689.0**
Field Parameters				
Temperature, Field	deg C	7.15	9.07	9.7
Turbidity, Field	ntu	291.1	40.57	21.01
Specific Conductance, Field	µmhos/cm	2328.5	2050	2023
Detection Monitoring Parameters				
Boron	mg/L	---	0.72	0.8
Calcium	mg/L	---	88.4	83.6
Chloride	mg/L	---	17.1	15.7
Fluoride	mg/L	0.51	0.49	0.52
pH, Field	s.u.	7.79	7.46	7.72
pH, Lab	s.u.	7.8	7.9	7.9
Sulfate	mg/L	---	580 MS	673
Total Dissolved Solids	mg/L	---	1500	1460
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.004	0.004	0.0028
Barium	mg/L	0.0498	0.0476	0.0474
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	< 0.002	< 0.002	< 0.002
Cobalt	mg/L	< 0.002	< 0.002	< 0.002
Fluoride	mg/L	0.51	0.49	0.52
Lead	mg/L	< 0.0005	0.0006	< 0.0005
Lithium	mg/L	0.0484	0.0486	0.0504
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0113	0.0101	0.0124
Radium 226	pCi/L	0.3 ± 0.2	0.3 ± 0.1	0.3 ± 0.2
Radium 228	pCi/L	0.3 U ± 0.7	0.8 ± 0.5	0.8 ± 0.4
Radium 226 and 228 combined	pCi/L	0.9 U ± 0.7	1.1 ± 0.5	1.1 ± 0.5
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).
MS = Matrix spike and/or matrix spike duplicate recovery was low; the associated laboratory control sample recovery was acceptable

Table 22: Sample Results Summary Table - MW-217

		MW-217		
	Units	27-Mar-24	17-Jun-24	19-Nov-24
Water Elevation	**ft AMSL**	**1689.1**	**1689.1**	**1688.4**
Field Parameters				
Temperature, Field	deg C	7.31	10.51	9.13
Turbidity, Field	ntu	29.61	21.5	5.38
Specific Conductance, Field	µmhos/cm	2460	2318	2306
Detection Monitoring Parameters				
Boron	mg/L	---	0.83	0.94
Calcium	mg/L	---	101.0	102.0
Chloride	mg/L	---	19.2	17.9
Fluoride	mg/L	0.64	0.61	0.63
pH, Field	s.u.	7.67	7.51	7.71
pH, Lab	s.u.	7.9	7.9	7.9
Sulfate	mg/L	---	660	832
Total Dissolved Solids	mg/L	---	1690	1660
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0057	0.0046	0.0029
Barium	mg/L	0.0474	0.0424	0.0424
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	< 0.002	< 0.002	< 0.002
Cobalt	mg/L	< 0.002	< 0.002	< 0.002
Fluoride	mg/L	0.64	0.61	0.63
Lead	mg/L	< 0.0005	< 0.0005	< 0.0005
Lithium	mg/L	0.0455	0.0462	0.0492
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0143	0.0131	0.0157
Radium 226	pCi/L	0.1 U ± 0.2	0.09 U ± 0.1	0.3 U ± 0.2
Radium 228	pCi/L	0.6 U ± 1.2	0.7 U ± 0.5	1.2 ± 0.5
Radium 226 and 228 combined	pCi/L	1.1 U ± 1.2	0.5 U ± 0.5	1.4 ± 0.6
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 23: Sample Results Summary Table - MW-218

		MW-218		
	Units	27-Mar-24	18-Jun-24	19-Nov-24
Water Elevation	**ft AMSL**	**1689.4**	**1689.1**	**1688.6**
Field Parameters				
Temperature, Field	deg C	7.76	8.85	9.75
Turbidity, Field	ntu	473.52	31.66	1.87
Specific Conductance, Field	µmhos/cm	2327	2063	2018
Detection Monitoring Parameters				
Boron	mg/L	---	0.78	0.86
Calcium	mg/L	---	94.3	88.6
Chloride	mg/L	---	17.3	15.8
Fluoride	mg/L	0.58	0.57	0.6
pH, Field	s.u.	7.99	7.48	7.73
pH, Lab	s.u.	7.9	7.9	7.9
Sulfate	mg/L	---	596*	644
Total Dissolved Solids	mg/L	---	1480	1480
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0028	< 0.002	< 0.002
Barium	mg/L	0.0546	0.0428	0.0385
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	< 0.002	< 0.002	< 0.002
Cobalt	mg/L	< 0.002	< 0.002	< 0.002
Fluoride	mg/L	0.58	0.57	0.60
Lead	mg/L	< 0.0005	< 0.0005	< 0.0005
Lithium	mg/L	0.0461	0.0466	0.0476
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0117	0.0101	0.0125
Radium 226	pCi/L	0.2 ± 0.1	0.1 U ± 0.2	0.2 U ± 0.2
Radium 228	pCi/L	0.1 U ± 0.6	0.4 U ± 0.5	2.3 ± 0.8
Radium 226 and 228 combined	pCi/L	0.7 U ± 0.6	0.6 U ± 0.5	2.4 ± 0.8
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).
* = Matrix spike and/or matrix spike duplicate recovery was low; the associated laboratory control sample recovery was acceptable

Table 24: Sample Results Summary Table - MW-219

		MW-219		
	Units	27-Mar-24	17-Jun-24	19-Nov-24
Water Elevation	**ft AMSL**	**1690.3**	**1690.4**	**1689.8**
Field Parameters				
Temperature, Field	deg C	6.29	9.6	10.48
Turbidity, Field	ntu	314.16	13.83	460.3
Specific Conductance, Field	µmhos/cm	4027	3862	4006
Detection Monitoring Parameters				
Boron	mg/L	---	1.25	1.53
Calcium	mg/L	---	281.0	307.0
Chloride	mg/L	---	20	18.7
Fluoride	mg/L	0.25	0.21	0.24
pH, Field	s.u.	7.27	7.12	7.31
pH, Lab	s.u.	7.6	7.7	7.6
Sulfate	mg/L	---	1380	1690
Total Dissolved Solids	mg/L	---	3210	3310
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0127	0.0047	0.0244
Barium	mg/L	0.1244	0.0286	0.2286
Beryllium	mg/L	< 0.0005	< 0.0005	0.0007
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0087	< 0.002	0.0154
Cobalt	mg/L	0.0052	0.0021	0.0105
Fluoride	mg/L	0.25	0.21	0.24
Lead	mg/L	0.0036	< 0.0005	0.0086
Lithium	mg/L	0.0306	0.0288	0.0375
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0201	0.0161	0.0208
Radium 226	pCi/L	0.4 ± 0.2	-0.03 U ± 0.2	0.4 ± 0.2
Radium 228	pCi/L	0.7 U ± 0.8	0.7 U ± 0.6	1.0 ± 0.5
Radium 226 and 228 combined	pCi/L	1.1 U ± 0.8	0.7 U ± 0.6	1.4 ± 0.5
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 25: Sample Results Summary Table - MW-220

		MW-220		
	Units	27-Mar-24	18-Jun-24	19-Nov-24
Water Elevation	**ft AMSL**	**1689.6**	**1689.4**	**1688.9**
Field Parameters				
Temperature, Field	deg C	6.37	9.81	7.31
Turbidity, Field	ntu	1136.2	84.85	88.3
Specific Conductance, Field	µmhos/cm	2396.6	2008	1941
Detection Monitoring Parameters				
Boron	mg/L	---	0.75	0.84
Calcium	mg/L	---	89.1	85.2
Chloride	mg/L	---	17.1	15.6
Fluoride	mg/L	0.58	0.55	0.56
pH, Field	s.u.	7.38	7.42	7.73
pH, Lab	s.u.	7.9	7.9	7.9
Sulfate	mg/L	---	556	623
Total Dissolved Solids	mg/L	---	1420	1480
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0051	0.0029	0.0031
Barium	mg/L	0.1371	0.059	0.0658
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0157	0.0038	0.0042
Cobalt	mg/L	0.0059	< 0.002	< 0.002
Fluoride	mg/L	0.58	0.55	0.56
Lead	mg/L	0.0038	0.0009	0.0009
Lithium	mg/L	0.0544	0.0477	0.0503
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0113	0.01	0.012
Radium 226	pCi/L	0.4 ± 0.2	0.3 U ± 0.2	0.2 ± 0.2
Radium 228	pCi/L	0.5 U ± 0.8	1.1 ± 0.7	1.5 ± 0.6
Radium 226 and 228 combined	pCi/L	1.1 U ± 0.8	1.3 ± 0.7	1.8 ± 0.7
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 26: Sample Results Summary Table - MW-221

		MW-221		
	Units	27-Mar-24	18-Jun-24	19-Nov-24
Water Elevation	**ft AMSL**	**1689.8**	**1689.6**	**1689.0**
Field Parameters				
Temperature, Field	deg C	7.05	9.67	8.8
Turbidity, Field	ntu	294.02	29.44	7.21
Specific Conductance, Field	µmhos/cm	2258	2160	2122
Detection Monitoring Parameters				
Boron	mg/L	---	0.81	0.79
Calcium	mg/L	---	73.8	67.8
Chloride	mg/L	---	19.4	17.8
Fluoride	mg/L	0.47	0.44	0.45
pH, Field	s.u.	7.60	7.39	7.68
pH, Lab	s.u.	7.9	7.9	7.9
Sulfate	mg/L	---	608	655
Total Dissolved Solids	mg/L	---	1550	1500
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0138	0.013	0.0091
Barium	mg/L	0.0686	0.0388	0.0363
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0039	< 0.002	< 0.002
Cobalt	mg/L	< 0.002	< 0.002	< 0.002
Fluoride	mg/L	0.47	0.44	0.45
Lead	mg/L	0.0026	< 0.0005	< 0.0005
Lithium	mg/L	0.04	0.0417	0.0414
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0244	0.0242	0.027
Radium 226	pCi/L	0.6 ± 0.2	-0.02 U ± 0.2	0.1 U ± 0.1
Radium 228	pCi/L	0.9 U ± 0.8	0.6 U ± 0.6	0.8 ± 0.5
Radium 226 and 228 combined	pCi/L	1.3 U ± 0.8	0.7 U ± 0.6	0.9 ± 0.5
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 27: Sample Results Summary Table - MW-222

		MW-222		
	Units	27-Mar-24	18-Jun-24	19-Nov-24
Water Elevation	**ft AMSL**	**1689.6**	**1689.3**	**1688.8**
Field Parameters				
Temperature, Field	deg C	5.4	10.18	6.53
Turbidity, Field	ntu	101.35	14.66	34.59
Specific Conductance, Field	µmhos/cm	2607	2533	2554
Detection Monitoring Parameters				
Boron	mg/L	---	2.34	2.06
Calcium	mg/L	---	36.3	43.9
Chloride	mg/L	---	37.3	30.4
Fluoride	mg/L	1.54	1.5	1.27
pH, Field	s.u.	8.02	7.75	8.03
pH, Lab	s.u.	8.1	8.0	8.0
Sulfate	mg/L	---	672	794
Total Dissolved Solids	mg/L	---	2110	2000
Assessment Monitoring Parameters				
Antimony	mg/L	0.0018	0.0017	< 0.001
Arsenic	mg/L	0.021	0.0207	0.0137
Barium	mg/L	0.1256	0.0967	0.0901
Beryllium	mg/L	0.0014	0.0013	0.0011
Cadmium	mg/L	0.0009	0.001	0.0006
Chromium	mg/L	0.015	0.0124	0.0083
Cobalt	mg/L	0.0169	0.0124	0.0096
Fluoride	mg/L	1.54	1.50	1.27
Lead	mg/L	0.0109	0.0105	0.0049
Lithium	mg/L	< 0.02	< 0.02	< 0.02
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.4521	0.5852	0.4458
Radium 226	pCi/L	2.3 U ± 1.5	-1.0 U ± 1.7	1 ± 0.2
Radium 228	pCi/L	-5.0 U ± 14.5	8.2 U ± 7.8	1.2 ± 0.6
Radium 226 and 228 combined	pCi/L	9.4 U ± 8.5	7.8 U ± 7.8	2.2 ± 0.7
Selenium	mg/L	0.0106	0.0125	0.008
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 27: Sample Results Summary Table - MW-300

		MW-300		
	Units	27-Mar-24	17-Jun-24	20-Nov-24
Water Elevation	**ft AMSL**	**1688.7**	**1688.3**	**1687.6**
Field Parameters				
Temperature, Field	deg C	6.53	10.47	10.43
Turbidity, Field	ntu	1216.2	69.62	22.24
Specific Conductance, Field	µmhos/cm	2994.9	2584	2825
Detection Monitoring Parameters				
Boron	mg/L	---	0.9	1
Calcium	mg/L	---	134.0	134.0
Chloride	mg/L	---	46.7	39.2
Fluoride	mg/L	0.63	0.63	0.72
pH, Field	s.u.	7.41	7.25	7.38
pH, Lab	s.u.	7.7	7.8	7.8
Sulfate	mg/L	---	663	817
Total Dissolved Solids	mg/L	---	1910	1940
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0206	0.0066	0.0059
Barium	mg/L	0.104	0.0761	0.086
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0056	0.0026	0.0026
Cobalt	mg/L	0.0055	0.0047	0.0045
Fluoride	mg/L	0.63	0.63	0.72
Lead	mg/L	0.0012	0.0008	0.0005
Lithium	mg/L	0.037	0.0391	0.0451
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0136	0.0146	0.0179
Radium 226	pCi/L	0.3 ± 0.1	0.3 ± 0.2	0.2 U ± 0.1
Radium 228	pCi/L	0.7 U ± 0.6	0.9 ± 0.5	0.5 U ± 0.7
Radium 226 and 228 combined	pCi/L	0.7 U ± 0.6	1.2 ± 0.5	0.7 U ± 0.7
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 27: Sample Results Summary Table - MW-301

		MW-301		
	Units	27-Mar-24	17-Jun-24	20-Nov-24
Water Elevation	**ft AMSL**	**1682.2**	**1681.1**	**1682.7**
Field Parameters				
Temperature, Field	deg C	8.13	10.31	9.2
Turbidity, Field	ntu	2070.3	2804	529.55
Specific Conductance, Field	µmhos/cm	1369.9	1257	1254
Detection Monitoring Parameters				
Boron	mg/L	---	0.38	0.4
Calcium	mg/L	---	67.9	29.8
Chloride	mg/L	---	7.8	6.7
Fluoride	mg/L	0.36	0.34	0.37
pH, Field	s.u.	8.20	7.69	7.84
pH, Lab	s.u.	8.1	8.0	8.1
Sulfate	mg/L	---	178	176
Total Dissolved Solids	mg/L	---	1310	1010
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0083	0.0196	0.0068
Barium	mg/L	0.1508	0.3188	0.161
Beryllium	mg/L	0.0016	0.0057	0.0025
Cadmium	mg/L	< 0.0005	0.0006	< 0.0005
Chromium	mg/L	0.015	0.0396	0.0168
Cobalt	mg/L	0.0067	0.0242	0.0091
Fluoride	mg/L	0.36	0.34	0.37
Lead	mg/L	0.0183	0.0583	0.0179
Lithium	mg/L	0.0696	0.104	0.078
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0032	0.0021	0.0021
Radium 226	pCi/L	2.9 U ± 2.2	2.9 U ± 1.1	2.3 ± 0.5
Radium 228	pCi/L	-1.0 U ± 9.1	0.04 U ± 6.4	2.5 ± 1.3
Radium 226 and 228 combined	pCi/L	9.8 U ± 9.4	6.8 U ± 6.4	4.8 ± 1.4
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

Table 28: Sample Results Summary Table - MW-PB3 (Property Boundary Well)

		MW-PB3		
	Units	27-Mar-24	17-Jun-24	20-Nov-24
Water Elevation	**ft AMSL**	**1673.9**	**1674.1**	**1674.4**
Field Parameters				
Temperature, Field	deg C	7.29	10.16	8.15
Turbidity, Field	ntu	< 0.1	3.56	1.45
Specific Conductance, Field	µmhos/cm	2333.4	2104	2225
Detection Monitoring Parameters				
Boron	mg/L	---	0.89	0.98
Calcium	mg/L	---	119.0	116.0
Chloride	mg/L	---	19.5	19.6
Fluoride	mg/L	0.66	0.62	0.68
pH, Field	s.u.	7.49	7.21	7.35
pH, Lab	s.u.	7.7	7.9	7.8
Sulfate	mg/L	---	600	600
Total Dissolved Solids	mg/L	---	1520	1530
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	< 0.002	< 0.002	< 0.002
Barium	mg/L	0.0436	0.0421	0.0438
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	< 0.002	< 0.002	< 0.002
Cobalt	mg/L	0.0021	0.002	0.0029
Fluoride	mg/L	0.66	0.62	0.68
Lead	mg/L	0.0006	0.0005	< 0.0005
Lithium	mg/L	0.0319	0.0335	0.0365
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0321	0.0306	0.0319
Radium 226	pCi/L	0.1 U ± 0.1	0.3 ± 0.2	0.08 U ± 0.09
Radium 228	pCi/L	0.9 U ± 0.7	0.5 U ± 0.6	0.9 U ± 0.8
Radium 226 and 228 combined	pCi/L	0.6 U ± 0.7	0.8 U ± 0.6	0.7 U ± 0.8
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:
--: not analyzed
ft AMSL: feet above mean sea level
deg C: degrees Celsius
ntu: Nephelometric Turbidity Units
µmhos/cm: micromhos per centimeter
mg/L: milligrams per liter
pCi/L: picocuries per liter
s.u.: standard units for pH
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).

Laboratory Provided Qualifiers:
U (Radiochem) = Not detected above the minimum detectable concentration (varies by sample).

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Feb 2024
Sample ID:	7A
Sampling Personal:	Jerry May

Weather Conditions: Temp: 25°F Wind: S @ 5-10 Precip: **Sunny / Partly Cloudy / Cloudy**

WELL INFORMATION

Well Locked?	YES	NO	
Well Labeled?	YES	NO	
Casing Strait?	YES	NO	
Grout Seal Intact?	~~YES~~	NO	Not Visible
Repairs Necessary?			
Casing Diameter:	2"		
Water Level Before Purge:	11.00	ft	
Depth to Top of Pump:	—	ft	
Water Level After Sample:	12.10	ft	
Measurement Method:	Electric Water Level Indicator		

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Duplicate Sample?	YES	NO
Duplicate Sample ID:	—	

Bottle List:
~~1 Liter Raw~~

Control Settings:	
Purge: 3	Sec.
Recover: 27	Sec.
PSI: —	

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	**Time**	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
29Feb24	1218	**Start of Well Purge**									clear, slightly turbid, turbid
	1223	6.76	16,502	7.45	1.95	132.7	0.00	11.10	200.0	1.0	Clear
	1228	6.52	16,312	7.45	2.93	143.0	0.08	11.27	200.0	1.0	Clear
	1233	6.80	16,627	7.40	1.61	129.5	0.00	11.52	200.0	1.0	Clear
	1238	7.22	16,757	7.37	1.10	119.8	0.03	11.68	200.0	1.0	Clear
	1243	7.47	16,737	7.35	0.37	102.1	0.39	11.85	200.0	1.0	Clear
	1248	7.59	16,783	7.35	0.23	89.1	0.06	12.10	200.0	1.0	Clear

Well Stabilized? YES NO

Total Volume Purged: 6.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
29Feb24	1248	7.59	16,783	7.35			0.06				Clear

Comments:	

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Feb 2024
Sample ID:	105
Sampling Personal:	JJ Hy

Weather Conditions: Temp: 25°F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO	
Well Labeled?	YES	NO	
Casing Strait?	YES	NO	
Grout Seal Intact?	YES	NO	Not Visible
Repairs Necessary?			
Casing Diameter:	2"		
Water Level Before Purge:	15.01	ft	
Depth to Top of Pump:	—	ft	
Water Level After Sample:	15.11	ft	
Measurement Method:	Electric Water Level Indicator		

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Duplicate Sample?	YES	NO
Duplicate Sample ID:	—	

Bottle List:
~~1 Liter Raw~~

Control Settings:	
Purge:	3 Sec.
Recover:	27 Sec.
PSI:	—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	**Time**	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
29 Feb 24	1253	Start of Well Purge									
	1258	8.40	2005	7.79	2.15	137.1	3.94	15,02	200.0	1.0	Clear
	1303	8.59	1994	7.80	1.55	125.4	10.17	15,03	200.0	1.0	Clear
	1308	8.68	1989	7.81	1.13	118.1	9.04	15,05	200.0	1.0	Clear
	1313	8.78	1986	7.82	0.98	106.0	8.51	15,09	200.0	1.0	Clear
	1318	8.81	1985	7.83	0.99	103.1	14.64	15,11	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
29 Feb 24	1318	8.81	1985	7.83			14.64				Clear

Comments:	

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS (43801) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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Account #: 5109 **Client:** Great River Energy

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43801001 **Date Collected:** 03/26/2024 15:17 **Matrix:** Groundwater
Sample ID: MW-6B **Date Received:** 03/26/2024 17:06 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1625.4**	umhos/cm	1	1		03/26/2024 15:17	
Method: 150.2							
pH - Field	**8.77**	units	0.01	1		03/26/2024 15:17	
Method: 170.1							
Temperature - Field C	**7.13**	degrees C		1		03/26/2024 15:17	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0445**	mg/L	0.02	1	03/27/2024 16:30	04/02/2024 12:14	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/27/2024 16:30	03/28/2024 15:52	
Arsenic	**0.0033**	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 15:52	
Barium	**0.0248**	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 15:52	
Beryllium	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 15:52	
Cadmium	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 15:52	
Chromium	<0.002	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 15:52	
Cobalt	<0.002	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 15:52	
Lead	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 15:52	
Molybdenum	**0.0126**	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 15:52	
Selenium	<0.005	mg/L	0.005	5	03/27/2024 16:30	03/28/2024 15:52	
Thallium	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 15:52	
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		03/27/2024 15:40	*
Method: SM4500-F-C-2011							
Fluoride	**0.51**	mg/L	0.1	1		03/27/2024 15:40	

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43801002 **Date Collected:** 03/26/2024 09:47 **Matrix:** Groundwater
Sample ID: MW-7A **Date Received:** 03/26/2024 17:06 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**17401**	umhos/cm	1	1		03/26/2024 09:47	
Method: 150.2							
pH - Field	**7.52**	units	0.01	1		03/26/2024 09:47	
Method: 170.1							
Temperature - Field C	**3.36**	degrees C		1		03/26/2024 09:47	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.259**	mg/L	0.1	5	03/27/2024 16:30	04/02/2024 12:15	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/27/2024 16:30	03/28/2024 15:56	
Arsenic	<0.004	mg/L	0.004	10	03/27/2024 16:30	03/28/2024 16:43	
Barium	**0.0073**	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 15:56	
Beryllium	<0.001	mg/L	0.001	10	03/27/2024 16:30	03/28/2024 16:43	
Cadmium	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 15:56	
Chromium	<0.004	mg/L	0.004	10	03/27/2024 16:30	03/28/2024 16:43	
Cobalt	<0.004	mg/L	0.004	10	03/27/2024 16:30	03/28/2024 16:43	
Lead	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 15:56	
Molybdenum	**0.0123**	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 15:56	
Selenium	<0.01	mg/L	0.01	10	03/27/2024 16:30	03/28/2024 16:43	
Thallium	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 15:56	
Method: SM4500 H+ B-2011							
pH	**7.4**	units	0.1	1		03/27/2024 15:45	*
Method: SM4500-F-C-2011							
Fluoride	**0.47**	mg/L	0.1	1		03/27/2024 15:45	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43801003 **Date Collected:** 03/26/2024 11:43 **Matrix:** Groundwater
Sample ID: MW-7B **Date Received:** 03/26/2024 17:06 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1629**	umhos/cm	1	1		03/26/2024 11:43	
Method: 150.2							
pH - Field	**7.93**	units	0.01	1		03/26/2024 11:43	
Method: 170.1							
Temperature - Field C	**4.31**	degrees C		1		03/26/2024 11:43	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0492**	mg/L	0.02	1	03/27/2024 16:30	04/02/2024 12:15	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/27/2024 16:30	03/28/2024 16:01	
Arsenic	<0.002	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:01	
Barium	**0.0178**	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:01	
Beryllium	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 16:01	
Cadmium	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 16:01	
Chromium	<0.002	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:01	
Cobalt	<0.002	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:01	
Lead	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 16:01	
Molybdenum	**0.0046**	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:01	
Selenium	<0.005	mg/L	0.005	5	03/27/2024 16:30	03/28/2024 16:01	
Thallium	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 16:01	
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		03/27/2024 15:51	*
Method: SM4500-F-C-2011							
Fluoride	**0.62**	mg/L	0.1	1		03/27/2024 15:51	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43801004 **Date Collected:** 03/26/2024 11:43 **Matrix:** Groundwater
Sample ID: DUP-UP **Date Received:** 03/26/2024 17:06 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0489**	mg/L	0.02	1	03/27/2024 16:30	04/02/2024 12:16	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/27/2024 16:30	03/28/2024 16:05	
Arsenic	<0.002	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:05	
Barium	**0.0171**	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:05	
Beryllium	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 16:05	
Cadmium	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 16:05	
Chromium	<0.002	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:05	
Cobalt	<0.002	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:05	
Lead	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 16:05	
Molybdenum	**0.0042**	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:05	
Selenium	<0.005	mg/L	0.005	5	03/27/2024 16:30	03/28/2024 16:05	
Thallium	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 16:05	
Method: SM4500 H+ B-2011							
pH	**8.0**	units	0.1	1		03/27/2024 15:57	*
Method: SM4500-F-C-2011							
Fluoride	**0.59**	mg/L	0.1	1		03/27/2024 15:57	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43801005 **Date Collected:** 03/26/2024 11:37 **Matrix:** Groundwater
Sample ID: MW-8B **Date Received:** 03/26/2024 17:06 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**896**	umhos/cm	1	1		03/26/2024 11:37	
Method: 150.2							
pH - Field	**7.47**	units	0.01	1		03/26/2024 11:37	
Method: 170.1							
Temperature - Field C	**5.37**	degrees C		1		03/26/2024 11:37	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0743**	mg/L	0.02	1	03/27/2024 16:30	04/02/2024 12:17	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/27/2024 16:30	03/28/2024 16:10	
Arsenic	<0.002	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:10	
Barium	**0.0309**	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:10	
Beryllium	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 16:10	
Cadmium	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 16:10	
Chromium	<0.002	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:10	
Cobalt	<0.002	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:10	
Lead	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 16:10	
Molybdenum	<0.002	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:10	
Selenium	<0.005	mg/L	0.005	5	03/27/2024 16:30	03/28/2024 16:10	
Thallium	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 16:10	
Method: SM4500 H+ B-2011							
pH	**7.8**	units	0.1	1		03/27/2024 16:02	*
Method: SM4500-F-C-2011							
Fluoride	**0.25**	mg/L	0.1	1		03/27/2024 16:02	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43801006 **Date Collected:** 03/26/2024 14:16 **Matrix:** Groundwater
Sample ID: MW-105 **Date Received:** 03/26/2024 17:06 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1993.7**	umhos/cm	1	1		03/26/2024 14:16	
Method: 150.2							
pH - Field	**8.5**	units	0.01	1		03/26/2024 14:16	
Method: 170.1							
Temperature - Field C	**7.79**	degrees C		1		03/26/2024 14:16	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0471**	mg/L	0.02	1	03/27/2024 16:30	04/02/2024 12:17	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/27/2024 16:30	03/28/2024 16:14	
Arsenic	<0.002	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:14	
Barium	**0.0449**	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:14	
Beryllium	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 16:14	
Cadmium	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 16:14	
Chromium	<0.002	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:14	
Cobalt	<0.002	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:14	
Lead	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 16:14	
Molybdenum	**0.0281**	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:14	
Selenium	**0.0271**	mg/L	0.005	5	03/27/2024 16:30	03/28/2024 16:14	
Thallium	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 16:14	
Method: SM4500 H+ B-2011							
pH	**8.0**	units	0.1	1		03/27/2024 16:08	*
Method: SM4500-F-C-2011							
Fluoride	**0.85**	mg/L	0.1	1		03/27/2024 16:08	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43801007 **Date Collected:** 03/26/2024 12:30 **Matrix:** Groundwater
Sample ID: FB-UP **Date Received:** 03/26/2024 17:06 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	<0.02	mg/L	0.02	1	03/27/2024 16:30	04/02/2024 12:18	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/27/2024 16:30	03/28/2024 16:18	
Arsenic	<0.002	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:18	
Barium	<0.002	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:18	
Beryllium	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 16:18	
Cadmium	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 16:18	
Chromium	<0.002	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:18	
Cobalt	<0.002	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:18	
Lead	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 16:18	
Molybdenum	<0.002	mg/L	0.002	5	03/27/2024 16:30	03/28/2024 16:18	
Selenium	<0.005	mg/L	0.005	5	03/27/2024 16:30	03/28/2024 16:18	
Thallium	<0.0005	mg/L	0.0005	5	03/27/2024 16:30	03/28/2024 16:18	
Method: SM4500 H+ B-2011							
pH	**6.8**	units	0.1	1		03/27/2024 16:14	*
Method: SM4500-F-C-2011							
Fluoride	<0.1	mg/L	0.1	1		03/27/2024 16:14	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 43801

Aluminum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	101.0		85	115		
MB		<0.1							
MS/MSD	43799001		0.4	99.3	114.0	70	130	2.0	20

Aluminum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	101.0		85	115		
MB		<0.1							
SPK/SPKD	43801005		0.4	111.0	113.0	75	125	1.5	20

Iron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
MS/MSD	43799001		0.4	81.0	90.4	70	130	3.7	20

Iron, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
SPK/SPKD	43801005		0.4	108.0	108.0	75	125	0.2	20

Lithium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	104.0		85	115		
MB		<0.04							

Manganese — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
MS/MSD	43799001		0.4	83.2	91.1	70	130	6.0	20

Manganese, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
SPK/SPKD	43801005		0.4	90.2	90.0	75	125	0.2	20

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Account #: 5109 **Client:** Great River Energy

Antimony				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
MB		<0.001							
SPK/SPKD	43801007		0.1	105.0	105.0	75	125	0.1	20

Arsenic				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.5		80	120		
MB		<0.002							
SPK	43140001		2	103.0		75	125		
SPK	43687001		2	109.0		75	125		
SPK/SPKD	43801007		0.1	105.0	103.0	75	125	2.2	20

Barium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
MB		<0.002							
SPK/SPKD	43801007		0.1	106.0	107.0	75	125	0.5	20

Beryllium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.1		80	120		
MB		<0.0005							
SPK/SPKD	43801007		0.1	102.0	103.0	75	125	1.0	20

Cadmium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
MB		<0.0005							
SPK/SPKD	43801007		0.1	105.0	105.0	75	125	0.4	20

Chromium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
SPK/SPKD	43801007		0.1	103.0	105.0	75	125	1.4	20

Cobalt				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		

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Account #: 5109 **Client:** Great River Energy

Cobalt				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.002							
SPK/SPKD	43801007		0.1	105.0	107.0	75	125	1.0	20

Lead				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
MB		<0.0005							
SPK/SPKD	43801007		0.1	105.0	106.0	75	125	0.7	20

Molybdenum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
MB		<0.002							
SPK/SPKD	43801007		0.1	106.0	106.0	75	125	0.5	20

Selenium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	93.9		80	120		
MB		<0.005							
SPK	43140001		2	100.0		75	125		
SPK	43687001		2	95.4		75	125		
SPK/SPKD	43801007		0.1	97.1	100.0	75	125	3.3	20

Thallium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.3		80	120		
MB		<0.0005							
SPK/SPKD	43801007		0.1	98.2	99.6	75	125	1.4	20

Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	95.6		85	115		
LFB			0.002	100.0		85	115		
LRB		<0.0002							
MB		<0.0002							
MS/MSD	43303001		0.002	103.0	102.0	70	130	4.9	20
MS/MSD	43801007		0.002	96.0	97.4	70	130	0.0	20
MS/MSD	43924012		0.002	99.8	99.8	70	130	0.0	20

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Account #: 5109 **Client:** Great River Energy

Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	43924013		0.002	96.7	101.0	70	130	5.1	20
MS/MSD	44049002		0.002	103.0	105.0	70	130	0.0	20
MS/MSD	44114001		0.002	98.4	99.0	70	130	0.0	20

pH				Units: units					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	100.7		98.33	101.67		
CRM-PH			6	100.7		98.33	101.67		
CRM-PH			6	100.3		98.33	101.67		
DUP	43801001							1.6	20
DUP	43823001							0.7	20

Fluoride				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			15.3	106.0		83.99	111.11		
LFB-F			0.5	100.0		90	110		
LFB-F			0.5	102.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MS/MSD	43801001		0.5	96.0	98.0	80	120	1.0	20

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Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 43801

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS UP
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: Mar 2024
Address:		Lakewood, CO 80228	Sampled By:
Phone:			
Email:	CJohnston@GREnergy.com		

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric	Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-6B	26 Mar 24	1517	GW	X	X	X			7.13	1625.4	8.77	0.0	App IV + Total and Dissolved Iron, Aluminum, and Mangangese (See Attachments)
002	MW-7A	26 Mar 24	0947	GW	X	X	X			3.36	17,401	7.52	0.0	
003	MW-7B	26 Mar 24	1143	GW	X	X	X			4.31	1629.0	7.93	0.0	
004	DUP-UP	26 Mar 24	1143	GW	X	X	X			NA	NA	NA	NA	
005	MW-8B	26 Mar 24	1137	GW	X	X	X			5.57	896	7.47	1.33 → 0.0	
006	MW-105	26 Mar 24	1416	GW	X	X	X			7.79	1993.7	8.50	0.0	
007	FB-UP	26 Mar 24	1230	GW	X	X	X			NA	NA	NA	NA	

Comments: Upgradient/Side-gradient Wells
*DUO E

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	RO Temp (°C)	Name	Date/Time
1	26 Mar 24 1706	~~Log In~~ Walk In #2	2.5 (TM562) TM805	Heather Horst	27 Mar 24 0800
2					

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	10B
Sampling Personal:	Dakota Yoatham

Weather Conditions: Temp: 3 °F Wind: N @ 10-15 Precip: (Sunny) / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	18.01	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	22.23	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	27	Sec.
Recover:	3	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
26Mar 24	1452	Start of Well Purge									
	1457	7.50	1617.7	8.81	5.01	195.0	0.0	19.60	200.0	1.0	Clear
	1502	7.07	1614.8	8.81	5.42	197.8	0.0	20.32	200.0	1.0	Clear
	1507	7.10	1617.7	8.80	5.07	199.9	0.0	20.90	200.0	1.0	Clear
	1512	7.16	1611.5	8.77	4.21	201.4	0.0	21.37	200.0	1.0	Clear
	1517	7.13	1625.4	8.77	3.85	201.7	0.0	21.50	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
26Mar 24	1517	7.13	1625.4	8.77			0.0				Clear

Comments: *DUP E

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	7A
Sampling Personal:	Dirt Hoth

Weather Conditions: Temp: 3 °F Wind: N @ 10-15 Precip: (Sunny / Partly Cloudy / Cloudy)

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	11.02	ft
Depth to Top of Pump:	14.69	ft
Water Level After Sample:	Below Dump	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	2	Sec.
Recover:	28	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
26 Mar 24	0917	Start of Well Purge						11.02			
	0917	3.76	17,210	7.56	2.74	278	0.00	11.78	200.0	1.0	Clear
	0927	3.53	17,224	7.57	3.28	277	0.00	12.22	200.0	1.0	Clear
	0927	3.31	17,101	7.56	4.82	274	0.00	12.59	200.0	1.0	Clear
	0937	3.60	17,186	7.53	4.41	272	0.00	12.99	200.0	1.0	Clear
	0937	3.16	17248	7.54	4.12	270	0.00	13.34	200.0	1.0	Clear
	0947	3.24	17359	7.52	3.65	267	0.00	13.78	200.0	1.0	Clear
	0947	3.36	17.401	7.52	3.43	265	0.00	13.95	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 7.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
26 Mar 24	~~0940~~ 0947	~~2.90~~ 3.36	~~17267~~ 17,401	~~7.56~~ 7.52			0.00				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

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2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	FB
Sampling Personal:	

Weather Conditions: Temp: 0° °F Wind: 10-15 @ N Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	11.24	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	11.60	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	2	Sec.
Recover:	28	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
(YES) / NO
Duplicate Sample ID:
DUP-UP

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
26 Mar 24	11:18	Start of Well Purge									
	1123	2.37	1672.2	8.05	0.12	-67.4	0.00	11.35	200.0	1.0	Clear
	1128	2.57	1662.7	8.07	0.07	-84.4	0.00	11.60	200.0	1.0	Clear
	1133	4.08	1637.8	7.95	0.00	-103.4	0.00	11.60	200.0	1.0	Clear
	1138	4.20	1631.9	7.94	0.00	-109.0	0.00	11.35	200.0	1.0	Clear
	1143	4.31	1629.0	7.93	0.00	-112.1	0.00	11.35	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
26 Mar 24	1143	4.31	1629.0	7.93			0.00				Clear

Comments: Collected FB-UP at 1230

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Account #: 5109 **Client:** Great River Energy

2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	BR
Sampling Personal:	JMH

Weather Conditions: Temp: 0 °F Wind: NW @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	45.77	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	45.82	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Tubing

Control Settings:	
Purge: 5	Sec.
Recover: 10	Sec.
PSI: —	

Orange

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
26 Mar 24	1112	Start of Well Purge									
	1117	5.20	1144	7.42	8.41	38.5	0.67	45.81	200.0	1.0	Clear
	1122	5.08	1064	7.42	7.63	55.8	7.67	45.81	200.0	1.0	Clear
	1127	5.14	918	7.43	9.01	53.3	0.90	45.82	200.0	1.0	Clear
	1132	5.31	909	7.45	10.89	54.6	0.41	45.82	200.0	1.0	Clear
	1137	5.37	896	7.47	11.06	57.8	1.33	45.82	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
26 Mar 24	1137	5.37	896	7.47			1.33				Clear

Comments:	

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	105
Sampling Personal:	[illegible]

Weather Conditions: Temp: 3 °F Wind: N @ 10-15 Precip: (Sunny) / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	14.96	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	15.08	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
26 Mar 24	1346	Start of Well Purge									
	1351	7.85	1991.4	7.78	1.98	165.0	18.01	15.12	200.0	1.0	Clear
	1356	7.97	1972.4	8.20	1.31	169.0	12.44	15.21	200.0	1.0	Clear
	1401	7.87	1991.0	8.37	0.79	170.3	3.34	15.24	200.0	1.0	Clear
	1406	7.79	1992.5	8.47	0.57	170.1	0.00	15.28	200.0	1.0	Clear
	1411	7.71	1995.4	8.48	0.36	169.1	0.00	15.25	200.0	1.0	Clear
	1416	7.79	1993.7	8.50	0.31	167.9	0.00	15.25	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 6.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
26 Mar 24	1416	7.79	1993.7	8.50			0.00				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

February 2024 GREAT RIVER ENERGY - STANTON STATION GL21509219.000
DRAFT - SUBJECT TO CHANGE

Table 1: Proposed 2024 Stanton Station Plant Facilities Sampling Schedule

Location	Well ID		2024				
			Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-7A	1	Field Parameters (Field pH)				
	MW-7B	1					
	MW-8B	1					
	MW-105	1	Field Parameters (Field pH)				
Bottom Ash Landfill	MW-9N	1					
	MW-102	1					
	MW-103	1					
Property Boundary	MW-PB1	1					
Wells Installed in May 2022	MW-210	1					
	MW-211	1					
	MW-212	1					
	MW-213	1					
	MW-214	1					
Piezometers [1]	PZ-BA-A	1					
	PZ-BA-B	1					
Sumps [2]	BAI-Sump-S	1					
Surface Water [3]	Missouri-River	1					
	Rail-Drainage	1					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R	1					
	MW-104	1					
Bottom Ash Impoundment	MW-201	1				Subset of App IV detected in Q1, Iron, Aluminum, Manganese (Dissolved and Total for Each Metal)	
	MW-202	1					
	MW-203	1					
Closed Landfill	MW-10	1			App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)
	MW-204	1	Sulfate + Field parameters				
	MW-205	1	Sulfate + Field parameters				
Additional Internal Locations	MW-4	1					
	MW-PB2	1					
Wells Installed in February 2023	MW-215	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-216	1					
	MW-217	1					
	MW-218	1					
	MW-219	1					
	MW-220	1					
	MW-221	1					
	MW-222	1					
	MW-300	1					
	MW-301	1					
	MW-PB3	1					
Total # of Sample Locations			4	35	40	6	40

Notes:
App III - Appendix III Detection Monitoring List, Table 2
App IV - Appendix IV Assessment Monitoring List, Table 3
Additional List - Table 4
Required field parameters are listed in Table 2 and Table 3
Suggested locations for collection of QA/QC samples are listed in Table 5.
1. The piezometers do not have dedicated pumps and will need to be sampled by other methods.
2. The sump should be sampled using surface water collection methods via the sump riser.
3. Surface water samples to be collected if safely accessible and free water is present.

DRAFT - SUBJECT TO CHANGE

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Member ACIL

Account #: 5109 **Client:** Great River Energy

February 2024

March 2024 event List

GL21509219.000

Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-108-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.
* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

* Total & Dissolved
Iron
Aluminum
Manganese

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS UP (43800) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43800001 **Date Collected:** 03/26/2024 15:17 **Matrix:** Groundwater
Sample ID: MW-6B **Date Received:** 03/26/2024 17:06 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		05/15/2024 13:48	
Radium 228	See Attached			1		05/15/2024 13:48	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID:	43800002	**Date Collected:**	03/26/2024 09:47	**Matrix:**	Groundwater
Sample ID:	MW-7A	**Date Received:**	03/26/2024 17:06	**Collector:**	MVTL Field Service

Temp @ Receipt (C): 2.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		05/15/2024 13:48	
Radium 228	See Attached			1		05/15/2024 13:48	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43800003 **Date Collected:** 03/26/2024 11:43 **Matrix:** Groundwater
Sample ID: MW-7B **Date Received:** 03/26/2024 17:06 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		05/15/2024 13:48	
Radium 228	See Attached			1		05/15/2024 13:48	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43800004 **Date Collected:** 03/26/2024 11:43 **Matrix:** Groundwater
Sample ID: DUP-UP **Date Received:** 03/26/2024 17:06 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		05/15/2024 13:48	
Radium 228	See Attached			1		05/15/2024 13:48	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43800005 **Date Collected:** 03/26/2024 11:37 **Matrix:** Groundwater
Sample ID: MW-8B **Date Received:** 03/26/2024 17:06 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		05/15/2024 13:48	
Radium 228	See Attached			1		05/15/2024 13:48	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43800006 **Date Collected:** 03/26/2024 14:16 **Matrix:** Groundwater
Sample ID: MW-105 **Date Received:** 03/26/2024 17:06 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		05/15/2024 13:48	
Radium 228	See Attached			1		05/15/2024 13:48	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43800007 **Date Collected:** 03/26/2024 12:30 **Matrix:** Groundwater
Sample ID: FB-UP **Date Received:** 03/26/2024 17:06 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		05/15/2024 13:48	
Radium 228	See Attached			1		05/15/2024 13:48	

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ANALYTICAL SUMMARY REPORT

May 13, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24030796 Quote ID: C15480
Project Name: 43800

Energy Laboratories, Inc. Casper WY received the following 7 samples for Minnesota Valley Testing Laboratories on 3/29/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24030796-001	43800001, MW-6B	03/26/24 15:17	03/29/24	Groundwater	Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total
C24030796-002	43800002, MW-7A	03/26/24 9:47	03/29/24	Groundwater	Same As Above
C24030796-003	43800003, MW-7B	03/26/24 11:43	03/29/24	Groundwater	Same As Above
C24030796-004	43800004, DUP-UP	03/26/24 11:43	03/29/24	Groundwater	Same As Above
C24030796-005	43800005, MW-8B	03/26/24 11:37	03/29/24	Groundwater	Same As Above
C24030796-006	43800006, MW-105	03/26/24 14:16	03/29/24	Groundwater	Same As Above
C24030796-007	43800007, FB-Up	03/26/24 12:30	03/29/24	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager .

Report Approved By:

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Account #: 5109 **Client:** Great River Energy

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 43800
Lab ID: C24030796-001
Client Sample ID: 43800001, MW-6B

Report Date: 05/13/24
Collection Date: 03/26/24 15:17
DateReceived: 03/29/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	04/17/24 12:23 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/17/24 12:23 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/17/24 12:23 / alb
Radium 228	-0.1	pCi/L	U			RA-05	04/12/24 13:13 / kdk
Radium 228 precision (±)	0.6	pCi/L				RA-05	04/12/24 13:13 / kdk
Radium 228 MDC	1.1	pCi/L				RA-05	04/12/24 13:13 / kdk
Radium 226 + Radium 228	0.6	pCi/L	U			A7500-RA	04/18/24 10:51 / dmf
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	04/18/24 10:51 / dmf
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	04/18/24 10:51 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 2 of 14

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 43800
Lab ID: C24030796-002
Client Sample ID: 43800002, MW-7A

Report Date: 05/13/24
Collection Date: 03/26/24 09:47
DateReceived: 03/29/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	04/17/24 12:23 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/17/24 12:23 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/17/24 12:23 / alb
Radium 228	-0.4	pCi/L	U			RA-05	04/12/24 13:13 / kdk
Radium 228 precision (±)	0.6	pCi/L				RA-05	04/12/24 13:13 / kdk
Radium 228 MDC	1.0	pCi/L				RA-05	04/12/24 13:13 / kdk
Radium 226 + Radium 228	0.6	pCi/L	U			A7500-RA	04/18/24 10:51 / dmf
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	04/18/24 10:51 / dmf
Radium 226 + Radium 228 MDC	1.0	pCi/L				A7500-RA	04/18/24 10:51 / dmf

Report Definitions:
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QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 43800
Lab ID: C24030796-003
Client Sample ID: 43800003, MW-7B

Report Date: 05/13/24
Collection Date: 03/26/24 11:43
DateReceived: 03/29/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.2	pCi/L				E903.0	04/17/24 12:23 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/17/24 12:23 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/17/24 12:23 / alb
Radium 228	0.1	pCi/L	U			RA-05	04/12/24 13:13 / kdk
Radium 228 precision (±)	0.6	pCi/L				RA-05	04/12/24 13:13 / kdk
Radium 228 MDC	1.1	pCi/L				RA-05	04/12/24 13:13 / kdk
Radium 226 + Radium 228	0.8	pCi/L	U			A7500-RA	04/18/24 10:51 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	04/18/24 10:51 / dmf
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	04/18/24 10:51 / dmf

Report Definitions:
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QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 43800
Lab ID: C24030796-004
Client Sample ID: 43800004, DUP-UP

Report Date: 05/13/24
Collection Date: 03/26/24 11:43
DateReceived: 03/29/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	04/17/24 12:23 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/17/24 12:23 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/17/24 12:23 / alb
Radium 228	-0.07	pCi/L	U			RA-05	04/12/24 13:13 / kdk
Radium 228 precision (±)	0.7	pCi/L				RA-05	04/12/24 13:13 / kdk
Radium 228 MDC	1.1	pCi/L				RA-05	04/12/24 13:13 / kdk
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	04/18/24 10:51 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	04/18/24 10:51 / dmf
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	04/18/24 10:51 / dmf

Report Definitions:
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QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 43800
Lab ID: C24030796-005
Client Sample ID: 43800005, MW-8B

Report Date: 05/13/24
Collection Date: 03/26/24 11:37
DateReceived: 03/29/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.2	pCi/L	U			E903.0	04/17/24 14:26 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	04/17/24 14:26 / alb
Radium 226 MDC	0.3	pCi/L				E903.0	04/17/24 14:26 / alb
Radium 228	-0.05	pCi/L	U			RA-05	04/12/24 13:13 / kdk
Radium 228 precision (±)	0.7	pCi/L				RA-05	04/12/24 13:13 / kdk
Radium 228 MDC	1.1	pCi/L				RA-05	04/12/24 13:13 / kdk
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	04/18/24 10:51 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	04/18/24 10:51 / dmf
Radium 226 + Radium 228 MDC	1.2	pCi/L				A7500-RA	04/18/24 10:51 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 43800
Lab ID: C24030796-006
Client Sample ID: 43800006, MW-105

Report Date: 05/13/24
Collection Date: 03/26/24 14:16
DateReceived: 03/29/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.2	pCi/L				E903.0	04/17/24 14:26 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/17/24 14:26 / alb
Radium 226 MDC	0.1	pCi/L				E903.0	04/17/24 14:26 / alb
Radium 228	0.6	pCi/L	U			RA-05	04/12/24 13:14 / kdk
Radium 228 precision (±)	0.7	pCi/L				RA-05	04/12/24 13:14 / kdk
Radium 228 MDC	1.0	pCi/L				RA-05	04/12/24 13:14 / kdk
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	04/18/24 10:51 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	04/18/24 10:51 / dmf
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	04/18/24 10:51 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 7 of 14

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 43800
Lab ID: C24030796-007
Client Sample ID: 43800007, FB-Up

Report Date: 05/13/24
Collection Date: 03/26/24 12:30
DateReceived: 03/29/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	04/17/24 14:26 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	04/17/24 14:26 / alb
Radium 226 MDC	0.3	pCi/L				E903.0	04/17/24 14:26 / alb
Radium 228	0.2	pCi/L	U			RA-05	04/12/24 13:14 / kdk
Radium 228 precision (±)	0.7	pCi/L				RA-05	04/12/24 13:14 / kdk
Radium 228 MDC	1.2	pCi/L				RA-05	04/12/24 13:14 / kdk
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	04/18/24 10:51 / dmf
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	04/18/24 10:51 / dmf
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	04/18/24 10:51 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24030796 **Report Date:** 04/18/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11278
Lab ID: LCS-RA226-11278	3	Laboratory Control Sample				Run: TENNELEC-3_240409C				04/17/24 12:23
Radium 226		8.8	pCi/L		88	70	130			
Radium 226 precision (±)		1.7	pCi/L							
Radium 226 MDC		0.18	pCi/L							
Lab ID: C24030796-007ADUP	3	Sample Duplicate				Run: TENNELEC-3_240409C				04/17/24 14:26
Radium 226		0.081	pCi/L					23	30	U
Radium 226 precision (±)		0.12	pCi/L							
Radium 226 MDC		0.19	pCi/L							
- The RER result is 0.10.										
Lab ID: MB-RA226-11278	3	Method Blank				Run: TENNELEC-3_240409C				04/17/24 12:23
Radium 226		0.1	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							

Qualifiers:

RL - Analyte Reporting Limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

Page 9 of 14

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24030796 **Report Date:** 04/18/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7370
Lab ID: LCS-228-RA226-11278	3	Laboratory Control Sample				Run: TENNELEC-4_240409A				04/12/24 13:14
Radium 228		6.7	pCi/L		107	70	130			
Radium 228 precision (±)		1.5	pCi/L							
Radium 228 MDC		1.1	pCi/L							
Lab ID: MB-RA226-11278	3	Method Blank				Run: TENNELEC-4_240409A				04/12/24 13:14
Radium 228		0.6	pCi/L							U
Radium 228 precision (±)		0.7	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C24030796-007ADUP	3	Sample Duplicate				Run: TENNELEC-4_240409A				04/12/24 13:13
Radium 228		-0.0083	pCi/L					220	30	UR
Radium 228 precision (±)		0.67	pCi/L							
Radium 228 MDC		1.1	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than or equal to the limit of 3, the RER result is 0.21.

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24030796

Login completed by: Dallas W. Smith Date Received: 3/29/2024
Reviewed by: lcadreau Received by: LXQ
Reviewed Date: 4/3/2024 Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	10.3°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Contact and Corrective Action Comments:

The temperature of the sample(s) for shipping container 1 was 8.4°C and shipping container 2 was 10.3°C.

A revised Chain of Custody was received in an email from Tera Olson on 4/3/24. MEH

The following instructions were provided per email conversation with Tera Olson on 4/2/24:

Page 11 of 14

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Work Order Receipt Checklist - Continued

Minnesota Valley Testing Laboratories C24030796

The sample identification indicated on the container labels for the samples begin with 43800 and on the Chain of Custody they begin with 43801. Proceeded with the sample identifications as indicated on the sample containers.

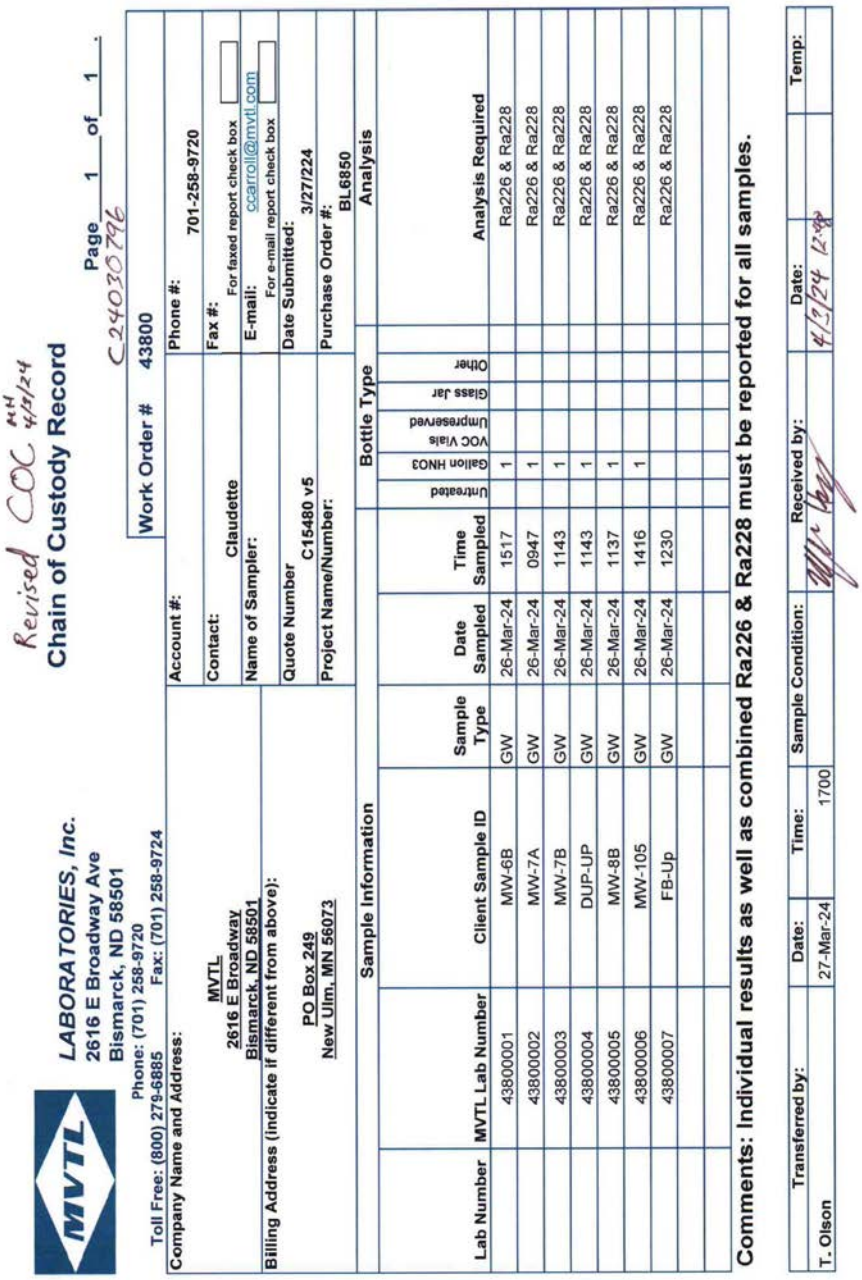
The project indicated on the Chain of Custody is 43801. Proceed with 43800 as the project. 4/2/24 MEH

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1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Member ACIL

Account #: 5109 **Client:** Great River Energy



Revised COC MH 4/8/24

Chain of Custody Record

C24030796

Page 1 of 1

LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Work Order # 43800

Company Name and Address: MVTL, 2616 E Broadway, Bismarck, ND 58501
Account #:
Contact: Claudette
Name of Sampler:
Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box

Billing Address (indicate if different from above): PO Box 249, New Ulm, MN 56073
Quote Number C15480 v5
Project Name/Number:
Date Submitted: 3/27/24
Purchase Order #: BL6850

Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Untreated	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis Required
	43800001	MW-6B	GW	26-Mar-24	1517		1				Ra226 & Ra228
	43800002	MW-7A	GW	26-Mar-24	0947		1				Ra226 & Ra228
	43800003	MW-7B	GW	26-Mar-24	1143		1				Ra226 & Ra228
	43800004	DUP-UP	GW	26-Mar-24	1143		1				Ra226 & Ra228
	43800005	MW-8B	GW	26-Mar-24	1137		1				Ra226 & Ra228
	43800006	MW-105	GW	26-Mar-24	1416		1				Ra226 & Ra228
	43800007	FB-Up	GW	26-Mar-24	1230						Ra226 & Ra228

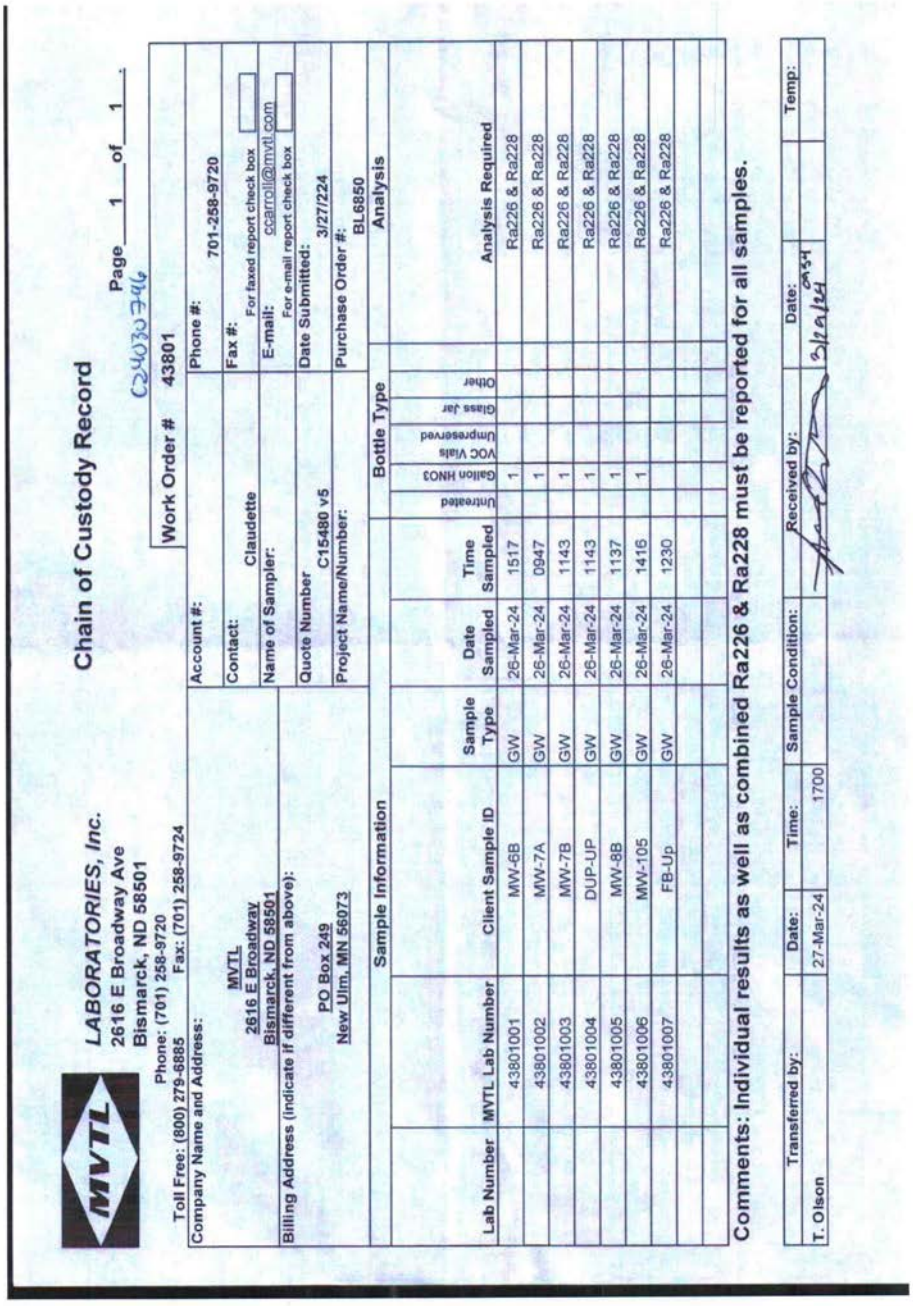
Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
T. Olson	27-Mar-24	1700			4/3/24 12:40	

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy



MVTL LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
Phone: (701) 258-9720 Fax: (701) 258-9724
Toll Free: (800) 279-6885

Chain of Custody Record

C24030346

Page 1 of 1

Work Order # 43801

Company Name and Address: MVTL, 2616 E Broadway, Bismarck, ND 58501
Account #:
Phone #: 701-258-9720
Contact: Claudette
Fax #: For faxed report check box
Name of Sampler:
E-mail: ccarroll@mvtl.com For e-mail report check box
Billing Address (indicate if different from above): PO Box 249, New Ulm, MN 56073
Quote Number C15480 v5
Date Submitted: 3/27/24
Project Name/Number:
Purchase Order #: BL6850

Lab Number	Sample Information: MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Untreated	Gallon HNO3	VOC Vials	Unpreserved	Glass Jar	Other	Analysis: Analysis Required
	43801001	MW-6B	GW	26-Mar-24	1517		1					Ra226 & Ra228
	43801002	MW-7A	GW	26-Mar-24	0947		1					Ra226 & Ra228
	43801003	MW-7B	GW	26-Mar-24	1143		1					Ra226 & Ra228
	43801004	DUP-UP	GW	26-Mar-24	1143		1					Ra226 & Ra228
	43801005	MW-8B	GW	26-Mar-24	1137		1					Ra226 & Ra228
	43801006	MW-105	GW	26-Mar-24	1416		1					Ra226 & Ra228
	43801007	FB-Up	GW	26-Mar-24	1230							Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
T. Olson	27-Mar-24	1700			3/28/24 0454	

Page 14 of 14

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Member ACIL

Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 43800

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS UP
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: Mar 2024
Address:		Lakewood, CO 80228	Sampled By:
Phone:			
Email:	CJohnston@GREnergy.com		

Sample Information				Sample Containers									Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Gal Nitric								Analysis Required
001	MW-6B	26mar24	1517	GW					X								Radium 226 and 228 Combined
002	MW-7A	26mar24	0947	GW					X								
003	MW-7B	26mar24	1143	GW					X								
004	DUP-UP	26mar24	1143	GW					X								
005	MW-8B	26mar24	1137	GW					X								
006	MW-105	26mar24	1416	GW					X								
007	FB-UP	26mar24	1230	GW					X								

Comments: Upgradient/Side-gradient Wells Date and time was taken from field data sheets. 27mar24.1111

Relinquished By			Sample Condition		Received By	
	Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1		26 Mar 24 1706	Log In Walk In #2	1.5 TM562 / TM805	Heather Horst	27 mar 24 0800
2						

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	10B
Sampling Personal:	Dakota Yoatham

Weather Conditions: Temp: 76 °F Wind: N @ 10-15 Precip: (Sunny) / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	18.01	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	22.23	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	27	Sec.
Recover:	3	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
26Mar 24	1452	Start of Well Purge									
	1457	7.50	1617.7	8.81	5.01	195.0	0.0	19.60	200.0	1.0	Clear
	1502	7.07	1614.8	8.81	5.42	197.8	0.0	20.32	200.0	1.0	Clear
	1607	7.10	1617.7	8.80	5.07	199.9	0.0	20.90	200.0	1.0	Clear
	1612	7.16	1411.5	8.77	4.21	201.4	0.0	21.37	200.0	1.0	Clear
	1517	7.13	1625.4	8.77	3.85	201.7	0.0	21.56	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
26Mar24	1517	7.13	1625.4	8.77			0.0				Clear

Comments: DUP E

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	7A
Sampling Personal:	Dakota Heath

Weather Conditions: Temp: 3 °F Wind: N @ 10-15 Precip: (Sunny / Partly Cloudy / Cloudy)

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	11.02	ft
Depth to Top of Pump:	— 14.69	ft
Water Level After Sample:	Below Pump	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	2	Sec.
Recover:	28	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
26 Mar 24	0917	Start of Well Purge						11.02			
	0917	3.76	17,210	7.56	2.74	278	0.00	11.78	200.0	1.0	Clear
	0927	3.53	17,224	7.57	3.28	277	0.00	12.22	200.0	1.0	Clear
	0927	3.31	17,101	7.56	4.82	274	0.00	12.59	200.0	1.0	Clear
	0937	3.60	17,181	7.53	4.41	272	0.00	12.99	200.0	1.0	Clear
	0937	3.16	17,248	7.54	4.12	270	0.00	13.34	200.0	1.0	Clear
	0947	3.24	17,359	7.52	3.65	267	0.00	13.78	200.0	1.0	Clear
	0947	3.36	17,401	7.52	3.43	265	0.00	13.95	200.0	1.0	Clear
		Well Stabilized?	(YES)	NO				Total Volume Purged:		7.0	Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
26 Mar 24	~~0940~~	~~2.90~~	~~17267~~	~~7.56~~			0.00				Clear
Comments:	0947	3.36	17,401	7.52							

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Member ACIL

Account #: 5109 **Client:** Great River Energy

Field Datasheet

Groundwater Assessment

2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	7B
Sampling Personal:	

Weather Conditions: Temp: 0° °F Wind: 10-15 @ N Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	11.24	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	11.60	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	2	Sec.
Recover:	28	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
(YES) / NO
Duplicate Sample ID:
DUP-UP

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
26 Mar 24	11:18	Start of Well Purge									
	1123	2.37	1672.2	8.05	0.12	-67.4	0.00	11.35	200.0	1.0	Clear
	1128	2.57	1662.7	8.07	0.07	-84.4	0.00	11.60	200.0	1.0	Clear
	1133	4.08	1637.8	7.95	0.00	-105.4	0.00	11.60	200.0	1.0	Clear
	1138	4.20	1631.9	7.94	0.00	-109.0	0.00	11.35	200.0	1.0	Clear
	1143	4.31	1629.0	7.93	0.00	-112.1	0.00	11.35	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
26 Mar 24	1143	4.31	1629.0	7.93			0.00				Clear

Comments: Collected FB-UP at 1230

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	BR
Sampling Personal:	JMH

Weather Conditions: Temp: 0 °F Wind: N @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	45.77	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	45.82	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Tubing

Control Settings:	
Purge: 5	Sec.
Recover: 10	Sec.
PSI: —	

Orange

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
26 Mar 24	1112	Start of Well Purge									
	1117	5.20	1144	7.42	5.41	38.5	0.67	45.81	200.0	1.0	Clear
	1122	5.08	1064	7.42	7.63	55.8	7.67	45.81	200.0	1.0	Clear
	1127	5.14	918	7.43	9.01	53.3	0.90	45.82	200.0	1.0	Clear
	1132	5.31	909	7.45	10.89	54.8	0.41	45.82	200.0	1.0	Clear
	1137	5.37	896	7.47	11.66	57.8	1.33	45.82	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
26 Mar 24	1137	5.37	896	7.47			1.33				Clear

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Mar 2024
Sample ID: 105
Sampling Personal:

Weather Conditions: Temp: 3 °F Wind: N @ 10-15 Precip: (Sunny) / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	14.96	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	15.08	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	20	

Bottle List:
1 Liter Raw 1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample? YES (NO)
Duplicate Sample ID:

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
26 Mar 24	1346	Start of Well Purge									
	1351	7.85	1991.4	7.78	1.98	165.0	18.01	15.12	200.0	1.0	Clear
	1356	7.97	1977.4	8.20	1.31	169.0	12.44	15.21	200.0	1.0	Clear
	1401	7.87	1991.0	8.37	0.79	170.3	3.34	15.24	200.0	1.0	Clear
	1406	7.79	1992.5	8.47	0.57	170.1	0.00	15.28	200.0	1.0	Clear
	1411	7.71	1995.4	8.48	0.36	169.1	0.00	15.25	200.0	1.0	Clear
	1416	7.79	1993.7	8.50	0.31	167.9	0.00	15.25	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 6.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
26 Mar 24	1416	7.79	1993.7	8.50			0.00				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS BAL (44049) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44049001 **Date Collected:** 03/28/2024 12:18 **Matrix:** Groundwater
Sample ID: MW-9N **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**4270**	umhos/cm	1	1		03/28/2024 12:18	
Method: 150.2							
pH - Field	**7.8**	units	0.01	1		03/28/2024 12:18	
Method: 170.1							
Temperature - Field C	**5.79**	degrees C		1		03/28/2024 12:18	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0456**	mg/L	0.02	1	03/29/2024 16:10	04/02/2024 12:37	
Method: EPA 6020B							
Antimony	**0.0014**	mg/L	0.001	5	03/29/2024 16:10	04/02/2024 17:50	
Arsenic	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 17:50	
Barium	**0.0917**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 17:50	
Beryllium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 17:50	
Cadmium	**0.0007**	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 17:50	
Chromium	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 17:50	
Cobalt	**0.0159**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 17:50	
Lead	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 17:50	
Molybdenum	**0.0744**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 17:50	
Selenium	**0.0106**	mg/L	0.005	5	03/29/2024 16:10	04/02/2024 17:50	
Thallium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 17:50	
Method: SM4500 H+ B-2011							
pH	**7.4**	units	0.1	1		03/29/2024 15:58	*
Method: SM4500-F-C-2011							
Fluoride	**0.63**	mg/L	0.1	1		03/29/2024 15:58	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44049002 **Date Collected:** 03/28/2024 13:23 **Matrix:** Groundwater
Sample ID: MW-102 **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2155**	umhos/cm	1	1		03/28/2024 13:23	
Method: 150.2							
pH - Field	**7.99**	units	0.01	1		03/28/2024 13:23	
Method: 170.1							
Temperature - Field C	**8.35**	degrees C		1		03/28/2024 13:23	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0551**	mg/L	0.02	1	03/29/2024 16:10	04/02/2024 12:37	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/29/2024 16:10	04/02/2024 17:55	
Arsenic	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 17:55	
Barium	**0.0267**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 17:55	
Beryllium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 17:55	
Cadmium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 17:55	
Chromium	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 17:55	
Cobalt	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 17:55	
Lead	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 17:55	
Molybdenum	**0.0192**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 17:55	
Selenium	<0.005	mg/L	0.005	5	03/29/2024 16:10	04/02/2024 17:55	
Thallium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 17:55	
Method: SM4500 H+ B-2011							
pH	**7.7**	units	0.1	1		03/29/2024 16:03	*
Method: SM4500-F-C-2011							
Fluoride	**0.46**	mg/L	0.1	1		03/29/2024 16:03	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44049003 **Date Collected:** 03/28/2024 11:18 **Matrix:** Groundwater
Sample ID: MW-103 **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**3107**	umhos/cm	1	1		03/28/2024 11:18	
Method: 150.2							
pH - Field	**8.84**	units	0.01	1		03/28/2024 11:18	
Method: 170.1							
Temperature - Field C	**7.54**	degrees C		1		03/28/2024 11:18	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0250**	mg/L	0.02	1	03/29/2024 16:10	04/02/2024 12:39	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/29/2024 16:10	04/02/2024 18:12	
Arsenic	**0.0162**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 18:12	
Barium	**0.0548**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 18:12	
Beryllium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 18:12	
Cadmium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 18:12	
Chromium	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 18:12	
Cobalt	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 18:12	
Lead	**0.0011**	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 18:12	
Molybdenum	**0.0592**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 18:12	
Selenium	**0.0112**	mg/L	0.005	5	03/29/2024 16:10	04/02/2024 18:12	
Thallium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 18:12	
Method: SM4500 H+ B-2011							
pH	**8.6**	units	0.1	1		03/29/2024 16:09	*
Method: SM4500-F-C-2011							
Fluoride	**0.48**	mg/L	0.1	1		03/29/2024 16:09	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 44049

Aluminum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	100.0		85	115		
MB		<0.1							
PDS/PDSD	43924001		20	109.0	110.0	75	125	0.9	20
PDS/PDSD	43924010		10	111.0	112.0	75	125	0.5	20
MS/MSD	44049002		0.4	123.0	116.0	70	130	3.2	20
PDS/PDSD	44050002		20	110.0	108.0	75	125	0.6	20
PDS/PDSD	44052004		0.4	81.4	84.9	75	125	1.7	20

Aluminum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	100.0		85	115		
MB		<0.1							
SPK/SPKD	43924007		0.4	113.0	111.0	75	125	1.5	20
SPK/SPKD	44049002		0.4	105.0	106.0	75	125	0.5	20
SPK/SPKD	44051001		0.4	111.0	114.0	75	125	2.1	20
PDS/PDSD	44113001		2	95.7	101.0	75	125	2.0	20

Iron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
PDS/PDSD	43924001		20	104.0	106.0	75	125	1.0	20
PDS/PDSD	43924010		10	107.0	107.0	75	125	0.1	20
MS/MSD	44049002		0.4	89.1	84.5	70	130	2.9	20
PDS/PDSD	44050002		20	107.0	107.0	75	125	0.0	20
MS/MSD	44114001		0.4	74.3	78.1	70	130	1.4	20

Iron, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
SPK/SPKD	43924007		0.4	77.5	72.7	75	125	1.0	20
SPK/SPKD	44049002		0.4	89.4	90.0	75	125	0.7	20

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Account #: 5109 **Client:** Great River Energy

Iron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	44051001		0.4	81.5	79.6	75	125	0.6	20
PDS/PDSD	44113001		2	89.2	90.8	75	125	0.7	20
PDS/PDSD	44113001		0.4	92.7	94.0	75	125	0.1	20

Lithium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	106.0		85	115		
MB		<0.04							
MS/MSD	44049002		0.4	94.8	97.1	70	130	2.1	20
MS/MSD	44114001		0.4	91.7	91.4	70	130	0.2	20

Manganese				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
PDS/PDSD	43924001		20	112.0	114.0	75	125	1.2	20
PDS/PDSD	43924010		10	106.0	113.0	75	125	5.1	20
MS/MSD	44049002		0.4	106.0	84.3	70	130	13.4	20
PDS/PDSD	44050002		20	110.0	110.0	75	125	0.3	20
PDS/PDSD	44052004		0.4	86.2	88.6	75	125	2.3	20
MS/MSD	44114001		0.4	88.2	89.0	70	130	0.8	20

Manganese, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
SPK/SPKD	43924007		0.4	91.2	90.9	75	125	0.2	20
SPK/SPKD	44049002		0.4	89.7	90.7	75	125	0.8	20
SPK/SPKD	44051001		0.4	92.2	92.0	75	125	0.1	20
PDS/PDSD	44113001		2	93.7	95.2	75	125	1.0	20

Antimony				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.4		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.001							

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Account #: 5109 **Client:** Great River Energy

Antimony — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.001							
MS/MSD	44049002		0.4	101.0	102.0	75	125	1.0	20
MS/MSD	44114001		0.4	102.0	100.0	75	125	1.2	20
SPK	44114001		0.1	109.0		75	125		

Arsenic — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.5		80	120		
LFB-MS			0.1	94.9		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	44049002		0.4	102.0	102.0	75	125	0.5	20
MS/MSD	44114001		0.4	96.8	99.2	75	125	2.6	20
SPK	44114001		0.1	108.0		75	125		

Barium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.7		80	120		
LFB-MS			0.1	99.6		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	44049002		0.4	94.0	94.4	75	125	0.3	20
MS/MSD	44114001		0.4	93.5	95.3	75	125	1.4	20
SPK	44114001		0.1	103.0		75	125		

Beryllium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.0		80	120		
LFB-MS			0.1	94.0		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	44049002		0.4	102.0	103.0	75	125	1.0	20
MS/MSD	44114001		0.4	91.4	99.7	75	125	8.6	20
SPK	44114001		0.1	101.0		75	125		

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Account #: 5109 **Client:** Great River Energy

Cadmium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
LFB-MS			0.1	96.8		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	44049002		0.4	93.2	96.0	75	125	2.9	20
MS/MSD	44114001		0.4	98.5	98.2	75	125	0.3	20
SPK	44114001		0.1	99.1		75	125		

Chromium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	44049002		0.4	105.0	108.0	75	125	2.8	20
MS/MSD	44114001		0.4	98.5	101.0	75	125	2.5	20
SPK	44114001		0.1	110.0		75	125		

Cobalt				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	44049002		0.4	103.0	105.0	75	125	1.9	20
MS/MSD	44114001		0.4	97.0	97.1	75	125	0.0	20
SPK	44114001		0.1	107.0		75	125		

Lead				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.8		80	120		
LFB-MS			0.1	98.0		80	120		
MB		<0.0005							
MB		<0.0005							

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Lead — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	44049002		0.4	99.5	101.0	75	125	1.3	20
MS/MSD	44114001		0.4	95.1	95.9	75	125	0.8	20
SPK	44114001		0.1	96.3		75	125		

Molybdenum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	44049002		0.4	105.0	107.0	75	125	2.0	20
MS/MSD	44114001		0.4	102.0	104.0	75	125	2.4	20
SPK	44114001		0.1	112.0		75	125		

Selenium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.0		80	120		
LFB-MS			0.1	95.8		80	120		
MB		<0.005							
MB		<0.005							
MS/MSD	44049002		0.4	95.1	94.4	75	125	0.5	20
MS/MSD	44114001		0.4	96.6	96.1	75	125	0.5	20
SPK	44114001		0.1	97.5		75	125		

Thallium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.9		80	120		
LFB-MS			0.1	98.0		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	44049002		0.4	103.0	105.0	75	125	1.4	20
MS/MSD	44114001		0.4	95.9	95.8	75	125	0.3	20
SPK	44114001		0.1	96.4		75	125		

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Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	95.6		85	115		
LFB			0.002	100.0		85	115		
LRB		<0.0002							
MB		<0.0002							
MS/MSD	43303001		0.002	103.0	102.0	70	130	4.9	20
MS/MSD	43801007		0.002	96.0	97.4	70	130	0.0	20
MS/MSD	43924012		0.002	99.8	99.8	70	130	0.0	20
MS/MSD	43924013		0.002	96.7	101.0	70	130	5.1	20
MS/MSD	44049002		0.002	103.0	105.0	70	130	0.0	20
MS/MSD	44114001		0.002	98.4	99.0	70	130	0.0	20

pH				Units: units					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	100.3		98.33	101.67		
CRM-PH			6	100.2		98.33	101.67		
CRM-PH			6	100.3		98.33	101.67		
CRM-PH			6	100.3		98.33	101.67		
DUP	44048001							1.7	20
DUP	44049002							2.1	20
DUP	44050006							3.0	20
DUP	44113001							1.6	20

Fluoride				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			15.3	104.0		83.99	111.11		
LFB-F			0.5	100.0		90	110		
LFB-F			0.5	100.0		90	110		
LFB-F			0.5	98.0		90	110		
LFB-F			0.5	98.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							

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Account #: 5109 **Client:** Great River Energy

Fluoride				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD-F	44049002		0.5	98.0	96.0	80	120	1.1	20
MS/MSD-F	44052002		0.5	96.0	94.0	80	120	1.7	20
MS/MSD-F	44111002		0.5	96.0	96.0	80	120	0.0	20

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Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 44049

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS BAL
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: Mar 2024
Address:		Lakewood, CO 80228	Sampled By: DK, JM
Phone:			
Email:	CJohnston@GREnergy.com		

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric	Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-9N	28 Mar 24	1218	GW	X	X	X			5.79	4270	7.80	16.03	App IV + Total and Dissolved Iron, Aluminum, and Mangangese (See Attachments)
002	MW-102/MS/MSD	28 Mar 24	1323	GW	3	3	3			8.35	2155	7.99	0.00	
003	MW-103	28 Mar 24	1118	GW	X	X	X			7.54	3107	8.84	0.00	

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	ROI Temp (°C)	Name	Date/Time
1	28 Mar 24 1753	Log In Walk In #2	2.7 TM562 / TM805	Heather Horse	29 Mar 24 0800
2					

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet
Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	9N
Sampling Personal:	

Weather Conditions: Temp: 25 °F Wind: 5 @ S-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	13.69	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	13.90	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge:	3 Sec.
Recover:	27 Sec.
PSI:	26

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
28 Mar 24	1153	Start of Well Purge									
	1158	6.36	4275	7.64	0.79	211.7	77.67	14.03	200.0	1.0	clear
	1203	5.92	4272	7.74	1.24	212.1	52.63	13.90	200.0	1.0	Clear
	1208	5.87	4271	7.76	1.29	211.7	46.13	13.90	200.0	1.0	Clear
	1213	5.82	4268	7.78	1.13	211.0	43.48	13.90	200.0	1.0	Clear
	1218	5.79	4270	7.80	0.95	210.0	16.03	13.90	200.0	1.0	clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
28 Mar 24	1218	5.79	4270	7.80			16.03				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	102/MS/MSD
Sampling Personal:	D [illegible]

Weather Conditions: Temp: 25 °F Wind: S @ 5-16 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	17.88	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	18.69	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
28Mar24	1258	Start of Well Purge									
	1303	8.30	2155	7.99	0.46	225.0	0.00	18.30	200.0	1.0	Clear
	1308	8.23	2157	7.99	0.20	223.1	0.00	18.30	200.0	1.0	clear
	1313	8.10	2158	7.98	0.11	220.9	0.00	18.30	200.0	1.0	clear
	1318	8.23	2157	7.98	0.06	218.8	0.00	18.50	200.0	1.0	clear
	1323	8.35	2155	7.99	0.04	217.4	0.00	18.55	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
28Mar24	1323	8.35	2155	7.99			0.00				Clear

Comments:	

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	103
Sampling Personal:	

Weather Conditions: Temp: 20 °F Wind: S @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	18.44	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	19.45	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge:	5 Sec.
Recover:	17 Sec.
PSI:	20

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?	
YES	NO
Duplicate Sample ID:	
—	

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
28Mar24	1053	Start of Well Purge									
	1058	7.81	3300	8.86	0.29	166.7	74.2	18.46	200.0	1.0	Clear
	1103	7.73	3246	8.87	0.22	165.8	0.00	19.45	200.0	1.0	Clear
	1108	7.63	3165	8.87	0.21	164.1	0.00	19.45	200.0	1.0	clear
	1113	7.51	3130	8.83	0.19	163.4	0.00	19.45	200.0	1.0	clear
	1118	7.54	3107	8.84	6.16	162.8	0.00	19.45	200.0	1.0	clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
28 Mar 24	1118	7.54	3107	8.84	0		0.00				Clear

Comments:

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February 2024 March 2024 event List GL21509219.000

Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.
* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

* Total & Dissolved
Iron
Aluminum
Manganese

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Account #: 5109 **Client:** Great River Energy

February 2024 GREAT RIVER ENERGY - STANTON STATION GL21509219.000
DRAFT - SUBJECT TO CHANGE

Table 1: Proposed 2024 Stanton Station Plant Facilities Sampling Schedule

Location	Well ID		2024				
			Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-7A	1	Field Parameters (Field pH)				
	MW-7B	1					
	MW-8B	1					
	MW-105	1	Field Parameters (Field pH)				
Bottom Ash Landfill	MW-9N	1					
	MW-102	1					
	MW-103	1					
Property Boundary	MW-PB1	1					
Wells Installed in May 2022	MW-210	1					
	MW-211	1					
	MW-212	1					
	MW-213	1					
	MW-214	1					
Piezometers [1]	PZ-BA-A	1					
	PZ-BA-B	1					
Sumps [2]	BAI-Sump-S	1					
Surface Water [3]	Missouri-River	1					
	Rail-Drainage	1					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R	1					
	MW-104	1					
Bottom Ash Impoundment	MW-201	1				Subset of App IV detected in Q1, Iron, Aluminum, Manganese (Dissolved and Total for Each Metal)	
	MW-202	1					
	MW-203	1					
Closed Landfill	MW-10	1			App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)
	MW-204	1	Sulfate + Field parameters				
	MW-205	1	Sulfate + Field parameters				
Additional Internal Locations	MW-4	1			App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-PB2	1					
Wells Installed in February 2023	MW-215	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)			
	MW-216	1					
	MW-217	1					
	MW-218	1					
	MW-219	1					
	MW-220	1					
	MW-221	1					
	MW-222	1					
	MW-300	1					
	MW-301	1					
	MW-PB3	1					
Total # of Sample Locations			4	35	40	6	40

Notes:
App III - Appendix III Detection Monitoring List, Table 2
App IV - Appendix IV Assessment Monitoring List, Table 3
Additional List - Table 4
Required field parameters are listed in Table 2 and Table 3
Suggested locations for collection of QA/QC samples are listed in Table 5.
1. The piezometers do not have dedicated pumps and will need to be sampled by other methods.
2. The sump should be sampled using surface water collection methods via the sump riser.
3. Surface water samples to be collected if safely accessible and free water is present.

DRAFT - SUBJECT TO CHANGE

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS BAL Mar 2024 (44055) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

C. Carroll

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44055001 **Date Collected:** 03/28/2024 12:18 **Matrix:** Groundwater
Sample ID: MW-9N **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 12.3

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		04/26/2024 10:26	
Radium 228	See Attached			1		04/26/2024 10:26	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44055002 **Date Collected:** 03/28/2024 13:23 **Matrix:** Groundwater
Sample ID: MW-102 **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 12.3

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		04/26/2024 10:26	
Radium 228	See Attached			1		04/26/2024 10:26	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID:	44055003	**Date Collected:**	03/28/2024 11:18	**Matrix:**	Groundwater
Sample ID:	MW-103	**Date Received:**	03/28/2024 17:53	**Collector:**	MVTL Field Service

Temp @ Receipt (C): 12.3

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		04/26/2024 10:26	
Radium 228	See Attached			1		04/26/2024 10:26	

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ANALYTICAL SUMMARY REPORT

April 26, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24040091 Quote ID: C15480
Project Name: 44055

Energy Laboratories, Inc. Casper WY received the following 3 samples for Minnesota Valley Testing Laboratories on 4/2/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24040091-001	44055001, MW-9N	03/28/24 12:18	04/02/24	Groundwater	Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total
C24040091-002	44055002, MW-102	03/28/24 13:23	04/02/24	Groundwater	Same As Above
C24040091-003	44055003, MW-103	03/28/24 11:18	04/02/24	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager .

Report Approved By:

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Account #: 5109 **Client:** Great River Energy

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 44055
Lab ID: C24040091-001
Client Sample ID: 44055001, MW-9N

Report Date: 04/26/24
Collection Date: 03/28/24 12:18
DateReceived: 04/02/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.6	pCi/L				E903.0	04/22/24 14:08 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/22/24 14:08 / alb
Radium 226 MDC	0.1	pCi/L				E903.0	04/22/24 14:08 / alb
Radium 228	1.0	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 228 precision (±)	0.6	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 228 MDC	0.9	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 226 + Radium 228	1.6	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	0.9	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 44055
Lab ID: C24040091-002
Client Sample ID: 44055002, MW-102

Report Date: 04/26/24
Collection Date: 03/28/24 13:23
DateReceived: 04/02/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.2	pCi/L				E903.0	04/22/24 14:08 / alb
Radium 226 precision (±)	0.09	pCi/L				E903.0	04/22/24 14:08 / alb
Radium 226 MDC	0.1	pCi/L				E903.0	04/22/24 14:08 / alb
Radium 228	-0.01	pCi/L	U			RA-05	04/17/24 14:18 / kdk
Radium 228 precision (±)	0.6	pCi/L				RA-05	04/17/24 14:18 / kdk
Radium 228 MDC	1	pCi/L				RA-05	04/17/24 14:18 / kdk
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 44055
Lab ID: C24040091-003
Client Sample ID: 44055003, MW-103

Report Date: 04/26/24
Collection Date: 03/28/24 11:18
DateReceived: 04/02/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L				E903.0	04/22/24 14:08 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/22/24 14:08 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/22/24 14:08 / alb
Radium 228	0.2	pCi/L	U			RA-05	04/17/24 14:19 / kdk
Radium 228 precision (±)	0.8	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 228 MDC	1.3	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 226 + Radium 228	0.9	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24040091 **Report Date:** 04/24/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11280
Lab ID: LCS-RA226-11280	3	Laboratory Control Sample				Run: TENNELEC-4_240410C				04/22/24 11:19
Radium 226		8.5	pCi/L		86	70	130			
Radium 226 precision (±)		1.7	pCi/L							
Radium 226 MDC		0.13	pCi/L							
Lab ID: MB-RA226-11280	3	Method Blank				Run: TENNELEC-4_240410C				04/22/24 11:19
Radium 226		0.2	pCi/L							
Radium 226 precision (±)		0.09	pCi/L							
Radium 226 MDC		0.1	pCi/L							
Lab ID: C24040091-002AMS	3	Sample Matrix Spike				Run: TENNELEC-4_240410C				04/22/24 14:08
Radium 226		7.9	pCi/L		77	70	130			
Radium 226 precision (±)		1.5	pCi/L							
Radium 226 MDC		0.11	pCi/L							
Lab ID: C24040091-002AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_240410C				04/22/24 14:08
Radium 226		7.8	pCi/L		77	70	130	0.2	30	
Radium 226 precision (±)		1.5	pCi/L							
Radium 226 MDC		0.11	pCi/L							

- The RER result is 0.01.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

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Account #: 5109 **Client:** Great River Energy

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24040091 **Report Date:** 04/24/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7372
Lab ID: LCS-228-RA226-11280	3	Laboratory Control Sample				Run: TENNELEC-4_240410A				04/17/24 14:18
Radium 228		6.2	pCi/L		98	70	130			
Radium 228 precision (±)		1.4	pCi/L							
Radium 228 MDC		1.1	pCi/L							
Lab ID: MB-RA226-11280	3	Method Blank				Run: TENNELEC-4_240410A				04/17/24 14:18
Radium 228		0.4	pCi/L							U
Radium 228 precision (±)		0.6	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C24040091-002AMS	3	Sample Matrix Spike				Run: TENNELEC-4_240410A				04/17/24 14:19
Radium 228		5.9	pCi/L		93	70	130			
Radium 228 precision (±)		1.3	pCi/L							
Radium 228 MDC		0.98	pCi/L							
Lab ID: C24040091-002AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_240410A				04/17/24 14:19
Radium 228		6.2	pCi/L		99	70	130	5.6	30	
Radium 228 precision (±)		1.4	pCi/L							
Radium 228 MDC		1.0	pCi/L							

- The RER result is 0.17.

Qualifiers:

RL - Analyte Reporting Limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

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2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Member ACIL

Account #: 5109 **Client:** Great River Energy

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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24040091

Login completed by: Dakota R. Sawyer Date Received: 4/2/2024
Reviewed by: lleprowse Received by: LEL
Reviewed Date: 4/4/2024 Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	13.0°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Contact and Corrective Action Comments:

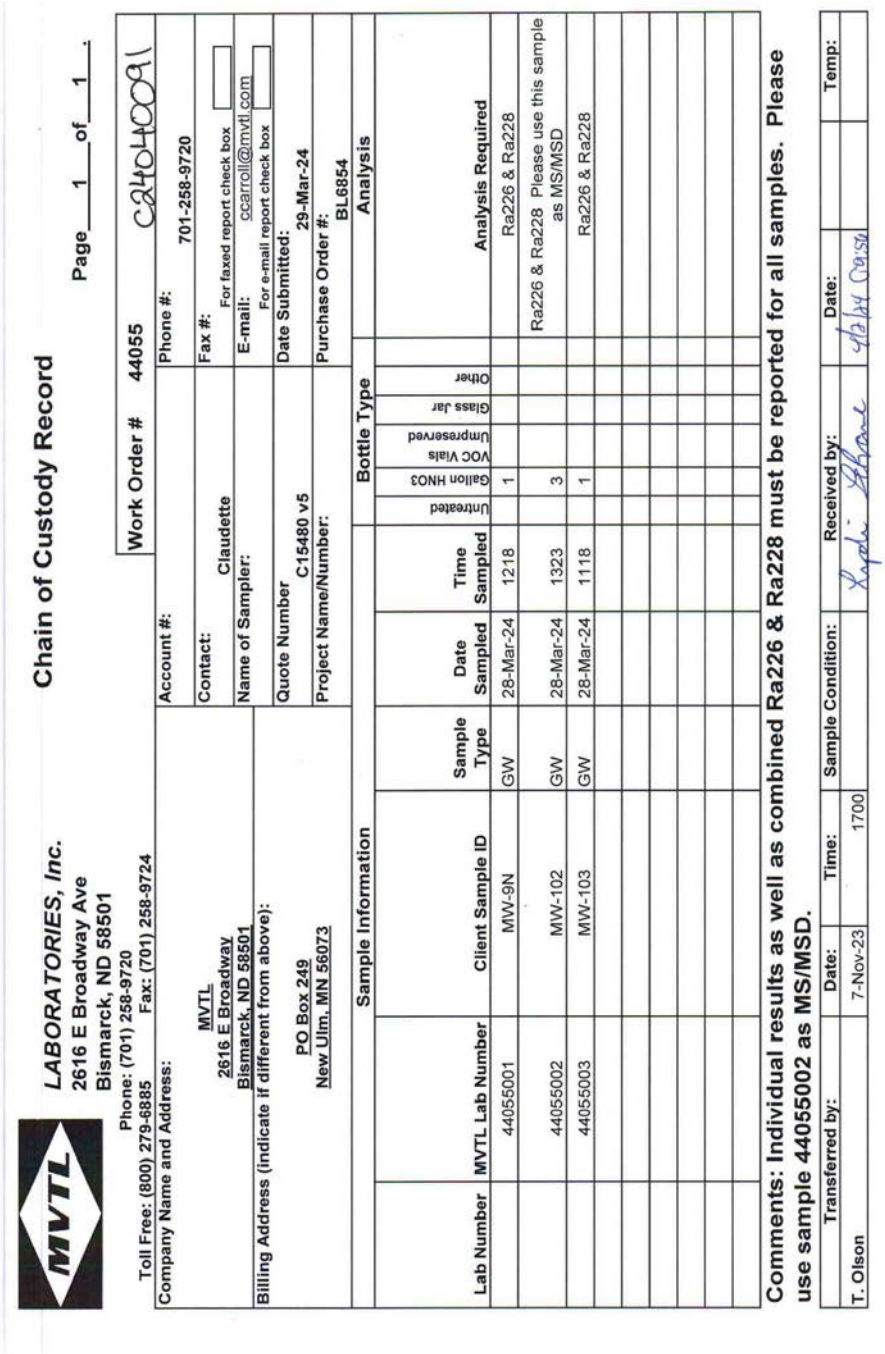
The temperature of the samples for shipping container 1 was 10.4°C, shipping container 2 was 12.6°C, shipping container 3 was 13.0°C, shipping container 4 was 12.7°C and shipping container 5 was 12.3°C.

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Chain of Custody Record

Page 1 of 1

Work Order # 44055 C240409\

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501

Account #:
Contact: Claudette
Name of Sampler:
Quote Number C15480 v5
Project Name/Number:

Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box
Date Submitted: 29-Mar-24
Purchase Order #: BL6854

Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073

Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Untreated	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis Required
	44055001	MW-9N	GW	28-Mar-24	1218	1					Ra226 & Ra228
	44055002	MW-102	GW	28-Mar-24	1323		3				Ra226 & Ra228 Please use this sample as MS/MSD
	44055003	MW-103	GW	28-Mar-24	1118	1					Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples. Please use sample 44055002 as MS/MSD.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
T. Olson	7-Nov-23	1700		Kayla Alfonso	4/29/24 0915	

Page 8 of 8

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Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 44055

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS BAL
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: Mar 2024
Address:		Lakewood, CO 80228	Sampled By: DF, JM
Phone:			
Email:	CJohnston@GREnergy.com		

Sample Information				Sample Containers									Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Gal Nitric								Analysis Required
001	MW-9N	28Mar24	1218 *	GW					X								Radium 226 and 228 Combined
002	MW-102/MS/MSD	28Mar24	1323 *	GW					3								
003	MW-103	28Mar24	1118 *	GW					X								

Comments: * per field sheets via 29Mar24

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1	28Mar24 1753	Log In Walk In #2	TM562 12.3 TM805	Heather Hoxe	29Mar24 0800
2					

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Member ACIL

Account #: 5109 **Client:** Great River Energy

Field Datasheet

Groundwater Assessment

2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	QN
Sampling Personal:	[illegible]

Weather Conditions: Temp: 25 °F Wind: 5 @ 5-10 Precip: (Sunny) / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	13.69	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	13.90	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	26	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
28Mar24	1153	Start of Well Purge									
	1158	6.36	4275	7.64	0.79	211.7	77.67	14.03	200.0	1.0	clear
	1203	5.92	4272	7.74	1.24	212.1	52.63	13.90	200.0	1.0	clear
	1208	5.87	4271	7.76	1.29	211.7	46.13	13.90	200.0	1.0	clear
	1213	5.82	4268	7.78	1.13	211.0	43.48	13.90	200.0	1.0	clear
	1218	5.79	4270	7.80	0.95	210.0	16.03	13.90	200.0	1.0	clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
28Mar24	1218	5.79	4270	7.80			16.03				clear

Comments:	

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	102/MS/MSD
Sampling Personal:	

Weather Conditions: Temp: 25 °F Wind: S @ 5-16 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	17.88	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	18.69	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
28Mar24	1258	Start of Well Purge									
	1303	8.30	2155	7.99	0.46	225.0	0.00	18.30	200.0	1.0	Clear
	1308	8.23	2157	7.99	0.20	223.1	0.00	18.30	200.0	1.0	clear
	1313	8.10	2158	7.98	0.11	220.9	0.00	18.30	200.0	1.0	clear
	1318	8.23	2157	7.98	0.06	218.8	0.00	18.50	200.0	1.0	clear
	1323	8.35	2155	7.99	0.04	217.4	0.00	18.55	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
28Mar24	1323	8.35	2155	7.99			0.00				Clear

Comments:	

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Account #: 5109 **Client:** Great River Energy

Field Datasheet

Groundwater Assessment

2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	103
Sampling Personal:	

Weather Conditions: Temp: 20 °F Wind: S @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	18.44	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	19.45	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge:	5 Sec.
Recover:	57 Sec.
PSI:	20

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
28Mar24	1053	Start of Well Purge									
	1058	7.81	3300	8.86	0.29	166.7	74.2	18.46	200.0	1.0	Clear
	1103	7.73	3246	8.87	0.22	165.8	0.00	19.45	200.0	1.0	Clear
	1108	7.63	3165	8.87	0.21	164.1	0.00	19.45	200.0	1.0	clear
	1113	7.51	3130	8.83	0.19	163.4	0.00	19.45	200.0	1.0	Clear
	1118	7.54	3107	8.84	6.16	162.8	0.00	19.45	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
28 Mar 24	1118	7.54	3107	8.84	0		0.00				Clear

Comments:	

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS PB (44113) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44113001 **Date Collected:** 03/29/2024 10:02 **Matrix:** Groundwater
Sample ID: MW-PB1 **Date Received:** 03/29/2024 12:40 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2000**	umhos/cm	1	1		03/29/2024 10:02	
Method: 150.2							
pH - Field	**7.19**	units	0.01	1		03/29/2024 10:02	
Method: 170.1							
Temperature - Field C	**5.94**	degrees C		1		03/29/2024 10:02	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0589**	mg/L	0.02	1	03/29/2024 16:10	04/02/2024 12:54	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/29/2024 16:10	04/03/2024 14:13	
Arsenic	**0.0203**	mg/L	0.002	5	03/29/2024 16:10	04/03/2024 14:13	
Barium	**0.4629**	mg/L	0.004	10	03/29/2024 16:10	04/03/2024 14:50	
Beryllium	**0.0013**	mg/L	0.0005	5	03/29/2024 16:10	04/03/2024 14:13	
Cadmium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/03/2024 14:13	
Chromium	**0.0375**	mg/L	0.002	5	03/29/2024 16:10	04/03/2024 14:13	
Cobalt	**0.0215**	mg/L	0.002	5	03/29/2024 16:10	04/03/2024 14:13	
Lead	**0.0217**	mg/L	0.0005	5	03/29/2024 16:10	04/03/2024 14:13	
Molybdenum	**0.0092**	mg/L	0.002	5	03/29/2024 16:10	04/03/2024 14:13	
Selenium	<0.005	mg/L	0.005	5	03/29/2024 16:10	04/03/2024 14:13	
Thallium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/03/2024 14:13	
Method: SM4500 H+ B-2011							
pH	**7.5**	units	0.1	1		03/29/2024 20:46	*
Method: SM4500-F-C-2011							
Fluoride	**0.53**	mg/L	0.1	1		03/29/2024 20:46	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 44113

Aluminum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	98.7		85	115		
MB		<0.1							
PDS/PDSD	43924001		20	109.0	110.0	75	125	0.9	20
PDS/PDSD	43924010		10	111.0	112.0	75	125	0.5	20
PDS/PDSD	44050002		20	110.0	108.0	75	125	0.6	20
PDS/PDSD	44052004		0.4	81.4	84.9	75	125	1.7	20

Aluminum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	98.7		85	115		
MB		<0.1							
PDS/PDSD	44113001		2	95.7	101.0	75	125	2.0	20

Iron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
PDS/PDSD	43924001		20	104.0	106.0	75	125	1.0	20
PDS/PDSD	43924010		10	107.0	107.0	75	125	0.1	20
PDS/PDSD	44050002		20	107.0	107.0	75	125	0.0	20
MS/MSD	44052004		0.4	93.5	90.2	70	130	1.3	20

Iron, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
PDS/PDSD	44113001		2	89.2	90.8	75	125	0.7	20
PDS/PDSD	44113001		0.4	92.7	94.0	75	125	0.1	20

Lithium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
MB		<0.04							
MS/MSD	44052004		0.4	106.0	104.0	70	130	1.8	20

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Manganese — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
MB		<0.05							
PDS/PDSD	43924001		20	112.0	114.0	75	125	1.2	20
PDS/PDSD	43924010		10	106.0	113.0	75	125	5.1	20
PDS/PDSD	44050002		20	110.0	110.0	75	125	0.3	20
MS/MSD	44052004		0.4	89.3	86.9	70	130	2.3	20
PDS/PDSD	44052004		0.4	86.2	88.6	75	125	2.3	20

Manganese, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
MB		<0.05							
PDS/PDSD	44113001		2	93.7	95.2	75	125	1.0	20

Antimony — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.0		80	120		
MB		<0.001							
MS/MSD	44052004		0.4	100.0	100.0	75	125	0.3	20
SPK	44052004		0.1	102.0		75	125		

Arsenic — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.7		80	120		
MB		<0.002							
MS/MSD	44052004		0.4	103.0	97.4	75	125	5.8	20
SPK	44052004		0.1	104.0		75	125		
SPK	44242001		0.2	101.0		75	125		

Barium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.5		80	120		
MB		<0.002							
MS/MSD	44052004		0.4	96.6	94.3	75	125	2.1	20
SPK	44052004		0.1	96.0		75	125		

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Beryllium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	92.2		80	120		
MB		<0.0005							
MS/MSD	44052004		0.4	93.2	88.5	75	125	5.2	20
SPK	44052004		0.1	92.5		75	125		

Cadmium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
MB		<0.0005							
MS/MSD	44052004		0.4	94.9	93.8	75	125	1.3	20
SPK	44052004		0.1	94.8		75	125		
SPK	44242001		0.2	98.9		75	125		

Chromium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
MS/MSD	44052004		0.4	104.0	101.0	75	125	2.7	20
SPK	44052004		0.1	104.0		75	125		

Cobalt				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
MS/MSD	44052004		0.4	99.9	97.4	75	125	2.3	20
SPK	44052004		0.1	100.0		75	125		

Lead				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.6		80	120		
MB		<0.0005							
MS/MSD	44052004		0.4	96.2	93.5	75	125	2.9	20
SPK	44052004		0.1	93.7		75	125		
SPK	44242001		0.2	98.5		75	125		

Molybdenum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		

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Molybdenum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.002							
MS/MSD	44052004		0.4	103.0	102.0	75	125	1.3	20
SPK	44052004		0.1	102.0		75	125		

Selenium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.1		80	120		
MB		<0.005							
MS/MSD	44052004		0.4	99.8	99.9	75	125	0.3	20
SPK	44052004		0.1	103.0		75	125		
SPK	44242001		0.2	100.0		75	125		

Thallium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.3		80	120		
MB		<0.0005							
MS/MSD	44052004		0.4	96.0	93.6	75	125	2.6	20
SPK	44052004		0.1	93.2		75	125		
SPK	44242001								

Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	95.6		85	115		
LFB			0.002	100.0		85	115		
LRB		<0.0002							
MB		<0.0002							
MS/MSD	43303001		0.002	103.0	102.0	70	130	4.9	20
MS/MSD	43801007		0.002	96.0	97.4	70	130	0.0	20
MS/MSD	43924012		0.002	99.8	99.8	70	130	0.0	20
MS/MSD	43924013		0.002	96.7	101.0	70	130	5.1	20
MS/MSD	44049002		0.002	103.0	105.0	70	130	0.0	20
MS/MSD	44114001		0.002	98.4	99.0	70	130	0.0	20

pH				Units: units					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	100.3		98.33	101.67		

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pH Units: units

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	100.3		98.33	101.67		
CRM-PH			6	100.2		98.33	101.67		
CRM-PH			6	100.3		98.33	101.67		
DUP	44048001							1.7	20
DUP	44049002							2.1	20
DUP	44050006							3.0	20
DUP	44113001							1.6	20

Fluoride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			15.3	104.0		83.99	111.11		
LFB-F			0.5	98.0		90	110		
LFB-F			0.5	98.0		90	110		
LFB-F			0.5	100.0		90	110		
LFB-F			0.5	100.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MS/MSD-F	44049002		0.5	98.0	96.0	80	120	1.1	20
MS/MSD-F	44052002		0.5	96.0	94.0	80	120	1.7	20
MS/MSD-F	44111002		0.5	96.0	96.0	80	120	0.0	20

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Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 44113

Chain of Custody Record

Report To:	Great River Energy	CC:	Golder Associates
Attn:	Cassie Johnston		44 Union Blvd, Suite 300
Address:			Lakewood, CO 80228
Phone:			
Email:	CJohnston@GREnergy.com		

Project Name: SS PB
Event: Mar 2024
Sampled By:

Sample Information					Sample Containers									Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric					Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-PB1	29Mar24	1002	GW	X	X	X							5.94	2000	7.19	169.0	App IV + Total and Dissolved Iron, Aluminum, and Mangangese (See Attachments)

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1	29Mar24 1240	Log In Walk In #2	R01 2.5 TM562 / TM805	Heather Hoxt	29Mar24 1240
2					

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MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet
Groundwater Assessment

Company: GRE Stanton Station
Event: Mar 2024
Sample ID: PB 1
Sampling Personal:

Weather Conditions: Temp: 25 °F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	24.26	ft
Depth to Top of Pump:	25.20	ft
Water Level After Sample:	Below Pump	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:
Purge: 2 Sec.
Recover: 3 Sec.
PSI:

Bottle List:
1 Liter Raw ~~1 Gal Nitric~~
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
28 Mar 24	1348	Start of Well Purge									
	1353	6.35	1891	7.11	4.16	140.1	1893.9	24.54	100.0	0.5	Turbid Tan
	1358	7.32	1802	7.11	1.22	99.8	3000.0	24.97	100.0	0.5	Turbid Tan
	1403	7.91	1918	7.09	1.21	82.6	1850.3	Below Pump	100.0	0.5	Turbid Tan
		Purged	Dry								
	0957	Purged	well for	5 min	to clear	line		24.20			
	1002	5.94	2000	7.19	3.65	127.6	1607.0	25.05	100.0	0.5	Turbid Tan

Well Stabilized? YES (NO) Total Volume Purged: 2.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
28 Mar 24	1002	5.94	2000	7.19			1607.0				Turbid Tan

Comments: unable to collect 1 Gal nitric. Well purged dry when sampling

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February 2024

March 2024 event List

GL21509219.000

Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

Total & Dissolved
Iron
Aluminum
Manganese

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February 2024 GREAT RIVER ENERGY - STANTON STATION GL21509219.000
DRAFT - SUBJECT TO CHANGE

Table 1: Proposed 2024 Stanton Station Plant Facilities Sampling Schedule

Location	Well ID		2024				
			Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-7A	1	Field Parameters (Field pH)				
	MW-7B	1					
	MW-8B	1					
	MW-105	1	Field Parameters (Field pH)				
Bottom Ash Landfill	MW-9N	1					
	MW-102	1					
	MW-103	1					
Property Boundary	MW-PB1	1					
Wells Installed in May 2022	MW-210	1					
	MW-211	1					
	MW-212	1					
	MW-213	1					
	MW-214	1					
Piezometers [1]	PZ-BA-A	1					
	PZ-BA-B	1					
Sumps [2]	BAI-Sump-S	1					
Surface Water [3]	Missouri-River	1					
	Rail-Drainage	1					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R	1					
	MW-104	1					
Bottom Ash Impoundment	MW-201	1				Subset of App IV detected in Q1, Iron, Aluminum, Manganese (Dissolved and Total for Each Metal)	
	MW-202	1					
	MW-203	1					
Closed Landfill	MW-10	1			App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)
	MW-204	1	Sulfate + Field parameters				
	MW-205	1	Sulfate + Field parameters				
Additional Internal Locations	MW-4	1			App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-PB2	1					
Wells Installed in February 2023	MW-215	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)			
	MW-216	1					
	MW-217	1					
	MW-218	1					
	MW-219	1					
	MW-220	1					
	MW-221	1					
	MW-222	1					
	MW-300	1					
	MW-301	1					
	MW-PB3	1					
Total # of Sample Locations			4	35	40	6	40

Notes:
App III - Appendix III Detection Monitoring List, Table 2
App IV - Appendix IV Assessment Monitoring List, Table 3
Additional List - Table 4
Required field parameters are listed in Table 2 and Table 3
Suggested locations for collection of QA/QC samples are listed in Table 5.
1. The piezometers do not have dedicated pumps and will need to be sampled by other methods.
2. The sump should be sampled using surface water collection methods via the sump riser.
3. Surface water samples to be collected if safely accessible and free water is present.

DRAFT - SUBJECT TO CHANGE

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS 2022 Wells (44050) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44050001 **Date Collected:** 03/28/2024 09:05 **Matrix:** Groundwater
Sample ID: MW-210 **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1653**	umhos/cm	1	1		03/28/2024 09:05	
Method: 150.2							
pH - Field	**7.75**	units	0.01	1		03/28/2024 09:05	
Method: 170.1							
Temperature - Field C	**5.66**	degrees C		1		03/28/2024 09:05	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0408**	mg/L	0.02	1	03/29/2024 16:10	04/02/2024 12:40	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/29/2024 16:10	04/02/2024 18:17	
Arsenic	**0.0029**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 18:17	
Barium	**0.0539**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 18:17	
Beryllium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 18:17	
Cadmium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 18:17	
Chromium	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 18:17	
Cobalt	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 18:17	
Lead	**0.0006**	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 18:17	
Molybdenum	**0.0115**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 18:17	
Selenium	<0.005	mg/L	0.005	5	03/29/2024 16:10	04/02/2024 18:17	
Thallium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 18:17	
Method: SM4500 H+ B-2011							
pH	**7.8**	units	0.1	1		03/29/2024 16:15	*
Method: SM4500-F-C-2011							
Fluoride	**0.54**	mg/L	0.1	1		03/29/2024 16:15	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44050002 **Date Collected:** 03/28/2024 09:01 **Matrix:** Groundwater
Sample ID: MW-211 **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2768**	umhos/cm	1	1		03/28/2024 09:01	
Method: 150.2							
pH - Field	**7.9**	units	0.01	1		03/28/2024 09:01	
Method: 170.1							
Temperature - Field C	**6.75**	degrees C		1		03/28/2024 09:01	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0325**	mg/L	0.02	1	03/29/2024 16:10	04/02/2024 12:40	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/29/2024 16:10	04/02/2024 18:43	
Arsenic	**0.0256**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 18:43	
Barium	**0.4388**	mg/L	0.004	10	03/29/2024 16:10	04/03/2024 11:58	
Beryllium	**0.0007**	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 18:43	
Cadmium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 18:43	
Chromium	**0.0202**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 18:43	
Cobalt	**0.0102**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 18:43	
Lead	**0.0081**	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 18:43	
Molybdenum	**0.0230**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 18:43	
Selenium	<0.005	mg/L	0.005	5	03/29/2024 16:10	04/02/2024 18:43	
Thallium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 18:43	
Method: SM4500 H+ B-2011							
pH	**8.0**	units	0.1	1		03/29/2024 16:20	*
Method: SM4500-F-C-2011							
Fluoride	**0.58**	mg/L	0.1	1		03/29/2024 16:20	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44050003 **Date Collected:** 03/28/2024 10:07 **Matrix:** Groundwater
Sample ID: MW-212 **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2088**	umhos/cm	1	1		03/28/2024 10:07	
Method: 150.2							
pH - Field	**8.37**	units	0.01	1		03/28/2024 10:07	
Method: 170.1							
Temperature - Field C	**7.96**	degrees C		1		03/28/2024 10:07	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0205**	mg/L	0.02	1	03/29/2024 16:10	04/02/2024 12:42	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/29/2024 16:10	04/02/2024 19:00	
Arsenic	**0.0035**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:00	
Barium	**0.0734**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:00	
Beryllium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:00	
Cadmium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:00	
Chromium	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:00	
Cobalt	**0.0025**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:00	
Lead	**0.0018**	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:00	
Molybdenum	**0.0456**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:00	
Selenium	<0.005	mg/L	0.005	5	03/29/2024 16:10	04/02/2024 19:00	
Thallium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:00	
Method: SM4500 H+ B-2011							
pH	**8.3**	units	0.1	1		03/29/2024 16:26	*
Method: SM4500-F-C-2011							
Fluoride	**0.46**	mg/L	0.1	1		03/29/2024 16:26	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44050004 **Date Collected:** 03/28/2024 10:05 **Matrix:** Groundwater
Sample ID: MW-213 **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1555**	umhos/cm	1	1		03/28/2024 10:05	
Method: 150.2							
pH - Field	**7.74**	units	0.01	1		03/28/2024 10:05	
Method: 170.1							
Temperature - Field C	**7.21**	degrees C		1		03/28/2024 10:05	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0374**	mg/L	0.02	1	03/29/2024 16:10	04/02/2024 12:43	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/29/2024 16:10	04/02/2024 19:05	
Arsenic	**0.0038**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:05	
Barium	**0.0855**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:05	
Beryllium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:05	
Cadmium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:05	
Chromium	**0.0055**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:05	
Cobalt	**0.0022**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:05	
Lead	**0.0022**	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:05	
Molybdenum	**0.0168**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:05	
Selenium	<0.005	mg/L	0.005	5	03/29/2024 16:10	04/02/2024 19:05	
Thallium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:05	
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		03/29/2024 16:32	*
Method: SM4500-F-C-2011							
Fluoride	**0.82**	mg/L	0.1	1		03/29/2024 16:32	

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Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44050005 **Date Collected:** 03/28/2024 08:10 **Matrix:** Groundwater
Sample ID: MW-214 **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1999**	umhos/cm	1	1		03/28/2024 08:10	
Method: 150.2							
pH - Field	**7.66**	units	0.01	1		03/28/2024 08:10	
Method: 170.1							
Temperature - Field C	**3.05**	degrees C		1		03/28/2024 08:10	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0505**	mg/L	0.02	1	03/29/2024 16:10	04/02/2024 12:43	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/29/2024 16:10	04/02/2024 19:09	
Arsenic	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:09	
Barium	**0.0420**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:09	
Beryllium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:09	
Cadmium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:09	
Chromium	**0.0047**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:09	
Cobalt	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:09	
Lead	**0.0009**	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:09	
Molybdenum	**0.0112**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:09	
Selenium	<0.005	mg/L	0.005	5	03/29/2024 16:10	04/02/2024 19:09	
Thallium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:09	
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		03/29/2024 18:39	*
Method: SM4500-F-C-2011							
Fluoride	**0.46**	mg/L	0.1	1		03/29/2024 18:39	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44050006 **Date Collected:** 03/28/2024 10:25 **Matrix:** Groundwater
Sample ID: FB-2022 Wells **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	<0.02	mg/L	0.02	1	03/29/2024 16:10	04/02/2024 12:44	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/29/2024 16:10	04/02/2024 19:14	
Arsenic	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:14	
Barium	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:14	
Beryllium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:14	
Cadmium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:14	
Chromium	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:14	
Cobalt	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:14	
Lead	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:14	
Molybdenum	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:14	
Selenium	<0.005	mg/L	0.005	5	03/29/2024 16:10	04/02/2024 19:14	
Thallium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:14	
Method: SM4500 H+ B-2011							
pH	**6.0**	units	0.1	1		03/29/2024 18:45	*
Method: SM4500-F-C-2011							
Fluoride	<0.1	mg/L	0.1	1		03/29/2024 18:45	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 44050

Aluminum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	100.0		85	115		
MB		<0.1							
PDS/PDSD	43924001		20	109.0	110.0	75	125	0.9	20
PDS/PDSD	43924010		10	111.0	112.0	75	125	0.5	20
MS/MSD	44049002		0.4	123.0	116.0	70	130	3.2	20
PDS/PDSD	44050002		20	110.0	108.0	75	125	0.6	20
PDS/PDSD	44052004		0.4	81.4	84.9	75	125	1.7	20

Aluminum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	100.0		85	115		
MB		<0.1							
SPK/SPKD	43924007		0.4	113.0	111.0	75	125	1.5	20
SPK/SPKD	44049002		0.4	105.0	106.0	75	125	0.5	20
SPK/SPKD	44051001		0.4	111.0	114.0	75	125	2.1	20
PDS/PDSD	44113001		2	95.7	101.0	75	125	2.0	20

Iron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
PDS/PDSD	43924001		20	104.0	106.0	75	125	1.0	20
PDS/PDSD	43924010		10	107.0	107.0	75	125	0.1	20
MS/MSD	44049002		0.4	89.1	84.5	70	130	2.9	20
PDS/PDSD	44050002		20	107.0	107.0	75	125	0.0	20

Iron, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
SPK/SPKD	43924007		0.4	77.5	72.7	75	125	1.0	20
SPK/SPKD	44049002		0.4	89.4	90.0	75	125	0.7	20
SPK/SPKD	44051001		0.4	81.5	79.6	75	125	0.6	20

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Iron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	44113001		0.4	92.7	94.0	75	125	0.1	20
PDS/PDSD	44113001		2	89.2	90.8	75	125	0.7	20

Lithium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	106.0		85	115		
MB		<0.04							
MS/MSD	44049002		0.4	94.8	97.1	70	130	2.1	20
MS/MSD	44050002		0.4	99.6	101.0	70	130	1.6	20

Manganese				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
PDS/PDSD	43924001		20	112.0	114.0	75	125	1.2	20
PDS/PDSD	43924010		10	106.0	113.0	75	125	5.1	20
MS/MSD	44049002		0.4	106.0	84.3	70	130	13.4	20
MS/MSD	44050002		0.4	94.0	97.5	70	130	0.9	20
PDS/PDSD	44050002		20	110.0	110.0	75	125	0.3	20
PDS/PDSD	44052004		0.4	86.2	88.6	75	125	2.3	20

Manganese, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
SPK/SPKD	43924007		0.4	91.2	90.9	75	125	0.2	20
SPK/SPKD	44049002		0.4	89.7	90.7	75	125	0.8	20
SPK/SPKD	44051001		0.4	92.2	92.0	75	125	0.1	20
PDS/PDSD	44113001		2	93.7	95.2	75	125	1.0	20

Antimony				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	97.4		80	120		
MB		<0.001							
MB		<0.001							

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Antimony				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	44049002		0.4	101.0	102.0	75	125	1.0	20
MS/MSD	44050002		0.4	99.2	95.6	75	125	3.9	20
MS/MSD	44050002		0.4	98.2	94.6	75	125	3.9	20
SPK	44114001		0.1	109.0		75	125		

Arsenic				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.5		80	120		
LFB-MS			0.1	94.9		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	44049002		0.4	102.0	102.0	75	125	0.5	20
MS/MSD	44050002		0.4	100.0	99.1	75	125	1.4	20
MS/MSD	44050002		0.4	99.0	98.8	75	125	0.2	20
SPK	44114001		0.1	108.0		75	125		

Barium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.6		80	120		
LFB-MS			0.1	96.7		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	44049002		0.4	94.0	94.4	75	125	0.3	20
MS/MSD	44050002		0.4	103.0	102.0	75	125	0.1	20
MS/MSD	44050002		0.4	101.0	98.6	75	125	1.2	20
SPK	44114001		0.1	103.0		75	125		

Beryllium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.0		80	120		
LFB-MS			0.1	94.0		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	44049002		0.4	102.0	103.0	75	125	1.0	20

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Beryllium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	44050002		0.4	89.9	90.2	75	125	0.6	20
MS/MSD	44050002		0.4	96.0	97.3	75	125	1.6	20
SPK	44114001		0.1	101.0		75	125		

Cadmium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
LFB-MS			0.1	96.8		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	44049002		0.4	93.2	96.0	75	125	2.9	20
MS/MSD	44050002		0.4	100.0	99.0	75	125	0.3	20
MS/MSD	44050002		0.4	98.8	100.0	75	125	1.8	20
SPK	44114001		0.1	99.1		75	125		

Chromium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	44049002		0.4	105.0	108.0	75	125	2.8	20
MS/MSD	44050002		0.4	103.0	101.0	75	125	1.2	20
MS/MSD	44050002		0.4	103.0	105.0	75	125	2.1	20
SPK	44114001		0.1	110.0		75	125		

Cobalt				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	44049002		0.4	103.0	105.0	75	125	1.9	20
MS/MSD	44050002		0.4	99.3	98.2	75	125	0.7	20

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Cobalt				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	44050002		0.4	98.9	99.5	75	125	0.5	20
SPK	44114001		0.1	107.0		75	125		

Lead				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.0		80	120		
LFB-MS			0.1	99.8		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	44049002		0.4	99.5	101.0	75	125	1.3	20
MS/MSD	44050002		0.4	96.7	96.2	75	125	0.5	20
MS/MSD	44050002		0.4	98.3	98.2	75	125	0.0	20
SPK	44114001		0.1	96.3		75	125		

Molybdenum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	44049002		0.4	105.0	107.0	75	125	2.0	20
MS/MSD	44050002		0.4	102.0	106.0	75	125	3.9	20
MS/MSD	44050002		0.4	101.0	102.0	75	125	1.4	20
SPK	44114001		0.1	112.0		75	125		

Selenium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.0		80	120		
LFB-MS			0.1	95.8		80	120		
MB		<0.005							
MB		<0.005							
MS/MSD	44049002		0.4	95.1	94.4	75	125	0.5	20
MS/MSD	44050002		0.4	100.0	102.0	75	125	2.0	20
MS/MSD	44050002		0.4	99.7	98.7	75	125	1.0	20

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Selenium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK	44114001		0.1	97.5		75	125		

Thallium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.0		80	120		
LFB-MS			0.1	99.9		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	44049002		0.4	103.0	105.0	75	125	1.4	20
MS/MSD	44050002		0.4	98.5	97.8	75	125	0.8	20
MS/MSD	44050002		0.4	97.2	96.4	75	125	0.8	20
SPK	44114001		0.1	96.4		75	125		

Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	95.6		85	115		
LFB			0.002	100.0		85	115		
LRB		<0.0002							
MB		<0.0002							
MS/MSD	43303001		0.002	103.0	102.0	70	130	4.9	20
MS/MSD	43801007		0.002	96.0	97.4	70	130	0.0	20
MS/MSD	43924012		0.002	99.8	99.8	70	130	0.0	20
MS/MSD	43924013		0.002	96.7	101.0	70	130	5.1	20
MS/MSD	44049002		0.002	103.0	105.0	70	130	0.0	20
MS/MSD	44114001		0.002	98.4	99.0	70	130	0.0	20

pH				Units: units					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	100.3		98.33	101.67		
CRM-PH			6	100.3		98.33	101.67		
CRM-PH			6	100.3		98.33	101.67		
CRM-PH			6	100.2		98.33	101.67		
DUP	44048001							1.7	20
DUP	44049002							2.1	20

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pH				Units: units					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
DUP	44050006							3.0	20
DUP	44113001							1.6	20

Fluoride				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			15.3	104.0		83.99	111.11		
LFB-F			0.5	100.0		90	110		
LFB-F			0.5	98.0		90	110		
LFB-F			0.5	98.0		90	110		
LFB-F			0.5	100.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MS/MSD-F	44049002		0.5	98.0	96.0	80	120	1.1	20
MS/MSD-F	44052002		0.5	96.0	94.0	80	120	1.7	20
MS/MSD-F	44111002		0.5	96.0	96.0	80	120	0.0	20

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
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Member ACIL

Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 44050

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS 2022 Wells
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: Mar 2024
Address:		Lakewood, CO 80228	Sampled By: DK, JM
Phone:			
Email:	CJohnston@GREnergy.com		

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric	Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-210	28Mar 24	0905	GW	X	X	X			5.46	1453	7.75	172.59	App IV + Total and Dissolved Iron, Aluminum, and Mangangese (See Attachments)
002	MW-211	28Mar 24	0901	GW	X	X	X			6.75	2768	7.90	3205	
003	MW-212	28Mar 24	1007	GW	X	X	X			7.96	7088	8.37	44.23	
004	MW-213	28Mar 24	1005	GW	X	X	X			7.21	1555	7.79	300.44	
005	MW-214	28 Mar 24	0810	GW	X	X	X			3.05	1999	7.66	52.13	
006	FB-2022 Wells	28Mar 24	1025	GW	X	X	X			NA	NA	NA	NA	

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1	28Mar 24 1753	Log In Walk In #2	ROI 2.7 TM562/ TM805	Heather Horst	29 Mar 24 0800
2					

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet
Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	210
Sampling Personal:	JM, JH

Weather Conditions: Temp: 5 °F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	13.45	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	13.40	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO
Tubing		

Control Settings:	
Purge:	2 Sec.
Recover:	28 Sec.
PSI:	—

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
28 Mar 24	0840	Start of Well Purge									
	0845	6.50	1658	7.79	0.44	-111.9	218.05	13.48	200.0	1.0	ST Tan
	0850	7.41	1652	7.74	0.04	-119.7	1114.3	13.48	200.0	1.0	Turbid Tan
	0855	5.93	1654	7.77	0.01	-129.6	223.84	13.48	200.0	1.0	ST Tan
	0900	5.68	1653	7.76	0.00	-134.3	147.52	13.48	200.0	1.0	ST Tan
	0905	5.66	1653	7.75	0.00	-137.1	122.59	13.48	200.0	1.0	ST Tan

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
28 Mar 24	0905	5.66	1653	7.75			122.59				ST Tan

Comments:	

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet
Groundwater Assessment

Company: GRE Stanton Station
Event: Mar 2024
Sample ID: 211
Sampling Personal:

Weather Conditions: Temp: °F Wind: @ Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	18.87	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	18.95	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	5	Sec.
Recover:	25	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID: —

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
~~28~~ 28 Mar 24	0836	Start of Well Purge									
	0841	8.73	2781	7.79	1.04	265.3	4102.6	18.95	200.0	1.0	Slightly turbid
	0846	6.58	2776	7.93	0.53	258.1	5516.8	18.95	200.0	1.0	Slightly turbid
	0851	6.53	2784	7.93	0.37	291.2	4748.5	18.92	200.0	1.0	Slightly turbid
	0856	6.36	2778	7.93	0.33	243.3	4069.4	18.95	200.0	1.0	Slightly turbid
	0901	6.75	2768	7.90	0.25	734.4	3205	18.95	200.0	1.0	SP

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
28 Mar 24	0901	6.75	2768	7.90			3205				Slightly turbid

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	~~7194~~ 212
Sampling Personal:	D. M. K

Weather Conditions: Temp: 61 °F Wind: S @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	19.69	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	19.74	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	(NO)

Control Settings:	
Purge:	Sec.
Recover:	Sec.
PSI:	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
28Mar24	0942	Start of Well Purge									
	0947	8.37	7050	8.33	0.25	173.7	195.26	19.74	200.0	1.0	Clear
	0952	7.48	7048	8.37	0.14	151.4	295.93	19.74	200.0	1.0	Clear
	0957	8.06	7066	8.34	0.07	131.9	175.48	19.74	200.0	1.0	Clear
	1002	8.07	2077	8.35	0.05	117.2	84.02	19.74	200.0	1.0	Clear
	1007	7.96	2088	8.37	0.02	106.4	44.23	19.74	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
28Mar24	1007	7.96	2088	8.37			44.23				Clear

Comments: ~~KDK~~ E FB-2022 Collected 1025

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet
Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	213
Sampling Personal:	

Weather Conditions: Temp: 5 °F Wind: S @5-10 Precip: (Sunny) / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	16.75	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	16.80	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Tubing

Control Settings:	
Purge: 3	Sec.
Recover: 27	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
28 Mar 24	0940	Start of Well Purge									
	0945	7.30	1547	7.75	0.42	-114.9	345.67	16.82	200.0	1.0	ST Tan
	0950	7.21	1556	7.74	0.07	-121.5	493.06	16.81	200.0	1.0	ST Tan
	0955	7.25	1557	7.73	0.00	-129.6	464.28	16.80	200.0	1.0	ST Tan
	1000	7.33	1555	7.73	0.05	-135.4	433.47	16.81	200.0	1.0	ST Tan
	1005	7.21	1555	7.74	0.00	-146.4	300.44	16.80	200.0	1.0	ST Tan

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
28 Mar 24	1005	7.21	1555	7.74			300.44				ST Tan

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet
Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	214
Sampling Personal:	

Weather Conditions: Temp: 5 °F Wind: 5 @ 5-10 Precip: (Sunny) / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	7.96	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	8.66	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Tubing

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
28 Mar 24	0745	Start of Well Purge									
	0750	3.75	1970	7.75	0.32	56.4	68.46	8.50	200.0	1.0	Clear
	0755	3.17	1980	7.69	0.34	56.0	61.92	8.55	200.0	1.0	Clear
	0800	3.00	1988	7.68	0.44	60.9	57.30	8.60	200.0	1.0	Clear
	0805	3.08	1996	7.66	0.50	61.4	59.96	8.63	200.0	1.0	Clear
	0810	3.05	1999	7.66	0.57	60.9	52.13	8.65	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
28 Mar 24	0810	3.05	1999	7.66			52.13				Clear

Comments:	

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS 2022 Wells Mar 2024 (44056) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44056001 **Date Collected:** 03/28/2024 09:05 **Matrix:** Groundwater
Sample ID: MW-210 **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 12.3

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		04/26/2024 10:26	
Radium 228	See Attached			1		04/26/2024 10:26	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44056002 **Date Collected:** 03/28/2024 09:01 **Matrix:** Groundwater
Sample ID: MW-211 **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 12.3

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		04/26/2024 10:26	
Radium 228	See Attached			1		04/26/2024 10:26	

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44056003 **Date Collected:** 03/28/2024 10:07 **Matrix:** Groundwater
Sample ID: MW-212 **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 12.3

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		04/26/2024 10:26	
Radium 228	See Attached			1		04/26/2024 10:26	

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44056004 **Date Collected:** 03/28/2024 10:05 **Matrix:** Groundwater
Sample ID: MW-213 **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 12.3

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		04/26/2024 10:26	
Radium 228	See Attached			1		04/26/2024 10:26	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID:	44056005	**Date Collected:**	03/28/2024 08:10	**Matrix:**	Groundwater
Sample ID:	MW-214	**Date Received:**	03/28/2024 17:53	**Collector:**	MVTL Field Service

Temp @ Receipt (C): 12.3

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		04/26/2024 10:26	
Radium 228	See Attached			1		04/26/2024 10:26	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID:	44056006	**Date Collected:**	03/28/2024 10:25	**Matrix:**	Groundwater
Sample ID:	FB-2022 Wells	**Date Received:**	03/28/2024 17:53	**Collector:**	MVTL Field Service

Temp @ Receipt (C): 12.3

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		04/26/2024 10:26	
Radium 228	See Attached			1		04/26/2024 10:26	

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ANALYTICAL SUMMARY REPORT

April 26, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24040084 Quote ID: C15480
Project Name: 44056

Energy Laboratories, Inc. Casper WY received the following 6 samples for Minnesota Valley Testing Laboratories on 4/2/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24040084-001	44056001, MW-210	03/28/24 9:05	04/02/24	Groundwater	Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total
C24040084-002	44056002, MW-211	03/28/24 9:01	04/02/24	Groundwater	Same As Above
C24040084-003	44056003, MW-212	03/28/24 10:07	04/02/24	Groundwater	Same As Above
C24040084-004	44056004, MW-213	03/28/24 10:05	04/02/24	Groundwater	Same As Above
C24040084-005	44056005, MW-214	03/28/24 8:10	04/02/24	Groundwater	Same As Above
C24040084-006	44056006, FB-2022 Wells	03/28/24 10:25	04/02/24	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager .

Report Approved By:

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 44056
Lab ID: C24040084-001
Client Sample ID: 44056001, MW-210

Report Date: 04/26/24
Collection Date: 03/28/24 09:05
DateReceived: 04/02/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 226 MDC	0.1	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 228	0.9	pCi/L	U			RA-05	04/17/24 14:19 / kdk
Radium 228 precision (±)	0.7	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 228 MDC	1.1	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 226 + Radium 228	0.9	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 44056
Lab ID: C24040084-002
Client Sample ID: 44056002, MW-211

Report Date: 04/26/24
Collection Date: 03/28/24 09:01
DateReceived: 04/02/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	04/22/24 11:19 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 228	0.5	pCi/L	U			RA-05	04/17/24 14:19 / kdk
Radium 228 precision (±)	0.7	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 228 MDC	1.1	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 226 + Radium 228	0.6	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
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MCL - Maximum Contaminant Level
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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 44056
Lab ID: C24040084-003
Client Sample ID: 44056003, MW-212

Report Date: 04/26/24
Collection Date: 03/28/24 10:07
DateReceived: 04/02/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.5	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 228	0.05	pCi/L	U			RA-05	04/17/24 14:19 / kdk
Radium 228 precision (±)	0.7	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 228 MDC	1.1	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 226 + Radium 228	1.1	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
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QCL - Quality Control Limit
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MCL - Maximum Contaminant Level
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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 44056
Lab ID: C24040084-004
Client Sample ID: 44056004, MW-213

Report Date: 04/26/24
Collection Date: 03/28/24 10:05
DateReceived: 04/02/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 228	0.6	pCi/L	U			RA-05	04/17/24 14:19 / kdk
Radium 228 precision (±)	0.8	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 228 MDC	1.3	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 226 + Radium 228	0.9	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 44056
Lab ID: C24040084-005
Client Sample ID: 44056005, MW-214

Report Date: 04/26/24
Collection Date: 03/28/24 08:10
DateReceived: 04/02/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	04/22/24 11:19 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 228	-0.07	pCi/L	U			RA-05	04/17/24 14:19 / kdk
Radium 228 precision (±)	0.6	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 228 MDC	1.0	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 226 + Radium 228	0.6	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
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QCL - Quality Control Limit
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MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 44056
Lab ID: C24040084-006
Client Sample ID: 44056006, FB-2022 Wells

Report Date: 04/26/24
Collection Date: 03/28/24 10:25
DateReceived: 04/02/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 226 MDC	0.1	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 228	-0.3	pCi/L	U			RA-05	04/17/24 14:19 / kdk
Radium 228 precision (±)	0.6	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 228 MDC	1.0	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 226 + Radium 228	0.8	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.0	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24040084 **Report Date:** 04/24/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11280
Lab ID: LCS-RA226-11280	3	Laboratory Control Sample				Run: TENNELEC-4_240410C				04/22/24 11:19
Radium 226		8.5	pCi/L		86	70	130			
Radium 226 precision (±)		1.7	pCi/L							
Radium 226 MDC		0.13	pCi/L							
Lab ID: MB-RA226-11280	3	Method Blank				Run: TENNELEC-4_240410C				04/22/24 11:19
Radium 226		0.2	pCi/L							
Radium 226 precision (±)		0.09	pCi/L							
Radium 226 MDC		0.1	pCi/L							
Lab ID: C24040091-002AMS	3	Sample Matrix Spike				Run: TENNELEC-4_240410C				04/22/24 14:08
Radium 226		7.9	pCi/L		77	70	130			
Radium 226 precision (±)		1.5	pCi/L							
Radium 226 MDC		0.11	pCi/L							
Lab ID: C24040091-002AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_240410C				04/22/24 14:08
Radium 226		7.8	pCi/L		77	70	130	0.2	30	
Radium 226 precision (±)		1.5	pCi/L							
Radium 226 MDC		0.11	pCi/L							

- The RER result is 0.01.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24040084 **Report Date:** 04/24/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7372
Lab ID: LCS-228-RA226-11280	3	Laboratory Control Sample				Run: TENNELEC-4_240410A				04/17/24 14:18
Radium 228		6.2	pCi/L		98	70	130			
Radium 228 precision (±)		1.4	pCi/L							
Radium 228 MDC		1.1	pCi/L							
Lab ID: MB-RA226-11280	3	Method Blank				Run: TENNELEC-4_240410A				04/17/24 14:18
Radium 228		0.4	pCi/L							U
Radium 228 precision (±)		0.6	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C24040091-002AMS	3	Sample Matrix Spike				Run: TENNELEC-4_240410A				04/17/24 14:19
Radium 228		5.9	pCi/L		93	70	130			
Radium 228 precision (±)		1.3	pCi/L							
Radium 228 MDC		0.98	pCi/L							
Lab ID: C24040091-002AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_240410A				04/17/24 14:19
Radium 228		6.2	pCi/L		99	70	130	5.6	30	
Radium 228 precision (±)		1.4	pCi/L							
Radium 228 MDC		1.0	pCi/L							

- The RER result is 0.17.

Qualifiers:

RL - Analyte Reporting Limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

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Gillette, WY 307.686.7175 • Helena, MT 406.442.0711

Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24040084

Login completed by: Dakota R. Sawyer Date Received: 4/2/2024
Reviewed by: lleprowse Received by: LEL
Reviewed Date: 4/4/2024 Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	13.0°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

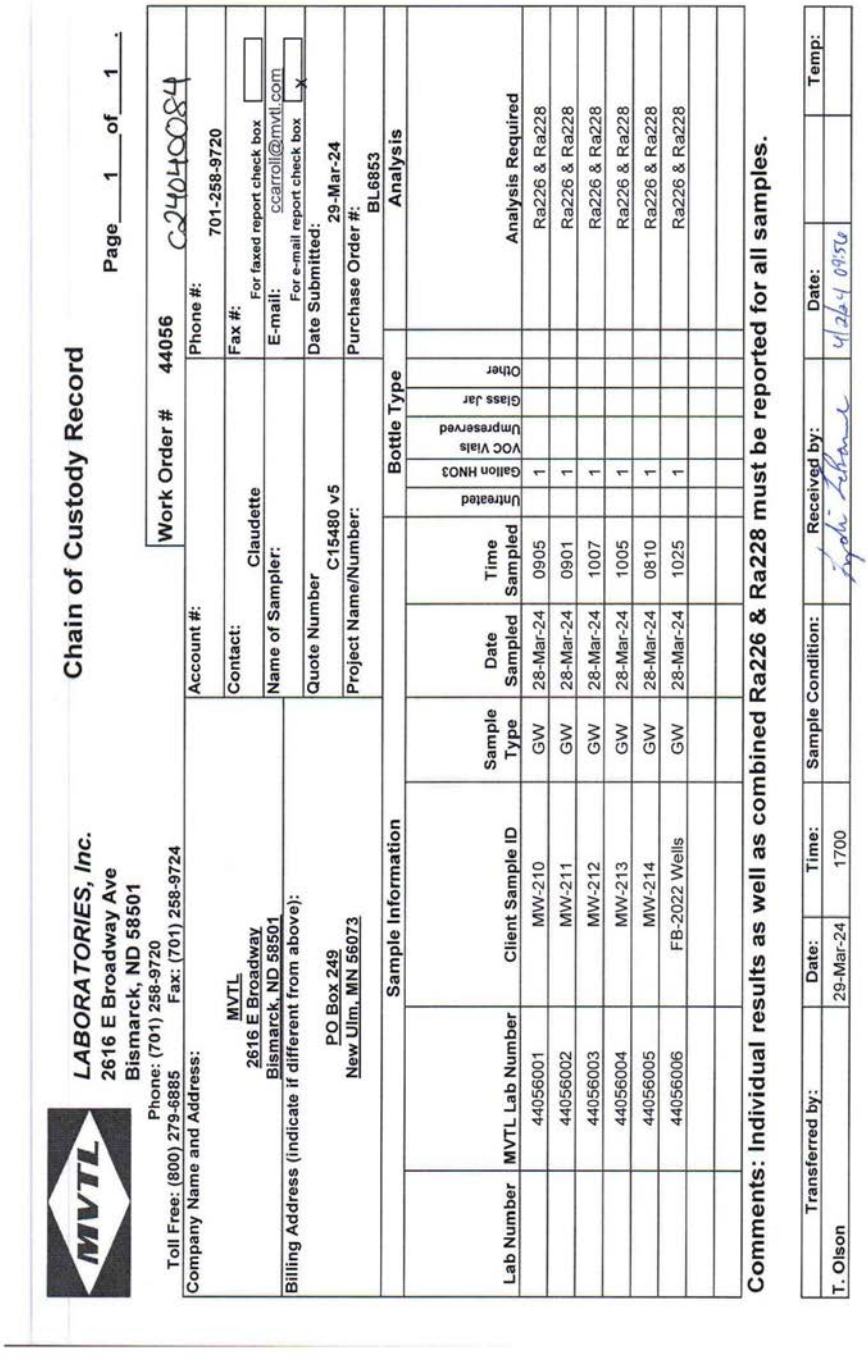
Contact and Corrective Action Comments:

The temperature of the samples for shipping container 1 was 10.4°C, shipping container 2 was 12.6°C, shipping container 3 was 13.0°C, shipping container 4 was 12.7°C and shipping container 5 was 12.3°C.

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy



MVTL LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

Page 1 of 1

Work Order # 44056 C24040084

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501
Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073

Account #:
Contact: Claudette
Name of Sampler:
Quote Number C15480 v5
Project Name/Number:

Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box X
Date Submitted: 29-Mar-24
Purchase Order #: BL6853

Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Untreated	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis Required
	44056001	MW-210	GW	28-Mar-24	0905		1				Ra226 & Ra228
	44056002	MW-211	GW	28-Mar-24	0901		1				Ra226 & Ra228
	44056003	MW-212	GW	28-Mar-24	1007		1				Ra226 & Ra228
	44056004	MW-213	GW	28-Mar-24	1005		1				Ra226 & Ra228
	44056005	MW-214	GW	28-Mar-24	0810		1				Ra226 & Ra228
	44056006	FB-2022 Wells	GW	28-Mar-24	1025		1				Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
T. Olson	29-Mar-24	1700		Taylor LaBrune	4/26/24 0950	

Page 11 of 11

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Member ACIL

Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 44056

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS 2022 Wells
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: Mar 2024
Address:		Lakewood, CO 80228	Sampled By: DK, JM
Phone:			
Email:	CJohnston@GREnergy.com		

Sample Information				Sample Containers									Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Gal Nitric								Analysis Required
001	MW-210	28Mar24	0905	GW					X								Radium 226 and 228 Combined
002	MW-211	28Mar24	0901	GW					X								
003	MW-212	28Mar24	1007	GW					X								
004	MW-213	28Mar24	1005	GW					X								
005	MW-214	28Mar24	0810	GW					X								
006	FB-2022 Wells	28Mar24	1625	GW					X								

Comments:

Relinquished By			Sample Condition		Received By	
	Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1		1753 28Mar24	Log In Walk In #2	12.3 TM562 / TM805	Heather Horst	29 mar 24 0800
2						

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	210
Sampling Personal:	JH, JL

Weather Conditions: Temp: 5 °F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	13.45	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	13.48	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO
Tubing		

Control Settings:		
Purge:	2	Sec.
Recover:	28	Sec.
PSI:	—	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
28 Mar 24	0810	Start of Well Purge									
	0845	6.50	1658	7.79	0.44	-111.9	218.05	13.48	200.0	1.0	ST Tan
	0850	7.41	1652	7.74	0.04	-119.7	1114.3	13.48	200.0	1.0	Turbid Tan
	0855	5.93	1654	7.77	0.01	-129.6	223.84	13.48	200.0	1.0	ST Tan
	0900	5.68	1653	7.76	0.00	-134.3	147.52	13.48	200.0	1.0	ST Tan
	0905	5.66	1653	7.75	0.00	-137.1	122.59	13.48	200.0	1.0	ST Tan

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
28 Mar 24	0905	5.66	1653	7.75			122.59				ST Tan

Comments:	

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	21
Sampling Personal:	

Weather Conditions: Temp: °F Wind: @ Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	18.87	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	18.95	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	5	Sec.
Recover:	25	Sec.
PSI:	7.0	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
28 Mar 24	0836	Start of Well Purge									
	0841	8.73	2781	7.79	1.04	265.3	4102.6	18.95	200.0	1.0	Slightly turbid
	0846	6.58	2776	7.93	0.53	258.1	5516.8	18.95	200.0	1.0	slightly turbid
	0851	6.53	2784	7.93	0.37	251.2	4748.5	18.92	200.0	1.0	Slightly turbid
	0856	6.76	2778	7.93	0.33	243.5	4069.4	18.95	200.0	1.0	Slightly turbid
	0901	6.75	2768	7.90	0.25	234.4	3205	18.95	200.0	1.0	ST

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
28 Mar 24	0901	6.75	2768	7.90			3205				Slightly turbid

Comments:	

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	3198, 212
Sampling Personal:	DK

Weather Conditions: Temp: 11 °F Wind: S @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	19.69	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	19.74	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge:	Sec.
Recover:	Sec.
PSI:	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
28Mar24	0942	Start of Well Purge									
	0947	8.37	2050	8.33	0.25	173.7	195.26	19.74	200.0	1.0	Clear
	0952	7.48	2048	8.37	0.14	151.4	295.93	19.74	200.0	1.0	Clear
	0957	8.06	2066	8.34	0.07	131.9	175.48	19.74	200.0	1.0	Clear
	1002	8.02	2077	8.35	0.05	117.2	84.02	19.74	200.0	1.0	Clear
	1007	7.96	2088	8.37	0.02	106.4	44.23	19.74	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
28Mar24	1007	7.96	2088	8.37			44.23				Clear

Comments: KDK E FB-2022 Collected 1025

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	213
Sampling Personal:	

Weather Conditions: Temp: 5 °F Wind: S @ 5-10 Precip: (Sunny) / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	16.75	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	16.80	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Tubing

Control Settings:	
Purge: 3	Sec.
Recover: 27	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
28 Mar 24	0940	Start of Well Purge									
	0945	7.30	1547	7.75	0.42	-114.9	345.67	16.82	200.0	1.0	ST Tan
	0950	7.21	1556	7.74	0.07	-131.5	493.06	16.81	200.0	1.0	ST Tan
	0955	7.25	1557	7.73	0.00	-139.2	464.28	16.80	200.0	1.0	ST Tan
	1000	7.33	1555	7.73	0.05	-139.4	433.47	16.81	200.0	1.0	ST Tan
	1005	7.21	1555	7.74	0.00	-146.4	300.44	16.80	200.0	1.0	ST Tan

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
28 Mar 24	1005	7.21	1555	7.74			300.44				ST Tan

Comments:	

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	214
Sampling Personal:	JH KH

Weather Conditions: Temp: 5 °F Wind: S @ 5-10 Precip: (Sunny) / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	7.98	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	8.66	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Tubing

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
28 Mar 24	0745	Start of Well Purge									
	0750	3.75	1970	7.75	0.32	56.4	68.46	8.50	200.0	1.0	Clear
	0755	3.17	1980	7.69	0.34	56.0	61.92	8.55	200.0	1.0	Clear
	0800	3.00	1988	7.68	0.44	60.9	97.30	8.60	200.0	1.0	Clear
	0805	3.08	1996	7.66	0.50	61.4	59.96	8.63	200.0	1.0	Clear
	0810	3.05	1999	7.66	0.57	60.9	52.13	8.65	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
28 Mar 24	0810	3.05	1999	7.66			52.13				Clear

Comments:	

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS Internal (44051) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
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Account #: 5109 **Client:** Great River Energy

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44051001 **Date Collected:** 03/28/2024 16:07 **Matrix:** Groundwater
Sample ID: MW-1R **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1582.1**	umhos/cm	1	1		03/28/2024 16:07	
Method: 150.2							
pH - Field	**8.11**	units	0.01	1		03/28/2024 16:07	
Method: 170.1							
Temperature - Field C	**8.8**	degrees C		1		03/28/2024 16:07	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0399**	mg/L	0.02	1	03/29/2024 16:10	04/02/2024 12:46	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/29/2024 16:10	04/02/2024 19:18	
Arsenic	**0.0020**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:18	
Barium	**0.0610**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:18	
Beryllium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:18	
Cadmium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:18	
Chromium	**0.0021**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:18	
Cobalt	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:18	
Lead	**0.0010**	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:18	
Molybdenum	**0.0148**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:18	
Selenium	<0.005	mg/L	0.005	5	03/29/2024 16:10	04/02/2024 19:18	
Thallium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:18	
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		03/29/2024 18:51	*
Method: SM4500-F-C-2011							
Fluoride	**0.78**	mg/L	0.1	1		03/29/2024 18:51	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44051002 **Date Collected:** 03/28/2024 15:05 **Matrix:** Groundwater
Sample ID: MW-104 **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1830.8**	umhos/cm	1	1		03/28/2024 15:05	
Method: 150.2							
pH - Field	**7.85**	units	0.01	1		03/28/2024 15:05	
Method: 170.1							
Temperature - Field C	**8.92**	degrees C		1		03/28/2024 15:05	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0264**	mg/L	0.02	1	03/29/2024 16:10	04/02/2024 12:46	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/29/2024 16:10	04/02/2024 19:22	
Arsenic	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:22	
Barium	**0.0488**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:22	
Beryllium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:22	
Cadmium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:22	
Chromium	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:22	
Cobalt	**0.0023**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:22	
Lead	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:22	
Molybdenum	**0.0470**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:22	
Selenium	<0.005	mg/L	0.005	5	03/29/2024 16:10	04/02/2024 19:22	
Thallium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:22	
Method: SM4500 H+ B-2011							
pH	**7.6**	units	0.1	1		03/29/2024 18:57	*
Method: SM4500-F-C-2011							
Fluoride	**0.78**	mg/L	0.1	1		03/29/2024 18:57	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 44051

Aluminum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	100.0		85	115		
MB		<0.1							
PDS/PDSD	43924001		20	109.0	110.0	75	125	0.9	20
PDS/PDSD	43924010		10	111.0	112.0	75	125	0.5	20
PDS/PDSD	44050002		20	110.0	108.0	75	125	0.6	20
PDS/PDSD	44052004		0.4	81.4	84.9	75	125	1.7	20

Aluminum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	100.0		85	115		
MB		<0.1							
SPK/SPKD	43924007		0.4	113.0	111.0	75	125	1.5	20
SPK/SPKD	44049002		0.4	105.0	106.0	75	125	0.5	20
SPK/SPKD	44051001		0.4	111.0	114.0	75	125	2.1	20
PDS/PDSD	44113001		2	95.7	101.0	75	125	2.0	20

Iron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
PDS/PDSD	43924001		20	104.0	106.0	75	125	1.0	20
PDS/PDSD	43924010		10	107.0	107.0	75	125	0.1	20
PDS/PDSD	44050002		20	107.0	107.0	75	125	0.0	20

Iron, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
SPK/SPKD	43924007		0.4	77.5	72.7	75	125	1.0	20
SPK/SPKD	44049002		0.4	89.4	90.0	75	125	0.7	20
SPK/SPKD	44051001		0.4	81.5	79.6	75	125	0.6	20
PDS/PDSD	44113001		2	89.2	90.8	75	125	0.7	20
PDS/PDSD	44113001		0.4	92.7	94.0	75	125	0.1	20

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Lithium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	106.0		85	115		
MB		<0.04							
MS/MSD	44050002		0.4	99.6	101.0	70	130	1.6	20

Manganese — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
PDS/PDSD	43924001		20	112.0	114.0	75	125	1.2	20
PDS/PDSD	43924010		10	106.0	113.0	75	125	5.1	20
MS/MSD	44050002		0.4	94.0	97.5	70	130	0.9	20
PDS/PDSD	44050002		20	110.0	110.0	75	125	0.3	20
PDS/PDSD	44052004		0.4	86.2	88.6	75	125	2.3	20

Manganese, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
SPK/SPKD	43924007		0.4	91.2	90.9	75	125	0.2	20
SPK/SPKD	44049002		0.4	89.7	90.7	75	125	0.8	20
MS/MSD	44050002							0.9	20
SPK/SPKD	44051001		0.4	92.2	92.0	75	125	0.1	20
PDS/PDSD	44113001		2	93.7	95.2	75	125	1.0	20

Antimony — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.4		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.001							
MB		<0.001							
MS/MSD	44050002		0.4	98.2	94.6	75	125	3.9	20
MS/MSD	44050002		0.4	99.2	95.6	75	125	3.9	20
SPK	44114001		0.1	109.0		75	125		

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Account #: 5109 **Client:** Great River Energy

Arsenic				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	94.9		80	120		
LFB-MS			0.1	99.5		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	44050002		0.4	99.0	98.8	75	125	0.2	20
MS/MSD	44050002		0.4	100.0	99.1	75	125	1.4	20
SPK	44114001		0.1	108.0		75	125		

Barium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.6		80	120		
LFB-MS			0.1	96.7		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	44050002		0.4	101.0	98.6	75	125	1.2	20
MS/MSD	44050002		0.4	103.0	102.0	75	125	0.1	20
SPK	44114001		0.1	103.0		75	125		

Beryllium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	94.0		80	120		
LFB-MS			0.1	97.0		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	44050002		0.4	89.9	90.2	75	125	0.6	20
MS/MSD	44050002		0.4	96.0	97.3	75	125	1.6	20
SPK	44114001		0.1	101.0		75	125		

Cadmium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
LFB-MS			0.1	96.8		80	120		
MB		<0.0005							
MB		<0.0005							

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Cadmium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	44050002		0.4	98.8	100.0	75	125	1.8	20
MS/MSD	44050002		0.4	100.0	99.0	75	125	0.3	20
SPK	44114001		0.1	99.1		75	125		

Chromium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	44050002		0.4	103.0	105.0	75	125	2.1	20
MS/MSD	44050002		0.4	103.0	101.0	75	125	1.2	20
SPK	44114001		0.1	110.0		75	125		

Cobalt — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	44050002		0.4	98.9	99.5	75	125	0.5	20
MS/MSD	44050002		0.4	99.3	98.2	75	125	0.7	20
SPK	44114001		0.1	107.0		75	125		

Lead — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.8		80	120		
LFB-MS			0.1	98.0		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	44050002		0.4	98.3	98.2	75	125	0.0	20
MS/MSD	44050002		0.4	96.7	96.2	75	125	0.5	20
SPK	44114001		0.1	96.3		75	125		

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Molybdenum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
LFB-MS			0.1	105.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	44050002		0.4	101.0	102.0	75	125	1.4	20
MS/MSD	44050002		0.4	102.0	106.0	75	125	3.9	20
SPK	44114001		0.1	112.0		75	125		

Selenium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.0		80	120		
LFB-MS			0.1	95.8		80	120		
MB		<0.005							
MB		<0.005							
MS/MSD	44050002		0.4	100.0	102.0	75	125	2.0	20
MS/MSD	44050002		0.4	99.7	98.7	75	125	1.0	20
SPK	44114001		0.1	97.5		75	125		

Thallium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.9		80	120		
LFB-MS			0.1	98.0		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	44050002		0.4	97.2	96.4	75	125	0.8	20
MS/MSD	44050002		0.4	98.5	97.8	75	125	0.8	20
SPK	44114001		0.1	96.4		75	125		

Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	100.0		85	115		
LFB			0.002	95.6		85	115		
LRB		<0.0002							
MB		<0.0002							

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Account #: 5109 **Client:** Great River Energy

Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	43303001		0.002	103.0	102.0	70	130	4.9	20
MS/MSD	43801007		0.002	96.0	97.4	70	130	0.0	20
MS/MSD	43924012		0.002	99.8	99.8	70	130	0.0	20
MS/MSD	43924013		0.002	96.7	101.0	70	130	5.1	20
MS/MSD	44049002		0.002	103.0	105.0	70	130	0.0	20
MS/MSD	44114001		0.002	98.4	99.0	70	130	0.0	20

pH				Units: units					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	100.2		98.33	101.67		
CRM-PH			6	100.3		98.33	101.67		
CRM-PH			6	100.3		98.33	101.67		
CRM-PH			6	100.3		98.33	101.67		
DUP	44048001							1.7	20
DUP	44049002							2.1	20
DUP	44050006							3.0	20
DUP	44113001							1.6	20

Fluoride				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			15.3	104.0		83.99	111.11		
LFB-F			0.5	98.0		90	110		
LFB-F			0.5	100.0		90	110		
LFB-F			0.5	100.0		90	110		
LFB-F			0.5	98.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MS/MSD-F	44049002		0.5	98.0	96.0	80	120	1.1	20
MS/MSD-F	44052002		0.5	96.0	94.0	80	120	1.7	20
MS/MSD-F	44111002		0.5	96.0	96.0	80	120	0.0	20

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Member ACIL

Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 44051

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS Internal
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: Mar 2024
Address:		Lakewood, CO 80228	Sampled By:
Phone:			
Email:	CJohnston@GREnergy.com		

Sample Information					Sample Containers									Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric					Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-1R	28 Mar 24	1607	GW	X	X	X							8.80	1582.1	8.11	490.7	App IV + Total and Dissolved Iron, Aluminum, and Mangangese (See Attachments)
002	MW-104	28 Mar 24	1505	GW	X	X	X							8.92	1830.8	7.85	0.00	

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C) 2.7	Name	Date/Time
1	1763 28 Mar 24	Log In Walk In #2	ROI TM562 / TM805		29 Mar 24 0800
2					

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Account #: 5109 **Client:** Great River Energy

Field Datasheet

Groundwater Assessment

2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	1R
Sampling Personal:	

Weather Conditions: Temp: 28 °F Wind: S @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	17.00	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	17.00	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
28Mar 24	1542	Start of Well Purge									
	1547	8.56	1590.9	8.17	0.10	-121.2	1065.3	17.00	200.0	1.0	Slightly turbid
	1552	8.82	1586.6	8.11	0.04	-132.4	853.53	17.00	200.0	1.0	Slightly turbid
	1557	8.79	1584.5	8.11	0.02	-135.6	748.54	17.00	200.0	1.0	Slightly turbid
	1602	8.87	1582.9	8.10	0.00	-140.1	563.70	17.00	200.0	1.0	Slightly turbid
	1607	8.80	1582.1	8.11	0.00	-141.7	490.77	17.00	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
28Mar24	1607	8.80	1582.1	8.11			490.77				Clear

Comments:	

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Mar 2024
Sample ID: 104
Sampling Personal: [signature]

Weather Conditions: Temp: 36 °F Wind: 5 @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	22.04	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	22.05	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	20	

Bottle List:
1 Liter Raw
1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample? YES NO
Duplicate Sample ID: —

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
28Mar 24	1440	Start of Well Purge									
	1445	8.85	1841.3	7.88	0.46	237.6	43.06	22.05	200.0	1.0	Clear
	1450	8.73	1832.5	7.90	0.20	235.3	0.83	22.05	200.0	1.0	Clear
	1455	8.79	1831.4	7.89	0.11	233.4	0.00	22.05	200.0	1.0	Clear
	1500	8.84	1830.7	7.87	0.08	231.3	0.00	22.05	200.0	1.0	Clear
	1505	8.92	1830.8	7.85	0.06	229.5	0.00	22.05	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
28Mar 24	1505	8.92	1830.8	7.85			0.00				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS Internal Mar 2024 (44054) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

C. Carroll

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID:	44054001	**Date Collected:**	03/28/2024 16:07	**Matrix:**	Groundwater
Sample ID:	MW-1R	**Date Received:**	03/28/2024 17:53	**Collector:**	MVTL Field Service

Temp @ Receipt (C): 12.3

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		04/26/2024 10:26	
Radium 228	See Attached			1		04/26/2024 10:26	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44054002 **Date Collected:** 03/28/2024 15:05 **Matrix:** Groundwater
Sample ID: MW-104 **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 12.3

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		04/26/2024 10:26	
Radium 228	See Attached			1		04/26/2024 10:26	

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ANALYTICAL SUMMARY REPORT

April 26, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24040086 Quote ID: C15480
Project Name: 44054

Energy Laboratories, Inc. Casper WY received the following 2 samples for Minnesota Valley Testing Laboratories on 4/2/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24040086-001	44054001, MW-1R	03/28/24 16:07	04/02/24	Groundwater	Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total
C24040086-002	44054002, MW-104	03/28/24 15:05	04/02/24	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager .

Report Approved By:

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 44054
Lab ID: C24040086-001
Client Sample ID: 44054001, MW-1R

Report Date: 04/26/24
Collection Date: 03/28/24 16:07
DateReceived: 04/02/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 228	0.1	pCi/L	U			RA-05	04/17/24 14:19 / kdk
Radium 228 precision (±)	0.6	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 228 MDC	1.0	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 226 + Radium 228	0.8	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.0	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 44054
Lab ID: C24040086-002
Client Sample ID: 44054002, MW-104

Report Date: 04/26/24
Collection Date: 03/28/24 15:05
DateReceived: 04/02/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	04/22/24 11:19 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 228	0.07	pCi/L	U			RA-05	04/17/24 14:19 / kdk
Radium 228 precision (±)	0.7	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 228 MDC	1.1	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.2	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 3 of 7

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Account #: 5109 **Client:** Great River Energy

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24040086 **Report Date:** 04/24/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11280
Lab ID: LCS-RA226-11280	3	Laboratory Control Sample				Run: TENNELEC-4_240410C				04/22/24 11:19
Radium 226		8.5	pCi/L		86	70	130			
Radium 226 precision (±)		1.7	pCi/L							
Radium 226 MDC		0.13	pCi/L							
Lab ID: MB-RA226-11280	3	Method Blank				Run: TENNELEC-4_240410C				04/22/24 11:19
Radium 226		0.2	pCi/L							
Radium 226 precision (±)		0.09	pCi/L							
Radium 226 MDC		0.1	pCi/L							
Lab ID: C24040091-002AMS	3	Sample Matrix Spike				Run: TENNELEC-4_240410C				04/22/24 14:08
Radium 226		7.9	pCi/L		77	70	130			
Radium 226 precision (±)		1.5	pCi/L							
Radium 226 MDC		0.11	pCi/L							
Lab ID: C24040091-002AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_240410C				04/22/24 14:08
Radium 226		7.8	pCi/L		77	70	130	0.2	30	
Radium 226 precision (±)		1.5	pCi/L							
Radium 226 MDC		0.11	pCi/L							

- The RER result is 0.01.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

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Account #: 5109 **Client:** Great River Energy

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24040086 **Report Date:** 04/24/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7372
Lab ID: LCS-228-RA226-11280	3	Laboratory Control Sample				Run: TENNELEC-4_240410A				04/17/24 14:18
Radium 228		6.2	pCi/L		98	70	130			
Radium 228 precision (±)		1.4	pCi/L							
Radium 228 MDC		1.1	pCi/L							
Lab ID: MB-RA226-11280	3	Method Blank				Run: TENNELEC-4_240410A				04/17/24 14:18
Radium 228		0.4	pCi/L							U
Radium 228 precision (±)		0.6	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C24040091-002AMS	3	Sample Matrix Spike				Run: TENNELEC-4_240410A				04/17/24 14:19
Radium 228		5.9	pCi/L		93	70	130			
Radium 228 precision (±)		1.3	pCi/L							
Radium 228 MDC		0.98	pCi/L							
Lab ID: C24040091-002AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_240410A				04/17/24 14:19
Radium 228		6.2	pCi/L		99	70	130	5.6	30	
Radium 228 precision (±)		1.4	pCi/L							
Radium 228 MDC		1.0	pCi/L							

- The RER result is 0.17.

Qualifiers:

RL - Analyte Reporting Limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24040086

Login completed by: Dakota R. Sawyer
Reviewed by: lleprowse
Reviewed Date: 4/4/2024
Date Received: 4/2/2024
Received by: LEL
Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	13.0°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Contact and Corrective Action Comments:

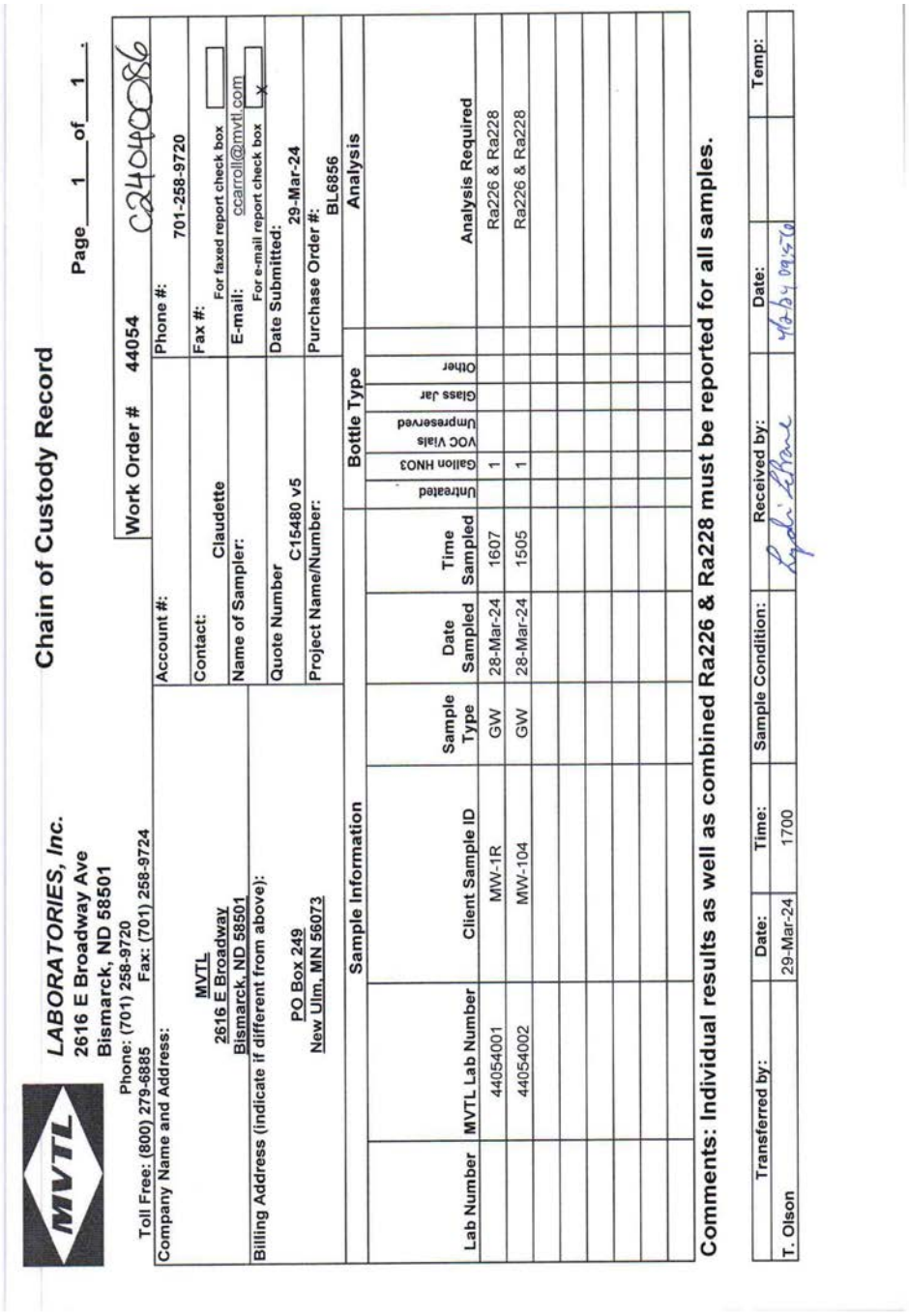
The temperature of the samples for shipping container 1 was 10.4°C, shipping container 2 was 12.6°C, shipping container 3 was 13.0°C, shipping container 4 was 12.7°C and shipping container 5 was 12.3°C.

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Account #: 5109 **Client:** Great River Energy



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Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

Page 1 of 1

Work Order # 44054 C24040086

Company Name and Address: MVTL, 2616 E Broadway, Bismarck, ND 58501
Account #:
Contact: Claudette
Name of Sampler:
Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box X
Billing Address (indicate if different from above): PO Box 249, New Ulm, MN 56073
Quote Number C15480 v5
Project Name/Number:
Date Submitted: 29-Mar-24
Purchase Order #: BL6856

Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Untreated	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis Required
	44054001	MW-1R	GW	28-Mar-24	1607		1				Ra226 & Ra228
	44054002	MW-104	GW	28-Mar-24	1505		1				Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
T. Olson	29-Mar-24	1700		Kyle LaRose	4-1-24 09:50	

Page 7 of 7

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Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 44054

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS Internal
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: Mar 2024
Address:		Lakewood, CO 80228	Sampled By:
Phone:			
Email:	CJohnston@GREnergy.com		

Sample Information				Sample Containers									Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric								Analysis Required
001	MW-1R	28Mar24	1607	GW					X								Radium 226 and 228 Combined
002	MW-104	28Mar24	1505	GW					X								

Comments:

Relinquished By			Sample Condition		Received By	
	Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1		28Mar24 1753	Log In Walk In #2	12.3 TM562 / TM805	Heather Horst	29mar24 0800
2						

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Account #: 5109 **Client:** Great River Energy

Field Datasheet

Groundwater Assessment

2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	1R
Sampling Personal:	

Weather Conditions: Temp: 78 °F Wind: S @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	17.00	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	17.00	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge:	3 Sec.
Recover:	27 Sec.
PSI:	20

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
28Mar 24	1542	Start of Well Purge									
	1547	8.56	1590.9	8.17	0.10	-121.2	1065.3	17.00	200.0	1.0	Slightly Turbid
	1552	8.82	1586.6	8.11	0.04	-132.4	853.53	17.00	200.0	1.0	Slightly turbid
	1557	8.79	1584.5	8.11	0.02	-135.6	748.54	17.00	200.0	1.0	Slightly turbid
	1602	8.87	1582.9	8.10	0.00	-140.1	563.70	17.00	200.0	1.0	Slightly Turbid
	1607	8.80	1582.1	8.11	0.00	-141.7	490.77	17.00	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
28Mar24	1607	8.80	1582.1	8.11			490.77				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 44054

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS Internal
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: Mar 2024
Address:		Lakewood, CO 80228	Sampled By:
Phone:			
Email:	CJohnston@GREnergy.com		

Sample Information				Sample Containers									Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric								Analysis Required
001	MW-1R	28Mar24	1607	GW					X								Radium 226 and 228 Combined
002	MW-104	28Mar24	1505	GW					X								

Comments:

Relinquished By			Sample Condition		Received By	
	Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1		28Mar24 1753	Log In Walk In #2	IR TM562 / TM805 12.3	Heather Horst	29Mar24 0800
2						

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS BAI (44052) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44052001 **Date Collected:** 03/28/2024 13:08 **Matrix:** Groundwater
Sample ID: MW-201 **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**3058**	umhos/cm	1	1		03/28/2024 13:08	
Method: 150.2							
pH - Field	**7.46**	units	0.01	1		03/28/2024 13:08	
Method: 170.1							
Temperature - Field C	**6.27**	degrees C		1		03/28/2024 13:08	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	<0.02	mg/L	0.02	1	03/29/2024 16:10	04/02/2024 12:47	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/29/2024 16:10	04/02/2024 19:27	
Arsenic	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:27	
Barium	**0.0176**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:27	
Beryllium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:27	
Cadmium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:27	
Chromium	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:27	
Cobalt	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:27	
Lead	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:27	
Molybdenum	**0.1656**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:27	
Selenium	<0.005	mg/L	0.005	5	03/29/2024 16:10	04/02/2024 19:27	
Thallium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:27	
Method: SM4500 H+ B-2011							
pH	**7.8**	units	0.1	1		03/29/2024 19:03	*
Method: SM4500-F-C-2011							
Fluoride	**0.75**	mg/L	0.1	1		03/29/2024 19:03	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44052002 **Date Collected:** 03/28/2024 11:57 **Matrix:** Groundwater
Sample ID: MW-202 **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2134**	umhos/cm	1	1		03/28/2024 11:57	
Method: 150.2							
pH - Field	**7.24**	units	0.01	1		03/28/2024 11:57	
Method: 170.1							
Temperature - Field C	**5.72**	degrees C		1		03/28/2024 11:57	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0224**	mg/L	0.02	1	03/29/2024 16:10	04/02/2024 12:47	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/29/2024 16:10	04/02/2024 19:31	
Arsenic	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:31	
Barium	**0.0619**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:31	
Beryllium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:31	
Cadmium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:31	
Chromium	**0.0047**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:31	
Cobalt	**0.0029**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:31	
Lead	**0.0014**	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:31	
Molybdenum	**0.0030**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:31	
Selenium	**0.0069**	mg/L	0.005	5	03/29/2024 16:10	04/02/2024 19:31	
Thallium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:31	
Method: SM4500 H+ B-2011							
pH	**7.6**	units	0.1	1		03/29/2024 19:09	*
Method: SM4500-F-C-2011							
Fluoride	**0.13**	mg/L	0.1	1		03/29/2024 19:09	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44052003 **Date Collected:** 03/28/2024 11:57 **Matrix:** Groundwater
Sample ID: DUP-BAI **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0228**	mg/L	0.02	1	03/29/2024 16:10	04/02/2024 12:48	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/29/2024 16:10	04/02/2024 19:36	
Arsenic	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:36	
Barium	**0.0679**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:36	
Beryllium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:36	
Cadmium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:36	
Chromium	**0.0054**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:36	
Cobalt	**0.0032**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:36	
Lead	**0.0015**	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:36	
Molybdenum	**0.0033**	mg/L	0.002	5	03/29/2024 16:10	04/02/2024 19:36	
Selenium	**0.0074**	mg/L	0.005	5	03/29/2024 16:10	04/02/2024 19:36	
Thallium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/02/2024 19:36	
Method: SM4500 H+ B-2011							
pH	**7.6**	units	0.1	1		03/29/2024 19:15	*
Method: SM4500-F-C-2011							
Fluoride	**0.12**	mg/L	0.1	1		03/29/2024 19:15	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44052004 **Date Collected:** 03/28/2024 11:03 **Matrix:** Groundwater
Sample ID: MW-203 **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**3648**	umhos/cm	1	1		03/28/2024 11:03	
Method: 150.2							
pH - Field	**9.15**	units	0.01	1		03/28/2024 11:03	
Method: 170.1							
Temperature - Field C	**4.19**	degrees C		1		03/28/2024 11:03	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	<0.02	mg/L	0.02	1	03/29/2024 16:10	04/02/2024 12:50	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/29/2024 16:10	04/03/2024 13:34	
Arsenic	**0.0143**	mg/L	0.002	5	03/29/2024 16:10	04/03/2024 13:34	
Barium	**0.0464**	mg/L	0.002	5	03/29/2024 16:10	04/03/2024 13:34	
Beryllium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/03/2024 13:34	
Cadmium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/03/2024 13:34	
Chromium	<0.002	mg/L	0.002	5	03/29/2024 16:10	04/03/2024 13:34	
Cobalt	**0.0030**	mg/L	0.002	5	03/29/2024 16:10	04/03/2024 13:34	
Lead	**0.0033**	mg/L	0.0005	5	03/29/2024 16:10	04/03/2024 13:34	
Molybdenum	**0.0558**	mg/L	0.002	5	03/29/2024 16:10	04/03/2024 13:34	
Selenium	<0.005	mg/L	0.005	5	03/29/2024 16:10	04/03/2024 13:34	
Thallium	<0.0005	mg/L	0.0005	5	03/29/2024 16:10	04/03/2024 13:34	
Method: SM4500 H+ B-2011							
pH	**9.0**	units	0.1	1		03/29/2024 19:21	*
Method: SM4500-F-C-2011							
Fluoride	**0.67**	mg/L	0.1	1		03/29/2024 19:21	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 44052

Aluminum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	98.7		85	115		
LFB-OE			0.4	100.0		85	115		
MB		<0.1							
MB		<0.1							
PDS/PDSD	43924001		20	109.0	110.0	75	125	0.9	20
PDS/PDSD	43924010		10	111.0	112.0	75	125	0.5	20
PDS/PDSD	44050002		20	110.0	108.0	75	125	0.6	20
PDS/PDSD	44052004		0.4	81.4	84.9	75	125	1.7	20

Aluminum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	98.7		85	115		
LFB-OE			0.4	100.0		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	43924007		0.4	113.0	111.0	75	125	1.5	20
SPK/SPKD	44049002		0.4	105.0	106.0	75	125	0.5	20
SPK/SPKD	44051001		0.4	111.0	114.0	75	125	2.1	20

Iron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
MB		<0.1							
PDS/PDSD	43924001		20	104.0	106.0	75	125	1.0	20
PDS/PDSD	43924010		10	107.0	107.0	75	125	0.1	20
PDS/PDSD	44050002		20	107.0	107.0	75	125	0.0	20
MS/MSD	44052004		0.4	93.5	90.2	70	130	1.3	20

Iron, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		

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Iron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	43924007		0.4	77.5	72.7	75	125	1.0	20
SPK/SPKD	44049002		0.4	89.4	90.0	75	125	0.7	20
SPK/SPKD	44051001		0.4	81.5	79.6	75	125	0.6	20

Lithium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
LFB-OE			0.4	106.0		85	115		
MB		<0.04							
MB		<0.04							
MS/MSD	44050002		0.4	99.6	101.0	70	130	1.6	20
MS/MSD	44052004		0.4	106.0	104.0	70	130	1.8	20

Manganese				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
MB		<0.05							
PDS/PDSD	43924001		20	112.0	114.0	75	125	1.2	20
PDS/PDSD	43924010		10	106.0	113.0	75	125	5.1	20
MS/MSD	44050002		0.4	94.0	97.5	70	130	0.9	20
PDS/PDSD	44050002		20	110.0	110.0	75	125	0.3	20
MS/MSD	44052004		0.4	89.3	86.9	70	130	2.3	20
PDS/PDSD	44052004		0.4	86.2	88.6	75	125	2.3	20

Manganese, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
LFB-OE			0.4	109.0		85	115		
MB		<0.05							

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Manganese, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.05							
SPK/SPKD	43924007		0.4	91.2	90.9	75	125	0.2	20
SPK/SPKD	44049002		0.4	89.7	90.7	75	125	0.8	20
SPK/SPKD	44051001		0.4	92.2	92.0	75	125	0.1	20

Antimony				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.0		80	120		
LFB-MS			0.1	97.4		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.001							
MB		<0.001							
MB		<0.001							
MS/MSD	44050002		0.4	98.2	94.6	75	125	3.9	20
MS/MSD	44050002		0.4	99.2	95.6	75	125	3.9	20
MS/MSD	44052004		0.4	100.0	100.0	75	125	0.3	20
SPK	44052004		0.1	102.0		75	125		
SPK	44114001		0.1	109.0		75	125		

Arsenic				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.5		80	120		
LFB-MS			0.1	94.9		80	120		
LFB-MS			0.1	96.7		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
MS/MSD	44050002		0.4	100.0	99.1	75	125	1.4	20
MS/MSD	44050002		0.4	99.0	98.8	75	125	0.2	20
MS/MSD	44052004		0.4	103.0	97.4	75	125	5.8	20
SPK	44052004		0.1	104.0		75	125		
SPK	44114001		0.1	108.0		75	125		
SPK	44242001		0.2	101.0		75	125		

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Barium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.6		80	120		
LFB-MS			0.1	96.7		80	120		
LFB-MS			0.1	98.5		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
MS/MSD	44050002		0.4	101.0	98.6	75	125	1.2	20
MS/MSD	44050002		0.4	103.0	102.0	75	125	0.1	20
MS/MSD	44052004		0.4	96.6	94.3	75	125	2.1	20
SPK	44052004		0.1	96.0		75	125		
SPK	44114001		0.1	103.0		75	125		

Beryllium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	92.2		80	120		
LFB-MS			0.1	94.0		80	120		
LFB-MS			0.1	97.0		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
MS/MSD	44050002		0.4	96.0	97.3	75	125	1.6	20
MS/MSD	44050002		0.4	89.9	90.2	75	125	0.6	20
MS/MSD	44052004		0.4	93.2	88.5	75	125	5.2	20
SPK	44052004		0.1	92.5		75	125		
SPK	44114001		0.1	101.0		75	125		

Cadmium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.8		80	120		
LFB-MS			0.1	103.0		80	120		
LFB-MS			0.1	102.0		80	120		
MB		<0.0005							
MB		<0.0005							

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Cadmium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.0005							
MS/MSD	44050002		0.4	100.0	99.0	75	125	0.3	20
MS/MSD	44050002		0.4	98.8	100.0	75	125	1.8	20
MS/MSD	44052004		0.4	94.9	93.8	75	125	1.3	20
SPK	44052004		0.1	94.8		75	125		
SPK	44114001		0.1	99.1		75	125		
SPK	44242001		0.2	98.9		75	125		

Chromium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	102.0		80	120		
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
MS/MSD	44050002		0.4	103.0	101.0	75	125	1.2	20
MS/MSD	44050002		0.4	103.0	105.0	75	125	2.1	20
MS/MSD	44052004		0.4	104.0	101.0	75	125	2.7	20
SPK	44052004		0.1	104.0		75	125		
SPK	44114001		0.1	110.0		75	125		

Cobalt				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	102.0		80	120		
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
MS/MSD	44050002		0.4	99.3	98.2	75	125	0.7	20
MS/MSD	44050002		0.4	98.9	99.5	75	125	0.5	20
MS/MSD	44052004		0.4	99.9	97.4	75	125	2.3	20

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Cobalt				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK	44052004		0.1	100.0		75	125		
SPK	44114001		0.1	107.0		75	125		

Lead				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.8		80	120		
LFB-MS			0.1	98.0		80	120		
LFB-MS			0.1	97.6		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
MS/MSD	44050002		0.4	96.7	96.2	75	125	0.5	20
MS/MSD	44050002		0.4	98.3	98.2	75	125	0.0	20
MS/MSD	44052004		0.4	96.2	93.5	75	125	2.9	20
SPK	44052004		0.1	93.7		75	125		
SPK	44114001		0.1	96.3		75	125		
SPK	44242001		0.2	98.5		75	125		

Molybdenum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
LFB-MS			0.1	103.0		80	120		
LFB-MS			0.1	105.0		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
MS/MSD	44050002		0.4	101.0	102.0	75	125	1.4	20
MS/MSD	44050002		0.4	102.0	106.0	75	125	3.9	20
MS/MSD	44052004		0.4	103.0	102.0	75	125	1.3	20
SPK	44052004		0.1	102.0		75	125		
SPK	44114001		0.1	112.0		75	125		

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Account #: 5109 **Client:** Great River Energy

Selenium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.0		80	120		
LFB-MS			0.1	95.8		80	120		
LFB-MS			0.1	99.1		80	120		
MB		<0.005							
MB		<0.005							
MB		<0.005							
MS/MSD	44050002		0.4	99.7	98.7	75	125	1.0	20
MS/MSD	44050002		0.4	100.0	102.0	75	125	2.0	20
MS/MSD	44052004		0.4	99.8	99.9	75	125	0.3	20
SPK	44052004		0.1	103.0		75	125		
SPK	44114001		0.1	97.5		75	125		
SPK	44242001		0.2	100.0		75	125		

Thallium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.0		80	120		
LFB-MS			0.1	98.3		80	120		
LFB-MS			0.1	99.9		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
MS/MSD	44050002		0.4	97.2	96.4	75	125	0.8	20
MS/MSD	44050002		0.4	98.5	97.8	75	125	0.8	20
MS/MSD	44052004		0.4	96.0	93.6	75	125	2.6	20
SPK	44052004		0.1	93.2		75	125		
SPK	44114001		0.1	96.4		75	125		

Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	95.6		85	115		
LFB			0.002	100.0		85	115		
LRB		<0.0002							
MB		<0.0002							

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Account #: 5109 **Client:** Great River Energy

Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	43303001		0.002	103.0	102.0	70	130	4.9	20
MS/MSD	43801007		0.002	96.0	97.4	70	130	0.0	20
MS/MSD	43924012		0.002	99.8	99.8	70	130	0.0	20
MS/MSD	43924013		0.002	96.7	101.0	70	130	5.1	20
MS/MSD	44049002		0.002	103.0	105.0	70	130	0.0	20
MS/MSD	44114001		0.002	98.4	99.0	70	130	0.0	20

pH				Units: units					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	100.2		98.33	101.67		
CRM-PH			6	100.3		98.33	101.67		
CRM-PH			6	100.3		98.33	101.67		
CRM-PH			6	100.3		98.33	101.67		
DUP	44048001							1.7	20
DUP	44049002							2.1	20
DUP	44050006							3.0	20
DUP	44113001							1.6	20

Fluoride				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			15.3	104.0		83.99	111.11		
LFB-F			0.5	98.0		90	110		
LFB-F			0.5	98.0		90	110		
LFB-F			0.5	100.0		90	110		
LFB-F			0.5	100.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MS/MSD-F	44049002		0.5	98.0	96.0	80	120	1.1	20
MS/MSD-F	44052002		0.5	96.0	94.0	80	120	1.7	20
MS/MSD-F	44111002		0.5	96.0	96.0	80	120	0.0	20

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Member ACIL

Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 44052

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS BAI
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: Mar 2024
Address:		Lakewood, CO 80228	Sampled By: Jeremy Klug / Dakota Kottrich
Phone:			
Email:	CJohnston@GREnergy.com		

Sample Information					Sample Containers									Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric					Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-201	28 Mar 24	1308	GW	X	X	X							6.27	3058	7.46	4.46	App IV + Total and Dissolved Iron, Aluminum, and Mangangese (See Attachments)
002	MW-202	28 Mar 24	1157	GW	X	X	X							5.72	2134	7.24	95.81	
003	DUP-BAI	28 Mar 24	1157	GW	X	X	X							NA	NA	NA	NA	
004	MW-203	28 Mar 24	1103	GW	X	X	X							4.19	3648	9.15	19.07	

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	KOI Temp (°C)	Name	Date/Time
1	28 Mar 24 1253	Log In Walk In #2	2.7 TM562 / TM805	Heather Horst	29 mar 24 0800
2					

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	201
Sampling Personal:	Jeremy Hay

Weather Conditions: Temp: 10°F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	10.50	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	11.74	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
28 Mar 24	1243	Start of Well Purge									
	1248	6.62	3049	7.48	0.22	83.7	29.54	11.00	200.0	1.0	Clear
	1253	6.40	3056	7.47	0.05	61.4	19.07	11.12	200.0	1.0	Clear
	1258	6.37	3059	7.46	0.02	49.5	7.30	11.25	200.0	1.0	Clear
	1303	6.27	3059	7.46	0.02	37.0	6.26	11.37	200.0	1.0	Clear
	1308	6.27	3058	7.46	0.01	30.4	4.46	11.60	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
28 Mar 24	1308	6.27	3058	7.46			4.46				Clear

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	202
Sampling Personal:	JMH

Weather Conditions: Temp: 5 °F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	10.95	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	13.85	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	2	Sec.
Recover:	28	Sec.
PSI:		

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
(YES) / NO
Duplicate Sample ID:
Dup BA1

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
28 Mar 24	1132	Start of Well Purge									
	1137	6.38	2137	7.29	3.91	161.1	169.60	11.58	200.0	1.0	ST
	1142	6.08	2135	7.27	3.04	160.5	186.73	12.05	200.0	1.0	ST
	1147	5.71	2139	7.26	2.90	152.4	119.71	12.27	200.0	1.0	Clear
	1152	5.67	2134	7.25	2.67	145.1	110.20	12.46	200.0	1.0	clear
	1157	5.72	2134	7.24	2.45	143.0	95.81	12.85	200.0	1.0	clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
28 Mar 24	1157	5.72	2134	7.24			95.81				clear

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	203
Sampling Personal:	JM

Weather Conditions: Temp: 5 °F Wind: S @ 5-10 Precip: (Sunny) / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	8.34	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	12.60	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
28 Mar 24	1036	Start of Well Purge									
	1043	4.78	3822	9.02	0.12	-4.2	0.00	9.85	200.0	1.0	Clear Brown
	1048	4.40	3671	9.11	0.00	-36.1	0.00	10.43	200.0	1.0	Clear Brown
	1053	4.09	3588	9.20	0.46	-16.4	14.66	10.95	200.0	1.0	Clear Brown
	1058	4.00	3599	9.17	0.29	-13.0	18.71	11.32	200.0	1.0	Clear Brown
	1103	4.19	3648	9.15	0.17	-20.1	19.07	11.60	200.0	1.0	Clear Brown

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
28 Mar 24	1103	4.19	3648	9.15			19.07				Clear Brown

Comments:	

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS BAI Mar 2024 (44053) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

Amended data package to correct radchem data package. CC 24May24

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID:	44053001	**Date Collected:**	03/28/2024 13:08	**Matrix:**	Groundwater
Sample ID:	MW-201	**Date Received:**	03/28/2024 17:53	**Collector:**	MVTL Field Service

Temp @ Receipt (C): 12.3

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		04/26/2024 10:26	
Radium 228	See Attached			1		04/26/2024 10:26	

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44053002 **Date Collected:** 03/28/2024 11:57 **Matrix:** Groundwater
Sample ID: MW-202 **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 12.3

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		04/26/2024 10:26	
Radium 228	See Attached			1		04/26/2024 10:26	

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44053003 **Date Collected:** 03/28/2024 11:57 **Matrix:** Groundwater
Sample ID: DUP-BAI **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 12.3

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		04/26/2024 10:26	
Radium 228	See Attached			1		04/26/2024 10:26	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 44053004 **Date Collected:** 03/28/2024 11:03 **Matrix:** Groundwater
Sample ID: MW-203 **Date Received:** 03/28/2024 17:53 **Collector:** MVTL Field Service

Temp @ Receipt (C): 12.3

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		04/26/2024 10:26	
Radium 228	See Attached			1		04/26/2024 10:26	

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Account #: 5109 **Client:** Great River Energy

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ANALYTICAL SUMMARY REPORT

April 26, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24040085 Quote ID: C15480
Project Name: 44053

Energy Laboratories, Inc. Casper WY received the following 4 samples for Minnesota Valley Testing Laboratories on 4/2/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24040085-001	44053001, MW-201	03/28/24 13:08	04/02/24	Groundwater	Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total
C24040085-002	44053002, MW-202	03/28/24 11:57	04/02/24	Groundwater	Same As Above
C24040085-003	44053003, DUP-BAI	03/28/24 11:57	04/02/24	Groundwater	Same As Above
C24040085-004	44053004, MW-203	03/28/24 11:03	04/02/24	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager .

Report Approved By:

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 44053
Lab ID: C24040085-001
Client Sample ID: 44053001, MW-201

Report Date: 04/26/24
Collection Date: 03/28/24 13:08
DateReceived: 04/02/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.2	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 228	-0.03	pCi/L	U			RA-05	04/17/24 14:19 / kdk
Radium 228 precision (±)	0.6	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 228 MDC	1.1	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 44053
Lab ID: C24040085-002
Client Sample ID: 44053002, MW-202

Report Date: 04/26/24
Collection Date: 03/28/24 11:57
DateReceived: 04/02/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.09	pCi/L	U			E903.0	04/22/24 11:19 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 228	0.8	pCi/L	U			RA-05	04/17/24 14:19 / kdk
Radium 228 precision (±)	0.8	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 228 MDC	1.3	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 226 + Radium 228	0.8	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 44053
Lab ID: C24040085-003
Client Sample ID: 44053003, DUP-BAI

Report Date: 04/26/24
Collection Date: 03/28/24 11:57
DateReceived: 04/02/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.4	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 228	0.1	pCi/L	U			RA-05	04/17/24 14:19 / kdk
Radium 228 precision (±)	0.6	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 228 MDC	1.1	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 226 + Radium 228	0.9	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
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MCL - Maximum Contaminant Level
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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 44053
Lab ID: C24040085-004
Client Sample ID: 44053004, MW-203

Report Date: 04/26/24
Collection Date: 03/28/24 11:03
DateReceived: 04/02/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.2	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/22/24 11:19 / alb
Radium 228	0.4	pCi/L	U			RA-05	04/17/24 14:19 / kdk
Radium 228 precision (±)	0.7	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 228 MDC	1.2	pCi/L				RA-05	04/17/24 14:19 / kdk
Radium 226 + Radium 228	0.8	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.2	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24040085 **Report Date:** 04/24/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11280
Lab ID: LCS-RA226-11280	3	Laboratory Control Sample				Run: TENNELEC-4_240410C				04/22/24 11:19
Radium 226		8.5	pCi/L		86	70	130			
Radium 226 precision (±)		1.7	pCi/L							
Radium 226 MDC		0.13	pCi/L							
Lab ID: MB-RA226-11280	3	Method Blank				Run: TENNELEC-4_240410C				04/22/24 11:19
Radium 226		0.2	pCi/L							
Radium 226 precision (±)		0.09	pCi/L							
Radium 226 MDC		0.1	pCi/L							
Lab ID: C24040091-002AMS	3	Sample Matrix Spike				Run: TENNELEC-4_240410C				04/22/24 14:08
Radium 226		7.9	pCi/L		77	70	130			
Radium 226 precision (±)		1.5	pCi/L							
Radium 226 MDC		0.11	pCi/L							
Lab ID: C24040091-002AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_240410C				04/22/24 14:08
Radium 226		7.8	pCi/L		77	70	130	0.2	30	
Radium 226 precision (±)		1.5	pCi/L							
Radium 226 MDC		0.11	pCi/L							

- The RER result is 0.01.

Qualifiers:

RL - Analyte Reporting Limit

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24040085 **Report Date:** 04/24/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7372
Lab ID: LCS-228-RA226-11280	3	Laboratory Control Sample				Run: TENNELEC-4_240410A				04/17/24 14:18
Radium 228		6.2	pCi/L		98	70	130			
Radium 228 precision (±)		1.4	pCi/L							
Radium 228 MDC		1.1	pCi/L							
Lab ID: MB-RA226-11280	3	Method Blank				Run: TENNELEC-4_240410A				04/17/24 14:18
Radium 228		0.4	pCi/L							U
Radium 228 precision (±)		0.6	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C24040091-002AMS	3	Sample Matrix Spike				Run: TENNELEC-4_240410A				04/17/24 14:19
Radium 228		5.9	pCi/L		93	70	130			
Radium 228 precision (±)		1.3	pCi/L							
Radium 228 MDC		0.98	pCi/L							
Lab ID: C24040091-002AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_240410A				04/17/24 14:19
Radium 228		6.2	pCi/L		99	70	130	5.6	30	
Radium 228 precision (±)		1.4	pCi/L							
Radium 228 MDC		1.0	pCi/L							

- The RER result is 0.17.

Qualifiers:

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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24040085

Login completed by: Dakota R. Sawyer Date Received: 4/2/2024
Reviewed by: lleprowse Received by: LEL
Reviewed Date: 4/4/2024 Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	13.0°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Contact and Corrective Action Comments:

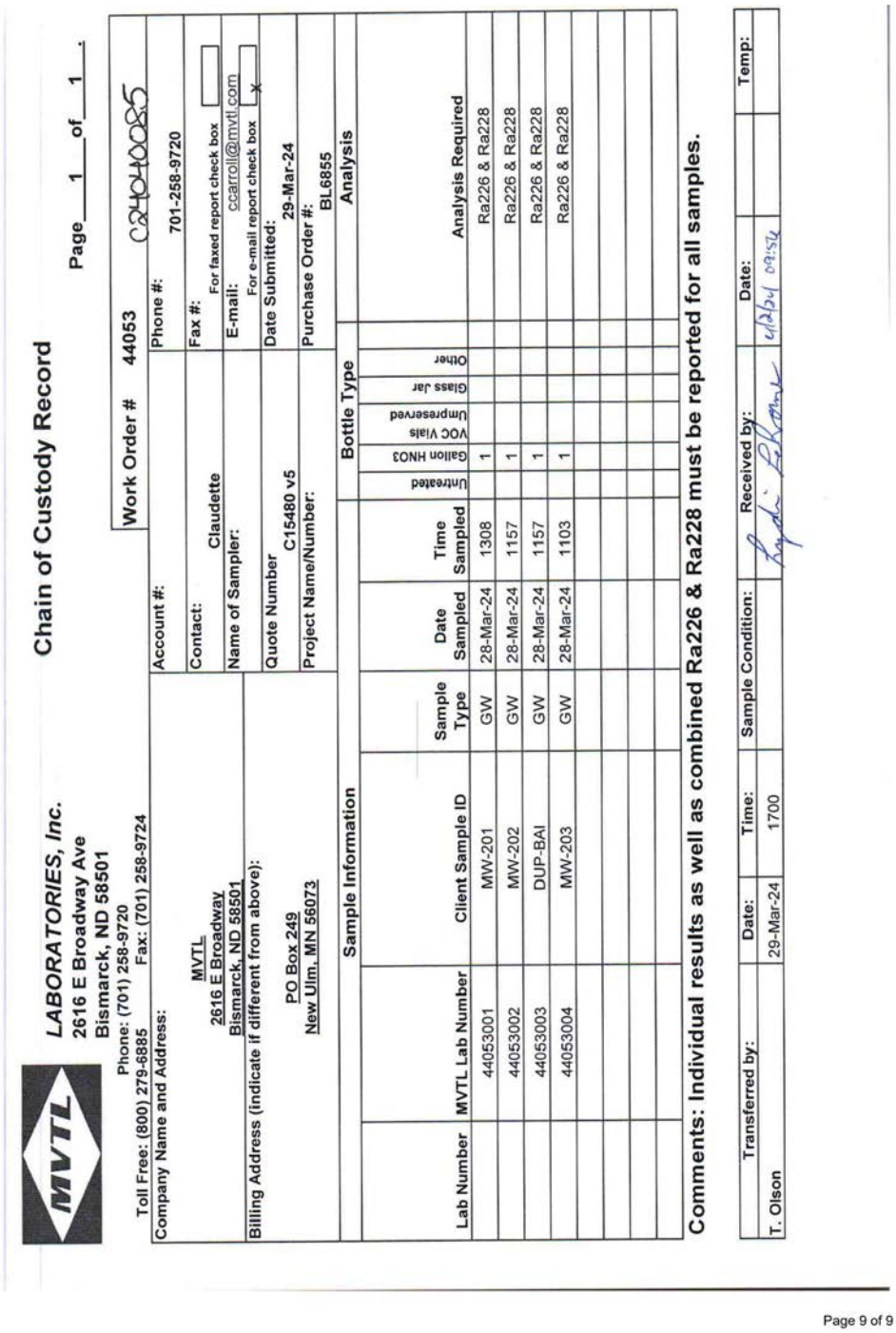
The temperature of the samples for shipping container 1 was 10.4°C, shipping container 2 was 12.6°C, shipping container 3 was 13.0°C, shipping container 4 was 12.7°C and shipping container 5 was 12.3°C.

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Member ACIL

Account #: 5109 **Client:** Great River Energy



LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

Page 1 of 1

Work Order # 44053 C24040085

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501
Account #:
Contact: Claudette
Name of Sampler:
Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box x
Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073
Quote Number C15480 v5
Project Name/Number:
Date Submitted: 29-Mar-24
Purchase Order #: BL6855

Sample Information						Bottle Type						Analysis
Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Untreated	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other		Analysis Required
	44053001	MW-201	GW	28-Mar-24	1308		1					Ra226 & Ra228
	44053002	MW-202	GW	28-Mar-24	1157		1					Ra226 & Ra228
	44053003	DUP-BAI	GW	28-Mar-24	1157		1					Ra226 & Ra228
	44053004	MW-203	GW	28-Mar-24	1103		1					Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
T. Olson	29-Mar-24	1700			4/2/24 09:52	

Page 9 of 9

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Member ACIL

Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 44053

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS BAI
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: Mar 2024
Address:		Lakewood, CO 80228	Sampled By: Jay Hess / Dakota Kottsick
Phone:			
Email:	CJohnston@GREnergy.com		

	Sample Information				Sample Containers									Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric									Analysis Required
001	MW-201	28 Mar 24	1308	GW					X									Radium 226 and 228 Combined
002	MW-202	28 Mar 24	1157	GW					X									
003	DUP-BAI	28 Mar 24	1157	GW					X									
004	MW-203	28 Mar 24	1103	GW					X									

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1 Dakota Kottsick	28 Mar 24 1763	Log In Walk In #2	12.7 TM562 / TM805	Heather Horst	29 mar 24 0800
2					

XDK E

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet
Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	201
Sampling Personal:	[illegible]

Weather Conditions: Temp: 70°F Wind: S @ 5-20 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	~~YES~~	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	10.50	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	11.74	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / ~~NO~~
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
28 Mar 24	1243	Start of Well Purge									
	1248	6.62	3049	7.48	0.22	83.7	29.54	11.00	200.0	1.0	Clear
	1253	6.40	3056	7.47	0.05	61.4	19.07	11.12	200.0	1.0	Clear
	1258	6.37	3059	7.46	0.02	49.5	7.30	11.25	200.0	1.0	Clear
	1303	6.27	3059	7.46	0.02	37.0	6.26	11.37	200.0	1.0	Clear
	1308	6.27	3058	7.46	0.01	30.4	4.46	11.60	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
28 Mar 24	1308	6.27	3058	7.46			4.46				Clear

Comments:	

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	202
Sampling Personal:	JM

Weather Conditions: Temp: 5 °F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	10.95	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	13.85	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 7	Sec.
Recover: 28	Sec.
PSI:	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
(YES) / NO
Duplicate Sample ID:
Dup BA1

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
28 Mar 24	1132	Start of Well Purge									
	1137	6.38	2137	7.29	3.91	161.1	169.60	11.58	200.0	1.0	ST
	1142	6.08	2135	7.27	3.04	160.5	186.73	12.05	200.0	1.0	ST
	1147	5.71	2139	7.26	2.90	152.4	119.71	12.27	200.0	1.0	clear
	1152	5.67	2134	7.25	2.67	145.1	110.20	12.46	200.0	1.0	clear
	1157	5.72	2134	7.24	2.45	143.0	95.81	12.85	200.0	1.0	clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
28 Mar 24	1157	5.72	2134	7.24			95.81				clear

Comments:	

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	203
Sampling Personal:	JMH

Weather Conditions: Temp: 5 °F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	8.34	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	12.60	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
28 Mar 24	1038	Start of Well Purge									
	1043	4.78	3822	9.02	0.12	-4.2	0.00	9.88	200.0	1.0	Clear Brown
	1048	4.40	3671	9.11	0.00	-36.1	0.00	10.43	200.0	1.0	Clear Brown
	1053	4.04	3588	9.20	0.46	-16.4	14.66	10.95	200.0	1.0	Clear Brown
	1058	4.00	3599	9.17	0.29	-13.0	18.71	11.32	200.0	1.0	Clear Brown
	1103	4.19	3648	9.15	0.17	-20.1	19.07	11.60	200.0	1.0	Clear Brown

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
28 Mar 24	1103	4.19	3648	9.15			19.07				Clear Brown

Comments:	

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS 2023 Wells (43924) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43924001 **Date Collected:** 03/27/2024 13:37 **Matrix:** Groundwater
Sample ID: MW-215 **Date Received:** 03/27/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2464**	umhos/cm	1	1		03/27/2024 13:37	
Method: 150.2							
pH - Field	**7.65**	units	0.01	1		03/27/2024 13:37	
Method: 170.1							
Temperature - Field C	**7.24**	degrees C		1		03/27/2024 13:37	
Method: EPA 245.1							
Mercury	**0.0002**	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0447**	mg/L	0.02	1	03/28/2024 16:55	04/02/2024 12:20	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/28/2024 16:55	03/29/2024 15:55	
Arsenic	**0.0124**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 15:55	
Barium	**0.1195**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 15:55	
Beryllium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 15:55	
Cadmium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 15:55	
Chromium	**0.0112**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 15:55	
Cobalt	**0.0038**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 15:55	
Lead	**0.0038**	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 15:55	
Molybdenum	**0.0137**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 15:55	
Selenium	<0.005	mg/L	0.005	5	03/28/2024 16:55	03/29/2024 15:55	
Thallium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 15:55	
Method: SM4500 H+ B-2011							
pH	**7.8**	units	0.1	1		03/28/2024 18:00	*
Method: SM4500-F-C-2011							
Fluoride	**0.44**	mg/L	0.1	1		03/28/2024 18:00	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43924002 **Date Collected:** 03/27/2024 12:04 **Matrix:** Groundwater
Sample ID: MW-216 **Date Received:** 03/27/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2328**	umhos/cm	1	1		03/27/2024 12:04	
Method: 150.2							
pH - Field	**7.79**	units	0.01	1		03/27/2024 12:04	
Method: 170.1							
Temperature - Field C	**7.15**	degrees C		1		03/27/2024 12:04	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0484**	mg/L	0.02	1	03/28/2024 16:55	04/02/2024 12:22	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/28/2024 16:55	03/29/2024 16:24	
Arsenic	**0.0040**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:24	
Barium	**0.0498**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:24	
Beryllium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:24	
Cadmium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:24	
Chromium	<0.002	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:24	
Cobalt	<0.002	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:24	
Lead	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:24	
Molybdenum	**0.0113**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:24	
Selenium	<0.005	mg/L	0.005	5	03/28/2024 16:55	03/29/2024 16:24	
Thallium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:24	
Method: SM4500 H+ B-2011							
pH	**7.8**	units	0.1	1		03/28/2024 18:06	*
Method: SM4500-F-C-2011							
Fluoride	**0.51**	mg/L	0.1	1		03/28/2024 18:06	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43924003 **Date Collected:** 03/27/2024 14:30 **Matrix:** Groundwater
Sample ID: MW-217 **Date Received:** 03/27/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2460**	umhos/cm	1	1		03/27/2024 14:30	
Method: 150.2							
pH - Field	**7.67**	units	0.01	1		03/27/2024 14:30	
Method: 170.1							
Temperature - Field C	**7.31**	degrees C		1		03/27/2024 14:30	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0455**	mg/L	0.02	1	03/28/2024 16:55	04/02/2024 12:23	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/28/2024 16:55	03/29/2024 16:29	
Arsenic	**0.0057**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:29	
Barium	**0.0474**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:29	
Beryllium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:29	
Cadmium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:29	
Chromium	<0.002	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:29	
Cobalt	<0.002	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:29	
Lead	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:29	
Molybdenum	**0.0143**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:29	
Selenium	<0.005	mg/L	0.005	5	03/28/2024 16:55	03/29/2024 16:29	
Thallium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:29	
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		03/28/2024 20:09	*
Method: SM4500-F-C-2011							
Fluoride	**0.64**	mg/L	0.1	1		03/28/2024 20:09	

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43924004 **Date Collected:** 03/27/2024 13:11 **Matrix:** Groundwater
Sample ID: MW-218 **Date Received:** 03/27/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2327**	umhos/cm	1	1		03/27/2024 13:11	
Method: 150.2							
pH - Field	**7.99**	units	0.01	1		03/27/2024 13:11	
Method: 170.1							
Temperature - Field C	**7.76**	degrees C		1		03/27/2024 13:11	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0461**	mg/L	0.02	1	03/28/2024 16:55	04/02/2024 12:25	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/28/2024 16:55	03/29/2024 16:33	
Arsenic	**0.0028**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:33	
Barium	**0.0546**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:33	
Beryllium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:33	
Cadmium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:33	
Chromium	<0.002	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:33	
Cobalt	<0.002	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:33	
Lead	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:33	
Molybdenum	**0.0117**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:33	
Selenium	<0.005	mg/L	0.005	5	03/28/2024 16:55	03/29/2024 16:33	
Thallium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:33	
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		03/28/2024 20:14	*
Method: SM4500-F-C-2011							
Fluoride	**0.58**	mg/L	0.1	1		03/28/2024 20:14	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43924005 **Date Collected:** 03/27/2024 11:09 **Matrix:** Groundwater
Sample ID: MW-219 **Date Received:** 03/27/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**4027**	umhos/cm	1	1		03/27/2024 11:09	
Method: 150.2							
pH - Field	**7.27**	units	0.01	1		03/27/2024 11:09	
Method: 170.1							
Temperature - Field C	**6.29**	degrees C		1		03/27/2024 11:09	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0306**	mg/L	0.02	1	03/28/2024 16:55	04/02/2024 12:25	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/28/2024 16:55	03/29/2024 16:38	
Arsenic	**0.0127**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:38	
Barium	**0.1244**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:38	
Beryllium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:38	
Cadmium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:38	
Chromium	**0.0087**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:38	
Cobalt	**0.0052**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:38	
Lead	**0.0036**	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:38	
Molybdenum	**0.0201**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:38	
Selenium	<0.005	mg/L	0.005	5	03/28/2024 16:55	03/29/2024 16:38	
Thallium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:38	
Method: SM4500 H+ B-2011							
pH	**7.6**	units	0.1	1		03/28/2024 20:20	*
Method: SM4500-F-C-2011							
Fluoride	**0.25**	mg/L	0.1	1		03/28/2024 20:20	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43924006 **Date Collected:** 03/27/2024 10:27 **Matrix:** Groundwater
Sample ID: MW-220 **Date Received:** 03/27/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2396.6**	umhos/cm	1	1		03/27/2024 10:27	
Method: 150.2							
pH - Field	**7.38**	units	0.01	1		03/27/2024 10:27	
Method: 170.1							
Temperature - Field C	**6.37**	degrees C		1		03/27/2024 10:27	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0544**	mg/L	0.02	1	03/28/2024 16:55	04/02/2024 12:26	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/28/2024 16:55	03/29/2024 16:42	
Arsenic	**0.0051**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:42	
Barium	**0.1371**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:42	
Beryllium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:42	
Cadmium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:42	
Chromium	**0.0157**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:42	
Cobalt	**0.0059**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:42	
Lead	**0.0038**	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:42	
Molybdenum	**0.0113**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:42	
Selenium	<0.005	mg/L	0.005	5	03/28/2024 16:55	03/29/2024 16:42	
Thallium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:42	
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		03/28/2024 20:26	*
Method: SM4500-F-C-2011							
Fluoride	**0.58**	mg/L	0.1	1		03/28/2024 20:26	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43924007 **Date Collected:** 03/27/2024 12:22 **Matrix:** Groundwater
Sample ID: MW-221 **Date Received:** 03/27/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2250**	umhos/cm	1	1		03/27/2024 12:22	
Method: 150.2							
pH - Field	**7.6**	units	0.01	1		03/27/2024 12:22	
Method: 170.1							
Temperature - Field C	**7.05**	degrees C		1		03/27/2024 12:22	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0400**	mg/L	0.02	1	03/28/2024 16:55	04/02/2024 12:27	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/28/2024 16:55	03/29/2024 16:47	
Arsenic	**0.0138**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:47	
Barium	**0.0686**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:47	
Beryllium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:47	
Cadmium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:47	
Chromium	**0.0039**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:47	
Cobalt	<0.002	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:47	
Lead	**0.0026**	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:47	
Molybdenum	**0.0244**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:47	
Selenium	<0.005	mg/L	0.005	5	03/28/2024 16:55	03/29/2024 16:47	
Thallium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:47	
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		03/28/2024 20:32	*
Method: SM4500-F-C-2011							
Fluoride	**0.47**	mg/L	0.1	1		03/28/2024 20:32	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Task Comments

2526012 - METb/2325

Iron matrix spike duplicate recovery was low; the associated laboratory control sample recovery was acceptable.

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43924008 **Date Collected:** 03/27/2024 12:22 **Matrix:** Groundwater
Sample ID: DUP-2023 Wells **Date Received:** 03/27/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0400**	mg/L	0.02	1	03/28/2024 16:55	04/02/2024 12:27	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/28/2024 16:55	03/29/2024 16:51	
Arsenic	**0.0130**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:51	
Barium	**0.0668**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:51	
Beryllium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:51	
Cadmium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:51	
Chromium	**0.0038**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:51	
Cobalt	<0.002	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:51	
Lead	**0.0025**	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:51	
Molybdenum	**0.0250**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:51	
Selenium	<0.005	mg/L	0.005	5	03/28/2024 16:55	03/29/2024 16:51	
Thallium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:51	
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		03/28/2024 20:38	*
Method: SM4500-F-C-2011							
Fluoride	**0.46**	mg/L	0.1	1		03/28/2024 20:38	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43924009 **Date Collected:** 03/27/2024 10:02 **Matrix:** Groundwater
Sample ID: MW-222 **Date Received:** 03/27/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2607**	umhos/cm	1	1		03/27/2024 10:02	
Method: 150.2							
pH - Field	**8.02**	units	0.01	1		03/27/2024 10:02	
Method: 170.1							
Temperature - Field C	**5.4**	degrees C		1		03/27/2024 10:02	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	<0.02	mg/L	0.02	1	03/28/2024 16:55	04/02/2024 12:28	
Method: EPA 6020B							
Antimony	**0.0018**	mg/L	0.001	5	03/28/2024 16:55	03/29/2024 16:56	
Arsenic	**0.0210**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:56	
Barium	**0.1256**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:56	
Beryllium	**0.0014**	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:56	
Cadmium	**0.0009**	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:56	
Chromium	**0.0150**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:56	
Cobalt	**0.0169**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 16:56	
Lead	**0.0109**	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:56	
Molybdenum	**0.4521**	mg/L	0.008	20	03/28/2024 16:55	04/02/2024 14:01	
Selenium	**0.0106**	mg/L	0.005	5	03/28/2024 16:55	03/29/2024 16:56	
Thallium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 16:56	
Method: SM4500 H+ B-2011							
pH	**8.1**	units	0.1	1		03/28/2024 20:44	*
Method: SM4500-F-C-2011							
Fluoride	**1.54**	mg/L	0.1	1		03/28/2024 20:44	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43924010 **Date Collected:** 03/27/2024 16:30 **Matrix:** Groundwater
Sample ID: MW-300 **Date Received:** 03/27/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2994.9**	umhos/cm	1	1		03/27/2024 16:30	
Method: 150.2							
pH - Field	**7.41**	units	0.01	1		03/27/2024 16:30	
Method: 170.1							
Temperature - Field C	**6.53**	degrees C		1		03/27/2024 16:30	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0370**	mg/L	0.02	1	03/28/2024 16:55	04/02/2024 12:28	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/28/2024 16:55	03/29/2024 17:22	
Arsenic	**0.0206**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 17:22	
Barium	**0.1040**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 17:22	
Beryllium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 17:22	
Cadmium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 17:22	
Chromium	**0.0056**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 17:22	
Cobalt	**0.0055**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 17:22	
Lead	**0.0012**	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 17:22	
Molybdenum	**0.0136**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 17:22	
Selenium	<0.005	mg/L	0.005	5	03/28/2024 16:55	03/29/2024 17:22	
Thallium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 17:22	
Method: SM4500 H+ B-2011							
pH	**7.7**	units	0.1	1		03/28/2024 20:49	*
Method: SM4500-F-C-2011							
Fluoride	**0.63**	mg/L	0.1	1		03/28/2024 20:49	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43924011 **Date Collected:** 03/27/2024 14:15 **Matrix:** Groundwater
Sample ID: MW-301 **Date Received:** 03/27/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1369**	umhos/cm	1	1		03/27/2024 14:15	
Method: 150.2							
pH - Field	**8.2**	units	0.01	1		03/27/2024 14:15	
Method: 170.1							
Temperature - Field C	**8.13**	degrees C		1		03/27/2024 14:15	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0696**	mg/L	0.02	1	03/28/2024 16:55	04/02/2024 12:30	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/28/2024 16:55	03/29/2024 17:40	
Arsenic	**0.0083**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 17:40	
Barium	**0.1508**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 17:40	
Beryllium	**0.0016**	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 17:40	
Cadmium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 17:40	
Chromium	**0.0150**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 17:40	
Cobalt	**0.0067**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 17:40	
Lead	**0.0183**	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 17:40	
Molybdenum	**0.0032**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 17:40	
Selenium	<0.005	mg/L	0.005	5	03/28/2024 16:55	03/29/2024 17:40	
Thallium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 17:40	
Method: SM4500 H+ B-2011							
pH	**8.1**	units	0.1	1		03/28/2024 20:55	*
Method: SM4500-F-C-2011							
Fluoride	**0.36**	mg/L	0.1	1		03/28/2024 20:55	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43924012 **Date Collected:** 03/27/2024 15:25 **Matrix:** Groundwater
Sample ID: MW-PB3 **Date Received:** 03/27/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2333**	umhos/cm	1	1		03/27/2024 15:25	
Method: 150.2							
pH - Field	**7.49**	units	0.01	1		03/27/2024 15:25	
Method: 170.1							
Temperature - Field C	**7.29**	degrees C		1		03/27/2024 15:25	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	**0.0319**	mg/L	0.02	1	03/28/2024 16:55	04/02/2024 12:31	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/28/2024 16:55	03/29/2024 17:45	
Arsenic	<0.002	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 17:45	
Barium	**0.0436**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 17:45	
Beryllium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 17:45	
Cadmium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 17:45	
Chromium	<0.002	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 17:45	
Cobalt	**0.0021**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 17:45	
Lead	**0.0006**	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 17:45	
Molybdenum	**0.0321**	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 17:45	
Selenium	<0.005	mg/L	0.005	5	03/28/2024 16:55	03/29/2024 17:45	
Thallium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 17:45	
Method: SM4500 H+ B-2011							
pH	**7.7**	units	0.1	1		03/28/2024 21:01	*
Method: SM4500-F-C-2011							
Fluoride	**0.66**	mg/L	0.1	1		03/28/2024 21:01	

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Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43924013 **Date Collected:** 03/27/2024 12:15 **Matrix:** Groundwater
Sample ID: FB-2023 Wells **Date Received:** 03/27/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.5 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	04/01/2024 10:05	04/01/2024 12:18	
Method: EPA 6010D							
Lithium	<0.02	mg/L	0.02	1	03/28/2024 16:55	04/02/2024 12:31	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	03/28/2024 16:55	03/29/2024 17:49	
Arsenic	<0.002	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 17:49	
Barium	<0.002	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 17:49	
Beryllium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 17:49	
Cadmium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 17:49	
Chromium	<0.002	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 17:49	
Cobalt	<0.002	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 17:49	
Lead	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 17:49	
Molybdenum	<0.002	mg/L	0.002	5	03/28/2024 16:55	03/29/2024 17:49	
Selenium	<0.005	mg/L	0.005	5	03/28/2024 16:55	03/29/2024 17:49	
Thallium	<0.0005	mg/L	0.0005	5	03/28/2024 16:55	03/29/2024 17:49	
Method: SM4500 H+ B-2011							
pH	**6.4**	units	0.1	1		03/28/2024 22:04	*
Method: SM4500-F-C-2011							
Fluoride	<0.1	mg/L	0.1	1		03/28/2024 22:04	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 43924

Aluminum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	96.6		85	115		
LFB-OE			0.4	97.7		85	115		
MB		<0.1							
MB		<0.1							
PDS/PDSD	43924001		20	109.0	110.0	75	125	0.9	20
PDS/PDSD	43924010		10	111.0	112.0	75	125	0.5	20
MS/MSD	44028003		0.4	115.0	112.0	70	130	1.6	20
PDS/PDSD	44050002		20	110.0	108.0	75	125	0.6	20
PDS/PDSD	44052004		0.4	81.4	84.9	75	125	1.7	20

Aluminum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	96.6		85	115		
LFB-OE			0.4	97.7		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	43924007		0.4	113.0	111.0	75	125	1.5	20
SPK/SPKD	44049002		0.4	105.0	106.0	75	125	0.5	20
SPK/SPKD	44051001		0.4	111.0	114.0	75	125	2.1	20
PDS/PDSD	44113001		2	95.7	101.0	75	125	2.0	20

Iron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	106.0		85	115		
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
MB		<0.1							
PDS/PDSD	43924001		20	104.0	106.0	75	125	1.0	20
PDS/PDSD	43924010		10	107.0	107.0	75	125	0.1	20
PDS/PDSD	44050002		20	107.0	107.0	75	125	0.0	20

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Account #: 5109 **Client:** Great River Energy

Iron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
LFB-OE			0.4	106.0		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	43924007		0.4	77.5	72.7	75	125	1.0	20
SPK/SPKD	44049002		0.4	89.4	90.0	75	125	0.7	20
SPK/SPKD	44051001		0.4	81.5	79.6	75	125	0.6	20
PDS/PDSD	44113001		0.4	92.7	94.0	75	125	0.1	20
PDS/PDSD	44113001		2	89.2	90.8	75	125	0.7	20

Lithium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	104.0		85	115		
MB		<0.04							
MS/MSD	43924001		0.4	96.5	94.0	70	130	2.3	20
MS/MSD	43924010		0.4	93.4	99.6	70	130	5.8	20

Manganese				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
LFB-OE			0.4	107.0		85	115		
MB		<0.05							
MB		<0.05							
MS/MSD	43924001		0.4	89.1	89.0	70	130	0.1	20
PDS/PDSD	43924001		20	112.0	114.0	75	125	1.2	20
PDS/PDSD	43924010		10	106.0	113.0	75	125	5.1	20
MS/MSD	44028003		0.4	97.4	96.3	70	130	0.9	20
PDS/PDSD	44050002		20	110.0	110.0	75	125	0.3	20
PDS/PDSD	44052004		0.4	86.2	88.6	75	125	2.3	20

Manganese, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
LFB-OE			0.4	107.0		85	115		

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Manganese, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.05							
MB		<0.05							
SPK/SPKD	43924007		0.4	91.2	90.9	75	125	0.2	20
SPK/SPKD	44049002		0.4	89.7	90.7	75	125	0.8	20
SPK/SPKD	44051001		0.4	92.2	92.0	75	125	0.1	20
PDS/PDSD	44113001		2	93.7	95.2	75	125	1.0	20

Antimony				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
MB		<0.001							
MS/MSD	43924001		0.4	96.7	98.0	75	125	1.3	20
SPK/SPKD	43924009		0.2	102.0	102.0	75	125	0.5	20
MS/MSD	43924010		0.4	101.0	106.0	75	125	4.8	20

Arsenic				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
MS/MSD	43924001		0.4	96.8	97.5	75	125	0.5	20
SPK/SPKD	43924009		0.2	95.9	95.6	75	125	0.3	20
MS/MSD	43924010		0.4	97.0	106.0	75	125	8.9	20

Barium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.9		80	120		
MB		<0.002							
MS/MSD	43924001		0.4	99.3	99.5	75	125	0.0	20
SPK/SPKD	43924009		0.2	83.1	81.5	75	125	1.1	20
MS/MSD	43924010		0.4	96.8	104.0	75	125	6.1	20

Beryllium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
MB		<0.0005							
MS/MSD	43924001		0.4	92.2	92.1	75	125	0.3	20

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Beryllium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	43924009		0.2	86.3	85.9	75	125	0.5	20
MS/MSD	43924010		0.4	91.6	99.7	75	125	8.6	20

Cadmium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
MB		<0.0005							
MS/MSD	43924001		0.4	95.8	99.5	75	125	3.8	20
SPK/SPKD	43924009		0.2	93.5	90.2	75	125	3.6	20
MS/MSD	43924010		0.4	99.4	106.0	75	125	6.3	20

Chromium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	107.0		80	120		
MB		<0.002							
MS/MSD	43924001		0.4	102.0	102.0	75	125	0.2	20
SPK/SPKD	43924009		0.2	91.2	91.8	75	125	0.6	20
MS/MSD	43924010		0.4	99.5	108.0	75	125	8.1	20

Cobalt				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	106.0		80	120		
MB		<0.002							
MS/MSD	43924001		0.4	100.0	99.5	75	125	0.5	20
SPK/SPKD	43924009		0.2	89.6	90.2	75	125	0.6	20
MS/MSD	43924010		0.4	98.1	106.0	75	125	7.7	20

Lead				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.1		80	120		
MB		<0.0005							
MS/MSD	43924001		0.4	92.3	93.8	75	125	1.6	20
SPK/SPKD	43924009		0.2	87.5	87.6	75	125	0.1	20
MS/MSD	43924010		0.4	93.0	99.3	75	125	6.5	20

Molybdenum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	108.0		80	120		

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Molybdenum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.002							
MS/MSD	43924001		0.4	102.0	104.0	75	125	2.4	20
SPK/SPKD	43924009		0.2	101.0	99.5	75	125	0.5	20
MS/MSD	43924010		0.4	102.0	109.0	75	125	6.0	20

Selenium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
MB		<0.005							
MS/MSD	43924001		0.4	99.9	101.0	75	125	1.0	20
SPK/SPKD	43924009		0.2	91.6	92.0	75	125	0.5	20
MS/MSD	43924010		0.4	98.4	107.0	75	125	8.5	20

Thallium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
MB		<0.0005							
MS/MSD	43924001		0.4	93.4	95.0	75	125	1.6	20
SPK/SPKD	43924009		0.2	81.2	81.0	75	125	0.3	20
MS/MSD	43924010		0.4	94.0	101.0	75	125	7.4	20

Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	95.6		85	115		
LFB			0.002	100.0		85	115		
LRB		<0.0002							
MB		<0.0002							
MS/MSD	43303001		0.002	103.0	102.0	70	130	4.9	20
MS/MSD	43801007		0.002	96.0	97.4	70	130	0.0	20
MS/MSD	43924012		0.002	99.8	99.8	70	130	0.0	20
MS/MSD	43924013		0.002	96.7	101.0	70	130	5.1	20
MS/MSD	44049002		0.002	103.0	105.0	70	130	0.0	20
MS/MSD	44114001		0.002	98.4	99.0	70	130	0.0	20

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pH Units: units

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	100.2		98.33	101.67		
CRM-PH			6	100.3		98.33	101.67		
CRM-PH			6	100.3		98.33	101.67		
CRM-PH			6	100.3		98.33	101.67		
DUP	43914001								
DUP	43924011							0.4	20
DUP	43964001							0.1	20

Fluoride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			15.3	111.0		83.99	111.11		
LFB-F			0.5	104.0		90	110		
LFB-F			0.5	106.0		90	110		
LFB-F			0.5	102.0		90	110		
LFB-F			0.5	102.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MS/MSD-F	43924001		0.5	104.0	102.0	80	120	1.1	20
MS/MSD-F	43924012		0.5	90.0	98.0	80	120	3.5	20
MS/MSD-F	43924013		0.5	100.0	102.0	80	120	2.0	20

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Minnesota Valley Testing Laboratories
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Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 43924

Chain of Custody Record

Report To:	Great River Energy	CC:	Golder Associates
Attn:	Cassie Johnston		44 Union Blvd, Suite 300
Address:			Lakewood, CO 80228
Phone:		Project Name:	SS 2023 Wells
Email:	CJohnston@GREnergy.com	Event:	Mar 2024
		Sampled By:	JM

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric	Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-215	27Mar24	1337	GW	X	X	X			7.24	2464	7.65	557.58	App IV + Total and Dissolved Iron, Aluminum, and Mangangese (See Attachments)
002	MW-216	27Mar24	1204	GW	X	X	X			7.15	2328	7.79	291.10	
003	MW-217	27Mar24	1430	GW	X	X	X			7.31	2460	7.67	29.61	
004	MW-218	27Mar24	1311	GW	X	X	X			7.76	2327	7.99	473.52	
005	MW-219	27Mar24	1109	GW	X	X	X			9.37 7.65	4027	7.27	314.16	
006	MW-220	27Mar24	1027	GW	X	X	X			6.37	2396	7.38	1136.2	
007	MW-221	27Mar24	1222	GW	X	X	X			7.05	2250	7.60	294.0	
008	DUP-2023 Wells	27Mar24	1227	GW	X	X	X			NA	NA	NA	NA	
009	MW-222	27Mar24	1002	GW	X	X	X			5.40	2607	8.02	101.35	

Comments: B

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	ROI Temp (°C)	Name	Date/Time
1	27Mar24 1530	Log In Walk In #2	3.5 TM562 / TM805		28Mar24 0800
2					

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(701) 258-9720

Chain of Custody Record

Report To:	Great River Energy	CC:	Golder Associates
Attn:	Cassie Johnston		44 Union Blvd, Suite 300
Address:			Lakewood, CO 80228
Phone:			
Email:	CJohnston@GREnergy.com		

Project Name: SS 2023 Wells
Event: Mar 2024
Sampled By: DK, JM

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric					Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
24I010	MW-300	27 Mar 24	1630	GW	X	X	X							6.53	2994	7.41	1216.2	App IV + Total and Dissolved Iron, Aluminum, and Mangangese (See Attachments)
24I011	MW-301	27 Mar 24	1415	GW	X	X	X							8.13	1369	8.20	207.03	
24I012	MW-PB3	27 Mar 24	1525	GW	X	X	X							7.29	2333	7.49	0.00	
24I013	FB-2023 Wells	27 Mar 24	1215	GW	X	X	X							NA	NA	NA	NA	

Comments: 4 day 28 Mar 24 (A)

	Relinquished By Name	Date/Time	Sample Condition Location	Temp (°C)	Received By Name	Date/Time
1	Dakota Kottke	27 Mar 24 1630	Log In Walk In #2	RDI 3.5 TM562 / TM805		28 Mar 24 0800
2						

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February 2024 GREAT RIVER ENERGY - STANTON STATION GL21509219.000
DRAFT - SUBJECT TO CHANGE

Table 1: Proposed 2024 Stanton Station Plant Facilities Sampling Schedule

Location	Well ID		2024				
			Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-7A	1	Field Parameters (Field pH)				
	MW-7B	1					
	MW-8B	1					
	MW-105	1	Field Parameters (Field pH)				
Bottom Ash Landfill	MW-9N	1					
	MW-102	1					
	MW-103	1					
Property Boundary	MW-PB1	1					
Wells Installed in May 2022	MW-210	1					
	MW-211	1					
	MW-212	1					
	MW-213	1					
	MW-214	1					
Piezometers [1]	PZ-BA-A	1					
	PZ-BA-B	1					
Sumps [2]	BAI-Sump-S	1					
Surface Water [3]	Missouri-River	1					
	Rail-Drainage	1					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R	1					
	MW-104	1					
Bottom Ash Impoundment	MW-201	1				Subset of App IV detected in Q1, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	
	MW-202	1					
	MW-203	1					
Closed Landfill	MW-10	1					
	MW-204	1	Sulfate + Field parameters		App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)
	MW-205	1	Sulfate + Field parameters				
Additional Internal Locations	MW-4	1					
	MW-PB2	1					
Wells Installed in February 2023	MW-215	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-216	1					
	MW-217	1					
	MW-218	1					
	MW-219	1					
	MW-220	1					
	MW-221	1					
	MW-222	1					
	MW-300	1					
	MW-301	1					
	MW-PB3	1					
Total # of Sample Locations			4	35	40	6	40

Notes:
App III - Appendix III Detection Monitoring List, Table 2
App IV - Appendix IV Assessment Monitoring List, Table 3
Additional List - Table 4
Required field parameters are listed in Table 2 and Table 3
Suggested locations for collection of QA/QC samples are listed in Table 5.
1. The piezometers do not have dedicated pumps and will need to be sampled by other methods.
2. The sump should be sampled using surface water collection methods via the sump riser.
3. Surface water samples to be collected if safely accessible and free water is present.

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February 2024

March 2024 event List

GL21509219.000

Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.
* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

* Total & Dissolved
Iron
Aluminum
Manganese

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	215
Sampling Personal:	

Weather Conditions: Temp: 10 °F Wind: N @ 5-10 Precip: (Sunny) / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	12.64	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	12.71	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Tubing

Control Settings:	
Purge: 2	Sec.
Recover: 2ps	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
27 Mar 24	1312	Start of Well Purge									
	1317	6.98	2471.	7.64	0.18	-93.2	421.11	12.65	200.0	1.0	ST Tan
	1322	7.09	2482	7.63	0.04	-113.1	572.08	12.68	200.0	1.0	ST Tan
	1327	7.01	2480	7.62	0.05	-114.1	581.66	12.70	200.0	1.0	ST Tan
	1332	7.04	2478	7.65	0.17	-102.7	517.58	12.70	200.0	1.0	ST Tan
	1337	7.24	2464	7.65	0.06	-112.7	557.58	12.71	200.0	1.0	ST Tan

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
27 Mar 24	1337	7.24	2464	7.65			557.58				ST Tan

Comments:	

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Account #: 5109 **Client:** Great River Energy

Field Datasheet

Groundwater Assessment

2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	216
Sampling Personal:	Dakota Westad

Weather Conditions: Temp: 5 °F Wind: N @ 10-15 Precip: (Sunny) / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	13.25	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	13.28	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	(NO)

Control Settings:		
Purge:	4	Sec.
Recover:	26	Sec.
PSI:	26	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
27 Mar 24	1124	Start of Well Purge									
	1129	7.20	2334.4	8.23	0.07	-90.7	874.68	13.53	200	1.0	Clear
	1134	7.20	2330.0	8.17	0.04	-110.7	679.94	13.39	200	1.0	Clear
	1139	7.06	2327.8	8.10	0.07	-118.9	499.78	13.45	200	1.0	Clear
	1144	7.08	2327.3	8.02	0.01	-121.5	370.90	13.51	200	1.0	Clear
	1149	6.99	2326.3	7.96	0.01	-122.9	324.82	13.40	200	1.0	Clear
	1154	7.11	2327.4	7.87	0.00	-124.6	798.27	13.45	200	1.0	Clear
	1159	7.07	2329.5	7.82	0.00	-125.4	265.69	13.42	200	1.0	Clear
	1204	7.15	2328.5	7.79	0.00	-125.9	291.10	13.44	200	1.0	Clear
		Well Stabilized?	(YES)	NO				Total Volume Purged:	8.0	Liters	

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
27 Mar 24	1204	7.15	2328.5	7.79	0		291.10				Clear

Comments:	FB-2023 Collected 27 Mar 24 at 1215

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	217
Sampling Personal:	

Weather Conditions: Temp: 10 °F Wind: N @ 5-10 Precip: (Sunny) / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	10.90	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	10.95	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Tubing

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
27 Mar 24	1405	Start of Well Purge									
	1410	7.84	2471	7.68	0.07	-117.8	1383.0	10.95	200.0	1.0	Turbid Brown
	1415	7.57	2456	7.67	0.00	-126.0	554.93	10.94	200.0	1.0	ST Brown
	1420	7.54	2462	7.67	0.00	-129.9	154.74	10.95	200.0	1.0	Clear Brown
	1425	7.48	2458	7.67	0.00	-133.0	69.17	10.95	200.0	1.0	Clear
	1430	7.31	2460	7.67	0.00	-134.5	29.61	10.94	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
27 Mar 24	1430	7.31	2460	7.67			29.61				Clear

Comments:	

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Account #: 5109 **Client:** Great River Energy

Field Datasheet

Groundwater Assessment

2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	718
Sampling Personal:	

Weather Conditions: Temp: 10 °F Wind: N @ 5-10 Precip: (Sunny) / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	11.68	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	11.70	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	(NO)

Control Settings:		
Purge:	4	Sec.
Recover:	26	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
27 Mar 24	1241	Start of Well Purge									
	1246	8.31	7335.1	8.19	0.06	-114.5	6,739.9	11.72	200.0	1.0	turbid
	1251	7.92	7329	8.16	0.01	-122.1	1978.9	11.75	200.0	1.0	turbid
	1256	8.08	7298	8.10	0.00	-124.4	1365.7	11.83	200.0	1.0	Slightly turbid
	1301	7.80	7329	8.08	0.00	-125.3	700.32	11.82	200.0	1.0	Slightly turbid
	1306	7.67	7329.6	8.02	0.00	-125.8	518.75	11.75	200	1.0	Slightly turbid
	1311	7.76	7327	7.99	0.00	-126.3	473.52	11.79	200	1.0	Slightly turbid

Well Stabilized? (YES) NO Total Volume Purged: 6.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
27 Mar 24	1311	7.76	2327	7.99			473.52				Slightly Turbid

Comments: KDK E

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	219
Sampling Personal:	JM

Weather Conditions: Temp: 5 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	14.82	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	15.20	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Tubing

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
27 Mar 24	1039	Start of Well Purge									
	1044	5.77	2986	7.40	2.51	24.2	695.63	14.95	200.0	1.0	~~SE~~ Tan Turbid
	1049	5.76	3412	7.35	0.03	-8.4	466.18	15.03	200.0	1.0	ST Tan
	1054	6.49	4087	7.32	0.04	-17.9	523.98	15.18	200.0	1.0	ST Tan
	1059	6.18	4073	7.30	0.02	-19.8	396.94	15.19	200.0	1.0	ST Tan
	1104	6.20	4036	7.28	0.01	-21.2	347.74	15.20	200.0	1.0	ST Tan
	1109	6.29	4027	7.27	0.01	-21.4	314.16	15.21	200.0	1.0	

Well Stabilized? (YES) NO Total Volume Purged: 6.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
27 Mar 24	1109	6.29	4027	7.27			314.16				ST

Comments:	

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Mar 2024
Sample ID: ~~214~~ 2205
Sampling Personal:

Weather Conditions: Temp: 5 °F Wind: N @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	12.72	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	12.74	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	77	Sec.
Recover:	3	Sec.
PSI:	20	

Bottle List:
1 Liter Raw 1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample? YES / NO
Duplicate Sample ID: —

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
27Mar24	1002	Start of Well Purge									
	1007	6.32	2321.7	7.36	2.83	725.8	276.29	12.75	200	1.0	Clear
	1012	6.30	2389.8	7.29	1.38	708.9	470.70	12.83	200	1.0	Clear
	1017	6.38	2386.8	7.35	2.33	129.7	670.33	12.83	200	1.0	Slightly Turbid
	1022	6.30	2394.7	7.41	0.79	40.5	787.83	12.80	200	1.0	Slightly Turbid
	1027	6.37	2396.6	7.38	0.74	-10.1	1136.2	12.70	200	1.0	Slightly Turbid

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
27Mar24	1027	6.37	2396.6	7.38	0		1136.2				Slightly Turbid

Comments: RDA E

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	221
Sampling Personal:	Jeremy Hoyt

Weather Conditions: Temp: 5 °F Wind: N@5-10 Precip: ~~Sunny~~ / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	15.26	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	15.30	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Tubing

Control Settings:	
Purge: 3	Sec.
Recover: 27	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
DUP-2023wells

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
27 Mar 24	1157	Start of Well Purge									
	1202	7.28	2243	7.60	0.22	-101.7	309.92	15.30	200.0	1.0	ST Tan
	1207	7.20	2253	7.58	0.26	-100.3	410.37	15.30	200.0	1.0	ST Tan
	1212	6.93	2251	7.60	0.00	-130.4	343.57	15.30	200.0	1.0	ST Tan
	1217	6.81	2256	7.61	0.00	-148.7	344.86	15.30	200.0	1.0	ST Tan
	1222	7.05	2258	7.60	0.00	-155.3	294.02	15.30	200.0	1.0	ST Tan

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
27 Mar 24	1222	7.05	2258	7.60			294.02				ST Tan

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	~~GR~~ 222
Sampling Personal:	

Weather Conditions: Temp: 0 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	~~YES~~	NO
Well Labeled?	YES	NO
Repairs Necessary?	Could not look, inner casing to high	
Casing Diameter:	2"	
Water Level Before Purge:	31.65	ft
Total Depth	39.93	
Depth to Top of Pump:	~	ft
Water Level After Sample:	35.30	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Tubing

Control Settings:	
Purge: 2	Sec.
Recover: 23	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
27 Mar 24	0937	Start of Well Purge									
	0942	5.75	2607	8.06	0.13	166.8	34.72	32.35	200.0	1.0	clear Brown
	0947	5.27	2622	8.06	0.14	118.3	85.83	32.65	200.0	1.0	Clear Brown
	0952	5.34	2614	8.07	0.15	86.1	97.06	33.10	200.0	1.0	Clear Brown
	0957	5.36	2614	8.05	0.14	58.0	103.69	33.28	200.0	1.0	ST Brown
	1002	5.40	2607	8.02	0.13	37.2	101.35	33.78	200.0	1.0	
									200.0	1.0	

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
27 Mar 24	1002	5.40	2607	8.02			101.35				

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	300
Sampling Personal:	

Weather Conditions: Temp: 26 °F Wind: NW @ 5-10 Precip: (Sunny / Partly Cloudy / Cloudy)

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	11.44	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	11.86	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	(NO)

Control Settings:		
Purge:	4	Sec.
Recover:	26	Sec.
PSI:	20	

Bottle List:
1 Liter Raw
1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample? YES / (NO)
Duplicate Sample ID: —

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
27 Mar 24	1605	Start of Well Purge									
	1610	7.08	2996.3	7.27	0.16	-89.7	8630.5	11.92	200.0	1.0	Turbid
	1615	6.82	3001.6	7.32	0.05	-96.9	7149.7	11.98	200.0	1.0	Turbid
	1620	6.74	2995.8	7.36	0.04	-101.3	3074.4	11.94	200.0	1.0	Turbid
	1625	6.68	2997.1	7.38	0.06	-105.5	1598.5	12.10	200.0	1.0	slightly turbid
	1630	6.53	2994.9	7.41	8.09	-106.5	1216.2	11.95	200.0	1.0	slightly turbid

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
27 Mar 24	1630	6.53	2994.9	7.41			1216.2				clear

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	301
Sampling Personal:	Dustin Kaatz

Weather Conditions: Temp: 25 °F Wind: N @ 5-10 Precip: (Sunny) / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	16.37	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	24.16	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	(NO)

Control Settings:		
Purge:	4	Sec.
Recover:	26	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
											clear, slightly turbid, turbid
27 Mar 24	1350	Start of Well Purge									
	1355	8.61	1369.5	8.26	0.23	21.5	373.09	18.30	200.0	1.0	clear
	1400	8.05	1368.9	8.25	0.08	4.3	526.24	19.64	200.0	1.0	clear
	1405	8.17	1368.8	8.22	0.17	-21.8	1039.7	21.50	200.0	1.0	clear
	1410	8.20	1370.0	8.20	0.26	-37.8	1107.8	22.06	200.0	1.0	clear
	1415	8.13	1369.9	8.20	0.43	-44.3	2070.3	22.93	200.0	1.0	clear

Well Stabilized? (YES) NO Total Volume Purged: 5 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
27 Mar 24	1415	8.13	H 1369.9	8.20			2070.3				Clear

Comments: XDX E

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	PB3
Sampling Personal:	

Weather Conditions: Temp: 28 °F Wind: N @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	27.70	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	31.95	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder
Sampling Method:	Bladder
Dedicated Equipment?	YES NO

Control Settings:		
Purge:	4	Sec.
Recover:	26	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
27 Mar 24	1500	Start of Well Purge									
	1505	7.73	2328.6	7.65	0.46	50.8	128.93	28.43	200.0	1.0	Clear
	1510	7.30	2323.7	7.61	0.24	17.7	8.33	29.27	200.0	1.0	Clear
	1515	7.43	2331.0	7.55	0.26	9.2	49.55	29.75	200.0	1.0	Clear
	1520	7.45	2334.0	7.51	0.27	-12.9	5.78	30.03	200.0	1.0	Clear
	1525	7.29	2333.4	7.49	0.31	-9.0	0.00	30.17	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
27 Mar 24	1525	7.29	2333.4	7.49	0.31		0.00				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy
Workorder: SS 2023 Wells (43950) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID:	43950001	**Date Collected:**	03/27/2024 13:37	**Matrix:**	Groundwater
Sample ID:	MW-215	**Date Received:**	03/27/2024 18:30	**Collector:**	MVTL Field Service

Temp @ Receipt (C): 10.6 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual

Sample Comments

MW-215 broke during shipping to the subcontract lab and was unable to be analyzed. TLO 2Apr2024

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43950002 **Date Collected:** 03/27/2024 12:04 **Matrix:** Groundwater
Sample ID: MW-216 **Date Received:** 03/27/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 10.6 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		05/28/2024 16:55	
Radium 228	See Attached			1		05/28/2024 16:55	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID:	43950003	**Date Collected:**	03/27/2024 14:30	**Matrix:**	Groundwater
Sample ID:	MW-217	**Date Received:**	03/27/2024 18:30	**Collector:**	MVTL Field Service

Temp @ Receipt (C): 10.6 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		05/28/2024 16:55	
Radium 228	See Attached			1		05/28/2024 16:55	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43950004 **Date Collected:** 03/27/2024 13:11 **Matrix:** Groundwater
Sample ID: MW-218 **Date Received:** 03/27/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 10.6 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		05/28/2024 16:55	
Radium 228	See Attached			1		05/28/2024 16:55	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43950005 **Date Collected:** 03/27/2024 11:09 **Matrix:** Groundwater
Sample ID: MW-219 **Date Received:** 03/27/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 10.6 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		05/28/2024 16:55	
Radium 228	See Attached			1		05/28/2024 16:55	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID:	43950006	**Date Collected:**	03/27/2024 10:27	**Matrix:**	Groundwater
Sample ID:	MW-220	**Date Received:**	03/27/2024 18:30	**Collector:**	MVTL Field Service

Temp @ Receipt (C): 10.6 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		05/28/2024 16:55	
Radium 228	See Attached			1		05/28/2024 16:55	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43950007 **Date Collected:** 03/27/2024 12:22 **Matrix:** Groundwater
Sample ID: MW-221 **Date Received:** 03/27/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 10.6 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		05/28/2024 16:55	
Radium 228	See Attached			1		05/28/2024 16:55	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID:	43950008	**Date Collected:**	03/27/2024 12:22	**Matrix:**	Groundwater
Sample ID:	DUP-2023 Wells	**Date Received:**	03/27/2024 18:30	**Collector:**	MVTL Field Service

Temp @ Receipt (C): 10.6 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		05/28/2024 16:55	
Radium 228	See Attached			1		05/28/2024 16:55	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43950009 **Date Collected:** 03/27/2024 10:02 **Matrix:** Groundwater
Sample ID: MW-222 **Date Received:** 03/27/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 10.6 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		05/28/2024 16:55	
Radium 228	See Attached			1		05/28/2024 16:55	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43950010 **Date Collected:** 03/27/2024 16:30 **Matrix:** Groundwater
Sample ID: MW-300 **Date Received:** 03/27/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 10.6 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		05/28/2024 16:55	
Radium 228	See Attached			1		05/28/2024 16:55	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID:	43950011	**Date Collected:**	03/27/2024 14:15	**Matrix:**	Groundwater
Sample ID:	MW-301	**Date Received:**	03/27/2024 18:30	**Collector:**	MVTL Field Service

Temp @ Receipt (C): 10.6 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		05/28/2024 16:55	
Radium 228	See Attached			1		05/28/2024 16:55	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43950012 **Date Collected:** 03/27/2024 15:25 **Matrix:** Groundwater
Sample ID: MW-PB3 **Date Received:** 03/27/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 10.6 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		05/28/2024 16:55	
Radium 228	See Attached			1		05/28/2024 16:55	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 43950013 **Date Collected:** 03/27/2024 12:15 **Matrix:** Groundwater
Sample ID: FB-2023 Wells **Date Received:** 03/27/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 10.6 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		05/28/2024 16:55	
Radium 228	See Attached			1		05/28/2024 16:55	

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ANALYTICAL SUMMARY REPORT

May 28, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24040032 Quote ID: C15480
Project Name: 43950

Energy Laboratories, Inc. Casper WY received the following 12 samples for Minnesota Valley Testing Laboratories on 4/1/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24040032-002	43950002, MW-216	03/27/24 12:04	04/01/24	Groundwater	Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total
C24040032-003	43950003, MW-217	03/27/24 14:30	04/01/24	Groundwater	Same As Above
C24040032-004	43950004, MW-218	03/27/24 13:11	04/01/24	Groundwater	Same As Above
C24040032-005	43950005, MW-219	03/27/24 11:09	04/01/24	Groundwater	Same As Above
C24040032-006	43950006, MW-220	03/27/24 10:27	04/01/24	Groundwater	Same As Above
C24040032-007	43950007, MW-221	03/27/24 12:22	04/01/24	Groundwater	Same As Above
C24040032-008	43950008, DUP-2023 Wells	03/27/24 12:22	04/01/24	Groundwater	Same As Above
C24040032-009	43950009, MW-222	03/27/24 10:02	04/01/24	Groundwater	Same As Above
C24040032-010	43950010, MW-300	03/27/24 16:30	04/01/24	Groundwater	Same As Above
C24040032-011	43950011, MW-301	03/27/24 14:15	04/01/24	Groundwater	Same As Above
C24040032-012	43950012, MW-PB3	03/27/24 15:25	04/01/24	Groundwater	Same As Above
C24040032-013	43950013, FB-2023 Wells	03/27/24 12:15	04/01/24	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager .

Report Approved By:

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 43950
Lab ID: C24040032-002
Client Sample ID: 43950002, MW-216

Report Date: 05/28/24
Collection Date: 03/27/24 12:04
DateReceived: 04/01/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 228	0.3	pCi/L	U			RA-05	04/16/24 14:27 / kdk
Radium 228 precision (±)	0.7	pCi/L				RA-05	04/16/24 14:27 / kdk
Radium 228 MDC	1.2	pCi/L				RA-05	04/16/24 14:27 / kdk
Radium 226 + Radium 228	0.9	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.2	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 2 of 19

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 43950
Lab ID: C24040032-003
Client Sample ID: 43950003, MW-217

Report Date: 05/28/24
Collection Date: 03/27/24 14:30
DateReceived: 04/01/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	04/22/24 11:12 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 226 MDC	0.3	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 228	0.6	pCi/L	U			RA-05	04/16/24 14:27 / kdk
Radium 228 precision (±)	1.2	pCi/L				RA-05	04/16/24 14:27 / kdk
Radium 228 MDC	1.9	pCi/L				RA-05	04/16/24 14:27 / kdk
Radium 226 + Radium 228	1.1	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.9	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 43950
Lab ID: C24040032-004
Client Sample ID: 43950004, MW-218

Report Date: 05/28/24
Collection Date: 03/27/24 13:11
DateReceived: 04/01/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.2	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 228	0.1	pCi/L	U			RA-05	04/16/24 14:27 / kdk
Radium 228 precision (±)	0.6	pCi/L				RA-05	04/16/24 14:27 / kdk
Radium 228 MDC	1.0	pCi/L				RA-05	04/16/24 14:27 / kdk
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.0	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 43950
Lab ID: C24040032-005
Client Sample ID: 43950005, MW-219

Report Date: 05/28/24
Collection Date: 03/27/24 11:09
DateReceived: 04/01/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.4	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 228	0.7	pCi/L	U			RA-05	04/16/24 14:27 / kdk
Radium 228 precision (±)	0.8	pCi/L				RA-05	04/16/24 14:27 / kdk
Radium 228 MDC	1.2	pCi/L				RA-05	04/16/24 14:27 / kdk
Radium 226 + Radium 228	1.1	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
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QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 43950
Lab ID: C24040032-006
Client Sample ID: 43950006, MW-220

Report Date: 05/28/24
Collection Date: 03/27/24 10:27
DateReceived: 04/01/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.4	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 226 MDC	0.3	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 228	0.5	pCi/L	U			RA-05	04/16/24 14:27 / kdk
Radium 228 precision (±)	0.8	pCi/L				RA-05	04/16/24 14:27 / kdk
Radium 228 MDC	1.3	pCi/L				RA-05	04/16/24 14:27 / kdk
Radium 226 + Radium 228	1.1	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 43950
Lab ID: C24040032-007
Client Sample ID: 43950007, MW-221

Report Date: 05/28/24
Collection Date: 03/27/24 12:22
DateReceived: 04/01/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.6	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 228	0.9	pCi/L	U			RA-05	04/16/24 14:27 / kdk
Radium 228 precision (±)	0.8	pCi/L				RA-05	04/16/24 14:27 / kdk
Radium 228 MDC	1.3	pCi/L				RA-05	04/16/24 14:27 / kdk
Radium 226 + Radium 228	1.3	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 43950
Lab ID: C24040032-008
Client Sample ID: 43950008, DUP-2023 Wells

Report Date: 05/28/24
Collection Date: 03/27/24 12:22
DateReceived: 04/01/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.7	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 228	0.8	pCi/L	U			RA-05	04/16/24 14:27 / kdk
Radium 228 precision (±)	0.8	pCi/L				RA-05	04/16/24 14:27 / kdk
Radium 228 MDC	1.3	pCi/L				RA-05	04/16/24 14:27 / kdk
Radium 226 + Radium 228	1.3	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 43950
Lab ID: C24040032-009
Client Sample ID: 43950009, MW-222

Report Date: 05/28/24
Collection Date: 03/27/24 10:02
DateReceived: 04/01/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	2.3	pCi/L	U			E903.0	04/22/24 14:08 / alb
Radium 226 precision (±)	1.5	pCi/L				E903.0	04/22/24 14:08 / alb
Radium 226 MDC	4.3	pCi/L				E903.0	04/22/24 14:08 / alb
Radium 228	-5	pCi/L	U			RA-05	04/17/24 14:37 / kdk
Radium 228 precision (±)	8.4	pCi/L				RA-05	04/17/24 14:37 / kdk
Radium 228 MDC	14.5	pCi/L				RA-05	04/17/24 14:37 / kdk
Radium 226 + Radium 228	9.4	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	8.5	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	15.1	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
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Account #: 5109 **Client:** Great River Energy

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 43950
Lab ID: C24040032-010
Client Sample ID: 43950010, MW-300

Report Date: 05/28/24
Collection Date: 03/27/24 16:30
DateReceived: 04/01/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 228	0.7	pCi/L	U			RA-05	04/16/24 14:27 / kdk
Radium 228 precision (±)	0.6	pCi/L				RA-05	04/16/24 14:27 / kdk
Radium 228 MDC	1	pCi/L				RA-05	04/16/24 14:27 / kdk
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.0	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 43950
Lab ID: C24040032-011
Client Sample ID: 43950011, MW-301

Report Date: 05/28/24
Collection Date: 03/27/24 14:15
DateReceived: 04/01/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	2.9	pCi/L	U			E903.0	04/22/24 14:08 / alb
Radium 226 precision (±)	2.2	pCi/L				E903.0	04/22/24 14:08 / alb
Radium 226 MDC	4.2	pCi/L				E903.0	04/22/24 14:08 / alb
Radium 228	-1	pCi/L	U			RA-05	04/17/24 14:37 / kdk
Radium 228 precision (±)	9.1	pCi/L				RA-05	04/17/24 14:37 / kdk
Radium 228 MDC	15.4	pCi/L				RA-05	04/17/24 14:37 / kdk
Radium 226 + Radium 228	9.8	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	9.4	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	15.9	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
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QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 43950
Lab ID: C24040032-012
Client Sample ID: 43950012, MW-PB3

Report Date: 05/28/24
Collection Date: 03/27/24 15:25
DateReceived: 04/01/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	04/29/24 10:03 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/29/24 10:03 / alb
Radium 226 MDC	0.1	pCi/L				E903.0	04/29/24 10:03 / alb
Radium 228	0.9	pCi/L	U			RA-05	04/16/24 14:27 / kdk
Radium 228 precision (±)	0.7	pCi/L				RA-05	04/16/24 14:27 / kdk
Radium 228 MDC	1.1	pCi/L				RA-05	04/16/24 14:27 / kdk
Radium 226 + Radium 228	0.6	pCi/L	U			A7500-RA	04/30/24 14:52 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	04/30/24 14:52 / dmf
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	04/30/24 14:52 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 43950
Lab ID: C24040032-013
Client Sample ID: 43950013, FB-2023 Wells

Report Date: 05/28/24
Collection Date: 03/27/24 12:15
DateReceived: 04/01/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.4	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	04/22/24 11:12 / alb
Radium 228	-0.2	pCi/L	U			RA-05	04/16/24 14:27 / kdk
Radium 228 precision (±)	0.6	pCi/L				RA-05	04/16/24 14:27 / kdk
Radium 228 MDC	1.1	pCi/L				RA-05	04/16/24 14:27 / kdk
Radium 226 + Radium 228	0.9	pCi/L	U			A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	04/23/24 11:34 / dmf
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	04/23/24 11:34 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24040032 **Report Date:** 05/28/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11279
Lab ID: LCS-RA226-11279	3	Laboratory Control Sample				Run: TENNELEC-3_240409D			04/22/24 11:12	
Radium 226		10	pCi/L		102	70	130			
Radium 226 precision (±)		2.0	pCi/L							
Radium 226 MDC		0.14	pCi/L							
Lab ID: MB-RA226-11279	3	Method Blank				Run: TENNELEC-3_240409D			04/22/24 11:12	
Radium 226		0.1	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C24040032-013ADUP	3	Sample Duplicate				Run: TENNELEC-3_240409D			04/22/24 11:12	
Radium 226		0.44	pCi/L					15	30	
Radium 226 precision (±)		0.17	pCi/L							
Radium 226 MDC		0.20	pCi/L							
- The RER result is 0.27.										
Method: E903.0										Batch: RA226-11281
Lab ID: LCS-RA226-11281	3	Laboratory Control Sample				Run: TENNELEC-4_240411E			04/22/24 14:08	
Radium 226		10	pCi/L		102	70	130			
Radium 226 precision (±)		2.0	pCi/L							
Radium 226 MDC		0.19	pCi/L							
Lab ID: MB-RA226-11281	3	Method Blank				Run: TENNELEC-4_240411E			04/22/24 14:08	
Radium 226		0.07	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C24040211-001ADUP	3	Sample Duplicate				Run: TENNELEC-4_240411E			04/22/24 14:08	
Radium 226		0.20	pCi/L					21	30	U
Radium 226 precision (±)		0.16	pCi/L							
Radium 226 MDC		0.22	pCi/L							
- The RER result is 0.17.										

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24040032 **Report Date:** 05/28/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-11292	
Lab ID: LCS-RA226-11292	3	Laboratory Control Sample				Run: TENNELEC-4_240423E			04/29/24 10:03	
Radium 226		9.4	pCi/L		94	70	130			
Radium 226 precision (±)		1.8	pCi/L							
Radium 226 MDC		0.22	pCi/L							
Lab ID: MB-RA226-11292	3	Method Blank				Run: TENNELEC-4_240423E			04/29/24 10:03	
Radium 226		0.02	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C24040089-001ADUP	3	Sample Duplicate				Run: TENNELEC-4_240423E			04/29/24 10:03	
Radium 226		0.090	pCi/L					12	30	U
Radium 226 precision (±)		0.12	pCi/L							
Radium 226 MDC		0.18	pCi/L							
- The RER result is 0.06.										
Lab ID: C24040640-001DDUP	3	Sample Duplicate				Run: TENNELEC-4_240423E			04/29/24 11:10	
Radium 226		9.9	pCi/L					15	30	
Radium 226 precision (±)		1.9	pCi/L							
Radium 226 MDC		0.18	pCi/L							
- The RER result is 0.56.										

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24040032 **Report Date:** 05/28/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05									Batch: RA228-7371	
Lab ID: LCS-228-RA226-11279	3	Laboratory Control Sample				Run: TENNELEC-4_240409E			04/16/24 14:27	
Radium 228		6.1	pCi/L		97	70	130			
Radium 228 precision (±)		1.4	pCi/L							
Radium 228 MDC		1.0	pCi/L							
Lab ID: MB-RA226-11279	3	Method Blank				Run: TENNELEC-4_240409E			04/16/24 14:27	
Radium 228		-0.01	pCi/L							U
Radium 228 precision (±)		0.6	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C24040032-013ADUP	3	Sample Duplicate				Run: TENNELEC-4_240409E			04/16/24 14:27	
Radium 228		-0.12	pCi/L					43	30	UR
Radium 228 precision (±)		0.64	pCi/L							
Radium 228 MDC		1.1	pCi/L							
- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than or equal to the limit of 3, the RER result is 0.08.										
Method: RA-05									Batch: RA228-7373	
Lab ID: LCS-228-RA226-11281	3	Laboratory Control Sample				Run: TENNELEC-4_240410B			04/17/24 12:07	
Radium 228		7.0	pCi/L		112	70	130			
Radium 228 precision (±)		1.5	pCi/L							
Radium 228 MDC		1.1	pCi/L							
Lab ID: C24040211-001ADUP	3	Sample Duplicate				Run: TENNELEC-4_240410B			04/17/24 12:07	
Radium 228		-0.11	pCi/L					1400	30	UR
Radium 228 precision (±)		0.71	pCi/L							
Radium 228 MDC		1.2	pCi/L							
- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than or equal to the limit of 3, the RER result is 0.24.										
Lab ID: MB-228-RA226-11281	3	Method Blank				Run: TENNELEC-4_240410B			04/17/24 12:07	
Radium 228		-0.3	pCi/L							U
Radium 228 precision (±)		0.6	pCi/L							
Radium 228 MDC		1	pCi/L							

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24040032

Login completed by: Dallas W. Smith
Reviewed by: lleprowse
Reviewed Date: 4/3/2024

Date Received: 4/1/2024
Received by: LXQ
Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☐	No ☑	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	11.3°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Contact and Corrective Action Comments:

The MW-215 container for Radiochemical analysis was received broken. The contents of the sample were lost. Cancelled the Radiochemical analysis per phone call with Tera Olson on 4/1/24.

The Temperature Blank temperature for shipping container 1 was 9.1°C, shipping container 2 was 8.5°C and shipping container 3 was 11.3°C. DWS

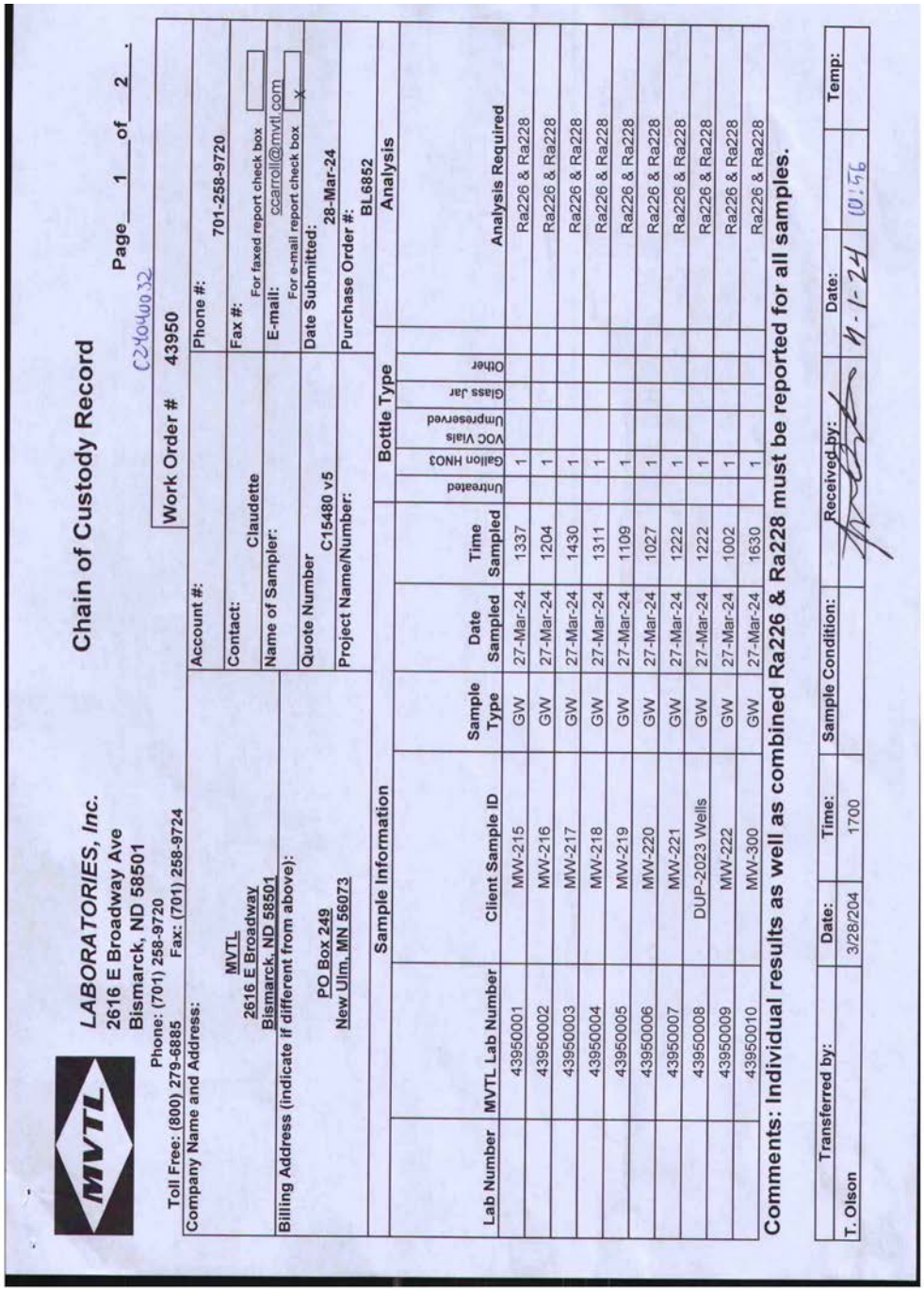
Page 17 of 19

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Chain of Custody Record

C240493 2

Page 1 of 2

Work Order # 43950

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501

Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073

Account #:
Contact: Claudette
Name of Sampler:
Quote Number C15480 v5
Project Name/Number:

Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box x
Date Submitted: 28-Mar-24
Purchase Order #: BL6852

Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Untreated	1 Gallon HNO3	VOC Vials	Unpreserved	Glass Jar	Other	Analysis Required
	43950001	MW-215	GW	27-Mar-24	1337		1					Ra226 & Ra228
	43950002	MW-216	GW	27-Mar-24	1204		1					Ra226 & Ra228
	43950003	MW-217	GW	27-Mar-24	1430		1					Ra226 & Ra228
	43950004	MW-218	GW	27-Mar-24	1311		1					Ra226 & Ra228
	43950005	MW-219	GW	27-Mar-24	1109		1					Ra226 & Ra228
	43950006	MW-220	GW	27-Mar-24	1027		1					Ra226 & Ra228
	43950007	MW-221	GW	27-Mar-24	1222		1					Ra226 & Ra228
	43950008	DUP-2023 Wells	GW	27-Mar-24	1222		1					Ra226 & Ra228
	43950009	MW-222	GW	27-Mar-24	1002		1					Ra226 & Ra228
	43950010	MW-300	GW	27-Mar-24	1630		1					Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples.

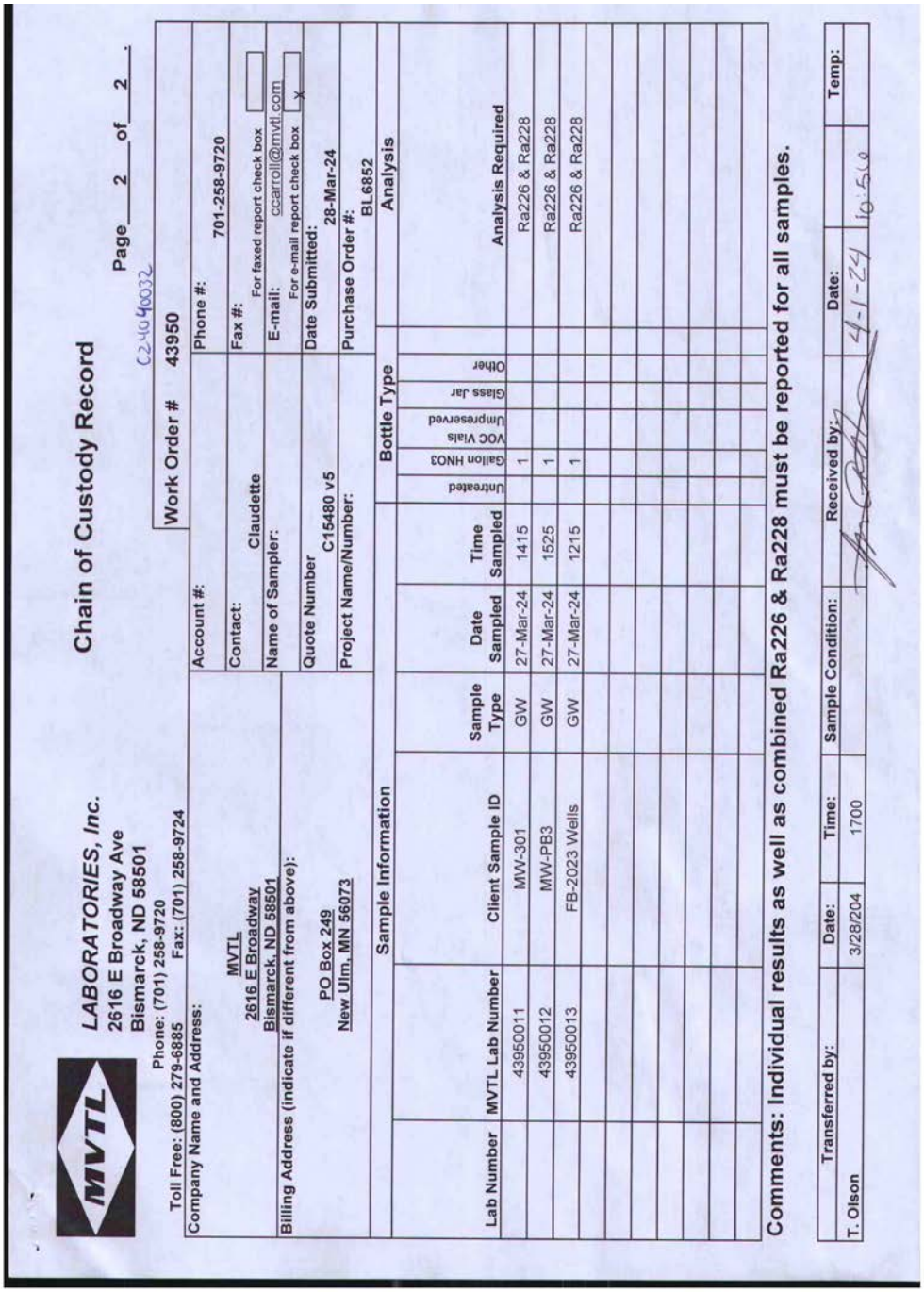
Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
T. Olson	3/28/204	1700			4-1-24	01.5C

Page 18 of 19

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Account #: 5109 **Client:** Great River Energy



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Bismarck, ND 58501
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Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

Page 2 of 2

C24040032

Work Order # 43950

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501
Account #:
Contact: Claudette
Name of Sampler:
Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box x
Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073
Quote Number C15480 v5
Project Name/Number:
Date Submitted: 28-Mar-24
Purchase Order #: BL6852

Lab Number	Sample Information: MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Untreated	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis: Analysis Required
	43950011	MW-301	GW	27-Mar-24	1415		1				Ra226 & Ra228
	43950012	MW-PB3	GW	27-Mar-24	1525		1				Ra226 & Ra228
	43950013	FB-2023 Wells	GW	27-Mar-24	1215		1				Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
T. Olson	3/28/204	1700			4-1-24 10:58	

Page 19 of 19

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS 2023 Wells (45272) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID:	45272001	**Date Collected:**	04/11/2024 10:37	**Matrix:**	Groundwater
Sample ID:	MW-215	**Date Received:**	04/11/2024 12:42	**Collector:**	MVTL Field Service

Temp @ Receipt (C): 9.0

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		05/15/2024 13:48	
Radium 228	See Attached			1		05/15/2024 13:48	

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ANALYTICAL SUMMARY REPORT

May 15, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24040587 Quote ID: C15480
Project Name: 45272

Energy Laboratories, Inc. Casper WY received the following 1 sample for Minnesota Valley Testing Laboratories on 4/17/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24040587-001	45272001, MW-215	04/11/24 10:37	04/17/24	Groundwater	Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager .

Report Approved By:

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 45272
Lab ID: C24040587-001
Client Sample ID: 45272001, MW-215

Report Date: 05/15/24
Collection Date: 04/11/24 10:37
DateReceived: 04/17/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.4	pCi/L				E903.0	05/01/24 13:07 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	05/01/24 13:07 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	05/01/24 13:07 / alb
Radium 228	1.1	pCi/L	U			RA-05	04/26/24 10:36 / kdk
Radium 228 precision (±)	0.8	pCi/L				RA-05	04/26/24 10:36 / kdk
Radium 228 MDC	1.1	pCi/L				RA-05	04/26/24 10:36 / kdk
Radium 226 + Radium 228	1	pCi/L	U			A7500-RA	05/02/24 11:08 / dmf
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	05/02/24 11:08 / dmf
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	05/02/24 11:08 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24040587 **Report Date:** 05/03/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-11291	
Lab ID: LCS-RA226-11291	3	Laboratory Control Sample				Run: TENNELEC-4_240423J			05/01/24 13:07	
Radium 226		9.5	pCi/L		95	70	130			
Radium 226 precision (±)		1.9	pCi/L							
Radium 226 MDC		0.17	pCi/L							
Lab ID: MB-RA226-11291	3	Method Blank				Run: TENNELEC-4_240423J			05/01/24 13:07	
Radium 226		0.08	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C24040582-001ADUP	3	Sample Duplicate				Run: TENNELEC-4_240423J			05/01/24 13:07	
Radium 226		40	pCi/L					5.7	30	
Radium 226 precision (±)		7.6	pCi/L							
Radium 226 MDC		0.24	pCi/L							

- The RER result is 0.21.

Qualifiers:

RL - Analyte Reporting Limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24040587 **Report Date:** 05/03/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7377
Lab ID: LCS-228-RA226-11291	3	Laboratory Control Sample				Run: TENNELEC-4_240423A				04/26/24 10:36
Radium 228		6.6	pCi/L		106	70	130			
Radium 228 precision (±)		1.5	pCi/L							
Radium 228 MDC		0.98	pCi/L							
Lab ID: MB-RA226-11291	3	Method Blank				Run: TENNELEC-4_240423A				04/26/24 10:36
Radium 228		1	pCi/L							
Radium 228 precision (±)		0.7	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C24040582-001ADUP	3	Sample Duplicate				Run: TENNELEC-4_240423A				04/26/24 10:36
Radium 228		3.0	pCi/L					1.7	30	
Radium 228 precision (±)		1.1	pCi/L							
Radium 228 MDC		1.2	pCi/L							

- The RER result is 0.04.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24040587

Login completed by: Dakota R. Sawyer
Reviewed by: tjones
Reviewed Date: 4/22/2024
Date Received: 4/17/2024
Received by: DRS
Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	13.0°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Contact and Corrective Action Comments:

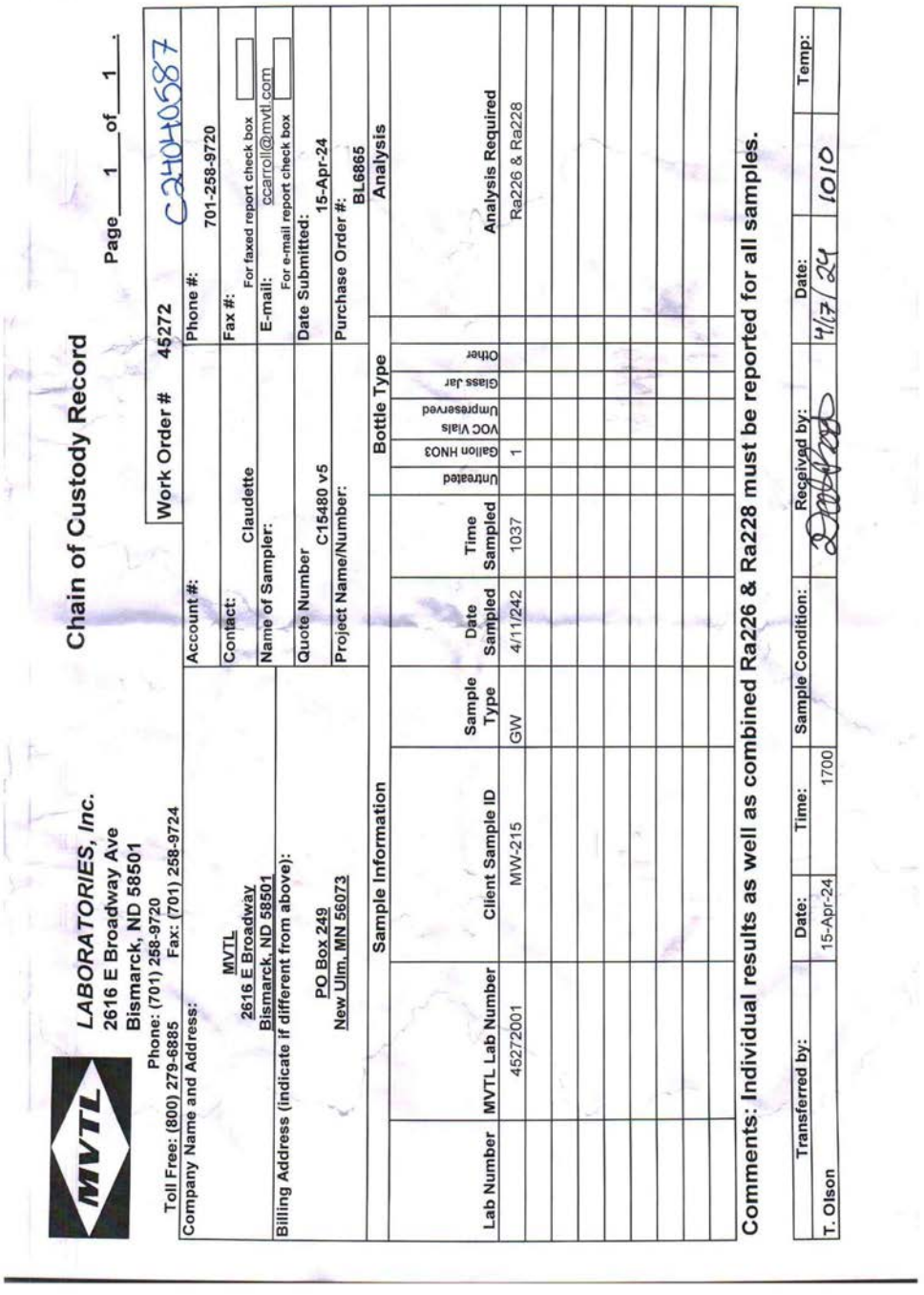
None

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Chain of Custody Record

Page 1 of 1

Work Order # 45272 C24040587

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501
Account #:
Contact: Claudette
Name of Sampler:
Quote Number C15480 v5
Project Name/Number:
Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box
Date Submitted: 15-Apr-24
Purchase Order #: BL6865

Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073

Lab Number	Sample Information: MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Untreated	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis: Analysis Required
	45272001	MW-215	GW	4/11/242	1037		1				Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
T. Olson	15-Apr-24	1700			4/17/24 1010	

Page 6 of 6

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Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
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(701) 258-9720

Great River Energy
WO: 45272

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS 2023 Wells
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: Mar 2024
Address:		Lakewood, CO 80228	Sampled By: Dakota Kottsick
Phone:			
Email:	CJohnston@GREnergy.com		

Sample Information				Sample Containers									Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Gal Nitric								Analysis Required
001	MW-215	11Apr24	1037	GW					X								Radium 226 and 228 Combined

Comments:

Relinquished By			Sample Condition		Received By	
	Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1		11Apr24 1242	Log In / Walk In #2	9.0 TM562 / TM805		11Apr24 1242
2						

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet
Groundwater Assessment

Company:	GRE Stanton Station
Event:	Mar 2024
Sample ID:	215
Sampling Personal:	Dakota Hottsir K

Weather Conditions: Temp: 41 °F Wind: NW @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	12.55	ft
Depth to Top of Pump:	17.00	ft
Water Level After Sample:	13.27	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	5	Sec.
Recover:	~~70~~ DIC 75	Sec.
PSI:	20	

Bottle List:
1 Gal Nitric

Duplicate Sample?
YES / NO
Duplicate Sample ID:

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
11Apr 24	1002	Start of Well Purge			DO Probe not working						
	1007	8.01	7479	7.57		-126.9	485.65	13.14	200.0	1.0	Clear
	1012	7.80	2464	7.59		-78.8	712.99	13.76	200.0	1.0	Clear
	1017	7.87	2487	7.57		-108.6	355.07	13.15	200.0	1.0	Clear
	1022	8.06	2477	7.57		-121.6	280.47	13.15	200.0	1.0	Clear
	1027	8.04	2472	7.56		-125.5	135.72	13.15	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
11Apr 24	1037	8.06	2472	7.56			135.72				Clear

Comments: DO Probe quit reading, Paused Purging to repair issue, resumed Purging at 1017
DUP

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS UP (51856) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51856001 **Date Collected:** 06/17/2024 13:17 **Matrix:** Groundwater
Sample ID: MW-6B **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1575**	umhos/cm	1	1		06/17/2024 13:17	
Method: 150.2							
pH - Field	**7.95**	units	0.01	1		06/17/2024 13:17	
Method: 170.1							
Temperature - Field C	**11.33**	degrees C		1		06/17/2024 13:17	
Method: ASTM D516-16							
Sulfate	**386**	mg/L	25	5		06/19/2024 14:18	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/24/2024 09:50	06/24/2024 16:38	
Method: EPA 6010D							
Boron	**0.31**	mg/L	0.1	1	06/19/2024 07:07	07/02/2024 10:26	
Calcium	**29.1**	mg/L	1	1	06/19/2024 07:07	06/25/2024 09:20	
Lithium	**0.0453**	mg/L	0.02	1	06/19/2024 07:07	06/20/2024 14:18	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 07:07	07/09/2024 11:30	
Arsenic	**0.0034**	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 11:30	
Barium	**0.0250**	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 11:30	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 11:30	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 11:30	
Chromium	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 11:30	
Cobalt	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 11:30	
Lead	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 11:30	
Molybdenum	**0.0125**	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 11:30	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 07:07	07/09/2024 11:30	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 11:30	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51856001 **Date Collected:** 06/17/2024 13:17 **Matrix:** Groundwater
Sample ID: MW-6B **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**8.0**	units	0.1	1		06/18/2024 14:49	*
Method: SM4500-Cl-E 2011							
Chloride	**16.2**	mg/L	2.0	1		06/19/2024 12:20	
Method: SM4500-F-C-2011							
Fluoride	**0.55**	mg/L	0.1	1		06/18/2024 14:49	
Method: USGS I-1750-85							
Total Dissolved Solids	**1070**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51856002 **Date Collected:** 06/17/2024 09:35 **Matrix:** Groundwater
Sample ID: MW-7A **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**16614**	umhos/cm	1	1		06/17/2024 09:35	
Method: 150.2							
pH - Field	**7.39**	units	0.01	1		06/17/2024 09:35	
Method: 170.1							
Temperature - Field C	**8.96**	degrees C		1		06/17/2024 09:35	
Method: ASTM D516-16							
Sulfate	**11100**	mg/L	250	50		06/19/2024 14:31	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/24/2024 09:50	06/24/2024 16:38	
Method: EPA 6010D							
Boron	**0.56**	mg/L	0.5	5	06/19/2024 07:07	07/02/2024 10:27	
Calcium	**457**	mg/L	5	5	06/19/2024 07:07	06/25/2024 09:21	
Lithium	**0.252**	mg/L	0.1	5	06/19/2024 07:07	06/20/2024 14:19	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 07:07	07/09/2024 11:34	
Arsenic	<0.008	mg/L	0.008	20	06/19/2024 07:07	07/09/2024 12:30	*
Barium	**0.0069**	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 11:34	
Beryllium	<0.002	mg/L	0.002	20	06/19/2024 07:07	07/09/2024 12:30	*
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 11:34	
Chromium	<0.008	mg/L	0.008	20	06/19/2024 07:07	07/09/2024 12:30	*
Cobalt	<0.008	mg/L	0.008	20	06/19/2024 07:07	07/09/2024 12:30	*
Lead	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 11:34	
Molybdenum	**0.0098**	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 11:34	
Selenium	<0.02	mg/L	0.02	20	06/19/2024 07:07	07/09/2024 12:30	*
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 11:34	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51856002 **Date Collected:** 06/17/2024 09:35 **Matrix:** Groundwater
Sample ID: MW-7A **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.7**	units	0.1	1		06/18/2024 14:59	*
Method: SM4500-Cl-E 2011							
Chloride	**39.1**	mg/L	2.0	1		06/19/2024 12:21	
Method: SM4500-F-C-2011							
Fluoride	**0.55**	mg/L	0.1	1		06/18/2024 14:59	
Method: USGS I-1750-85							
Total Dissolved Solids	**17000**	mg/L	10	1		06/19/2024 10:55	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Task Comments

3020464 - METb/2670

Sodium matrix spike and matrix spike duplicate recovery was low; the associated laboratory control sample recovery was acceptable.

Analysis Results Comments

Antimony, Dissolved

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Arsenic

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Arsenic, Dissolved

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Beryllium

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Beryllium, Dissolved

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Cadmium, Dissolved

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Chromium

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Chromium, Dissolved

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Cobalt

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Cobalt, Dissolved

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Molybdenum, Dissolved

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Selenium

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Selenium, Dissolved

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51856003 **Date Collected:** 06/17/2024 08:38 **Matrix:** Groundwater
Sample ID: MW-7B **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1568**	umhos/cm	1	1		06/17/2024 08:38	
Method: 150.2							
pH - Field	**7.81**	units	0.01	1		06/17/2024 08:38	
Method: 170.1							
Temperature - Field C	**8.67**	degrees C		1		06/17/2024 08:38	
Method: ASTM D516-16							
Sulfate	**299**	mg/L	25	5		06/19/2024 14:33	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/24/2024 09:50	06/24/2024 16:38	
Method: EPA 6010D							
Boron	**0.44**	mg/L	0.1	1	06/19/2024 07:07	07/02/2024 10:28	
Calcium	**16.7**	mg/L	1	1	06/19/2024 07:07	06/25/2024 09:22	
Lithium	**0.0515**	mg/L	0.02	1	06/19/2024 07:07	06/20/2024 14:20	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 07:07	07/09/2024 11:38	
Arsenic	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 11:38	
Barium	**0.0145**	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 11:38	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 11:38	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 11:38	
Chromium	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 11:38	
Cobalt	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 11:38	
Lead	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 11:38	
Molybdenum	**0.0042**	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 11:38	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 07:07	07/09/2024 11:38	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 11:38	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51856003 **Date Collected:** 06/17/2024 08:38 **Matrix:** Groundwater
Sample ID: MW-7B **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**8.0**	units	0.1	1		06/18/2024 15:10	*
Method: SM4500-Cl-E 2011							
Chloride	**11.5**	mg/L	2.0	1		06/19/2024 12:23	
Method: SM4500-F-C-2011							
Fluoride	**0.63**	mg/L	0.1	1		06/18/2024 15:10	
Method: USGS I-1750-85							
Total Dissolved Solids	**1050**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51856004 **Date Collected:** 06/17/2024 12:21 **Matrix:** Groundwater
Sample ID: MW-8B **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1432**	umhos/cm	1	1		06/17/2024 12:21	
Method: 150.2							
pH - Field	**7.53**	units	0.01	1		06/17/2024 12:21	
Method: 170.1							
Temperature - Field C	**11.47**	degrees C		1		06/17/2024 12:21	
Method: ASTM D516-16							
Sulfate	**314**	mg/L	25	5		06/19/2024 14:22	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/24/2024 09:50	06/24/2024 16:38	
Method: EPA 6010D							
Boron	**0.32**	mg/L	0.1	1	06/19/2024 07:07	07/02/2024 10:29	
Calcium	**79.7**	mg/L	1	1	06/19/2024 07:07	06/25/2024 09:25	
Lithium	**0.0731**	mg/L	0.02	1	06/19/2024 07:07	06/20/2024 14:20	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 07:07	07/09/2024 11:43	
Arsenic	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 11:43	
Barium	**0.0254**	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 11:43	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 11:43	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 11:43	
Chromium	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 11:43	
Cobalt	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 11:43	
Lead	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 11:43	
Molybdenum	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 11:43	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 07:07	07/09/2024 11:43	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 11:43	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51856004 **Date Collected:** 06/17/2024 12:21 **Matrix:** Groundwater
Sample ID: MW-8B **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.8**	units	0.1	1		06/18/2024 15:21	*
Method: SM4500-Cl-E 2011							
Chloride	**11.1**	mg/L	2.0	1		06/19/2024 12:24	
Method: SM4500-F-C-2011							
Fluoride	**0.28**	mg/L	0.1	1		06/18/2024 15:21	
Method: USGS I-1750-85							
Total Dissolved Solids	**936**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51856005 **Date Collected:** 06/17/2024 10:52 **Matrix:** Groundwater
Sample ID: MW-105 **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2000**	umhos/cm	1	1		06/17/2024 10:52	
Method: 150.2							
pH - Field	**7.85**	units	0.01	1		06/17/2024 10:52	
Method: 170.1							
Temperature - Field C	**8.95**	degrees C		1		06/17/2024 10:52	
Method: ASTM D516-16							
Sulfate	**411**	mg/L	25	5		06/19/2024 14:34	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/24/2024 09:50	06/24/2024 16:38	
Method: EPA 6010D							
Boron	**0.31**	mg/L	0.1	1	06/19/2024 07:07	07/02/2024 10:31	
Calcium	**42.1**	mg/L	1	1	06/19/2024 07:07	06/25/2024 09:28	
Lithium	**0.0495**	mg/L	0.02	1	06/19/2024 07:07	06/20/2024 14:22	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 07:07	07/09/2024 12:04	
Arsenic	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:04	
Barium	**0.0438**	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:04	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 12:04	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 12:04	
Chromium	**0.0021**	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:04	
Cobalt	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:04	
Lead	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 12:04	
Molybdenum	**0.0218**	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:04	
Selenium	**0.0277**	mg/L	0.005	5	06/19/2024 07:07	07/09/2024 12:04	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 12:04	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51856005 **Date Collected:** 06/17/2024 10:52 **Matrix:** Groundwater
Sample ID: MW-105 **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**8.0**	units	0.1	1		06/18/2024 15:32	*
Method: SM4500-Cl-E 2011							
Chloride	**8.0**	mg/L	2.0	1		06/19/2024 12:25	
Method: SM4500-F-C-2011							
Fluoride	**0.85**	mg/L	0.1	1		06/18/2024 15:32	
Method: USGS I-1750-85							
Total Dissolved Solids	**1320**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51856006 **Date Collected:** 06/17/2024 10:52 **Matrix:** Groundwater
Sample ID: DUP-UP **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: ASTM D516-16							
Sulfate	**413**	mg/L	25	5		06/19/2024 14:24	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/24/2024 09:50	06/24/2024 16:38	
Method: EPA 6010D							
Boron	**0.30**	mg/L	0.1	1	06/19/2024 07:07	07/02/2024 10:33	
Calcium	**40.7**	mg/L	1	1	06/19/2024 07:07	06/25/2024 09:29	
Lithium	**0.0476**	mg/L	0.02	1	06/19/2024 07:07	06/20/2024 14:23	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 07:07	07/09/2024 12:08	
Arsenic	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:08	
Barium	**0.0423**	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:08	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 12:08	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 12:08	
Chromium	**0.0020**	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:08	
Cobalt	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:08	
Lead	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 12:08	
Molybdenum	**0.0212**	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:08	
Selenium	**0.0255**	mg/L	0.005	5	06/19/2024 07:07	07/09/2024 12:08	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 12:08	
Method: SM4500 H+ B-2011							
pH	**8.0**	units	0.1	1		06/18/2024 15:43	*
Method: SM4500-Cl-E 2011							
Chloride	**7.9**	mg/L	2.0	1		06/19/2024 12:26	
Method: SM4500-F-C-2011							
Fluoride	**0.85**	mg/L	0.1	1		06/18/2024 15:43	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51856006 **Date Collected:** 06/17/2024 10:52 **Matrix:** Groundwater
Sample ID: DUP-UP **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: USGS I-1750-85							
Total Dissolved Solids	**1310**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51856007 **Date Collected:** 06/17/2024 13:00 **Matrix:** Groundwater
Sample ID: FB-UP **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: ASTM D516-16							
Sulfate	<5	mg/L	5	1		06/19/2024 14:25	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/24/2024 09:50	06/24/2024 16:38	
Method: EPA 6010D							
Boron	<0.1	mg/L	0.1	1	06/19/2024 07:07	07/02/2024 10:34	
Calcium	<1	mg/L	1	1	06/19/2024 07:07	06/25/2024 09:30	
Lithium	<0.02	mg/L	0.02	1	06/19/2024 07:07	06/20/2024 14:23	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 07:07	07/09/2024 12:13	
Arsenic	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:13	
Barium	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:13	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 12:13	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 12:13	
Chromium	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:13	
Cobalt	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:13	
Lead	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 12:13	
Molybdenum	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:13	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 07:07	07/09/2024 12:13	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 12:13	
Method: SM4500 H+ B-2011							
pH	**6.3**	units	0.1	1		06/18/2024 17:42	*
Method: SM4500-Cl-E 2011							
Chloride	<2.0	mg/L	2.0	1		06/19/2024 12:27	
Method: SM4500-F-C-2011							
Fluoride	<0.1	mg/L	0.1	1		06/18/2024 17:42	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51856007 **Date Collected:** 06/17/2024 13:00 **Matrix:** Groundwater
Sample ID: FB-UP **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: USGS I-1750-85							
Total Dissolved Solids	<10	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 51856

Sulfate — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			100	104.0		85	115		
LFB			100	102.0		85	115		
LFB			100	101.0		85	115		
LFB			100	100.0		85	115		
LFB			100	101.0		85	115		
LFB			100	109.0		85	115		
LFB			100	97.4		85	115		
LFB			100	99.5		85	115		
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MS/MSD	51572002		100	100.0	96.8	85	115	2.6	20
MS/MSD	51572009		100	98.8	96.1	85	115	1.8	20
MS/MSD	51671003		500	96.1	96.1	85	115	0.0	20
MS/MSD	51714006		500	104.9	105.2	85	115	0.3	20
MS/MSD	51770005		100	89.5	87.7	85	115	2.0	20
MS/MSD	51856007		100	104.4	107.1	85	115	2.8	20
MS/MSD	51858003		500	92.9	101.3	85	115	4.7	20

Chloride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	103.0		90	110		
LFB			30	98.8		90	110		
LFB			30	95.1		90	110		
LFB			30	102.0		90	110		

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Chloride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	97.0		90	110		
LFB			30	96.9		90	110		
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MS/MSD	51925001		30	113.4	118.6	80	120	0.8	20
MS/MSD	52104001		30	106.8	102.8	80	120	2.3	20
MS/MSD	52104004		30	110.0	110.3	80	120	0.2	20

Aluminum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	104.0		85	115		
MB		<0.1							
PDS/PDSD	52095001		2	94.4	97.0	75	125	1.5	20
PDS/PDSD	52102001		1	102.0	104.0	75	125	2.0	20
PDS/PDSD	52104004		0.4	100.0	99.5	75	125	0.6	20
PDS/PDSD	52107001		5	99.5	95.7	75	125	1.7	20
PDS/PDSD	52425001		20	99.0	101.0	75	125	1.7	20
PDS/PDSD	52425001		4	120.0	116.0	75	125	3.6	20
PDS/PDSD	52467001		0.4	100.0	100.0	75	125	0.1	20

Aluminum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	104.0		85	115		
MB		<0.1							
SPK/SPKD	51175005		0.4	106.0	106.0	75	125	0.3	20
SPK/SPKD	51714006		0.4	113.0	110.0	75	125	2.1	20
SPK/SPKD	51858001		0.4	110.0	110.0	75	125	0.3	20
SPK/SPKD	52104004		0.4	107.0	108.0	75	125	0.2	20
SPK/SPKD	52281002		0.4	106.0	107.0	75	125	0.9	20

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Account #: 5109 **Client:** Great River Energy

Aluminum, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52429006		0.4	89.5	91.5	75	125	2.2	20
SPK/SPKD	52454002		0.4	95.9	93.8	75	125	2.2	20
SPK/SPKD	52467001		0.4	101.0	100.0	75	125	0.7	20

Boron				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	102.0		85	115		
MB		<0.1							

Boron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	102.0		85	115		
MB		<0.1							
SPK/SPKD	51856004		0.4	93.1	93.4	75	125	0.2	20
SPK/SPKD	52104004		0.4	86.8	85.8	75	125	0.4	20
SPK/SPKD	52279001		0.4	81.0	81.3	75	125	0.1	20
SPK/SPKD	52281002		0.4	76.5	78.8	75	125	0.5	20
SPK/SPKD	52454006		0.4	99.7	100.0	75	125	0.3	20
SPK/SPKD	52467001		0.4	97.7	96.3	75	125	1.1	20
SPK/SPKD	52964008		0.4	97.2	97.4	75	125	0.2	20

Calcium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	111.0		85	115		
MB		<1							
DUP	51856003							1.1	20
PDS/PDSD	51856004		100	108.0	107.0	75	125	0.8	20
PDS/PDSD	52101002		100	114.0	113.0	75	125	0.7	20
PDS/PDSD	52101008		100	111.0	113.0	75	125	1.8	20
PDS/PDSD	52104004		100	104.0	104.0	75	125	0.1	20
PDS/PDSD	52104011		100	75.1	76.2	75	125	0.8	20
PDS/PDSD	52281002		100	92.4	92.3	75	125	0.1	20
PDS/PDSD	52429003		100	92.7	92.2	75	125	0.2	20
PDS/PDSD	52429006		100	101.0	101.0	75	125	0.3	20

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Account #: 5109 **Client:** Great River Energy

Calcium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	52461002		100	99.3	99.3	75	125	0.1	20
PDS/PDSD	52467001		100	96.0	95.5	75	125	0.3	20

Calcium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	111.0		85	115		
MB		<1							
SPK/SPKD	51856004		100	95.9	96.1	75	125	0.1	20
SPK/SPKD	52104004		100	94.7	94.5	75	125	0.1	20
SPK/SPKD	52104004		500	101.0	99.9	75	125	1.1	20
SPK/SPKD	52279001		100	96.8	96.7	75	125	0.1	20
SPK/SPKD	52281002		500	102.0	103.0	75	125	1.0	20
SPK/SPKD	52281002		100	95.9	96.2	75	125	0.2	20
SPK/SPKD	52964008		100	104.0	103.0	75	125	0.8	20

Iron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
MB		<0.1							
MS/MSD	51856004		0.4	105.0	107.0	70	130	1.1	20
PDS/PDSD	52095001		2	91.8	90.6	75	125	0.5	20
PDS/PDSD	52102001		1	87.6	86.8	75	125	0.9	20
PDS/PDSD	52107001		5	97.0	98.6	75	125	0.6	20
PDS/PDSD	52425001		4	106.0	107.0	75	125	1.3	20
PDS/PDSD	52425001		20	88.6	87.6	75	125	1.1	20
PDS/PDSD	52467001		0.4	97.7	97.0	75	125	0.4	20

Iron, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
MB		<0.1							
SPK/SPKD	51175005		0.4	84.9	89.3	75	125	1.3	20
SPK/SPKD	51714006		0.4	90.7	90.5	75	125	0.1	20
SPK/SPKD	51858001		0.4	78.4	79.3	75	125	0.3	20

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Account #: 5109 **Client:** Great River Energy

Iron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52104004		0.4	75.5	79.4	75	125	1.0	20
SPK/SPKD	52281002		0.4	97.8	97.8	75	125	0.0	20
SPK/SPKD	52429006		0.4	85.5	86.3	75	125	0.7	20
SPK/SPKD	52454002		0.4	93.0	94.8	75	125	2.0	20
SPK/SPKD	52467001		0.4	91.3	90.2	75	125	1.2	20

Lithium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	102.0		85	115		
MB		<0.04							
MS/MSD	51856004		0.4	93.8	99.0	70	130	4.6	20

Lithium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	102.0		85	115		
MB		<0.04							
SPK/SPKD	51856004		0.4	91.2	89.2	75	125	1.9	20
SPK/SPKD	52104004		0.4	88.3	88.1	75	125	0.2	20
SPK/SPKD	52279001		0.4	89.7	91.0	75	125	1.3	20
SPK/SPKD	52281002		0.4	90.9	89.7	75	125	1.2	20

Magnesium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	108.0		85	115		
MB		<1							
DUP	51856003							1.5	20
PDS/PDSD	51856004		100	110.0	108.0	75	125	0.8	20
PDS/PDSD	52101002		100	117.0	116.0	75	125	0.9	20
PDS/PDSD	52101008		100	114.0	116.0	75	125	2.0	20
PDS/PDSD	52104004		100	111.0	111.0	75	125	0.1	20
PDS/PDSD	52104011		100	94.7	95.8	75	125	0.8	20
PDS/PDSD	52281002		100	95.5	94.8	75	125	0.4	20
PDS/PDSD	52429003		100	97.3	96.7	75	125	0.4	20
PDS/PDSD	52429006		100	104.0	104.0	75	125	0.4	20

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Magnesium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	52461002		100	101.0	101.0	75	125	0.1	20
PDS/PDSD	52467001		100	100.0	99.7	75	125	0.4	20

Magnesium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	108.0		85	115		
MB		<1							
SPK/SPKD	51856004		100	97.8	98.2	75	125	0.2	20
SPK/SPKD	52104004		500	104.0	103.0	75	125	1.0	20
SPK/SPKD	52104004		100	101.0	101.0	75	125	0.1	20
SPK/SPKD	52279001		100	102.0	102.0	75	125	0.2	20
SPK/SPKD	52281002		100	98.6	98.5	75	125	0.1	20
SPK/SPKD	52281002		500	104.0	105.0	75	125	1.0	20
SPK/SPKD	52964008		100	105.0	105.0	75	125	0.6	20

Manganese				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
PDS/PDSD	51735001		25	97.1	97.4	75	125	0.3	20
MS/MSD	51856004		0.4	96.0	97.1	70	130	0.9	20
PDS/PDSD	52095001		2	100.0	99.5	75	125	0.5	20
PDS/PDSD	52102001		1	75.8	73.7	75	125	1.1	20
PDS/PDSD	52104004		0.4	90.9	92.7	75	125	1.4	20
PDS/PDSD	52107001		5	92.7	93.6	75	125	0.7	20
PDS/PDSD	52425001		20	84.7	84.0	75	125	0.8	20
PDS/PDSD	52425001		4	86.8	88.4	75	125	1.5	20
PDS/PDSD	52467001		0.4	106.0	106.0	75	125	0.3	20

Manganese, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
SPK/SPKD	51175005		0.4	99.1	101.0	75	125	1.3	20

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Manganese, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	51714006		0.4	77.3	76.9	75	125	0.1	20
SPK/SPKD	51858001		0.4	93.9	94.1	75	125	0.2	20
SPK/SPKD	52104004		0.4	90.6	92.4	75	125	1.5	20
SPK/SPKD	52281002		0.4	77.4	77.5	75	125	0.1	20
SPK/SPKD	52429006		0.4	92.5	93.1	75	125	0.6	20
SPK/SPKD	52454002		0.4	95.1	96.5	75	125	1.5	20
SPK/SPKD	52467001		0.4	93.5	92.6	75	125	1.0	20

Potassium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	108.0		85	115		
MB		<1							
DUP	51856003							0.0	20
PDS/PDSD	51856004		100	112.0	112.0	75	125	0.3	20
PDS/PDSD	52101002		100	113.0	113.0	75	125	0.2	20
PDS/PDSD	52101008		100	109.0	114.0	75	125	3.2	20
PDS/PDSD	52104004		100	112.0	113.0	75	125	0.9	20
PDS/PDSD	52104011		100	109.0	110.0	75	125	0.6	20
PDS/PDSD	52281002		100	99.8	98.3	75	125	1.4	20
PDS/PDSD	52429003		100	101.0	101.0	75	125	0.4	20
PDS/PDSD	52429006		100	103.0	103.0	75	125	0.5	20
PDS/PDSD	52461002		100	99.5	99.7	75	125	0.2	20
PDS/PDSD	52467001		100	99.7	99.9	75	125	0.2	20

Potassium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	108.0		85	115		
MB		<1							
SPK/SPKD	51856004		100	101.0	102.0	75	125	1.4	20
SPK/SPKD	52104004		500	100.0	99.8	75	125	0.4	20
SPK/SPKD	52104004		100	101.0	101.0	75	125	0.8	20
SPK/SPKD	52279001		100	102.0	101.0	75	125	0.9	20
SPK/SPKD	52281002		100	102.0	101.0	75	125	0.4	20

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Potassium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52281002		500	101.0	102.0	75	125	1.1	20
SPK/SPKD	52964008		100	102.0	102.0	75	125	0.1	20

Sodium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	109.0		85	115		
MB		<1							
DUP	51856003							0.4	20
PDS/PDSD	51856004		100	101.0	94.1	75	125	2.5	20
PDS/PDSD	52101002		100	117.0	117.0	75	125	0.5	20
PDS/PDSD	52101008		100	117.0	117.0	75	125	0.1	20
PDS/PDSD	52104004		100	74.5	80.1	75	125	1.2	20
PDS/PDSD	52104011		100	85.2	84.0	75	125	0.3	20
PDS/PDSD	52281002		500	88.8	89.0	75	125	0.1	20
PDS/PDSD	52429003		100	92.0	90.6	75	125	0.6	20
PDS/PDSD	52429006		100	75.4	74.4	75	125	0.2	20
PDS/PDSD	52461002		100	101.0	103.0	75	125	1.9	20
PDS/PDSD	52467001		100	94.4	92.4	75	125	1.1	20

Sodium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	109.0		85	115		
MB		<1							
SPK/SPKD	51856004		100	87.2	89.9	75	125	1.0	20
SPK/SPKD	52104004		100	63.8	53.8	75	125	0.1	20
SPK/SPKD	52104004		500	97.4	96.9	75	125	0.3	20
SPK/SPKD	52279001		100	80.9	76.6	75	125	1.3	20
SPK/SPKD	52281002		500	94.4	96.0	75	125	0.8	20
SPK/SPKD	52281002		100	34.0	26.3	75	125	1.3	20
SPK/SPKD	52964008		100	103.0	104.0	75	125	1.0	20

Antimony				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.6		80	120		

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Antimony — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.001							
MS/MSD	51856004		0.4	99.2	103.0	75	125	3.2	20

Antimony, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.6		80	120		
MB		<0.001							
MS/MSD	51856004		0.4	99.2	103.0	75	125	3.2	20
SPK/SPKD	51858002		0.1	106.0	106.0	75	125	0.6	20
SPK/SPKD	52104004		0.1	104.0	103.0	75	125	1.1	20
SPK/SPKD	52279002		0.1	104.0	103.0	75	125	1.1	20
SPK/SPKD	52281006		0.1	105.0	105.0	75	125	0.0	20

Arsenic — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.2		80	120		
MB		<0.002							
MS/MSD	51856004		0.4	98.4	102.0	75	125	3.7	20

Arsenic, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.2		80	120		
MB		<0.002							
MS/MSD	51856004		0.4	98.4	102.0	75	125	3.7	20
SPK/SPKD	51858002		0.1	105.0	106.0	75	125	1.3	20
SPK/SPKD	52104004		0.1	103.0	102.0	75	125	0.5	20
SPK/SPKD	52279002		0.1	104.0	104.0	75	125	0.2	20
SPK/SPKD	52281006		0.1	113.0	114.0	75	125	0.4	20

Barium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	89.8		80	120		
MB		<0.002							
MS/MSD	51856004		0.4	90.6	96.9	75	125	6.2	20

Barium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	89.8		80	120		

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Barium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.002							
MS/MSD	51856004		0.4	90.6	96.9	75	125	6.2	20
SPK/SPKD	51858002		0.1	93.9	95.1	75	125	0.9	20
SPK/SPKD	52104004		0.1	92.2	91.5	75	125	0.6	20
SPK/SPKD	52279002		0.1	92.1	92.9	75	125	0.4	20
SPK/SPKD	52281006		0.1	167.0	166.0	75	125	0.7	20

Beryllium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
MB		<0.0005							
MS/MSD	51856004		0.4	110.0	116.0	75	125	5.1	20

Beryllium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
MB		<0.0005							
MS/MSD	51856004		0.4	110.0	116.0	75	125	5.1	20
SPK/SPKD	51858002		0.1	115.0	116.0	75	125	0.6	20
SPK/SPKD	52104004		0.1	114.0	112.0	75	125	1.0	20
SPK/SPKD	52279002		0.1	113.0	110.0	75	125	2.6	20
SPK/SPKD	52281006		0.1	112.0	112.0	75	125	0.3	20

Cadmium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.6		80	120		
MB		<0.0005							
MS/MSD	51856004		0.4	95.0	98.6	75	125	3.6	20

Cadmium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.6		80	120		
MB		<0.0005							
MS/MSD	51856004		0.4	95.0	98.6	75	125	3.6	20
SPK/SPKD	51858002		0.1	97.0	98.7	75	125	1.7	20
SPK/SPKD	52104004		0.1	95.1	93.6	75	125	1.6	20

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Cadmium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52279002		0.1	96.0	95.7	75	125	0.3	20
SPK/SPKD	52281006		0.1	94.2	95.1	75	125	1.0	20

Chromium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.7		80	120		
MB		<0.002							
MS/MSD	51856004		0.4	92.0	95.9	75	125	4.3	20

Chromium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.7		80	120		
MB		<0.002							
MS/MSD	51856004		0.4	92.0	95.9	75	125	4.3	20
SPK/SPKD	51858002		0.1	99.8	99.5	75	125	0.3	20
SPK/SPKD	52104004		0.1	98.6	97.9	75	125	0.7	20
SPK/SPKD	52279002		0.1	100.0	100.0	75	125	0.2	20
SPK/SPKD	52281006		0.1	102.0	102.0	75	125	0.2	20

Cobalt — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	94.5		80	120		
MB		<0.002							
MS/MSD	51856004		0.4	91.0	94.7	75	125	4.0	20

Cobalt, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	94.5		80	120		
MB		<0.002							
MS/MSD	51856004		0.4	91.0	94.7	75	125	4.0	20
SPK/SPKD	51858002		0.1	97.8	97.9	75	125	0.1	20
SPK/SPKD	52104004		0.1	96.4	96.2	75	125	0.2	20
SPK/SPKD	52279002		0.1	98.9	98.9	75	125	0.0	20
SPK/SPKD	52281006		0.1	101.0	100.0	75	125	0.6	20

Lead — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	94.9		80	120		

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Account #: 5109 **Client:** Great River Energy

Lead				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.0005							
MS/MSD	51856004		0.4	93.5	98.4	75	125	5.0	20

Lead, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	94.9		80	120		
MB		<0.0005							
MS/MSD	51856004		0.4	93.5	98.4	75	125	5.0	20
SPK/SPKD	51858002		0.1	97.2	96.9	75	125	0.3	20
SPK/SPKD	52104004		0.1	94.7	94.8	75	125	0.1	20
SPK/SPKD	52279002		0.1	94.9	94.4	75	125	0.5	20
SPK/SPKD	52281006		0.1	94.4	93.8	75	125	0.6	20

Molybdenum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.7		80	120		
MB		<0.002							
MS/MSD	51856004		0.4	92.7	96.1	75	125	3.4	20

Molybdenum, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.7		80	120		
MB		<0.002							
MS/MSD	51856004		0.4	92.7	96.1	75	125	3.4	20
SPK/SPKD	51858002		0.1	97.8	97.8	75	125	0.1	20
SPK/SPKD	52104004		0.1	97.8	97.8	75	125	0.0	20
SPK/SPKD	52279002		0.1	99.2	98.9	75	125	0.2	20
SPK/SPKD	52281006		0.1	107.0	106.0	75	125	0.4	20

Selenium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.5		80	120		
MB		<0.005							
MS/MSD	51856004		0.4	100.0	104.0	75	125	3.7	20

Selenium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.5		80	120		

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Account #: 5109 **Client:** Great River Energy

Selenium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.005							
MS/MSD	51856004		0.4	100.0	104.0	75	125	3.7	20
SPK/SPKD	51858002		0.1	106.0	106.0	75	125	0.4	20
SPK/SPKD	52104004		0.1	104.0	102.0	75	125	1.7	20
SPK/SPKD	52279002		0.1	106.0	104.0	75	125	1.6	20
SPK/SPKD	52281006		0.1	111.0	115.0	75	125	3.7	20

Thallium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.7		80	120		
MB		<0.0005							
MS/MSD	51856004		0.4	92.7	97.9	75	125	5.5	20

Thallium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.7		80	120		
MB		<0.0005							
MS/MSD	51856004		0.4	92.7	97.9	75	125	5.5	20
SPK/SPKD	51858002		0.1	95.0	94.2	75	125	0.8	20
SPK/SPKD	52104004		0.1	91.6	91.7	75	125	0.1	20
SPK/SPKD	52279002		0.1	92.3	92.3	75	125	0.0	20
SPK/SPKD	52281006		0.1	92.1	91.4	75	125	0.8	20

Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	94.8		85	115		
LFB			0.002	91.4		85	115		
LFB			0.002	98.8		85	115		
LRB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MS/MSD	51498002		0.002	96.3	97.7	70	130	5.1	20
MS/MSD	51498012		0.002	87.6	90.8	70	130	0.0	20
MS/MSD	51498022		0.002	96.8	100.0	70	130	5.1	20

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Account #: 5109 **Client:** Great River Energy

Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	51753001		0.002	93.2	98.8	70	130	5.1	20
MS/MSD	51856007		0.002	91.4	92.8	70	130	0.0	20

Mercury, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	98.8		85	115		
LRB		<0.0002							

Alkalinity, Total				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			501	91.8		80	120		
LFB			410	90.8		90	110		
LFB			410	90.9		90	110		
LFB			410	91.0		90	110		
LFB			410	91.3		90	110		
MB		<20.5							
MB		<20.5							
MB		<20.5							
MB		<20.5							
MS/MSD	51838002		410	85.9	87.3	80	120	1.0	20
MS/MSD	51856006		410	97.5	97.6	80	120	0.0	20
MS/MSD	51886002		410	90.6	90.8	80	120	0.0	20

pH				Units: units					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	100.5		98.33	101.67		
CRM-PH			6	100.5		98.33	101.67		
CRM-PH			6	100.3		98.33	101.67		
CRM-PH			6	100.3		98.33	101.67		
DUP	51790001							0.7	20
DUP	51856001							0.6	20
DUP	51886004							0.3	20

Fluoride				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			3.06	106.0		83.99	111.11		

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Account #: 5109 **Client:** Great River Energy

Fluoride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-F			0.5	102.0		90	110		
LFB-F			0.5	102.0		90	110		
LFB-F			0.5	104.0		90	110		
LFB-F			0.5	102.0		90	110		
LFB-F			0.5	100.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MS/MSD-F	51753001		0.5	94.0	94.0	80	120	0.0	20
MS/MSD-F	51770005		0.5	102.0	102.0	80	120	0.0	20
MS/MSD-F	51856005		0.5	100.0	100.0	80	120	0.0	20
MS/MSD-F	51856007		0.5	102.0	106.0	80	120	3.9	20

Total Dissolved Solids Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	101.0		90.35	110.33		
CRM			736	100.0		90.35	110.33		
MB		<10							
MB		<10							
DUP	51856005							1.5	20
DUP	52102002							0.7	20
DUP	52104004							0.0	20
DUP	52104013							0.0	20

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Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 51856

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS UP
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: June 2024
Address:		Lakewood, CO 80228	Sampled By: Jeremy Meyer
Phone:			
Email:	CJohnston@GREnergy.com		

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric					Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-6B	17 Jun 24	1317	GW	X	X	X							11.33	1575	7.95	1.59	App III, AppIV, Additional List (total and dissolved for all metals) (See Attachments)
002	MW-7A	17 Jun 24	0935	GW	X	X	X							8.96	16,614	7.39	33.68	
003	MW-7B	17 Jun 24	0838	GW	X	X	X							8.67	1568	7.81	0.00	
004	MW-8B	17 Jun 24	1221	GW	X	X	X							11.47	1432	7.53	12.72	
005	MW-105	17 Jun 24	1052	GW	X	X	X							8.95	2000	7.85	2.23	
006	DUP-UP	17 Jun 24	1052	GW	X	X	X							NA	NA	NA	NA	
007	FB-UP	17 Jun 24	1300	GW	X	X	X							NA	NA	NA	NA	

Comments: Upgradient/Side-gradient Wells

	Relinquished By		Sample Condition		Received By	
	Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1		17 Jun 24 1713	Log In Walk In #2	9.0 °C/TM 805 ROI Y/N		18 Jun 24 0800
2						

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Account #: 5109 **Client:** Great River Energy

Field Datasheet

Groundwater Assessment

2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	6R
Sampling Personal:	

Weather Conditions: Temp: 60 °F Wind: E @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	18.04 ft	
Depth to Top of Pump:	— ft	
Water Level After Sample:	20.58 ft	
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge:	3 Sec.
Recover:	57 Sec.
PSI:	—

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
17Jun24	1252	Start of Well Purge									
	1257	11.94	1505	8.05	5.73	162.2	1.18	19.50	100.0	0.5	Clear
	1302	11.31	1566	8.03	5.44	163.2	0.00	19.90	100.0	0.5	Clear
	1307	11.38	1575	8.00	5.16	161.9	0.00	20.06	100.0	0.5	Clear
	1312	11.22	1573	7.97	4.89	163.3	0.07	20.32	100.0	0.5	Clear
	1317	11.33	1575	7.95	4.52	154.8	1.59	20.42	100.0	0.5	Clear

Well Stabilized? YES NO Total Volume Purged: 2.5 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
17Jun24	1317	11.33	1575	7.95			1.59				Clear

Comments: Collected FB-Up @ 1300

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	7A
Sampling Personal:	JM

Weather Conditions: Temp: 55 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	10.19	ft
Depth to Top of Pump:	~~11.71~~	ft
Water Level After Sample:	11.71	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge:	Sec.
Recover:	Sec.
PSI:	—

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
17Jun24	0910	Start of Well Purge									
	0915	8.74	16,768	7.36	3.68	140.1	35.54	11.01	100.0	0.5	Clear
	0920	8.90	16,871	7.35	3.64	146.5	6.59	11.22	100.0	0.5	Clear
	0925	8.95	16,860	7.35	4.29	153.5	5.44	11.34	100.0	0.5	Clear
	0930	8.88	16,747	7.37	4.54	155.8	22.17	11.45	100.0	0.5	Clear
	0935	8.96	16,614	7.39	5.33	166.0	33.68	11.55	100.0	0.5	Clear

Well Stabilized? (YES) NO Total Volume Purged: 2.5 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
17Jun24	0935	8.96	16,614	7.39			33.68				Clear

Comments:

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	FB
Sampling Personal:	

Weather Conditions: Temp: 55 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	11.42	ft
	—	
Depth to Top of Pump:	—	ft
Water Level After Sample:	11.62	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	3 4	Sec.
Recover:	27 56	Sec.
PSI:	—	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
17 Jun 24	0813	Start of Well Purge									clear, slightly turbid, turbid
	0818	8.59	1607	7.86	0.09	-58.0	0.0	11.52	200.0	1.0	Clear
	0823	8.45	1582	7.84	0.08	-71.9	0.0	11.58	200.0	1.0	Clear
	0828	8.56	1577	7.83	0.04	-78.7	0.0	11.60	200.0	1.0	Clear
	0833	8.59	1574	7.81	0.03	-89.3	0.04	11.61	200.0	1.0	Clear
	0838	8.67	1568	7.81	0.00	-95.9	0.00	11.62	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
17 Jun 24	0838	8.67	1568	7.81			0.00				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet
Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	BB
Sampling Personal:	

Weather Conditions: Temp: 60 °F Wind: E @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	46.41	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	46.48	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 5	Sec.
Recover: 5	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
17 June 24	1156	Start of Well Purge									
	1201	11.67	1564	7.59	0.11	16.3	124.62	46.48	200.0	1.0	Clear
	1206	11.47	1505	7.57	0.03	9.0	24.93	46.48	200.0	1.0	Clear
	1211	11.53	1462	7.54	0.06	12.6	31.09	46.48	200.0	1.0	Clear
	1216	11.38	1434	7.54	0.15	31.3	36.84	46.48	200.0	1.0	Clear
	1221	11.47	1432	7.53	0.15	36.3	12.72	46.48	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
17 June 24	1221	11.47	1432	7.53			12.72				Clear

Comments:	

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet
Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	105
Sampling Personal:	JM

Weather Conditions: Temp: 55 °F Wind: N@5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	15.14	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	15.27	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 3	Sec.
Recover: 57	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
(YES) / NO
Duplicate Sample ID:
Dup-Up

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
17 June 24	1027	Start of Well Purge									
	1032	8.92	2043	7.94	1.09	121.2	0.26	15.29	200.0	1.0	Clear
	1037	8.91	2014	7.89	0.82	110.8	0.20	15.33	200.0	1.0	Clear
	1042	8.90	2002	7.87	0.82	116.6	158	15.30	200.0	1.0	Clear
	1047	8.94	2000	7.85	0.75	117.6	2.63	15.28	200.0	1.0	Clear
	1052	8.95	2000	7.85	0.74	118.6	2.23	15.25	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
17 June 24	1052	8.95	2000	7.85			2.23				Clear

Comments:	

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Account #: 5109 **Client:** Great River Energy

Table 2. Parameter and Analysis Summary - Appendix III Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/11	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	SM 4500 F E/11	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	ASTM D516-16	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	USGS I-1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total and dissolved)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:
1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent methods.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

wsp

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Account #: 5109 **Client:** Great River Energy

February 2024 GL21509219.000

Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

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Account #: 5109 **Client:** Great River Energy

Table 4: Additional List Parameter and Analysis Summary

Parameter [1]	Method Reference [2]	Reporting Limit	Preparation Method Reference [2]	Sample Container [3]	Required Preservation [4]	Maximum Holding Time from Sampling [5]
General Chemistry						
Total Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Bicarbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Carbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Metals (Total and Dissolved)						
Iron	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Magnesium	EPA 6010D	0.2 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Potassium	EPA 6010D	3.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Sodium	EPA 6010D	1.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Aluminum	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Manganese	EPA 6010D	0.05 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months

Notes:

1. All listed parameters are tested in the laboratory. Listed parameters are to be collected in conjunction with other CCR parameter lists (Table 2 and Table 3).

2. Or equivalent method.
3. Containers and volumes will be specified by the analytical laboratory.
4. In addition to the required preservation for each sample container, sufficient ice should be placed with the sample containers in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when samples arrive, measurement of the temperature of samples immediately upon receipt is necessary to confirm that the 4° C temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible following collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid, without the use of qualifiers.

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS UP (51857) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51857001 **Date Collected:** 06/17/2024 13:17 **Matrix:** Groundwater
Sample ID: MW-6B **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 20.6

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/24/2024 16:21	
Radium 228	See Attached			1		07/24/2024 16:21	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51857002 **Date Collected:** 06/17/2024 09:35 **Matrix:** Groundwater
Sample ID: MW-7A **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 20.6

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/24/2024 16:21	
Radium 228	See Attached			1		07/24/2024 16:21	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51857003 **Date Collected:** 06/17/2024 08:38 **Matrix:** Groundwater
Sample ID: MW-7B **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 20.6

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/24/2024 16:21	
Radium 228	See Attached			1		07/24/2024 16:21	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51857004 **Date Collected:** 06/17/2024 12:21 **Matrix:** Groundwater
Sample ID: MW-8B **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 20.6

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/24/2024 16:21	
Radium 228	See Attached			1		07/24/2024 16:21	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51857005 **Date Collected:** 06/17/2024 10:52 **Matrix:** Groundwater
Sample ID: MW-105 **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 20.6

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/24/2024 16:21	
Radium 228	See Attached			1		07/24/2024 16:21	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51857006 **Date Collected:** 06/17/2024 10:52 **Matrix:** Groundwater
Sample ID: DUP-UP **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 20.6

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/24/2024 16:21	
Radium 228	See Attached			1		07/24/2024 16:21	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51857007 **Date Collected:** 06/17/2024 13:00 **Matrix:** Groundwater
Sample ID: FB-UP **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 20.6

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/24/2024 16:21	
Radium 228	See Attached			1		07/24/2024 16:21	

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ANALYTICAL SUMMARY REPORT

July 23, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24060770 Quote ID: C15480
Project Name: 51857

Energy Laboratories, Inc. Casper WY received the following 7 samples for Minnesota Valley Testing Laboratories on 6/20/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24060770-001	51857001, MW-6B	06/17/24 13:17	06/20/24	Groundwater	Radium 226, Total Radium 228, Total
C24060770-002	51857002, MW-7A	06/17/24 9:35	06/20/24	Groundwater	Same As Above
C24060770-003	51857003, MW-7B	06/17/24 8:38	06/20/24	Groundwater	Same As Above
C24060770-004	51857004, MW-8B	06/17/24 12:21	06/20/24	Groundwater	Same As Above
C24060770-005	51857005, MW-105	06/17/24 10:52	06/20/24	Groundwater	Same As Above
C24060770-006	51857006, DUP-UP	06/17/24 10:52	06/20/24	Groundwater	Same As Above
C24060770-007	51857007, FB-UP	06/17/24 13:00	06/20/24	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy, Casper, WY 82601-9601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

Energy Laboratories, Inc. verifies the reported results for the analysis has been technically reviewed and approved for release.

If you have any questions regarding these test results, please contact your Project Manager.

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CLIENT: Minnesota Valley Testing Laboratories
Project: 51857
Work Order: C24060770

Report Date: 07/23/24

CASE NARRATIVE

On 7/1/2024 Tera Olson requested, via phone call, that 226+228 not be reported.

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 51857
Lab ID: C24060770-001
Client Sample ID: 51857001, MW-6B

Report Date: 07/23/24
Collection Date: 06/17/24 13:17
DateReceived: 06/20/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 228	0.5	pCi/L	U			RA-05	06/27/24 13:47 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	06/27/24 13:47 / trs
Radium 228 MDC	1.1	pCi/L				RA-05	06/27/24 13:47 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 3 of 13

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 51857
Lab ID: C24060770-002
Client Sample ID: 51857002, MW-7A

Report Date: 07/23/24
Collection Date: 06/17/24 09:35
DateReceived: 06/20/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.2	pCi/L	U			E903.0	07/02/24 15:33 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 228	0.5	pCi/L	U			RA-05	06/27/24 13:47 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	06/27/24 13:47 / trs
Radium 228 MDC	0.9	pCi/L				RA-05	06/27/24 13:47 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
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MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 51857
Lab ID: C24060770-003
Client Sample ID: 51857003, MW-7B

Report Date: 07/23/24
Collection Date: 06/17/24 08:38
DateReceived: 06/20/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.2	pCi/L	U			E903.0	07/02/24 15:33 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 226 MDC	0.3	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 228	0.8	pCi/L	U			RA-05	06/27/24 13:47 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	06/27/24 13:47 / trs
Radium 228 MDC	1.1	pCi/L				RA-05	06/27/24 13:47 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
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MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 51857
Lab ID: C24060770-004
Client Sample ID: 51857004, MW-8B

Report Date: 07/23/24
Collection Date: 06/17/24 12:21
DateReceived: 06/20/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 226 MDC	0.3	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 228	0.9	pCi/L	U			RA-05	06/27/24 13:47 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	06/27/24 13:47 / trs
Radium 228 MDC	1.2	pCi/L				RA-05	06/27/24 13:47 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
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MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 51857
Lab ID: C24060770-005
Client Sample ID: 51857005, MW-105

Report Date: 07/23/24
Collection Date: 06/17/24 10:52
DateReceived: 06/20/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	07/02/24 15:33 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 228	-0.04	pCi/L	U			RA-05	06/27/24 13:47 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	06/27/24 13:47 / trs
Radium 228 MDC	1	pCi/L				RA-05	06/27/24 13:47 / trs

Report Definitions:
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QCL - Quality Control Limit
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MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 51857
Lab ID: C24060770-006
Client Sample ID: 51857006, DUP-UP

Report Date: 07/23/24
Collection Date: 06/17/24 10:52
DateReceived: 06/20/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.2	pCi/L	U			E903.0	07/02/24 15:33 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 228	0.7	pCi/L	U			RA-05	06/27/24 13:47 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	06/27/24 13:47 / trs
Radium 228 MDC	1.0	pCi/L				RA-05	06/27/24 13:47 / trs

Report Definitions:
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QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 51857
Lab ID: C24060770-007
Client Sample ID: 51857007, FB-UP

Report Date: 07/23/24
Collection Date: 06/17/24 13:00
DateReceived: 06/20/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.004	pCi/L	U			E903.0	07/02/24 15:33 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 226 MDC	0.3	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 228	-0.2	pCi/L	U			RA-05	06/27/24 13:47 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	06/27/24 13:47 / trs
Radium 228 MDC	1.2	pCi/L				RA-05	06/27/24 13:47 / trs

Report Definitions:
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QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 9 of 13

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24060770 **Report Date:** 07/03/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11355
Lab ID: LCS-RA226-11355	3	Laboratory Control Sample				Run: TENNELEC-3_240621B			07/02/24 13:28	
Radium 226		9.9	pCi/L		99	70	130			
Radium 226 precision (±)		1.9	pCi/L							
Radium 226 MDC		0.23	pCi/L							
Lab ID: MB-RA226-11355	3	Method Blank				Run: TENNELEC-3_240621B			07/02/24 13:28	
Radium 226		0.06	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C24060770-007ADUP	3	Sample Duplicate				Run: TENNELEC-3_240621B			07/02/24 15:33	
Radium 226		0.074	pCi/L					180	30	UR
Radium 226 precision (±)		0.15	pCi/L							
Radium 226 MDC		0.24	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than or equal to the limit of 3, the RER result is 0.33.

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24060770 **Report Date:** 07/03/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7423
Lab ID: LCS-228-RA226-11355	3	Laboratory Control Sample				Run: TENNELEC-4_240621B				06/27/24 13:47
Radium 228		9.8	pCi/L		94	70	130			
Radium 228 precision (±)		2.0	pCi/L							
Radium 228 MDC		1.1	pCi/L							
Lab ID: MB-RA226-11355	3	Method Blank				Run: TENNELEC-4_240621B				06/27/24 13:47
Radium 228		-0.3	pCi/L							U
Radium 228 precision (±)		0.6	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C24060770-007ADUP	3	Sample Duplicate				Run: TENNELEC-4_240621B				06/27/24 13:47
Radium 228		-0.042	pCi/L					130	30	UR
Radium 228 precision (±)		0.62	pCi/L							
Radium 228 MDC		1.0	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than or equal to the limit of 3, the RER result is 0.17.

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

Page 11 of 13

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Account #: 5109 **Client:** Great River Energy

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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24060770

Login completed by: Aaron J. Smith
Reviewed by: lcadreau
Reviewed Date: 6/27/2024
Date Received: 6/20/2024
Received by: CCS
Carrier name: UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	16.1°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Trip Blanks and/or Blind Duplicate samples are assigned the earliest collection time for the associated requested analysis in order to evaluate the holding time unless specifically indicated.

Contact and Corrective Action Comments:

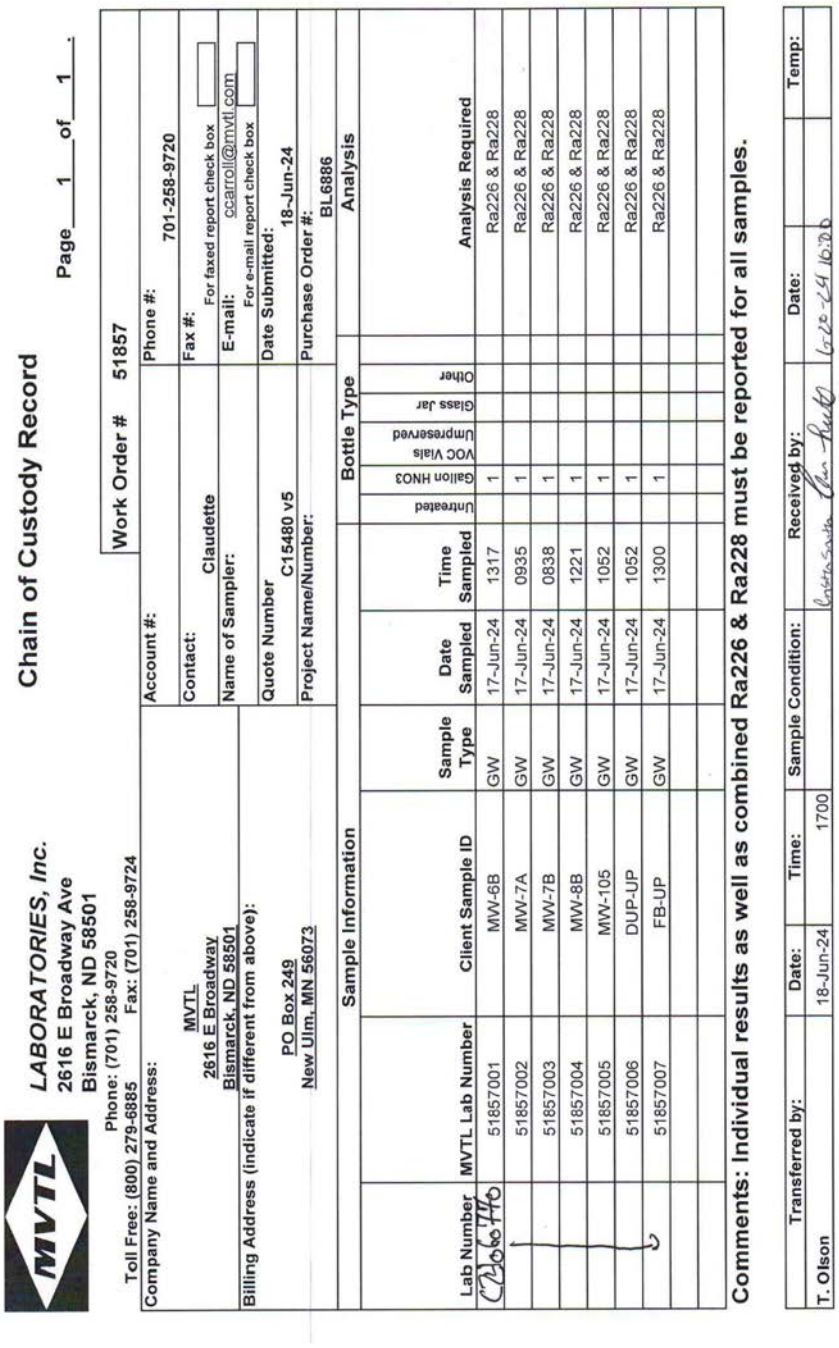
The temperature blank temperature in shipping container 1 was 16.0°C and shipping container 2 was 16.1°C. AS 06/20/24

Page 12 of 13

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Account #: 5109 **Client:** Great River Energy



MVTL LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
Phone: (701) 258-9720 Fax: (701) 258-9724
Toll Free: (800) 279-6885

Chain of Custody Record

Page 1 of 1

Work Order # 51857

Company Name and Address: MVTL, 2616 E Broadway, Bismarck, ND 58501
Account #:
Contact: Claudette
Name of Sampler:
Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box

Billing Address (indicate if different from above): PO Box 249, New Ulm, MN 56073
Quote Number C15480 v5
Project Name/Number:
Date Submitted: 18-Jun-24
Purchase Order #: BL6886

Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Unpreserved	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis Required
2060 Ho	51857001	MW-6B	GW	17-Jun-24	1317	1					Ra226 & Ra228
	51857002	MW-7A	GW	17-Jun-24	0935	1					Ra226 & Ra228
	51857003	MW-7B	GW	17-Jun-24	0838	1					Ra226 & Ra228
	51857004	MW-8B	GW	17-Jun-24	1221	1					Ra226 & Ra228
	51857005	MW-10S	GW	17-Jun-24	1052	1					Ra226 & Ra228
	51857006	DUP-UP	GW	17-Jun-24	1052	1					Ra226 & Ra228
	51857007	FB-UP	GW	17-Jun-24	1300	1					Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
T. Olson	18-Jun-24	1700			6/20-24 10:20	

Page 13 of 13

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Member ACIL

Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 51857

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS UP
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: June 2024
Address:		Lakewood, CO 80228	Sampled By: Jeremy Meyer
Phone:			
Email:	CJohnston@GREnergy.com		

Sample Information					Sample Containers									Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Gal Nitric									Analysis Required
001	MW-6B	17 June 24	1317	GW					X									Radium 226 and 228 Combined
002	MW-7A	17 June 24	0935	GW					X									
003	MW-7B	17 June 24	0838	GW					X									
004	MW-8B	17 June 24	1221	GW					X									
005	MW-105	17 June 24	1052	GW					X									
006	DUP-UP	17 June 24	1052	GW					X									
007	FB-UP	17 June 24	1300	GW					X									

Comments: Upgradient/Side-gradient Wells

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1	17 June 24 1713	Log In Walk-In #2	20.6 °C/TM 805 ROI Y/N	H Horst	18 Jun 24 0800
2					

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Account #: 5109 **Client:** Great River Energy

Field Datasheet

Groundwater Assessment

2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	6B
Sampling Personal:	

Weather Conditions: Temp: 60°F Wind: E @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	18.04	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	20.58	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge:	3 Sec.
Recover:	57 Sec.
PSI:	—

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
17Jun24	1252	Start of Well Purge									clear, slightly turbid, turbid
	1257	11.94	1505	8.05	5.73	162.2	1.18	19.50	100.0	0.5	Clear
	1302	11.31	1566	8.03	5.44	163.2	0.00	19.90	100.0	0.5	Clear
	1307	11.38	1575	8.00	5.16	161.9	0.00	20.06	100.0	0.5	Clear
	1312	11.22	1573	7.97	4.89	163.3	0.07	20.32	100.0	0.5	Clear
	1317	11.33	1575	7.95	4.52	154.8	1.59	20.42	100.0	0.5	Clear

Well Stabilized? YES NO Total Volume Purged: 2.5 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
17Jun24	1317	11.33	1575	7.95			1.59				Clear

Comments: Collected FB-Up @ 1300

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: June 2024
Sample ID: 7A
Sampling Personal:

Weather Conditions: Temp: 55 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	10.19	ft
Depth to Top of Pump:	~~11.71~~	ft
Water Level After Sample:	11.71	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge:	Sec.
Recover:	Sec.
PSI:	—

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
17June24	0910	Start of Well Purge									
	0915	8.74	16,768	7.36	3.68	140.1	35.54	11.01	100.0	0.5	Clear
	0920	8.90	16,871	7.35	3.64	146.5	6.59	11.22	100.0	0.5	Clear
	0925	8.95	16,860	7.35	4.29	153.5	5.44	11.34	100.0	0.5	Clear
	0930	8.88	16,747	7.37	4.54	155.8	22.17	11.45	100.0	0.5	Clear
	0935	8.96	16,614	7.39	5.33	166.0	33.68	11.55	100.0	0.5	clear

Well Stabilized? (YES) NO Total Volume Purged: 2.5 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
17June24	0935	8.96	16,614	7.39			33.68				Clear

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	7B
Sampling Personal:	

Weather Conditions: Temp: 55 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	11.42	ft
	—	
Depth to Top of Pump:	—	ft
Water Level After Sample:	11.62	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	3 4	Sec.
Recover:	~~27~~ 56	Sec.
PSI:	—	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
											clear, slightly turbid, turbid
17 June 24	0813	Start of Well Purge									
	0818	8.59	1607	7.86	0.09	-58.0	0.0	11.52	200.0	1.0	Clear
	0823	8.45	1582	7.84	0.08	-71.9	0.0	11.58	200.0	1.0	Clear
	0828	8.56	1577	7.83	0.04	-78.7	0.0	11.60	200.0	1.0	Clear
	0833	8.59	1574	7.81	0.03	-89.3	0.04	11.61	200.0	1.0	Clear
	0838	8.67	1568	7.81	0.00	-95.9	0.00	11.62	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
17 June 24	0838	8.67	1568	7.81			0.00				Clear

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	BB
Sampling Personal:	

Weather Conditions: Temp: 60 °F Wind: E @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	46.41	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	46.48	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 5	Sec.
Recover: 5	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
17 June 24	1156	Start of Well Purge									
	1201	11.67	1564	7.59	0.11	16.3	124.62	46.48	200.0	1.0	Clear
	1206	11.47	1505	7.57	0.03	9.0	24.93	46.48	200.0	1.0	Clear
	1211	11.53	1462	7.54	0.06	12.6	31.09	46.48	200.0	1.0	Clear
	1216	11.38	1434	7.54	0.15	31.3	36.84	46.48	200.0	1.0	Clear
	1221	11.47	1432	7.53	0.15	36.3	12.72	46.48	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
17 June 24	1221	11.47	1432	7.53			12.72				Clear

Comments:	

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	105
Sampling Personal:	JM

Weather Conditions: Temp: 55 °F Wind: NW@5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	15.14	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	15.27	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 3	Sec.
Recover: 57	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
(YES) / NO
Duplicate Sample ID:
Dup-Up

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
17 Jun 24	1027	Start of Well Purge									
	1032	8.92	2043	7.94	1.09	121.2	0.26	15.29	200.0	1.0	Clear
	1037	8.91	2014	7.89	0.82	110.8	0.20	15.33	200.0	1.0	Clear
	1042	8.90	2002	7.87	0.82	116.6	1.58	15.30	200.0	1.0	Clear
	1047	8.94	2000	7.85	0.75	117.6	2.63	15.26	200.0	1.0	Clear
	1052	8.95	2000	7.85	0.74	118.6	2.23	15.25	200.0	1.0	clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
17 Jun 24	1052	8.95	2000	7.85			2.23				Clear

Comments:	

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS BAL June 2024 (52102) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52102001 **Date Collected:** 06/18/2024 09:28 **Matrix:** Groundwater
Sample ID: MW-9N **Date Received:** 06/18/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**3836**	umhos/cm	1	1		06/18/2024 09:28	
Method: 150.2							
pH - Field	**7.18**	units	0.01	1		06/18/2024 09:28	
Method: 170.1							
Temperature - Field C	**8.49**	degrees C		1		06/18/2024 09:28	
Method: ASTM D516-16							
Sulfate	**1100**	mg/L	50	10		06/26/2024 09:44	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**2.39**	mg/L	0.1	1	06/19/2024 16:24	07/02/2024 10:44	
Calcium	**73.6**	mg/L	1	1	06/19/2024 16:24	06/25/2024 10:03	
Lithium	**0.0442**	mg/L	0.02	1	06/19/2024 16:24	06/20/2024 14:31	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 16:24	07/09/2024 15:31	
Arsenic	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 15:31	
Barium	**0.0519**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 15:31	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 15:31	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 15:31	
Chromium	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 15:31	
Cobalt	**0.0041**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 15:31	
Lead	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 15:31	
Molybdenum	**0.0460**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 15:31	
Selenium	**0.0102**	mg/L	0.005	5	06/19/2024 16:24	07/09/2024 15:31	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 15:31	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52102001 **Date Collected:** 06/18/2024 09:28 **Matrix:** Groundwater
Sample ID: MW-9N **Date Received:** 06/18/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.6**	units	0.1	1		06/19/2024 13:36	*
Method: SM4500-Cl-E 2011							
Chloride	**25.3**	mg/L	2.0	1		06/19/2024 15:13	
Method: SM4500-F-C-2011							
Fluoride	**0.69**	mg/L	0.1	1		06/19/2024 13:36	
Method: USGS I-1750-85							
Total Dissolved Solids	**2840**	mg/L	10	1		06/19/2024 10:55	

Task Comments

2879446 - METb/2570

Manganese matrix spike duplicate recovery was low; the associated laboratory control sample recovery was acceptable.

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52102002 **Date Collected:** 06/18/2024 08:28 **Matrix:** Groundwater
Sample ID: MW-102 **Date Received:** 06/18/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2018**	umhos/cm	1	1		06/18/2024 08:28	
Method: 150.2							
pH - Field	**7.62**	units	0.01	1		06/18/2024 08:28	
Method: 170.1							
Temperature - Field C	**9.23**	degrees C		1		06/18/2024 08:28	
Method: ASTM D516-16							
Sulfate	**516**	mg/L	25	5		06/26/2024 09:46	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**0.43**	mg/L	0.1	1	06/19/2024 16:24	07/02/2024 10:47	
Calcium	**62.2**	mg/L	1	1	06/19/2024 16:24	06/25/2024 10:04	
Lithium	**0.0542**	mg/L	0.02	1	06/19/2024 16:24	06/20/2024 14:33	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 16:24	07/09/2024 15:52	
Arsenic	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 15:52	
Barium	**0.0240**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 15:52	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 15:52	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 15:52	
Chromium	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 15:52	
Cobalt	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 15:52	
Lead	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 15:52	
Molybdenum	**0.0188**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 15:52	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 16:24	07/09/2024 15:52	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 15:52	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52102002 **Date Collected:** 06/18/2024 08:28 **Matrix:** Groundwater
Sample ID: MW-102 **Date Received:** 06/18/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		06/19/2024 13:47	*
Method: SM4500-Cl-E 2011							
Chloride	**15.7**	mg/L	2.0	1		06/19/2024 15:14	
Method: SM4500-F-C-2011							
Fluoride	**0.48**	mg/L	0.1	1		06/19/2024 13:47	
Method: USGS I-1750-85							
Total Dissolved Solids	**1410**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52102003 **Date Collected:** 06/18/2024 10:22 **Matrix:** Groundwater
Sample ID: MW-103 **Date Received:** 06/18/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2959**	umhos/cm	1	1		06/18/2024 10:22	
Method: 150.2							
pH - Field	**8.87**	units	0.01	1		06/18/2024 10:22	
Method: 170.1							
Temperature - Field C	**9.02**	degrees C		1		06/18/2024 10:22	
Method: ASTM D516-16							
Sulfate	**763**	mg/L	50	10		06/26/2024 09:47	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**1.50**	mg/L	0.1	1	06/19/2024 16:24	07/02/2024 10:49	
Calcium	**32.0**	mg/L	1	1	06/19/2024 16:24	06/25/2024 10:07	
Lithium	**0.0201**	mg/L	0.02	1	06/19/2024 16:24	06/20/2024 14:34	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 16:24	07/09/2024 15:56	
Arsenic	**0.0184**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 15:56	
Barium	**0.0449**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 15:56	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 15:56	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 15:56	
Chromium	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 15:56	
Cobalt	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 15:56	
Lead	**0.0015**	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 15:56	
Molybdenum	**0.0587**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 15:56	
Selenium	**0.0125**	mg/L	0.005	5	06/19/2024 16:24	07/09/2024 15:56	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 15:56	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52102003 **Date Collected:** 06/18/2024 10:22 **Matrix:** Groundwater
Sample ID: MW-103 **Date Received:** 06/18/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**8.8**	units	0.1	1		06/19/2024 13:58	*
Method: SM4500-Cl-E 2011							
Chloride	**17.6**	mg/L	2.0	1		06/19/2024 15:15	
Method: SM4500-F-C-2011							
Fluoride	**0.56**	mg/L	0.1	1		06/19/2024 13:58	
Method: USGS I-1750-85							
Total Dissolved Solids	**2060**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52102004 **Date Collected:** 06/18/2024 09:10 **Matrix:** Groundwater
Sample ID: FB-BAL **Date Received:** 06/18/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: ASTM D516-16							
Sulfate	<5	mg/L	5	1		06/26/2024 09:48	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	<0.1	mg/L	0.1	1	06/19/2024 16:24	07/02/2024 10:50	
Calcium	<1	mg/L	1	1	06/19/2024 16:24	06/25/2024 10:08	
Lithium	<0.02	mg/L	0.02	1	06/19/2024 16:24	06/20/2024 14:34	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 16:24	07/09/2024 16:00	
Arsenic	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:00	
Barium	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:00	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 16:00	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 16:00	
Chromium	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:00	
Cobalt	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:00	
Lead	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 16:00	
Molybdenum	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:00	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 16:24	07/09/2024 16:00	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 16:00	
Method: SM4500 H+ B-2011							
pH	**6.2**	units	0.1	1		06/19/2024 14:12	*
Method: SM4500-Cl-E 2011							
Chloride	<2.0	mg/L	2.0	1		06/19/2024 15:17	
Method: SM4500-F-C-2011							
Fluoride	<0.1	mg/L	0.1	1		06/19/2024 14:12	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52102004 **Date Collected:** 06/18/2024 09:10 **Matrix:** Groundwater
Sample ID: FB-BAL **Date Received:** 06/18/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: USGS I-1750-85							
Total Dissolved Solids	<10	mg/L	10	1		07/24/2024 10:45	*

Analysis Results Comments

Total Dissolved Solids

Initial analysis within holding time. Reanalysis for confirmation was past holding time.

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 52102

Sulfate — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			100	96.0		85	115		
LFB			100	92.6		85	115		
LFB			100	92.5		85	115		
LFB			100	93.2		85	115		
LFB			100	89.1		85	115		
LFB			100	98.1		85	115		
LFB			100	92.7		85	115		
LFB			100	98.8		85	115		
LFB			100	94.4		85	115		
LFB			100	104.0		85	115		
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MS/MSD	52101007		500	82.2	80.1	85	115	2.2	20
MS/MSD	52104002		500	72.3	77.1	85	115	2.5	20
MS/MSD	52104004		1000	79.6	82.5	85	115	2.1	20
MS/MSD	52281002		1000	75.2	77.5	85	115	1.8	20
MS/MSD	52396002		1000	69.0	72.5	85	115	2.4	20
MS/MSD	52454005		100	97.1	96.0	85	115	1.1	20
MS/MSD	52461002		100	96.3	96.0	85	115	0.3	20
MS/MSD	52575002		500	70.7	73.4	85	115	1.8	20

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Account #: 5109 **Client:** Great River Energy

Sulfate — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	52649007		100	73.1	68.5	85	115	3.5	20

Chloride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	96.9		90	110		
LFB			30	97.0		90	110		
LFB			30	98.8		90	110		
LFB			30	95.1		90	110		
LFB			30	102.0		90	110		
LFB			30	103.0		90	110		
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MS/MSD	51925001		30	113.4	118.6	80	120	0.8	20
MS/MSD	52104001		30	106.8	102.8	80	120	2.3	20
MS/MSD	52104004		30	110.0	110.3	80	120	0.2	20

Aluminum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	104.0		85	115		
LFB-OE			0.4	105.0		85	115		
MB		<0.1							
MB		<0.1							
PDS/PDSD	52095001		2	94.4	97.0	75	125	1.5	20
PDS/PDSD	52102001		1	102.0	104.0	75	125	2.0	20
PDS/PDSD	52104004		0.4	100.0	99.5	75	125	0.6	20
PDS/PDSD	52107001		5	99.5	95.7	75	125	1.7	20
PDS/PDSD	52425001		4	120.0	116.0	75	125	3.6	20
PDS/PDSD	52425001		20	99.0	101.0	75	125	1.7	20
PDS/PDSD	52467001		0.4	100.0	100.0	75	125	0.1	20

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Account #: 5109 **Client:** Great River Energy

Aluminum, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	105.0		85	115		
LFB-OE			0.4	104.0		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	51175005		0.4	106.0	106.0	75	125	0.3	20
SPK/SPKD	51714006		0.4	113.0	110.0	75	125	2.1	20
SPK/SPKD	51858001		0.4	110.0	110.0	75	125	0.3	20
SPK/SPKD	52104004		0.4	107.0	108.0	75	125	0.2	20
SPK/SPKD	52281002		0.4	106.0	107.0	75	125	0.9	20
SPK/SPKD	52429006		0.4	89.5	91.5	75	125	2.2	20
SPK/SPKD	52454002		0.4	95.9	93.8	75	125	2.2	20
SPK/SPKD	52467001		0.4	101.0	100.0	75	125	0.7	20

Boron				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	101.0		85	115		
LFB-OE			0.4	100.0		85	115		
MB		<0.1							
MB		<0.1							
MS/MSD	52102001		0.4	108.0	91.5	70	130	2.4	20
MS/MSD	52107001		0.4	98.3	110.0	70	130	2.7	20

Boron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	101.0		85	115		
LFB-OE			0.4	100.0		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	51856004		0.4	93.1	93.4	75	125	0.2	20
SPK/SPKD	52104004		0.4	86.8	85.8	75	125	0.4	20
SPK/SPKD	52279001		0.4	81.0	81.3	75	125	0.1	20
SPK/SPKD	52281002		0.4	76.5	78.8	75	125	0.5	20
SPK/SPKD	52454006		0.4	99.7	100.0	75	125	0.3	20

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Account #: 5109 **Client:** Great River Energy

Boron, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52467001		0.4	97.7	96.3	75	125	1.1	20
SPK/SPKD	52964008		0.4	97.2	97.4	75	125	0.2	20

Calcium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	112.0		85	115		
LFB-MI			100	111.0		85	115		
MB		<1							
MB		<1							
PDS/PDSD	51856004		100	108.0	107.0	75	125	0.8	20
PDS/PDSD	52101002		100	114.0	113.0	75	125	0.7	20
PDS/PDSD	52101008		100	111.0	113.0	75	125	1.8	20
DUP	52102002							1.1	20
PDS/PDSD	52104004		100	104.0	104.0	75	125	0.1	20
PDS/PDSD	52104011		100	75.1	76.2	75	125	0.8	20
DUP	52107001							1.0	20
PDS/PDSD	52281002		100	92.4	92.3	75	125	0.1	20
PDS/PDSD	52429003		100	92.7	92.2	75	125	0.2	20
PDS/PDSD	52429006		100	101.0	101.0	75	125	0.3	20
PDS/PDSD	52461002		100	99.3	99.3	75	125	0.1	20
PDS/PDSD	52467001		100	96.0	95.5	75	125	0.3	20

Calcium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	112.0		85	115		
LFB-MI			100	111.0		85	115		
MB		<1							
MB		<1							
SPK/SPKD	51856004		100	95.9	96.1	75	125	0.1	20
SPK/SPKD	52104004		500	101.0	99.9	75	125	1.1	20
SPK/SPKD	52104004		100	94.7	94.5	75	125	0.1	20
SPK/SPKD	52279001		100	96.8	96.7	75	125	0.1	20
SPK/SPKD	52281002		100	95.9	96.2	75	125	0.2	20

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Account #: 5109 **Client:** Great River Energy

Calcium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52281002		500	102.0	103.0	75	125	1.0	20
SPK/SPKD	52964008		100	104.0	103.0	75	125	0.8	20

Iron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
LFB-OE			0.4	110.0		85	115		
MB		<0.1							
MB		<0.1							
PDS/PDSD	52095001		2	91.8	90.6	75	125	0.5	20
MS/MSD	52102001		0.4	99.5	101.0	70	130	1.2	20
PDS/PDSD	52102001		1	87.6	86.8	75	125	0.9	20
PDS/PDSD	52107001		5	97.0	98.6	75	125	0.6	20
PDS/PDSD	52425001		20	88.6	87.6	75	125	1.1	20
PDS/PDSD	52425001		4	106.0	107.0	75	125	1.3	20
PDS/PDSD	52467001		0.4	97.7	97.0	75	125	0.4	20

Iron, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
LFB-OE			0.4	110.0		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	51175005		0.4	84.9	89.3	75	125	1.3	20
SPK/SPKD	51714006		0.4	90.7	90.5	75	125	0.1	20
SPK/SPKD	51858001		0.4	78.4	79.3	75	125	0.3	20
SPK/SPKD	52104004		0.4	75.5	79.4	75	125	1.0	20
SPK/SPKD	52281002		0.4	97.8	97.8	75	125	0.0	20
SPK/SPKD	52429006		0.4	85.5	86.3	75	125	0.7	20
SPK/SPKD	52454002		0.4	93.0	94.8	75	125	2.0	20
SPK/SPKD	52467001		0.4	91.3	90.2	75	125	1.2	20

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Account #: 5109 **Client:** Great River Energy

Lithium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	102.0		85	115		
LFB-OE			0.4	102.0		85	115		
MB		<0.04							
MB		<0.04							
MS/MSD	52102001		0.4	97.0	96.4	70	130	1.1	20
MS/MSD	52107001		0.4	95.2	99.3	70	130	2.1	20

Lithium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	102.0		85	115		
LFB-OE			0.4	102.0		85	115		
MB		<0.04							
MB		<0.04							
SPK/SPKD	51856004		0.4	91.2	89.2	75	125	1.9	20
SPK/SPKD	52104004		0.4	88.3	88.1	75	125	0.2	20
SPK/SPKD	52279001		0.4	89.7	91.0	75	125	1.3	20
SPK/SPKD	52281002		0.4	90.9	89.7	75	125	1.2	20

Magnesium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	110.0		85	115		
LFB-MI			100	109.0		85	115		
MB		<1							
MB		<1							
PDS/PDSD	51856004		100	110.0	108.0	75	125	0.8	20
PDS/PDSD	52101002		100	117.0	116.0	75	125	0.9	20
PDS/PDSD	52101008		100	114.0	116.0	75	125	2.0	20
DUP	52102002							0.7	20
PDS/PDSD	52104004		100	111.0	111.0	75	125	0.1	20
PDS/PDSD	52104011		100	94.7	95.8	75	125	0.8	20
DUP	52107001							1.3	20
PDS/PDSD	52281002		100	95.5	94.8	75	125	0.4	20
PDS/PDSD	52429003		100	97.3	96.7	75	125	0.4	20

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Account #: 5109 **Client:** Great River Energy

Magnesium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	52429006		100	104.0	104.0	75	125	0.4	20
PDS/PDSD	52461002		100	101.0	101.0	75	125	0.1	20
PDS/PDSD	52467001		100	100.0	99.7	75	125	0.4	20

Magnesium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	110.0		85	115		
LFB-MI			100	109.0		85	115		
MB		<1							
MB		<1							
SPK/SPKD	51856004		100	97.8	98.2	75	125	0.2	20
SPK/SPKD	52104004		500	104.0	103.0	75	125	1.0	20
SPK/SPKD	52104004		100	101.0	101.0	75	125	0.1	20
SPK/SPKD	52279001		100	102.0	102.0	75	125	0.2	20
SPK/SPKD	52281002		100	98.6	98.5	75	125	0.1	20
SPK/SPKD	52281002		500	104.0	105.0	75	125	1.0	20
SPK/SPKD	52964008		100	105.0	105.0	75	125	0.6	20

Manganese				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
MB		<0.05							
PDS/PDSD	51735001		25	97.1	97.4	75	125	0.3	20
PDS/PDSD	52095001		2	100.0	99.5	75	125	0.5	20
PDS/PDSD	52102001		1	75.8	73.7	75	125	1.1	20
PDS/PDSD	52104004		0.4	90.9	92.7	75	125	1.4	20
MS/MSD	52107001		0.4	86.2	92.4	70	130	1.4	20
PDS/PDSD	52107001		5	92.7	93.6	75	125	0.7	20
PDS/PDSD	52425001		4	86.8	88.4	75	125	1.5	20
PDS/PDSD	52425001		20	84.7	84.0	75	125	0.8	20
PDS/PDSD	52467001		0.4	106.0	106.0	75	125	0.3	20

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Account #: 5109 **Client:** Great River Energy

Manganese, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
MB		<0.05							
SPK/SPKD	51175005		0.4	99.1	101.0	75	125	1.3	20
SPK/SPKD	51714006		0.4	77.3	76.9	75	125	0.1	20
SPK/SPKD	51858001		0.4	93.9	94.1	75	125	0.2	20
SPK/SPKD	52104004		0.4	90.6	92.4	75	125	1.5	20
SPK/SPKD	52281002		0.4	77.4	77.5	75	125	0.1	20
SPK/SPKD	52429006		0.4	92.5	93.1	75	125	0.6	20
SPK/SPKD	52454002		0.4	95.1	96.5	75	125	1.5	20
SPK/SPKD	52467001		0.4	93.5	92.6	75	125	1.0	20

Potassium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	107.0		85	115		
LFB-MI			100	109.0		85	115		
MB		<1							
MB		<1							
PDS/PDSD	51856004		100	112.0	112.0	75	125	0.3	20
PDS/PDSD	52101002		100	113.0	113.0	75	125	0.2	20
PDS/PDSD	52101008		100	109.0	114.0	75	125	3.2	20
DUP	52102002							0.2	20
PDS/PDSD	52104004		100	112.0	113.0	75	125	0.9	20
PDS/PDSD	52104011		100	109.0	110.0	75	125	0.6	20
DUP	52107001							2.8	20
PDS/PDSD	52281002		100	99.8	98.3	75	125	1.4	20
PDS/PDSD	52429003		100	101.0	101.0	75	125	0.4	20
PDS/PDSD	52429006		100	103.0	103.0	75	125	0.5	20
PDS/PDSD	52461002		100	99.5	99.7	75	125	0.2	20
PDS/PDSD	52467001		100	99.7	99.9	75	125	0.2	20

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Account #: 5109 **Client:** Great River Energy

Potassium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	109.0		85	115		
LFB-MI			100	107.0		85	115		
MB		<1							
MB		<1							
SPK/SPKD	51856004		100	101.0	102.0	75	125	1.4	20
SPK/SPKD	52104004		500	100.0	99.8	75	125	0.4	20
SPK/SPKD	52104004		100	101.0	101.0	75	125	0.8	20
SPK/SPKD	52279001		100	102.0	101.0	75	125	0.9	20
SPK/SPKD	52281002		100	102.0	101.0	75	125	0.4	20
SPK/SPKD	52281002		500	101.0	102.0	75	125	1.1	20
SPK/SPKD	52964008		100	102.0	102.0	75	125	0.1	20

Sodium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	111.0		85	115		
LFB-MI			100	111.0		85	115		
MB		<1							
MB		<1							
PDS/PDSD	51856004		100	101.0	94.1	75	125	2.5	20
PDS/PDSD	52101002		100	117.0	117.0	75	125	0.5	20
PDS/PDSD	52101008		100	117.0	117.0	75	125	0.1	20
DUP	52102002							0.1	20
PDS/PDSD	52104004		100	74.5	80.1	75	125	1.2	20
PDS/PDSD	52104011		100	85.2	84.0	75	125	0.3	20
DUP	52107001							3.1	20
PDS/PDSD	52281002		500	88.8	89.0	75	125	0.1	20
PDS/PDSD	52429003		100	92.0	90.6	75	125	0.6	20
PDS/PDSD	52429006		100	75.4	74.4	75	125	0.2	20
PDS/PDSD	52461002		100	101.0	103.0	75	125	1.9	20
PDS/PDSD	52467001		100	94.4	92.4	75	125	1.1	20

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Account #: 5109 **Client:** Great River Energy

Sodium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	111.0		85	115		
LFB-MI			100	111.0		85	115		
MB		<1							
MB		<1							
SPK/SPKD	51856004		100	87.2	89.9	75	125	1.0	20
SPK/SPKD	52104004		500	97.4	96.9	75	125	0.3	20
SPK/SPKD	52104004		100	63.8	53.8	75	125	0.1	20
SPK/SPKD	52279001		100	80.9	76.6	75	125	1.3	20
SPK/SPKD	52281002		500	94.4	96.0	75	125	0.8	20
SPK/SPKD	52281002		100	34.0	26.3	75	125	1.3	20
SPK/SPKD	52964008		100	103.0	104.0	75	125	1.0	20

Antimony — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.7		80	120		
LFB-MS			0.1	95.7		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.001							
MB		<0.001							
MB		<0.001							
MS/MSD	52102001		0.4	100.0	99.7	75	125	0.5	20
SPK/SPKD	52107001		0.4	103.0	102.0	75	125	0.4	20

Antimony, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.7		80	120		
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	95.7		80	120		
MB		<0.001							
MB		<0.001							
MB		<0.001							
SPK/SPKD	51858002		0.1	106.0	106.0	75	125	0.6	20
MS/MSD	52102001		0.4	100.0	99.7	75	125	0.5	20

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Account #: 5109 **Client:** Great River Energy

Antimony, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52104004		0.1	104.0	103.0	75	125	1.1	20
SPK/SPKD	52107001		0.4	103.0	102.0	75	125	0.4	20
SPK/SPKD	52279002		0.1	104.0	103.0	75	125	1.1	20
SPK/SPKD	52281006		0.1	105.0	105.0	75	125	0.0	20

Arsenic				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.4		80	120		
LFB-MS			0.1	95.5		80	120		
LFB-MS			0.1	104.0		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
MS/MSD	52102001		0.4	99.6	98.8	75	125	0.8	20
SPK/SPKD	52107001		0.4	105.0	104.0	75	125	0.9	20

Arsenic, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.5		80	120		
LFB-MS			0.1	104.0		80	120		
LFB-MS			0.1	95.4		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
SPK/SPKD	51858002		0.1	105.0	106.0	75	125	1.3	20
MS/MSD	52102001		0.4	99.6	98.8	75	125	0.8	20
SPK/SPKD	52104004		0.1	103.0	102.0	75	125	0.5	20
SPK/SPKD	52107001		0.4	105.0	104.0	75	125	0.9	20
SPK/SPKD	52279002		0.1	104.0	104.0	75	125	0.2	20
SPK/SPKD	52281006		0.1	113.0	114.0	75	125	0.4	20

Barium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	89.1		80	120		

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Barium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	90.1		80	120		
LFB-MS			0.1	99.6		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
MS/MSD	52102001		0.4	90.3	89.2	75	125	1.0	20
SPK/SPKD	52107001		0.4	167.0	168.0	75	125	0.5	20

Barium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	90.1		80	120		
LFB-MS			0.1	99.6		80	120		
LFB-MS			0.1	89.1		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
SPK/SPKD	51858002		0.1	93.9	95.1	75	125	0.9	20
MS/MSD	52102001		0.4	90.3	89.2	75	125	1.0	20
SPK/SPKD	52104004		0.1	92.2	91.5	75	125	0.6	20
SPK/SPKD	52107001		0.4	167.0	168.0	75	125	0.5	20
SPK/SPKD	52279002		0.1	92.1	92.9	75	125	0.4	20
SPK/SPKD	52281006		0.1	167.0	166.0	75	125	0.7	20

Beryllium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	93.2		80	120		
LFB-MS			0.1	99.0		80	120		
LFB-MS			0.1	95.7		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
MS/MSD	52102001		0.4	106.0	104.0	75	125	1.0	20
SPK/SPKD	52107001		0.4	105.0	105.0	75	125	0.2	20

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Beryllium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	93.2		80	120		
LFB-MS			0.1	99.0		80	120		
LFB-MS			0.1	95.7		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
SPK/SPKD	51858002		0.1	115.0	116.0	75	125	0.6	20
MS/MSD	52102001		0.4	106.0	104.0	75	125	1.0	20
SPK/SPKD	52104004		0.1	114.0	112.0	75	125	1.0	20
SPK/SPKD	52107001		0.4	105.0	105.0	75	125	0.2	20
SPK/SPKD	52279002		0.1	113.0	110.0	75	125	2.6	20
SPK/SPKD	52281006		0.1	112.0	112.0	75	125	0.3	20

Cadmium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	93.5		80	120		
LFB-MS			0.1	95.2		80	120		
LFB-MS			0.1	99.2		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
MS/MSD	52102001		0.4	94.2	94.0	75	125	0.3	20
SPK/SPKD	52107001		0.4	94.4	93.7	75	125	0.7	20

Cadmium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	93.5		80	120		
LFB-MS			0.1	95.2		80	120		
LFB-MS			0.1	99.2		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
SPK/SPKD	51858002		0.1	97.0	98.7	75	125	1.7	20

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Account #: 5109 **Client:** Great River Energy

Cadmium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	52102001		0.4	94.2	94.0	75	125	0.3	20
SPK/SPKD	52104004		0.1	95.1	93.6	75	125	1.6	20
SPK/SPKD	52107001		0.4	94.4	93.7	75	125	0.7	20
SPK/SPKD	52279002		0.1	96.0	95.7	75	125	0.3	20
SPK/SPKD	52281006		0.1	94.2	95.1	75	125	1.0	20

Chromium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
LFB-MS			0.1	96.9		80	120		
LFB-MS			0.1	97.0		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
MS/MSD	52102001		0.4	95.7	95.4	75	125	0.5	20
SPK/SPKD	52107001		0.4	107.0	106.0	75	125	1.2	20

Chromium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
LFB-MS			0.1	97.0		80	120		
LFB-MS			0.1	96.9		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
SPK/SPKD	51858002		0.1	99.8	99.5	75	125	0.3	20
MS/MSD	52102001		0.4	95.7	95.4	75	125	0.5	20
SPK/SPKD	52104004		0.1	98.6	97.9	75	125	0.7	20
SPK/SPKD	52107001		0.4	107.0	106.0	75	125	1.2	20
SPK/SPKD	52279002		0.1	100.0	100.0	75	125	0.2	20
SPK/SPKD	52281006		0.1	102.0	102.0	75	125	0.2	20

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Cobalt				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	104.0		80	120		
LFB-MS			0.1	94.8		80	120		
LFB-MS			0.1	95.6		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
MS/MSD	52102001		0.4	93.5	92.8	75	125	0.8	20
SPK/SPKD	52107001		0.4	104.0	103.0	75	125	1.2	20

Cobalt, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.6		80	120		
LFB-MS			0.1	94.8		80	120		
LFB-MS			0.1	104.0		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
SPK/SPKD	51858002		0.1	97.8	97.9	75	125	0.1	20
MS/MSD	52102001		0.4	93.5	92.8	75	125	0.8	20
SPK/SPKD	52104004		0.1	96.4	96.2	75	125	0.2	20
SPK/SPKD	52107001		0.4	104.0	103.0	75	125	1.2	20
SPK/SPKD	52279002		0.1	98.9	98.9	75	125	0.0	20
SPK/SPKD	52281006		0.1	101.0	100.0	75	125	0.6	20

Lead				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	95.3		80	120		
LFB-MS			0.1	94.8		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
MS/MSD	52102001		0.4	90.9	91.1	75	125	0.0	20

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Lead				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52107001		0.4	97.8	97.2	75	125	0.6	20

Lead, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	95.3		80	120		
LFB-MS			0.1	94.8		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
SPK/SPKD	51858002		0.1	97.2	96.9	75	125	0.3	20
MS/MSD	52102001		0.4	90.9	91.1	75	125	0.0	20
SPK/SPKD	52104004		0.1	94.7	94.8	75	125	0.1	20
SPK/SPKD	52107001		0.4	97.8	97.2	75	125	0.6	20
SPK/SPKD	52279002		0.1	94.9	94.4	75	125	0.5	20
SPK/SPKD	52281006		0.1	94.4	93.8	75	125	0.6	20

Molybdenum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.0		80	120		
LFB-MS			0.1	104.0		80	120		
LFB-MS			0.1	96.2		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
MS/MSD	52102001		0.4	95.9	94.6	75	125	1.4	20
SPK/SPKD	52107001		0.4	113.0	107.0	75	125	5.3	20

Molybdenum, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.2		80	120		
LFB-MS			0.1	96.0		80	120		
LFB-MS			0.1	104.0		80	120		
MB		<0.002							

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Account #: 5109 **Client:** Great River Energy

Molybdenum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.002							
MB		<0.002							
SPK/SPKD	51858002		0.1	97.8	97.8	75	125	0.1	20
MS/MSD	52102001		0.4	95.9	94.6	75	125	1.4	20
SPK/SPKD	52104004		0.1	97.8	97.8	75	125	0.0	20
SPK/SPKD	52107001		0.4	113.0	107.0	75	125	5.3	20
SPK/SPKD	52279002		0.1	99.2	98.9	75	125	0.2	20
SPK/SPKD	52281006		0.1	107.0	106.0	75	125	0.4	20

Selenium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	93.4		80	120		
LFB-MS			0.1	95.2		80	120		
MB		<0.005							
MB		<0.005							
MB		<0.005							
MS/MSD	52102001		0.4	100.0	99.4	75	125	1.0	20
SPK/SPKD	52107001		0.4	100.0	100.0	75	125	0.5	20

Selenium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	95.2		80	120		
LFB-MS			0.1	93.4		80	120		
MB		<0.005							
MB		<0.005							
MB		<0.005							
SPK/SPKD	51858002		0.1	106.0	106.0	75	125	0.4	20
MS/MSD	52102001		0.4	100.0	99.4	75	125	1.0	20
SPK/SPKD	52104004		0.1	104.0	102.0	75	125	1.7	20
SPK/SPKD	52107001		0.4	100.0	100.0	75	125	0.5	20
SPK/SPKD	52279002		0.1	106.0	104.0	75	125	1.6	20

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Selenium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52281006		0.1	111.0	115.0	75	125	3.7	20

Thallium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.2		80	120		
LFB-MS			0.1	99.5		80	120		
LFB-MS			0.1	96.2		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
MS/MSD	52102001		0.4	90.1	89.8	75	125	0.3	20
SPK/SPKD	52107001		0.4	92.6	92.6	75	125	0.1	20

Thallium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.2		80	120		
LFB-MS			0.1	99.5		80	120		
LFB-MS			0.1	96.2		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
SPK/SPKD	51858002		0.1	95.0	94.2	75	125	0.8	20
MS/MSD	52102001		0.4	90.1	89.8	75	125	0.3	20
SPK/SPKD	52104004		0.1	91.6	91.7	75	125	0.1	20
SPK/SPKD	52107001		0.4	92.6	92.6	75	125	0.1	20
SPK/SPKD	52279002		0.1	92.3	92.3	75	125	0.0	20
SPK/SPKD	52281006		0.1	92.1	91.4	75	125	0.8	20

Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	107.0		85	115		
LFB			0.002	100.0		85	115		
LFB			0.002	90.7		85	115		
LRB		<0.0002							

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Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LRB		<0.0002							
MB		<0.0002							
MS/MSD	52104001		0.002	114.0	113.0	70	130	4.4	20
MS/MSD	52104004		0.002	100.0	102.0	70	130	0.0	20
MS/MSD	52281002		0.002	90.9	92.2	70	130	0.0	20
MS/MSD	52281006		0.002	106.0	101.0	70	130	4.9	20

Mercury, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	90.8		85	115		
LFB			0.002	100.0		85	115		
LFB			0.002	90.7		85	115		
LFB			0.002	107.0		85	115		
LRB		<0.0002							
LRB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MS/MSD	52102004		0.002	112.0	108.0	70	130	0.0	20
MS/MSD	52104004		0.002	113.0	112.0	70	130	4.4	20
MS/MSD	52281002		0.002	92.2	94.8	70	130	5.4	20
MS/MSD	52281004		0.002	122.0	123.0	70	130	0.0	20

Alkalinity, Total				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			501	92.1		80	120		
LFB			410	91.3		90	110		
LFB			410	91.4		90	110		
LFB			410	91.3		90	110		
LFB			410	91.3		90	110		
LFB			410	91.3		90	110		
MB		<20.5							
MB		<20.5							
MB		<20.5							

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Alkalinity, Total				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<20.5							
MB		<20.5							
MS/MSD	52101001		410	92.8	92.5	80	120	0.2	20
MS/MSD	52101002		410	93.2	93.5	80	120	0.2	20
MS/MSD	52103001		410	78.8	77.2	80	120	1.2	20
MS/MSD	52104004		410	75.2	74.4	80	120	0.4	20

pH				Units: units					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	100.8		98.33	101.67		
CRM-PH			6	100.7		98.33	101.67		
CRM-PH			6	100.7		98.33	101.67		
CRM-PH			6	100.7		98.33	101.67		
CRM-PH			6	100.5		98.33	101.67		
DUP	52094001							0.7	20
DUP	52101008							0.7	20
DUP	52104004							0.6	20
DUP	52104011							2.2	20

Fluoride				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			3.06	99.7		83.99	111.11		
LFB-F			0.5	98.0		90	110		
LFB-F			0.5	96.0		90	110		
LFB-F			0.5	96.0		90	110		
LFB-F			0.5	98.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MS/MSD-F	52087002		0.5	102.0	102.0	80	120	0.0	20
MS/MSD-F	52103003		0.5	104.0	100.0	80	120	1.9	20
MS/MSD-F	52104004		0.5	102.0	102.0	80	120	0.0	20

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Total Dissolved Solids Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	100.0		90.35	110.33		
CRM			736	101.0		90.35	110.33		
MB		<10							
MB		<10							
DUP	51856005							1.5	20
DUP	52102002							0.7	20
DUP	52104004							0.0	20
DUP	52104013							0.0	20

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Minnesota Valley Testing Laboratories
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Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 52102

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS BAL
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: June 2024
Address:		Lakewood, CO 80228	Sampled By: Jeremy Mayer
Phone:			
Email:	CJohnston@GREnergy.com		

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric					Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-9N	18 June 24	~~1022~~ 1026	GW	X	X	X							8.49	3836	7.18	0.00	App III, AppIV, Additional List (total and dissolved for all metals) (See Attachments)
002	MW-102	18 June 24	0828	GW	X	X	X							9.23	2018	7.62	1.36	
003	MW-103	18 June 24	1022	GW	X	X	X							9.02	2959	8.87	0.00	
004	FB-BAL	18 June 24	0910	GW	X	X	X											

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1	18 June 24 1705	Log In Walk In #2	9.2 °C/TM BOS ROI Y/N		19 Jun 24 0800
2					

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February 2024 GL21509219.000

Table 2. Parameter and Analysis Summary - Appendix III Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/11	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	SM 4500 F E/11	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	ASTM D516-16	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	USGS I-1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total and dissolved)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:
1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent methods.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

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Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

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Table 4: Additional List Parameter and Analysis Summary

Parameter [1]	Method Reference [2]	Reporting Limit	Preparation Method Reference [2]	Sample Container [3]	Required Preservation [4]	Maximum Holding Time from Sampling [5]
General Chemistry						
Total Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Bicarbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Carbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Metals (Total and Dissolved)						
Iron	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Magnesium	EPA 6010D	0.2 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Potassium	EPA 6010D	3.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Sodium	EPA 6010D	1.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Aluminum	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Manganese	EPA 6010D	0.05 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months

Notes:

1. All listed parameters are tested in the laboratory. Listed parameters are to be collected in conjunction with other CCR parameter lists (Table 2 and Table 3).

2. Or equivalent method.
3. Containers and volumes will be specified by the analytical laboratory.
4. In addition to the required preservation for each sample container, sufficient ice should be placed with the sample containers in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when samples arrive, measurement of the temperature of samples immediately upon receipt is necessary to confirm that the 4° C temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible following collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid, without the use of qualifiers.

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Member ACIL

Account #: 5109 **Client:** Great River Energy

Field Datasheet

Groundwater Assessment

2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	9N
Sampling Personal:	JM

Weather Conditions: Temp: 50 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	13.67	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	13.96	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	2	Sec.
Recover:	28	Sec.
PSI:	—	

Bottle List:
1 Liter Raw — 1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
18 June 24	0903	Start of Well Purge									clear, slightly turbid, turbid
	0908	8.66	3847	7.19	1.02	153.1	1.86	13.95	200.0	1.0	Clear
	0913	8.57	3843	7.19	0.74	148.6	0.06	13.95	200.0	1.0	Clear
	0918	8.56	3841	7.18	0.49	131.6	0.04	13.96	200.0	1.0	Clear
	0923	8.55	3843	7.18	0.41	106.7	0.03	13.96	200.0	1.0	Clear
	0928	8.49	3836	7.18	0.37	113.0	0.00	13.96	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18 June 24	0928	8.49	3836	7.18			0.00				Clear

Comments: Collected FB BAL @ 0910

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	102
Sampling Personal:	

Weather Conditions: Temp: 50 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / (Cloudy)

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	17.85	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	18.40	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
18 June 24	0803	Start of Well Purge									
	0808	9.33	2000	7.64	1.13	107.7	3.23	18.20	200.0	1.0	Clear
	0813	9.24	1999	7.64	0.40	92.2	2.09	18.25	200.0	1.0	Clear
	0818	9.19	2002	7.62	0.36	88.7	0.35	18.33	200.0	1.0	Clear
	0823	9.23	2009	7.62	0.27	80.6	1.66	18.37	200.0	1.0	Clear
	0828	9.23	2018	7.62	0.25	84.3	1.36	18.38	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18 June 24	0828	9.23	2018	7.62			1.36				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	103
Sampling Personal:	JMH

Weather Conditions: Temp: 50 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / (Cloudy)

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	19.54	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	19.55	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 3	Sec.
Recover: 22	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
18 Jun 24	0957	Start of Well Purge									
	1002	9.10	3074	8.80	1.13	60.5	1.34	19.55	200.0	1.0	Clear
	1007	8.93	3070	8.86	0.32	32.3	0.02	19.55	200.0	1.0	Clear
	1012	8.96	3030	8.88	0.24	22.9	0.00	19.55	200.0	1.0	Clear
	1017	9.03	3009	8.88	0.25	23.9	0.00	19.55	200.0	1.0	Clear
	1022	9.02	2959	8.87	0.26	23.3	0.00	19.55	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18 Jun 24	1022	9.02	2959	8.87			0.00				Clear

Comments:	

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS BAL June 2024 (52119) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

C. Carroll

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID:	52119001	**Date Collected:**	06/18/2024 09:28	**Matrix:**	Groundwater
Sample ID:	MW-9N	**Date Received:**	06/18/2024 17:05	**Collector:**	MVTL Field Service

Temp @ Receipt (C): 19.8

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		08/07/2024 08:29	
Radium 228	See Attached			1		08/07/2024 08:29	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID:	52119002	**Date Collected:**	06/18/2024 08:28	**Matrix:**	Groundwater
Sample ID:	MW-102	**Date Received:**	06/18/2024 17:05	**Collector:**	MVTL Field Service

Temp @ Receipt (C): 19.8

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		08/07/2024 08:29	
Radium 228	See Attached			1		08/07/2024 08:29	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID:	52119003	**Date Collected:**	06/18/2024 10:22	**Matrix:**	Groundwater
Sample ID:	MW-103	**Date Received:**	06/18/2024 17:05	**Collector:**	MVTL Field Service

Temp @ Receipt (C): 19.8

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		08/07/2024 08:29	
Radium 228	See Attached			1		08/07/2024 08:29	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID:	52119004	**Date Collected:**	06/18/2024 09:10	**Matrix:**	Groundwater
Sample ID:	FB-BAL	**Date Received:**	06/18/2024 17:05	**Collector:**	MVTL Field Service

Temp @ Receipt (C): 19.8

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		08/07/2024 08:29	
Radium 228	See Attached			1		08/07/2024 08:29	

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ANALYTICAL SUMMARY REPORT

August 06, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24060859 Quote ID: C15480
Project Name: 52119

Energy Laboratories, Inc. Casper WY received the following 4 samples for Minnesota Valley Testing Laboratories on 6/24/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24060859-001	52119001, MW-9N	06/18/24 9:28	06/24/24	Groundwater	Radium 226, Total Radium 228, Total
C24060859-002	52119002, MW-102	06/18/24 8:28	06/24/24	Groundwater	Same As Above
C24060859-003	52119003, MW-103	06/18/24 10:22	06/24/24	Groundwater	Same As Above
C24060859-004	52119004, FB-BAL	06/18/24 9:10	06/24/24	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy, Casper, WY 82601-9601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

Energy Laboratories, Inc. verifies the reported results for the analysis has been technically reviewed and approved for release.

If you have any questions regarding these test results, please contact your Project Manager.

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Account #: 5109 **Client:** Great River Energy

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52119
Lab ID: C24060859-001
Client Sample ID: 52119001, MW-9N

Report Date: 08/06/24
Collection Date: 06/18/24 09:28
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L				E903.0	07/08/24 11:22 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/08/24 11:22 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	07/08/24 11:22 / alb
Radium 228	1.2	pCi/L				RA-05	07/02/24 12:38 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	07/02/24 12:38 / trs
Radium 228 MDC	1	pCi/L				RA-05	07/02/24 12:38 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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Account #: 5109 **Client:** Great River Energy

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52119
Lab ID: C24060859-002
Client Sample ID: 52119002, MW-102

Report Date: 08/06/24
Collection Date: 06/18/24 08:28
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.2	pCi/L	U			E903.0	07/08/24 11:22 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/08/24 11:22 / alb
Radium 226 MDC	0.3	pCi/L				E903.0	07/08/24 11:22 / alb
Radium 228	1.1	pCi/L	U			RA-05	07/02/24 12:38 / trs
Radium 228 precision (±)	0.8	pCi/L				RA-05	07/02/24 12:38 / trs
Radium 228 MDC	1.1	pCi/L				RA-05	07/02/24 12:38 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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Account #: 5109 **Client:** Great River Energy

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52119
Lab ID: C24060859-003
Client Sample ID: 52119003, MW-103

Report Date: 08/06/24
Collection Date: 06/18/24 10:22
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L	U			E903.0	07/08/24 11:22 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/08/24 11:22 / alb
Radium 226 MDC	0.3	pCi/L				E903.0	07/08/24 11:22 / alb
Radium 228	1.4	pCi/L				RA-05	07/02/24 12:38 / trs
Radium 228 precision (±)	0.9	pCi/L				RA-05	07/02/24 12:38 / trs
Radium 228 MDC	1.2	pCi/L				RA-05	07/02/24 12:38 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 4 of 10

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Account #: 5109 **Client:** Great River Energy

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52119
Lab ID: C24060859-004
Client Sample ID: 52119004, FB-BAL

Report Date: 08/06/24
Collection Date: 06/18/24 09:10
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.07	pCi/L	U			E903.0	07/08/24 11:22 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	07/08/24 11:22 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	07/08/24 11:22 / alb
Radium 228	0.5	pCi/L	U			RA-05	07/02/24 12:38 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	07/02/24 12:38 / trs
Radium 228 MDC	1	pCi/L				RA-05	07/02/24 12:38 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 5 of 10

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Account #: 5109 **Client:** Great River Energy

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24060859 **Report Date:** 07/11/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11357
Lab ID: LCS-RA226-11357	3	Laboratory Control Sample				Run: TENNELEC-3_240625D				07/08/24 11:22
Radium 226		12	pCi/L		119	70	130			
Radium 226 precision (±)		2.3	pCi/L							
Radium 226 MDC		0.22	pCi/L							
Lab ID: MB-RA226-11357	3	Method Blank				Run: TENNELEC-3_240625D				07/08/24 11:22
Radium 226		0.2	pCi/L							
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C24060862-002AMS	3	Sample Matrix Spike				Run: TENNELEC-3_240625D				07/08/24 11:22
Radium 226		11	pCi/L		108	70	130			
Radium 226 precision (±)		2.2	pCi/L							
Radium 226 MDC		0.20	pCi/L							
Lab ID: C24060862-002AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-3_240625D				07/08/24 13:37
Radium 226		11	pCi/L		105	70	130	3.2	30	
Radium 226 precision (±)		2.1	pCi/L							
Radium 226 MDC		0.19	pCi/L							

- The RER result is 0.12.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24060859 **Report Date:** 07/11/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7425
Lab ID: LCS-228-RA226-11357	3	Laboratory Control Sample				Run: TENNELEC-4_240625A				07/02/24 12:38
Radium 228		12	pCi/L		112	70	130			
Radium 228 precision (±)		2.3	pCi/L							
Radium 228 MDC		0.95	pCi/L							
Lab ID: MB-RA226-11357	3	Method Blank				Run: TENNELEC-4_240625A				07/02/24 12:38
Radium 228		0.6	pCi/L							U
Radium 228 precision (±)		0.6	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C24060862-002AMS1	3	Sample Matrix Spike				Run: TENNELEC-4_240625A				07/02/24 12:38
Radium 228		12	pCi/L		100	70	130			
Radium 228 precision (±)		2.3	pCi/L							
Radium 228 MDC		0.96	pCi/L							
Lab ID: C24060862-002AMSD1	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_240625A				07/02/24 12:38
Radium 228		12	pCi/L		101	70	130	1.2	30	
Radium 228 precision (±)		2.3	pCi/L							
Radium 228 MDC		1.0	pCi/L							

- The RER result is 0.04.

Qualifiers:

RL - Analyte Reporting Limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24060859

Login completed by: Aaron J. Smith
Date Received: 6/24/2024
Reviewed by: lcadreau
Received by: LFN
Reviewed Date: 6/30/2024
Carrier name: UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	26.0°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Trip Blanks and/or Blind Duplicate samples are assigned the earliest collection time for the associated requested analysis in order to evaluate the holding time unless specifically indicated.

Contact and Corrective Action Comments:

The temperature blank temperature in shipping container 1 was 24.8°C, shipping container 2 was 25.0°C, shipping container 3 was 26.0°C, shipping container 4 was 24.4°C, and shipping container 7 was 25.3°C. The temperature of the

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Work Order Receipt Checklist - Continued

Minnesota Valley Testing Laboratories C24060859

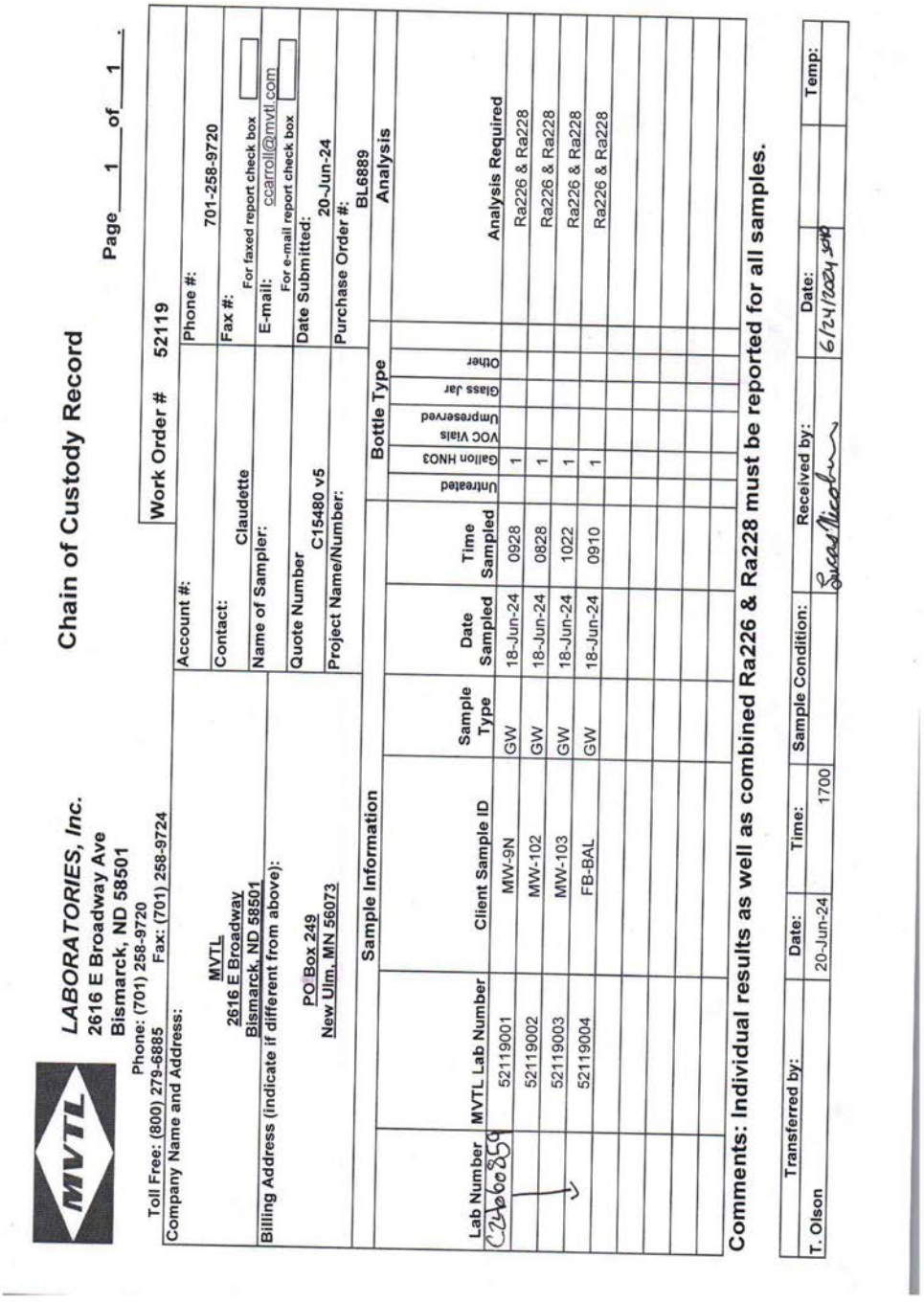
sample(s) in shipping container 5 was 25.3°C and shipping container 6 was 25.1°C. AS 6/24/24

Cancel combined radium per Tera Olson via email on 7/1/2024.-7/9/2024 mas.

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Chain of Custody Record

Page 1 of 1

Work Order # 52119

Company Name and Address: Account #: Phone #: 701-258-9720
Contact: Claudette Fax #: For faxed report check box
Name of Sampler: E-mail: ccarroll@mvtl.com For e-mail report check box
Quote Number C15480 v5 Date Submitted: 20-Jun-24
Project Name/Number: Purchase Order #: BL6889

Billing Address (indicate if different from above): MVTL 2616 E Broadway Bismarck, ND 58501 / PO Box 249 New Ulm, MN 56073

Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Unpreserved	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis Required
	52119001	MW-9N	GW	18-Jun-24	0928		1				Ra226 & Ra228
	52119002	MW-102	GW	18-Jun-24	0828		1				Ra226 & Ra228
	52119003	MW-103	GW	18-Jun-24	1022		1				Ra226 & Ra228
	52119004	FB-BAL	GW	18-Jun-24	0910		1				Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
T. Olson	20-Jun-24	1700		Susan Nicolaus	6/24/2024	

Page 10 of 10

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Account #: 5109 **Client:** Great River Energy

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Great River Energy
WO: 52119

Chain of Custody Record

Report To:	Great River Energy	CC:	Golder Associates
Attn:	Cassie Johnston		44 Union Blvd, Suite 300
Address:			Lakewood, CO 80228
Phone:			
Email:	CJohnston@GREnergy.com		

Project Name: SS BAL
Event: June 2024
Sampled By: Jeremy Meyer

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Gal Nitric	Field Readings	Analysis Required
001	MW-9N	18 June 24	0928	GW					X		Radium 226 and 228 Combined
002	MW-102	18 June 24	0828	GW					X		
003	MW-103	18 June 24	1022	GW					X		
004	FB-BAL	18 June 24	0910	GW					X		

Comments:

Relinquished By			Sample Condition		Received By	
	Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1		18 June 24 1705	Log In Walk-In #2	15.2°C/TM #05 ROI Y/N		19 June 24 0300
2						

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Account #: 5109 **Client:** Great River Energy

Field Datasheet

Groundwater Assessment

2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	9N
Sampling Personal:	JM

Weather Conditions: Temp: 50 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	13.67	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	13.96	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
											clear, slightly turbid, turbid
18 June 24	0903	Start of Well Purge									
	0908	8.66	3847	7.19	1.02	153.1	1.86	13.95	200.0	1.0	Clear
	0913	8.57	3843	7.19	0.74	145.6	0.06	13.95	200.0	1.0	Clear
	0918	8.56	3841	7.18	0.49	131.6	0.04	13.96	200.0	1.0	Clear
	0923	8.55	3843	7.18	0.41	106.7	0.03	13.96	200.0	1.0	Clear
	0928	8.49	3836	7.18	0.37	113.0	0.00	13.96	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18 June 24	0928	8.49	3836	7.18			0.00				Clear

Comments: Collected FB BAL @ 0910

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Account #: 5109 **Client:** Great River Energy

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2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	102
Sampling Personal:	

Weather Conditions: Temp: 50 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / (Cloudy)

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	17.85	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	18.40	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	2	Sec.
Recover:	28	Sec.
PSI:	—	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
18 June 24	0803	Start of Well Purge									
	0808	9.33	2000	7.64	1.13	107.7	3.23	18.20	200.0	1.0	Clear
	0813	9.24	1999	7.64	0.40	92.2	2.09	18.25	200.0	1.0	Clear
	0818	9.19	2002	7.62	0.36	88.7	0.35	18.33	200.0	1.0	Clear
	0823	9.23	2009	7.62	0.27	80.6	1.66	18.37	200.0	1.0	Clear
	0828	9.23	2018	7.62	0.25	84.3	1.36	18.38	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18 June 24	0828	9.23	2018	7.62			1.36				Clear

Comments:	

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	103
Sampling Personal:	JMH

Weather Conditions: Temp: 50 °F Wind: NW @ 5-10 Precip: Sunny / Partly Cloudy / (Cloudy)

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	19.54	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	19.55	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 3	Sec.
Recover: 22	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
18 June 24	0957	Start of Well Purge									
	1002	9.10	3074	8.80	1.13	60.5	1.34	19.55	200.0	1.0	Clear
	1007	8.93	3070	8.86	0.32	32.3	0.02	19.55	200.0	1.0	Clear
	1012	8.96	3030	8.88	0.24	22.9	0.00	19.55	200.0	1.0	Clear
	1017	9.03	3009	8.88	0.25	23.9	0.00	19.55	200.0	1.0	Clear
	1022	9.02	2959	8.87	0.26	23.3	0.00	19.55	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18 June 24	1022	9.02	2959	8.87			0.00				Clear

Comments:

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2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS PB June 2024 (52107) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52107001 **Date Collected:** 06/18/2024 14:50 **Matrix:** Groundwater
Sample ID: MW-PB1 **Date Received:** 06/18/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1960**	umhos/cm	1	1		06/18/2024 14:50	
Method: 150.2							
pH - Field	**7.15**	units	0.01	1		06/18/2024 14:50	
Method: 170.1							
Temperature - Field C	**10.9**	degrees C		1		06/18/2024 14:50	
Method: ASTM D516-16							
Sulfate	**514**	mg/L	25	5		06/26/2024 10:24	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**1.26**	mg/L	0.1	1	06/19/2024 16:24	07/02/2024 11:08	
Calcium	**128**	mg/L	1	1	06/19/2024 16:24	06/25/2024 10:41	
Lithium	**0.0394**	mg/L	0.02	1	06/19/2024 16:24	06/20/2024 14:50	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 16:24	07/10/2024 10:13	
Arsenic	**0.0040**	mg/L	0.002	5	06/19/2024 16:24	07/10/2024 10:13	
Barium	**0.1121**	mg/L	0.002	5	06/19/2024 16:24	07/10/2024 10:13	*
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/10/2024 10:13	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/10/2024 10:13	
Chromium	**0.0076**	mg/L	0.002	5	06/19/2024 16:24	07/10/2024 10:13	
Cobalt	**0.0052**	mg/L	0.002	5	06/19/2024 16:24	07/10/2024 10:13	
Lead	**0.0036**	mg/L	0.0005	5	06/19/2024 16:24	07/10/2024 10:13	
Molybdenum	**0.0088**	mg/L	0.002	5	06/19/2024 16:24	07/10/2024 10:13	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 16:24	07/10/2024 10:13	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/10/2024 10:13	

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Analytical Results

Lab ID: 52107001 **Date Collected:** 06/18/2024 14:50 **Matrix:** Groundwater
Sample ID: MW-PB1 **Date Received:** 06/18/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.8**	units	0.1	1		06/19/2024 21:00	*
Method: SM4500-Cl-E 2011							
Chloride	**20.4**	mg/L	2.0	1		06/25/2024 09:39	
Method: SM4500-F-C-2011							
Fluoride	**0.53**	mg/L	0.1	1		06/19/2024 21:00	
Method: USGS I-1750-85							
Total Dissolved Solids	**1390**	mg/L	10	1		06/21/2024 14:48	

Analysis Results Comments

Barium

Matrix spike and/or matrix spike duplicate recovery was high; the associated laboratory fortified blank recovery was acceptable.

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 52107

Sulfate — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			100	104.0		85	115		
LFB			100	92.5		85	115		
LFB			100	93.2		85	115		
LFB			100	96.0		85	115		
LFB			100	89.1		85	115		
LFB			100	98.1		85	115		
LFB			100	92.7		85	115		
LFB			100	98.8		85	115		
LFB			100	92.6		85	115		
LFB			100	94.4		85	115		
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MS/MSD	52101007		500	82.2	80.1	85	115	2.2	20
MS/MSD	52104002		500	72.3	77.1	85	115	2.5	20
MS/MSD	52104004		1000	79.6	82.5	85	115	2.1	20
MS/MSD	52281002		1000	75.2	77.5	85	115	1.8	20
MS/MSD	52396002		1000	69.0	72.5	85	115	2.4	20
MS/MSD	52454005		100	97.1	96.0	85	115	1.1	20
MS/MSD	52461002		100	96.3	96.0	85	115	0.3	20
MS/MSD	52575002		500	70.7	73.4	85	115	1.8	20

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Account #: 5109 **Client:** Great River Energy

Sulfate				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	52649007		100	73.1	68.5	85	115	3.5	20

Chloride				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	94.5		90	110		
LFB			30	94.6		90	110		
LFB			30	94.7		90	110		
LFB			30	95.0		90	110		
LFB			30	95.1		90	110		
LFB			30	95.8		90	110		
LFB			30	94.9		90	110		
LFB			30	95.3		90	110		
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MS/MSD	52281002		30	95.4	94.7	80	120	0.4	20
MS/MSD	52454006		30	94.7	94.9	80	120	0.4	20
MS/MSD	52649002		30	96.5	95.9	80	120	0.5	20
MS/MSD	52649007		30	94.7	94.2	80	120	0.5	20

Aluminum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	105.0		85	115		
MB		<0.1							
PDS/PDSD	52095001		2	94.4	97.0	75	125	1.5	20
PDS/PDSD	52102001		1	102.0	104.0	75	125	2.0	20
PDS/PDSD	52104004		0.4	100.0	99.5	75	125	0.6	20
PDS/PDSD	52107001		5	99.5	95.7	75	125	1.7	20

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Account #: 5109 **Client:** Great River Energy

Aluminum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	52425001		4	120.0	116.0	75	125	3.6	20
PDS/PDSD	52425001		20	99.0	101.0	75	125	1.7	20
PDS/PDSD	52467001		0.4	100.0	100.0	75	125	0.1	20

Aluminum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	105.0		85	115		
MB		<0.1							
SPK/SPKD	51175005		0.4	106.0	106.0	75	125	0.3	20
SPK/SPKD	51714006		0.4	113.0	110.0	75	125	2.1	20
SPK/SPKD	51858001		0.4	110.0	110.0	75	125	0.3	20
SPK/SPKD	52104004		0.4	107.0	108.0	75	125	0.2	20
SPK/SPKD	52281002		0.4	106.0	107.0	75	125	0.9	20
SPK/SPKD	52429006		0.4	89.5	91.5	75	125	2.2	20
SPK/SPKD	52454002		0.4	95.9	93.8	75	125	2.2	20
SPK/SPKD	52467001		0.4	101.0	100.0	75	125	0.7	20

Boron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	100.0		85	115		
MB		<0.1							
MS/MSD	52107001		0.4	98.3	110.0	70	130	2.7	20

Boron, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	100.0		85	115		
MB		<0.1							
SPK/SPKD	51856004		0.4	93.1	93.4	75	125	0.2	20
SPK/SPKD	52104004		0.4	86.8	85.8	75	125	0.4	20
SPK/SPKD	52279001		0.4	81.0	81.3	75	125	0.1	20
SPK/SPKD	52281002		0.4	76.5	78.8	75	125	0.5	20
SPK/SPKD	52454006		0.4	99.7	100.0	75	125	0.3	20
SPK/SPKD	52467001		0.4	97.7	96.3	75	125	1.1	20
SPK/SPKD	52964008		0.4	97.2	97.4	75	125	0.2	20

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Calcium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	111.0		85	115		
MB		<1							
PDS/PDSD	51856004		100	108.0	107.0	75	125	0.8	20
PDS/PDSD	52101002		100	114.0	113.0	75	125	0.7	20
PDS/PDSD	52101008		100	111.0	113.0	75	125	1.8	20
PDS/PDSD	52104004		100	104.0	104.0	75	125	0.1	20
PDS/PDSD	52104011		100	75.1	76.2	75	125	0.8	20
DUP	52107001							1.0	20
PDS/PDSD	52281002		100	92.4	92.3	75	125	0.1	20
PDS/PDSD	52429003		100	92.7	92.2	75	125	0.2	20
PDS/PDSD	52429006		100	101.0	101.0	75	125	0.3	20
PDS/PDSD	52461002		100	99.3	99.3	75	125	0.1	20
PDS/PDSD	52467001		100	96.0	95.5	75	125	0.3	20

Calcium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	111.0		85	115		
MB		<1							
SPK/SPKD	51856004		100	95.9	96.1	75	125	0.1	20
SPK/SPKD	52104004		100	94.7	94.5	75	125	0.1	20
SPK/SPKD	52104004		500	101.0	99.9	75	125	1.1	20
SPK/SPKD	52279001		100	96.8	96.7	75	125	0.1	20
SPK/SPKD	52281002		100	95.9	96.2	75	125	0.2	20
SPK/SPKD	52281002		500	102.0	103.0	75	125	1.0	20
SPK/SPKD	52964008		100	104.0	103.0	75	125	0.8	20

Iron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
MB		<0.1							
PDS/PDSD	52095001		2	91.8	90.6	75	125	0.5	20
PDS/PDSD	52102001		1	87.6	86.8	75	125	0.9	20
PDS/PDSD	52107001		5	97.0	98.6	75	125	0.6	20

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Iron				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	52425001		4	106.0	107.0	75	125	1.3	20
PDS/PDSD	52425001		20	88.6	87.6	75	125	1.1	20
PDS/PDSD	52467001		0.4	97.7	97.0	75	125	0.4	20

Iron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
MB		<0.1							
SPK/SPKD	51175005		0.4	84.9	89.3	75	125	1.3	20
SPK/SPKD	51714006		0.4	90.7	90.5	75	125	0.1	20
SPK/SPKD	51858001		0.4	78.4	79.3	75	125	0.3	20
SPK/SPKD	52104004		0.4	75.5	79.4	75	125	1.0	20
SPK/SPKD	52281002		0.4	97.8	97.8	75	125	0.0	20
SPK/SPKD	52429006		0.4	85.5	86.3	75	125	0.7	20
SPK/SPKD	52454002		0.4	93.0	94.8	75	125	2.0	20
SPK/SPKD	52467001		0.4	91.3	90.2	75	125	1.2	20

Lithium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	102.0		85	115		
MB		<0.04							
MS/MSD	52107001		0.4	97.0	99.3	70	130	2.1	20

Lithium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	102.0		85	115		
MB		<0.04							
SPK/SPKD	51856004		0.4	91.2	89.2	75	125	1.9	20
SPK/SPKD	52104004		0.4	88.3	88.1	75	125	0.2	20
SPK/SPKD	52279001		0.4	89.7	91.0	75	125	1.3	20
SPK/SPKD	52281002		0.4	90.9	89.7	75	125	1.2	20

Magnesium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	109.0		85	115		
MB		<1							

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Magnesium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	51856004		100	110.0	108.0	75	125	0.8	20
PDS/PDSD	52101002		100	117.0	116.0	75	125	0.9	20
PDS/PDSD	52101008		100	114.0	116.0	75	125	2.0	20
PDS/PDSD	52104004		100	111.0	111.0	75	125	0.1	20
PDS/PDSD	52104011		100	94.7	95.8	75	125	0.8	20
DUP	52107001							1.3	20
PDS/PDSD	52281002		100	95.5	94.8	75	125	0.4	20
PDS/PDSD	52429003		100	97.3	96.7	75	125	0.4	20
PDS/PDSD	52429006		100	104.0	104.0	75	125	0.4	20
PDS/PDSD	52461002		100	101.0	101.0	75	125	0.1	20
PDS/PDSD	52467001		100	100.0	99.7	75	125	0.4	20

Magnesium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	109.0		85	115		
MB		<1							
SPK/SPKD	51856004		100	97.8	98.2	75	125	0.2	20
SPK/SPKD	52104004		100	101.0	101.0	75	125	0.1	20
SPK/SPKD	52104004		500	104.0	103.0	75	125	1.0	20
SPK/SPKD	52279001		100	102.0	102.0	75	125	0.2	20
SPK/SPKD	52281002		100	98.6	98.5	75	125	0.1	20
SPK/SPKD	52281002		500	104.0	105.0	75	125	1.0	20
SPK/SPKD	52964008		100	105.0	105.0	75	125	0.6	20

Manganese				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
PDS/PDSD	51735001		25	97.1	97.4	75	125	0.3	20
PDS/PDSD	52095001		2	100.0	99.5	75	125	0.5	20
PDS/PDSD	52102001		1	75.8	73.7	75	125	1.1	20
PDS/PDSD	52104004		0.4	90.9	92.7	75	125	1.4	20
MS/MSD	52107001		0.4	86.2	92.4	70	130	1.4	20

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Account #: 5109 **Client:** Great River Energy

Manganese				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	52107001		5	92.7	93.6	75	125	0.7	20
PDS/PDSD	52425001		4	86.8	88.4	75	125	1.5	20
PDS/PDSD	52425001		20	84.7	84.0	75	125	0.8	20
PDS/PDSD	52467001		0.4	106.0	106.0	75	125	0.3	20

Manganese, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
SPK/SPKD	51175005		0.4	99.1	101.0	75	125	1.3	20
SPK/SPKD	51714006		0.4	77.3	76.9	75	125	0.1	20
SPK/SPKD	51858001		0.4	93.9	94.1	75	125	0.2	20
SPK/SPKD	52104004		0.4	90.6	92.4	75	125	1.5	20
SPK/SPKD	52281002		0.4	77.4	77.5	75	125	0.1	20
SPK/SPKD	52429006		0.4	92.5	93.1	75	125	0.6	20
SPK/SPKD	52454002		0.4	95.1	96.5	75	125	1.5	20
SPK/SPKD	52467001		0.4	93.5	92.6	75	125	1.0	20

Potassium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	107.0		85	115		
MB		<1							
PDS/PDSD	51856004		100	112.0	112.0	75	125	0.3	20
PDS/PDSD	52101002		100	113.0	113.0	75	125	0.2	20
PDS/PDSD	52101008		100	109.0	114.0	75	125	3.2	20
PDS/PDSD	52104004		100	112.0	113.0	75	125	0.9	20
PDS/PDSD	52104011		100	109.0	110.0	75	125	0.6	20
DUP	52107001							2.8	20
PDS/PDSD	52281002		100	99.8	98.3	75	125	1.4	20
PDS/PDSD	52429003		100	101.0	101.0	75	125	0.4	20
PDS/PDSD	52429006		100	103.0	103.0	75	125	0.5	20
PDS/PDSD	52461002		100	99.5	99.7	75	125	0.2	20
PDS/PDSD	52467001		100	99.7	99.9	75	125	0.2	20

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Potassium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	107.0		85	115		
MB		<1							
SPK/SPKD	51856004		100	101.0	102.0	75	125	1.4	20
SPK/SPKD	52104004		500	100.0	99.8	75	125	0.4	20
SPK/SPKD	52104004		100	101.0	101.0	75	125	0.8	20
SPK/SPKD	52279001		100	102.0	101.0	75	125	0.9	20
SPK/SPKD	52281002		100	102.0	101.0	75	125	0.4	20
SPK/SPKD	52281002		500	101.0	102.0	75	125	1.1	20
SPK/SPKD	52964008		100	102.0	102.0	75	125	0.1	20

Sodium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	111.0		85	115		
MB		<1							
PDS/PDSD	51856004		100	101.0	94.1	75	125	2.5	20
PDS/PDSD	52101002		100	117.0	117.0	75	125	0.5	20
PDS/PDSD	52101008		100	117.0	117.0	75	125	0.1	20
PDS/PDSD	52104004		100	74.5	80.1	75	125	1.2	20
PDS/PDSD	52104011		100	85.2	84.0	75	125	0.3	20
DUP	52107001							3.1	20
PDS/PDSD	52281002		500	88.8	89.0	75	125	0.1	20
PDS/PDSD	52429003		100	92.0	90.6	75	125	0.6	20
PDS/PDSD	52429006		100	75.4	74.4	75	125	0.2	20
PDS/PDSD	52461002		100	101.0	103.0	75	125	1.9	20
PDS/PDSD	52467001		100	94.4	92.4	75	125	1.1	20

Sodium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	111.0		85	115		
MB		<1							
SPK/SPKD	51856004		100	87.2	89.9	75	125	1.0	20
SPK/SPKD	52104004		100	63.8	53.8	75	125	0.1	20
SPK/SPKD	52104004		500	97.4	96.9	75	125	0.3	20

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Sodium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52279001		100	80.9	76.6	75	125	1.3	20
SPK/SPKD	52281002		500	94.4	96.0	75	125	0.8	20
SPK/SPKD	52281002		100	34.0	26.3	75	125	1.3	20
SPK/SPKD	52964008		100	103.0	104.0	75	125	1.0	20

Antimony Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	95.7		80	120		
MB		<0.001							
MB		<0.001							
SPK/SPKD	52107001		0.4	103.0	102.0	75	125	0.4	20

Antimony, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	95.7		80	120		
MB		<0.001							
MB		<0.001							
SPK/SPKD	51858002		0.1	106.0	106.0	75	125	0.6	20
SPK/SPKD	52104004		0.1	104.0	103.0	75	125	1.1	20
SPK/SPKD	52107001		0.4	103.0	102.0	75	125	0.4	20
SPK/SPKD	52279002		0.1	104.0	103.0	75	125	1.1	20
SPK/SPKD	52281006		0.1	105.0	105.0	75	125	0.0	20

Arsenic Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.4		80	120		
LFB-MS			0.1	104.0		80	120		
MB		<0.002							
MB		<0.002							
SPK/SPKD	52107001		0.4	105.0	104.0	75	125	0.9	20

Arsenic, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.4		80	120		

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Arsenic, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	104.0		80	120		
MB		<0.002							
MB		<0.002							
SPK/SPKD	51858002		0.1	105.0	106.0	75	125	1.3	20
SPK/SPKD	52104004		0.1	103.0	102.0	75	125	0.5	20
SPK/SPKD	52107001		0.4	105.0	104.0	75	125	0.9	20
SPK/SPKD	52279002		0.1	104.0	104.0	75	125	0.2	20
SPK/SPKD	52281006		0.1	113.0	114.0	75	125	0.4	20

Barium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.6		80	120		
LFB-MS			0.1	90.1		80	120		
MB		<0.002							
MB		<0.002							
SPK/SPKD	52107001		0.4	167.0	168.0	75	125	0.5	20

Barium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	90.1		80	120		
LFB-MS			0.1	99.6		80	120		
MB		<0.002							
MB		<0.002							
SPK/SPKD	51858002		0.1	93.9	95.1	75	125	0.9	20
SPK/SPKD	52104004		0.1	92.2	91.5	75	125	0.6	20
SPK/SPKD	52107001		0.4	167.0	168.0	75	125	0.5	20
SPK/SPKD	52279002		0.1	92.1	92.9	75	125	0.4	20
SPK/SPKD	52281006		0.1	167.0	166.0	75	125	0.7	20

Beryllium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.7		80	120		
LFB-MS			0.1	99.0		80	120		
MB		<0.0005							

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Beryllium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.0005							
SPK/SPKD	52107001		0.4	105.0	105.0	75	125	0.2	20

Beryllium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.7		80	120		
LFB-MS			0.1	99.0		80	120		
MB		<0.0005							
MB		<0.0005							
SPK/SPKD	51858002		0.1	115.0	116.0	75	125	0.6	20
SPK/SPKD	52104004		0.1	114.0	112.0	75	125	1.0	20
SPK/SPKD	52107001		0.4	105.0	105.0	75	125	0.2	20
SPK/SPKD	52279002		0.1	113.0	110.0	75	125	2.6	20
SPK/SPKD	52281006		0.1	112.0	112.0	75	125	0.3	20

Cadmium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.2		80	120		
LFB-MS			0.1	99.2		80	120		
MB		<0.0005							
MB		<0.0005							
SPK/SPKD	52107001		0.4	94.4	93.7	75	125	0.7	20

Cadmium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.2		80	120		
LFB-MS			0.1	95.2		80	120		
MB		<0.0005							
MB		<0.0005							
SPK/SPKD	51858002		0.1	97.0	98.7	75	125	1.7	20
SPK/SPKD	52104004		0.1	95.1	93.6	75	125	1.6	20
SPK/SPKD	52107001		0.4	94.4	93.7	75	125	0.7	20
SPK/SPKD	52279002		0.1	96.0	95.7	75	125	0.3	20
SPK/SPKD	52281006		0.1	94.2	95.1	75	125	1.0	20

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Chromium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.9		80	120		
LFB-MS			0.1	105.0		80	120		
MB		<0.002							
MB		<0.002							
SPK/SPKD	52107001		0.4	107.0	106.0	75	125	1.2	20

Chromium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
LFB-MS			0.1	96.9		80	120		
MB		<0.002							
MB		<0.002							
SPK/SPKD	51858002		0.1	99.8	99.5	75	125	0.3	20
SPK/SPKD	52104004		0.1	98.6	97.9	75	125	0.7	20
SPK/SPKD	52107001		0.4	107.0	106.0	75	125	1.2	20
SPK/SPKD	52279002		0.1	100.0	100.0	75	125	0.2	20
SPK/SPKD	52281006		0.1	102.0	102.0	75	125	0.2	20

Cobalt — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	94.8		80	120		
LFB-MS			0.1	104.0		80	120		
MB		<0.002							
MB		<0.002							
SPK/SPKD	52107001		0.4	104.0	103.0	75	125	1.2	20

Cobalt, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	94.8		80	120		
LFB-MS			0.1	104.0		80	120		
MB		<0.002							
MB		<0.002							
SPK/SPKD	51858002		0.1	97.8	97.9	75	125	0.1	20
SPK/SPKD	52104004		0.1	96.4	96.2	75	125	0.2	20

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Cobalt, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52107001		0.4	104.0	103.0	75	125	1.2	20
SPK/SPKD	52279002		0.1	98.9	98.9	75	125	0.0	20
SPK/SPKD	52281006		0.1	101.0	100.0	75	125	0.6	20

Lead — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	95.3		80	120		
MB		<0.0005							
MB		<0.0005							
SPK/SPKD	52107001		0.4	97.8	97.2	75	125	0.6	20

Lead, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.3		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.0005							
MB		<0.0005							
SPK/SPKD	51858002		0.1	97.2	96.9	75	125	0.3	20
SPK/SPKD	52104004		0.1	94.7	94.8	75	125	0.1	20
SPK/SPKD	52107001		0.4	97.8	97.2	75	125	0.6	20
SPK/SPKD	52279002		0.1	94.9	94.4	75	125	0.5	20
SPK/SPKD	52281006		0.1	94.4	93.8	75	125	0.6	20

Molybdenum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	104.0		80	120		
LFB-MS			0.1	96.0		80	120		
MB		<0.002							
MB		<0.002							
SPK/SPKD	52107001		0.4	113.0	107.0	75	125	5.3	20

Molybdenum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	104.0		80	120		
LFB-MS			0.1	96.0		80	120		

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Molybdenum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.002							
MB		<0.002							
SPK/SPKD	51858002		0.1	97.8	97.8	75	125	0.1	20
SPK/SPKD	52104004		0.1	97.8	97.8	75	125	0.0	20
SPK/SPKD	52107001		0.4	113.0	107.0	75	125	5.3	20
SPK/SPKD	52279002		0.1	99.2	98.9	75	125	0.2	20
SPK/SPKD	52281006		0.1	107.0	106.0	75	125	0.4	20

Selenium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	93.4		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.005							
MB		<0.005							
SPK/SPKD	52107001		0.4	100.0	100.0	75	125	0.5	20

Selenium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	93.4		80	120		
MB		<0.005							
MB		<0.005							
SPK/SPKD	51858002		0.1	106.0	106.0	75	125	0.4	20
SPK/SPKD	52104004		0.1	104.0	102.0	75	125	1.7	20
SPK/SPKD	52107001		0.4	100.0	100.0	75	125	0.5	20
SPK/SPKD	52279002		0.1	106.0	104.0	75	125	1.6	20
SPK/SPKD	52281006		0.1	111.0	115.0	75	125	3.7	20

Thallium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.2		80	120		
LFB-MS			0.1	99.5		80	120		
MB		<0.0005							
MB		<0.0005							

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Thallium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52107001		0.4	92.6	92.6	75	125	0.1	20

Thallium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.5		80	120		
LFB-MS			0.1	96.2		80	120		
MB		<0.0005							
MB		<0.0005							
SPK/SPKD	51858002		0.1	95.0	94.2	75	125	0.8	20
SPK/SPKD	52104004		0.1	91.6	91.7	75	125	0.1	20
SPK/SPKD	52107001		0.4	92.6	92.6	75	125	0.1	20
SPK/SPKD	52279002		0.1	92.3	92.3	75	125	0.0	20
SPK/SPKD	52281006		0.1	92.1	91.4	75	125	0.8	20

Mercury Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	100.0		85	115		
LFB			0.002	107.0		85	115		
LFB			0.002	90.7		85	115		
LRB		<0.0002							
LRB		<0.0002							
MB		<0.0002							
MS/MSD	52104001		0.002	114.0	113.0	70	130	4.4	20
MS/MSD	52104004		0.002	100.0	102.0	70	130	0.0	20
MS/MSD	52281002		0.002	90.9	92.2	70	130	0.0	20
MS/MSD	52281006		0.002	106.0	101.0	70	130	4.9	20

Mercury, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	107.0		85	115		
LFB			0.002	90.7		85	115		
LFB			0.002	90.8		85	115		
LFB			0.002	100.0		85	115		
LRB		<0.0002							

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Mercury, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LRB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MS/MSD	52102004		0.002	112.0	108.0	70	130	0.0	20
MS/MSD	52104004		0.002	113.0	112.0	70	130	4.4	20
MS/MSD	52281002		0.002	92.2	94.8	70	130	5.4	20
MS/MSD	52281004		0.002	122.0	123.0	70	130	0.0	20

Alkalinity, Total — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			501	92.1		80	120		
LFB			410	91.3		90	110		
LFB			410	91.3		90	110		
LFB			410	91.4		90	110		
LFB			410	91.3		90	110		
LFB			410	91.3		90	110		
MB		<20.5							
MB		<20.5							
MB		<20.5							
MB		<20.5							
MB		<20.5							
MS/MSD	52101001		410	92.8	92.5	80	120	0.2	20
MS/MSD	52101002		410	93.2	93.5	80	120	0.2	20
MS/MSD	52103001		410	78.8	77.2	80	120	1.2	20
MS/MSD	52104004		410	75.2	74.4	80	120	0.4	20

pH — Units: units

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	100.8		98.33	101.67		
CRM-PH			6	100.7		98.33	101.67		
CRM-PH			6	100.7		98.33	101.67		
CRM-PH			6	100.5		98.33	101.67		
CRM-PH			6	100.7		98.33	101.67		

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pH — Units: units

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
DUP	52094001							0.7	20
DUP	52101008							0.7	20
DUP	52104004							0.6	20
DUP	52104011							2.2	20

Fluoride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			3.06	99.7		83.99	111.11		
LFB-F			0.5	98.0		90	110		
LFB-F			0.5	96.0		90	110		
LFB-F			0.5	96.0		90	110		
LFB-F			0.5	98.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MS/MSD-F	52087002		0.5	102.0	102.0	80	120	0.0	20
MS/MSD-F	52103003		0.5	104.0	100.0	80	120	1.9	20
MS/MSD-F	52104004		0.5	102.0	102.0	80	120	0.0	20

Total Dissolved Solids — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	102.0		90.35	110.33		
MB		<10							
DUP	52281002							0.0	20
DUP	52479001							9.1	20

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Bismarck, ND 58501
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Great River Energy
WO: 52107

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS PB
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: June 2024
Address:		Lakewood, CO 80228	Sampled By: Jeremy Myer
Phone:			
Email:	CJohnston@GREnergy.com		

Sample Information					Sample Containers									Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric					Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-PB1	18 Jun 24	1450	GW	X	X	X							10.90	1960	7.15	176.47	App III, AppIV, Additional List (total and dissolved for all metals) (See Attachments)

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1	18 Jun 24 1705	Log In Walk In #2	9.2 °C/TM 805 RO Y/N		19 Jun 24 0800
2					

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February 2024 GL21509219.000

Table 2. Parameter and Analysis Summary - Appendix III Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/11	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	SM 4500 F E/11	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	ASTM D516-16	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	USGS I-1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total and dissolved)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:
1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent methods.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

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Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

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Table 4: Additional List Parameter and Analysis Summary

Parameter [1]	Method Reference [2]	Reporting Limit	Preparation Method Reference [2]	Sample Container [3]	Required Preservation [4]	Maximum Holding Time from Sampling [5]
General Chemistry						
Total Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Bicarbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Carbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Metals (Total and Dissolved)						
Iron	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Magnesium	EPA 6010D	0.2 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Potassium	EPA 6010D	3.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Sodium	EPA 6010D	1.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Aluminum	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Manganese	EPA 6010D	0.05 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months

Notes:

1. All listed parameters are tested in the laboratory. Listed parameters are to be collected in conjunction with other CCR parameter lists (Table 2 and Table 3).

2. Or equivalent method.
3. Containers and volumes will be specified by the analytical laboratory.
4. In addition to the required preservation for each sample container, sufficient ice should be placed with the sample containers in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when samples arrive, measurement of the temperature of samples immediately upon receipt is necessary to confirm that the 4° C temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible following collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid, without the use of qualifiers.

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Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	PB1
Sampling Personal:	

Weather Conditions: Temp: 50 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / (Cloudy)

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	24.18	ft
Depth to Top of Pump:	25.21	ft
Water Level After Sample:	24.98	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	2	Sec.
Recover:	58	Sec.
PSI:	—	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
18 June 24	1415	Start of Well Purge									
	1420	11.16	1806	7.15	2.56	166.3	920.38	24.60	100.0	0.5	Turbid
	1425	11.14	1818	7.16	1.22	144.2	504.33	24.67	100.0	0.5	Slightly Turbid (ST)
	1430	11.16	1867	7.16	0.96	129.6	371.00	24.72	100.0	0.5	ST
	1435	11.12	1905	7.15	0.95	116.4	288.38	24.79	100.0	0.5	ST
	1440	11.05	1946	7.15	0.94	99.5	188.63	24.85	100.0	0.5	ST
	1445	10.93	1959	7.15	0.99	87.9	238.68	24.90	100.0	0.5	ST
	1450	10.90	1960	7.15	0.93	78.1	176.47	24.92	100.0	0.5	ST

Well Stabilized? (YES) NO Total Volume Purged: 3.5 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18 June 24	1450	10.90	1960	7.15			176.47				ST

Comments:	

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS PB June 2024 (52176) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52176001 **Date Collected:** 06/18/2024 14:50 **Matrix:** Groundwater
Sample ID: MW-PB1 **Date Received:** 06/18/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 19.8

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		08/07/2024 08:29	
Radium 228	See Attached			1		08/07/2024 08:29	

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ANALYTICAL SUMMARY REPORT

August 06, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24060882 Quote ID: C15480
Project Name: 52176

Energy Laboratories, Inc. Casper WY received the following 1 sample for Minnesota Valley Testing Laboratories on 6/24/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24060882-001	52176001, MW-PB1	06/18/24 14:50	06/24/24	Groundwater	Radium 226, Total Radium 228, Total

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy, Casper, WY 82601-9601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

Energy Laboratories, Inc. verifies the reported results for the analysis has been technically reviewed and approved for release.

If you have any questions regarding these test results, please contact your Project Manager.

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52176
Lab ID: C24060882-001
Client Sample ID: 52176001, MW-PB1

Report Date: 08/06/24
Collection Date: 06/18/24 14:50
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.4	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 228	0.9	pCi/L	U			RA-05	07/02/24 14:16 / trs
Radium 228 precision (±)	0.8	pCi/L				RA-05	07/02/24 14:16 / trs
Radium 228 MDC	1.2	pCi/L				RA-05	07/02/24 14:16 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24060882 **Report Date:** 07/11/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11359
Lab ID: LCS-RA226-11359	3	Laboratory Control Sample				Run: TENNELEC-4_240625C				07/08/24 11:30
Radium 226		11	pCi/L		110	70	130			
Radium 226 precision (±)		2.1	pCi/L							
Radium 226 MDC		0.17	pCi/L							
Lab ID: MB-RA226-11359	3	Method Blank				Run: TENNELEC-4_240625C				07/08/24 11:30
Radium 226		0.1	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.1	pCi/L							
Lab ID: C24060880-004AMS	3	Sample Matrix Spike				Run: TENNELEC-4_240625C				07/08/24 11:30
Radium 226		10	pCi/L		103	70	130			
Radium 226 precision (±)		2.0	pCi/L							
Radium 226 MDC		0.20	pCi/L							
Lab ID: C24060880-004AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_240625C				07/08/24 11:30
Radium 226		10	pCi/L		102	70	130	1.4	30	
Radium 226 precision (±)		2.0	pCi/L							
Radium 226 MDC		0.30	pCi/L							

- The RER result is 0.05.

Qualifiers:

RL - Analyte Reporting Limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24060882 **Report Date:** 07/11/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7427R
Lab ID: LCS-228-RA226-11359	3	Laboratory Control Sample				Run: TENNELEC-4_240625B				07/02/24 14:16
Radium 228		8.9	pCi/L		85	70	130			
Radium 228 precision (±)		1.8	pCi/L							
Radium 228 MDC		0.79	pCi/L							
Lab ID: MB-RA226-11359	3	Method Blank				Run: TENNELEC-4_240625B				07/02/24 14:16
Radium 228		0.03	pCi/L							U
Radium 228 precision (±)		0.5	pCi/L							
Radium 228 MDC		0.8	pCi/L							
Lab ID: C24060880-004AMS1	3	Sample Matrix Spike				Run: TENNELEC-4_240625B				07/02/24 14:16
Radium 228		8.5	pCi/L		78	70	130			
Radium 228 precision (±)		1.7	pCi/L							
Radium 228 MDC		0.80	pCi/L							
Lab ID: C24060880-004AMSD1	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_240625B				07/02/24 14:16
Radium 228		8.7	pCi/L		80	70	130	2.2	30	
Radium 228 precision (±)		1.7	pCi/L							
Radium 228 MDC		0.81	pCi/L							

- The RER result is 0.08.

Qualifiers:

RL - Analyte Reporting Limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24060882

Login completed by: Aaron J. Smith
Reviewed by: lcadreau
Reviewed Date: 7/10/2024
Date Received: 6/24/2024
Received by: LFN
Carrier name: UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	26.0°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Trip Blanks and/or Blind Duplicate samples are assigned the earliest collection time for the associated requested analysis in order to evaluate the holding time unless specifically indicated.

Contact and Corrective Action Comments:

The temperature blank temperature in shipping container 1 was 24.8°C, shipping container 2 was 25.0°C, shipping container 3 was 26.0°C, shipping container 4 was 24.4°C, and shipping container 7 was 25.3°C. The temperature of the

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Work Order Receipt Checklist - Continued

Minnesota Valley Testing Laboratories C24060882

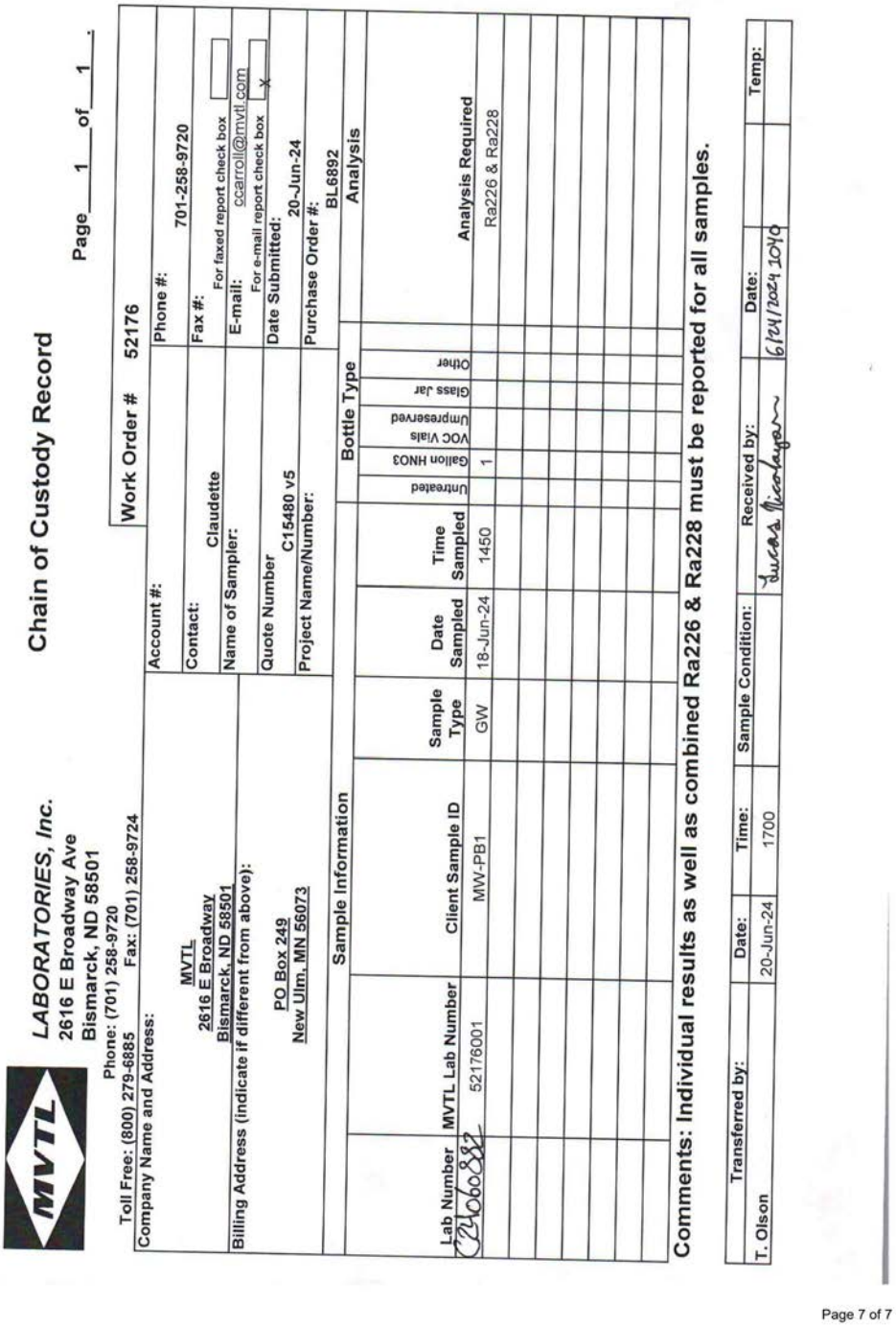
sample(s) in shipping container 5 was 25.3°C and shipping container 6 was 25.1°C. AS 6/25/24

Cancel combined radium per Tera Olson via email on 7/1/2024.-7/9/2024 mas.

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Account #: 5109 **Client:** Great River Energy



Chain of Custody Record

LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Page 1 of 1

Work Order # 52176

Company Name and Address: MVTL, 2616 E Broadway, Bismarck, ND 58501

Billing Address (indicate if different from above): PO Box 249, New Ulm, MN 56073

Account #:
Contact: Claudette
Name of Sampler:
Quote Number C15480 v5
Project Name/Number:

Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box x
Date Submitted: 20-Jun-24
Purchase Order #: BL6892

Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Untreated	Gallon HNO3	VOC Vials	Unpreserved	Glass Jar	Other	Analysis Required
21606882	52176001	MW-PB1	GW	18-Jun-24	1450		1					Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
T. Olson	20-Jun-24	1700		Lucas Nicolaysen	6/21/2024 1040	

Page 7 of 7

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Member ACIL

Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 52176

Chain of Custody Record

Report To:	Great River Energy	CC:	Golder Associates
Attn:	Cassie Johnston		44 Union Blvd, Suite 300
Address:			Lakewood, CO 80228
Phone:			
Email:	CJohnston@GREnergy.com		

Project Name: SS PB
Event: June 2024
Sampled By: Jeremy Meyer

Lab Number	Sample Information: Sample ID	Date	Time	Sample Type	Sample Containers: 1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Gal Nitric				Field Readings: Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-PB1	18 Jun 24	1450	GW					X								Radium 226 and 228 Combined

Comments:

Relinquished By: Name	Date/Time	Sample Condition: Location	Temp (°C)	Received By: Name	Date/Time
1	18 Jun 24 1705	Log In Walk In #2	4.8 °C/TM 805 ROI Y/N		19 Jun 24 0800
2					

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	PB1
Sampling Personal:	

Weather Conditions: Temp: 50 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / (Cloudy)

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	24.18	ft
Depth to Top of Pump:	25.21	ft
Water Level After Sample:	24.98	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	2	Sec.
Recover:	58	Sec.
PSI:	—	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
18 June 24	1415	Start of Well Purge									
	1420	11.16	1806	7.15	2.56	166.3	920.38	24.60	100.0	0.5	Turbid
	1425	11.14	1818	7.16	1.22	144.2	504.33	24.67	100.0	0.5	Slightly Turbid (ST)
	1430	11.16	1867	7.16	0.96	129.6	371.00	24.72	100.0	0.5	ST
	1435	11.12	1905	7.15	0.95	116.4	288.38	24.79	100.0	0.5	ST
	1440	11.05	1946	7.15	0.94	99.5	188.63	24.85	100.0	0.5	ST
	1445	10.93	1959	7.15	0.99	87.9	238.68	24.90	100.0	0.5	ST
	1450	10.90	1960	7.15	0.93	78.1	176.47	24.92	100.0	0.5	ST

Well Stabilized? (YES) NO Total Volume Purged: 3.5 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18 June 24	1450	10.90	1960	7.15			176.47				ST

Comments:

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS 2022 Wells (52281) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52281001 **Date Collected:** 06/19/2024 10:53 **Matrix:** Groundwater
Sample ID: MW-210 **Date Received:** 06/19/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.9 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1590**	umhos/cm	1	1		06/19/2024 10:53	
Method: 150.2							
pH - Field	**7.79**	units	0.01	1		06/19/2024 10:53	
Method: 170.1							
Temperature - Field C	**10.39**	degrees C		1		06/19/2024 10:53	
Method: ASTM D516-16							
Sulfate	**351**	mg/L	10	2		06/26/2024 10:33	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**0.63**	mg/L	0.1	1	06/20/2024 14:55	07/02/2024 11:21	
Calcium	**69.5**	mg/L	1	1	06/20/2024 14:55	06/25/2024 11:08	
Lithium	**0.0385**	mg/L	0.02	1	06/20/2024 14:55	07/10/2024 10:16	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/20/2024 14:55	07/10/2024 17:04	
Arsenic	<0.002	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:04	
Barium	**0.0325**	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:04	
Beryllium	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:04	
Cadmium	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:04	
Chromium	<0.002	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:04	
Cobalt	<0.002	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:04	
Lead	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:04	
Molybdenum	**0.0108**	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:04	
Selenium	<0.005	mg/L	0.005	5	06/20/2024 14:55	07/10/2024 17:04	
Thallium	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:04	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52281001 **Date Collected:** 06/19/2024 10:53 **Matrix:** Groundwater
Sample ID: MW-210 **Date Received:** 06/19/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.9 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		06/20/2024 17:28	*
Method: SM4500-Cl-E 2011							
Chloride	**12.2**	mg/L	2.0	1		06/25/2024 10:00	
Method: SM4500-F-C-2011							
Fluoride	**0.60**	mg/L	0.1	1		06/20/2024 17:28	
Method: USGS I-1750-85							
Total Dissolved Solids	**1120**	mg/L	10	1		06/21/2024 14:48	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52281002 **Date Collected:** 06/19/2024 08:30 **Matrix:** Groundwater
Sample ID: MW-211 **Date Received:** 06/19/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.9 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2871**	umhos/cm	1	1		06/19/2024 08:30	
Method: 150.2							
pH - Field	**7.72**	units	0.01	1		06/19/2024 08:30	
Method: 170.1							
Temperature - Field C	**8.47**	degrees C		1		06/19/2024 08:30	
Method: ASTM D516-16							
Sulfate	**911**	mg/L	50	10		06/26/2024 10:34	*
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**1.60**	mg/L	0.1	1	06/20/2024 14:55	07/02/2024 11:22	
Calcium	**69.8**	mg/L	1	1	06/20/2024 14:55	06/25/2024 11:09	
Lithium	**0.0261**	mg/L	0.02	1	06/20/2024 14:55	07/10/2024 10:17	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/20/2024 14:55	07/10/2024 17:09	
Arsenic	**0.0095**	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:09	
Barium	**0.1022**	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:09	
Beryllium	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:09	
Cadmium	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:09	
Chromium	<0.002	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:09	
Cobalt	<0.002	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:09	
Lead	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:09	
Molybdenum	**0.0229**	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:09	
Selenium	**0.0065**	mg/L	0.005	5	06/20/2024 14:55	07/10/2024 17:09	
Thallium	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:09	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52281002 **Date Collected:** 06/19/2024 08:30 **Matrix:** Groundwater
Sample ID: MW-211 **Date Received:** 06/19/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.9 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		06/20/2024 17:39	*
Method: SM4500-Cl-E 2011							
Chloride	**17.3**	mg/L	2.0	1		06/25/2024 10:01	
Method: SM4500-F-C-2011							
Fluoride	**0.60**	mg/L	0.1	1		06/20/2024 17:39	
Method: USGS I-1750-85							
Total Dissolved Solids	**2020**	mg/L	10	1		06/21/2024 14:48	

Analysis Results Comments

Alkalinity, Total

Matrix spike and/or matrix spike duplicate recovery was low; the associated laboratory control sample recovery was acceptable.

Sulfate

Matrix spike and/or matrix spike duplicate recovery was low; the associated laboratory control sample recovery was acceptable.

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52281003 **Date Collected:** 06/19/2024 09:58 **Matrix:** Groundwater
Sample ID: MW-212 **Date Received:** 06/19/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.9 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1959**	umhos/cm	1	1		06/19/2024 09:58	
Method: 150.2							
pH - Field	**8.23**	units	0.01	1		06/19/2024 09:58	
Method: 170.1							
Temperature - Field C	**9.67**	degrees C		1		06/19/2024 09:58	
Method: ASTM D516-16							
Sulfate	**442**	mg/L	25	5		06/26/2024 10:44	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**0.73**	mg/L	0.1	1	06/20/2024 14:55	07/02/2024 11:24	
Calcium	**42.0**	mg/L	1	1	06/20/2024 14:55	06/25/2024 11:17	
Lithium	**0.0248**	mg/L	0.02	1	06/20/2024 14:55	07/10/2024 10:18	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/20/2024 14:55	07/10/2024 17:26	
Arsenic	**0.0032**	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:26	
Barium	**0.0685**	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:26	
Beryllium	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:26	
Cadmium	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:26	
Chromium	<0.002	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:26	
Cobalt	**0.0023**	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:26	
Lead	**0.0016**	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:26	
Molybdenum	**0.0434**	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:26	
Selenium	<0.005	mg/L	0.005	5	06/20/2024 14:55	07/10/2024 17:26	
Thallium	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:26	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52281003 **Date Collected:** 06/19/2024 09:58 **Matrix:** Groundwater
Sample ID: MW-212 **Date Received:** 06/19/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.9 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**8.2**	units	0.1	1		06/20/2024 17:50	*
Method: SM4500-Cl-E 2011							
Chloride	**14.8**	mg/L	2.0	1		06/25/2024 10:02	
Method: SM4500-F-C-2011							
Fluoride	**0.49**	mg/L	0.1	1		06/20/2024 17:50	
Method: USGS I-1750-85							
Total Dissolved Solids	**1310**	mg/L	10	1		06/21/2024 14:48	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52281004 **Date Collected:** 06/19/2024 12:00 **Matrix:** Groundwater
Sample ID: MW-213 **Date Received:** 06/19/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.9 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1527**	umhos/cm	1	1		06/19/2024 12:00	
Method: 150.2							
pH - Field	**7.82**	units	0.01	1		06/19/2024 12:00	
Method: 170.1							
Temperature - Field C	**9.71**	degrees C		1		06/19/2024 12:00	
Method: ASTM D516-16							
Sulfate	**309**	mg/L	10	2		06/26/2024 10:45	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**1.07**	mg/L	0.1	1	06/20/2024 14:55	07/02/2024 11:25	
Calcium	**86.8**	mg/L	1	1	06/20/2024 14:55	06/25/2024 11:19	
Lithium	**0.0363**	mg/L	0.02	1	06/20/2024 14:55	07/10/2024 10:19	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/20/2024 14:55	07/10/2024 17:30	
Arsenic	<0.002	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:30	
Barium	**0.0384**	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:30	
Beryllium	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:30	
Cadmium	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:30	
Chromium	<0.002	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:30	
Cobalt	<0.002	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:30	
Lead	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:30	
Molybdenum	**0.0169**	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:30	
Selenium	<0.005	mg/L	0.005	5	06/20/2024 14:55	07/10/2024 17:30	
Thallium	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:30	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52281004 **Date Collected:** 06/19/2024 12:00 **Matrix:** Groundwater
Sample ID: MW-213 **Date Received:** 06/19/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.9 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		06/20/2024 18:00	*
Method: SM4500-Cl-E 2011							
Chloride	**12.0**	mg/L	2.0	1		06/25/2024 10:03	
Method: SM4500-F-C-2011							
Fluoride	**0.86**	mg/L	0.1	1		06/20/2024 18:00	
Method: USGS I-1750-85							
Total Dissolved Solids	**1030**	mg/L	10	1		06/21/2024 14:48	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52281005 **Date Collected:** 06/19/2024 12:00 **Matrix:** Groundwater
Sample ID: Dup-2022 **Date Received:** 06/19/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.9 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: ASTM D516-16							
Sulfate	**351**	mg/L	25	5		06/26/2024 10:46	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/28/2024 08:05	
Method: EPA 6010D							
Boron	**1.08**	mg/L	0.1	1	06/20/2024 14:55	07/02/2024 11:27	
Calcium	**87.8**	mg/L	1	1	06/20/2024 14:55	06/25/2024 11:20	
Lithium	**0.0362**	mg/L	0.02	1	06/20/2024 14:55	07/10/2024 10:20	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/20/2024 14:55	07/10/2024 17:34	
Arsenic	<0.002	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:34	
Barium	**0.0396**	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:34	
Beryllium	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:34	
Cadmium	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:34	
Chromium	<0.002	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:34	
Cobalt	<0.002	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:34	
Lead	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:34	
Molybdenum	**0.0168**	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:34	
Selenium	<0.005	mg/L	0.005	5	06/20/2024 14:55	07/10/2024 17:34	
Thallium	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:34	
Method: SM4500 H+ B-2011							
pH	**8.0**	units	0.1	1		06/20/2024 18:11	*
Method: SM4500-Cl-E 2011							
Chloride	**12.0**	mg/L	2.0	1		06/25/2024 10:12	
Method: SM4500-F-C-2011							
Fluoride	**0.87**	mg/L	0.1	1		06/20/2024 18:11	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52281005 **Date Collected:** 06/19/2024 12:00 **Matrix:** Groundwater
Sample ID: Dup-2022 **Date Received:** 06/19/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.9 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: USGS I-1750-85							
Total Dissolved Solids	**991**	mg/L	10	1		06/21/2024 14:48	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52281006 **Date Collected:** 06/19/2024 07:37 **Matrix:** Groundwater
Sample ID: MW-214 **Date Received:** 06/19/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.9 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2021**	umhos/cm	1	1		06/19/2024 07:37	
Method: 150.2							
pH - Field	**7.66**	units	0.01	1		06/19/2024 07:37	
Method: 170.1							
Temperature - Field C	**9.01**	degrees C		1		06/19/2024 07:37	
Method: ASTM D516-16							
Sulfate	**488**	mg/L	25	5		06/26/2024 10:47	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/28/2024 08:05	
Method: EPA 6010D							
Boron	**0.35**	mg/L	0.1	1	06/20/2024 14:55	07/02/2024 11:28	
Calcium	**62.0**	mg/L	1	1	06/20/2024 14:55	06/25/2024 11:21	
Lithium	**0.0528**	mg/L	0.02	1	06/20/2024 14:55	07/10/2024 10:20	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/20/2024 14:55	07/10/2024 17:39	
Arsenic	<0.002	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:39	
Barium	**0.0340**	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:39	
Beryllium	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:39	
Cadmium	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:39	
Chromium	<0.002	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:39	
Cobalt	<0.002	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:39	
Lead	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:39	
Molybdenum	**0.0166**	mg/L	0.002	5	06/20/2024 14:55	07/10/2024 17:39	
Selenium	<0.005	mg/L	0.005	5	06/20/2024 14:55	07/10/2024 17:39	
Thallium	<0.0005	mg/L	0.0005	5	06/20/2024 14:55	07/10/2024 17:39	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52281006 **Date Collected:** 06/19/2024 07:37 **Matrix:** Groundwater
Sample ID: MW-214 **Date Received:** 06/19/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.9 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		06/20/2024 18:21	*
Method: SM4500-Cl-E 2011							
Chloride	**34.4**	mg/L	2.0	1		06/25/2024 10:13	
Method: SM4500-F-C-2011							
Fluoride	**0.52**	mg/L	0.1	1		06/20/2024 18:21	
Method: USGS I-1750-85							
Total Dissolved Solids	**1380**	mg/L	10	1		06/21/2024 14:48	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 52281

Sulfate — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			100	92.5		85	115		
LFB			100	92.6		85	115		
LFB			100	93.2		85	115		
LFB			100	96.0		85	115		
LFB			100	89.1		85	115		
LFB			100	98.1		85	115		
LFB			100	92.7		85	115		
LFB			100	98.8		85	115		
LFB			100	94.4		85	115		
LFB			100	104.0		85	115		
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MS/MSD	52101007		500	82.2	80.1	85	115	2.2	20
MS/MSD	52104002		500	72.3	77.1	85	115	2.5	20
MS/MSD	52104004		1000	79.6	82.5	85	115	2.1	20
MS/MSD	52281002		1000	75.2	77.5	85	115	1.8	20
MS/MSD	52396002		1000	69.0	72.5	85	115	2.4	20
MS/MSD	52454005		100	97.1	96.0	85	115	1.1	20
MS/MSD	52461002		100	96.3	96.0	85	115	0.3	20
MS/MSD	52575002		500	70.7	73.4	85	115	1.8	20

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Account #: 5109 **Client:** Great River Energy

Sulfate				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	52649007		100	73.1	68.5	85	115	3.5	20

Chloride				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	95.8		90	110		
LFB			30	94.5		90	110		
LFB			30	94.6		90	110		
LFB			30	94.7		90	110		
LFB			30	95.0		90	110		
LFB			30	95.3		90	110		
LFB			30	94.9		90	110		
LFB			30	95.1		90	110		
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MS/MSD	52281002		30	95.4	94.7	80	120	0.4	20
MS/MSD	52454006		30	94.7	94.9	80	120	0.4	20
MS/MSD	52649002		30	96.5	95.9	80	120	0.5	20
MS/MSD	52649007		30	94.7	94.2	80	120	0.5	20

Aluminum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
PDS/PDSD	52095001		2	94.4	97.0	75	125	1.5	20
PDS/PDSD	52102001		1	102.0	104.0	75	125	2.0	20
PDS/PDSD	52104004		0.4	100.0	99.5	75	125	0.6	20
PDS/PDSD	52107001		5	99.5	95.7	75	125	1.7	20

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Account #: 5109 **Client:** Great River Energy

Aluminum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	52279001		0.4	122.0	128.0	70	130	5.0	20
MS/MSD	52281002		0.4	127.0	125.0	70	130	1.8	20
PDS/PDSD	52425001		20	99.0	101.0	75	125	1.7	20
PDS/PDSD	52425001		4	120.0	116.0	75	125	3.6	20
PDS/PDSD	52467001		0.4	100.0	100.0	75	125	0.1	20

Aluminum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
SPK/SPKD	51175005		0.4	106.0	106.0	75	125	0.3	20
SPK/SPKD	51714006		0.4	113.0	110.0	75	125	2.1	20
SPK/SPKD	51858001		0.4	110.0	110.0	75	125	0.3	20
SPK/SPKD	52104004		0.4	107.0	108.0	75	125	0.2	20
SPK/SPKD	52281002		0.4	106.0	107.0	75	125	0.9	20
SPK/SPKD	52429006		0.4	89.5	91.5	75	125	2.2	20
SPK/SPKD	52454002		0.4	95.9	93.8	75	125	2.2	20
SPK/SPKD	52467001		0.4	101.0	100.0	75	125	0.7	20

Boron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	103.0		85	115		
MB		<0.1							
MS/MSD	52279001		0.4	80.0	102.0	70	130	4.6	20
MS/MSD	52281002		0.4	103.0	99.5	70	130	0.7	20

Boron, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	103.0		85	115		
MB		<0.1							
SPK/SPKD	51856004		0.4	93.1	93.4	75	125	0.2	20
SPK/SPKD	52104004		0.4	86.8	85.8	75	125	0.4	20
SPK/SPKD	52279001		0.4	81.0	81.3	75	125	0.1	20
SPK/SPKD	52281002		0.4	76.5	78.8	75	125	0.5	20

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Account #: 5109 **Client:** Great River Energy

Boron, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52454006		0.4	99.7	100.0	75	125	0.3	20
SPK/SPKD	52467001		0.4	97.7	96.3	75	125	1.1	20
SPK/SPKD	52964008		0.4	97.2	97.4	75	125	0.2	20

Calcium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	113.0		85	115		
MB		<1							
PDS/PDSD	51856004		100	108.0	107.0	75	125	0.8	20
PDS/PDSD	52101002		100	114.0	113.0	75	125	0.7	20
PDS/PDSD	52101008		100	111.0	113.0	75	125	1.8	20
PDS/PDSD	52104004		100	104.0	104.0	75	125	0.1	20
PDS/PDSD	52104011		100	75.1	76.2	75	125	0.8	20
DUP	52270001							5.7	20
DUP	52281002							1.5	20
PDS/PDSD	52281002		100	92.4	92.3	75	125	0.1	20
PDS/PDSD	52429003		100	92.7	92.2	75	125	0.2	20
PDS/PDSD	52429006		100	101.0	101.0	75	125	0.3	20
PDS/PDSD	52461002		100	99.3	99.3	75	125	0.1	20
PDS/PDSD	52467001		100	96.0	95.5	75	125	0.3	20

Calcium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	113.0		85	115		
MB		<1							
SPK/SPKD	51856004		100	95.9	96.1	75	125	0.1	20
SPK/SPKD	52104004		500	101.0	99.9	75	125	1.1	20
SPK/SPKD	52104004		100	94.7	94.5	75	125	0.1	20
SPK/SPKD	52279001		100	96.8	96.7	75	125	0.1	20
SPK/SPKD	52281002		100	95.9	96.2	75	125	0.2	20
SPK/SPKD	52281002		500	102.0	103.0	75	125	1.0	20
SPK/SPKD	52964008		100	104.0	103.0	75	125	0.8	20

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Account #: 5109 **Client:** Great River Energy

Iron				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	111.0		85	115		
MB		<0.1							
PDS/PDSD	52095001		2	91.8	90.6	75	125	0.5	20
PDS/PDSD	52102001		1	87.6	86.8	75	125	0.9	20
PDS/PDSD	52107001		5	97.0	98.6	75	125	0.6	20
MS/MSD	52279001		0.4	100.0	104.0	70	130	3.5	20
MS/MSD	52281002		0.4	103.0	105.0	70	130	1.5	20
PDS/PDSD	52425001		20	88.6	87.6	75	125	1.1	20
PDS/PDSD	52425001		4	106.0	107.0	75	125	1.3	20
PDS/PDSD	52467001		0.4	97.7	97.0	75	125	0.4	20

Iron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	111.0		85	115		
MB		<0.1							
SPK/SPKD	51175005		0.4	84.9	89.3	75	125	1.3	20
SPK/SPKD	51714006		0.4	90.7	90.5	75	125	0.1	20
SPK/SPKD	51858001		0.4	78.4	79.3	75	125	0.3	20
SPK/SPKD	52104004		0.4	75.5	79.4	75	125	1.0	20
SPK/SPKD	52281002		0.4	97.8	97.8	75	125	0.0	20
SPK/SPKD	52429006		0.4	85.5	86.3	75	125	0.7	20
SPK/SPKD	52454002		0.4	93.0	94.8	75	125	2.0	20
SPK/SPKD	52467001		0.4	91.3	90.2	75	125	1.2	20

Lithium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
MB		<0.04							
MS/MSD	52279001		0.4	100.0	103.0	70	130	2.3	20
MS/MSD	52281002		0.4	100.0	99.6	70	130	0.8	20

Lithium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		

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Account #: 5109 **Client:** Great River Energy

Lithium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.04							
SPK/SPKD	51856004		0.4	91.2	89.2	75	125	1.9	20
SPK/SPKD	52104004		0.4	88.3	88.1	75	125	0.2	20
SPK/SPKD	52279001		0.4	89.7	91.0	75	125	1.3	20
SPK/SPKD	52281002		0.4	90.9	89.7	75	125	1.2	20

Magnesium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	111.0		85	115		
MB		<1							
PDS/PDSD	51856004		100	110.0	108.0	75	125	0.8	20
PDS/PDSD	52101002		100	117.0	116.0	75	125	0.9	20
PDS/PDSD	52101008		100	114.0	116.0	75	125	2.0	20
PDS/PDSD	52104004		100	111.0	111.0	75	125	0.1	20
PDS/PDSD	52104011		100	94.7	95.8	75	125	0.8	20
DUP	52270001							4.2	20
DUP	52281002							0.9	20
PDS/PDSD	52281002		100	95.5	94.8	75	125	0.4	20
PDS/PDSD	52429003		100	97.3	96.7	75	125	0.4	20
PDS/PDSD	52429006		100	104.0	104.0	75	125	0.4	20
PDS/PDSD	52461002		100	101.0	101.0	75	125	0.1	20
PDS/PDSD	52467001		100	100.0	99.7	75	125	0.4	20

Magnesium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	111.0		85	115		
MB		<1							
SPK/SPKD	51856004		100	97.8	98.2	75	125	0.2	20
SPK/SPKD	52104004		100	101.0	101.0	75	125	0.1	20
SPK/SPKD	52104004		500	104.0	103.0	75	125	1.0	20
SPK/SPKD	52279001		100	102.0	102.0	75	125	0.2	20
SPK/SPKD	52281002		100	98.6	98.5	75	125	0.1	20
SPK/SPKD	52281002		500	104.0	105.0	75	125	1.0	20

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Magnesium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52964008		100	105.0	105.0	75	125	0.6	20

Manganese				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	111.0		85	115		
MB		<0.05							
PDS/PDSD	51735001		25	97.1	97.4	75	125	0.3	20
PDS/PDSD	52095001		2	100.0	99.5	75	125	0.5	20
PDS/PDSD	52102001		1	75.8	73.7	75	125	1.1	20
PDS/PDSD	52104004		0.4	90.9	92.7	75	125	1.4	20
PDS/PDSD	52107001		5	92.7	93.6	75	125	0.7	20
MS/MSD	52281002		0.4	87.9	86.5	70	130	0.6	20
PDS/PDSD	52425001		20	84.7	84.0	75	125	0.8	20
PDS/PDSD	52425001		4	86.8	88.4	75	125	1.5	20
PDS/PDSD	52467001		0.4	106.0	106.0	75	125	0.3	20

Manganese, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	111.0		85	115		
MB		<0.05							
SPK/SPKD	51175005		0.4	99.1	101.0	75	125	1.3	20
SPK/SPKD	51714006		0.4	77.3	76.9	75	125	0.1	20
SPK/SPKD	51858001		0.4	93.9	94.1	75	125	0.2	20
SPK/SPKD	52104004		0.4	90.6	92.4	75	125	1.5	20
SPK/SPKD	52281002		0.4	77.4	77.5	75	125	0.1	20
SPK/SPKD	52429006		0.4	92.5	93.1	75	125	0.6	20
SPK/SPKD	52454002		0.4	95.1	96.5	75	125	1.5	20
SPK/SPKD	52467001		0.4	93.5	92.6	75	125	1.0	20

Potassium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	112.0		85	115		
MB		<1							
PDS/PDSD	51856004		100	112.0	112.0	75	125	0.3	20

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Potassium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	52101002		100	113.0	113.0	75	125	0.2	20
PDS/PDSD	52101008		100	109.0	114.0	75	125	3.2	20
PDS/PDSD	52104004		100	112.0	113.0	75	125	0.9	20
PDS/PDSD	52104011		100	109.0	110.0	75	125	0.6	20
DUP	52270001							7.0	20
DUP	52281002							0.7	20
PDS/PDSD	52281002		100	99.8	98.3	75	125	1.4	20
PDS/PDSD	52429003		100	101.0	101.0	75	125	0.4	20
PDS/PDSD	52429006		100	103.0	103.0	75	125	0.5	20
PDS/PDSD	52461002		100	99.5	99.7	75	125	0.2	20
PDS/PDSD	52467001		100	99.7	99.9	75	125	0.2	20

Potassium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	112.0		85	115		
MB		<1							
SPK/SPKD	51856004		100	101.0	102.0	75	125	1.4	20
SPK/SPKD	52104004		100	101.0	101.0	75	125	0.8	20
SPK/SPKD	52104004		500	100.0	99.8	75	125	0.4	20
SPK/SPKD	52279001		100	102.0	101.0	75	125	0.9	20
SPK/SPKD	52281002		100	102.0	101.0	75	125	0.4	20
SPK/SPKD	52281002		500	101.0	102.0	75	125	1.1	20
SPK/SPKD	52964008		100	102.0	102.0	75	125	0.1	20

Sodium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	112.0		85	115		
MB		<1							
PDS/PDSD	51856004		100	101.0	94.1	75	125	2.5	20
PDS/PDSD	52101002		100	117.0	117.0	75	125	0.5	20
PDS/PDSD	52101008		100	117.0	117.0	75	125	0.1	20
PDS/PDSD	52104004		100	74.5	80.1	75	125	1.2	20
PDS/PDSD	52104011		100	85.2	84.0	75	125	0.3	20

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Sodium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
DUP	52270001							6.5	20
DUP	52281002							1.0	20
PDS/PDSD	52281002		500	88.8	89.0	75	125	0.1	20
PDS/PDSD	52429003		100	92.0	90.6	75	125	0.6	20
PDS/PDSD	52429006		100	75.4	74.4	75	125	0.2	20
PDS/PDSD	52461002		100	101.0	103.0	75	125	1.9	20
PDS/PDSD	52467001		100	94.4	92.4	75	125	1.1	20

Sodium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	112.0		85	115		
MB		<1							
SPK/SPKD	51856004		100	87.2	89.9	75	125	1.0	20
SPK/SPKD	52104004		500	97.4	96.9	75	125	0.3	20
SPK/SPKD	52104004		100	63.8	53.8	75	125	0.1	20
SPK/SPKD	52279001		100	80.9	76.6	75	125	1.3	20
SPK/SPKD	52281002		100	34.0	26.3	75	125	1.3	20
SPK/SPKD	52281002		500	94.4	96.0	75	125	0.8	20
SPK/SPKD	52964008		100	103.0	104.0	75	125	1.0	20

Antimony				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
MB		<0.001							
MS/MSD	52279001		0.4	104.0	106.0	75	125	1.2	20
MS/MSD	52281002		0.4	101.0	106.0	75	125	4.6	20

Antimony, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
MB		<0.001							
SPK/SPKD	51858002		0.1	106.0	106.0	75	125	0.6	20
SPK/SPKD	52104004		0.1	104.0	103.0	75	125	1.1	20
MS/MSD	52279001		0.4	104.0	106.0	75	125	1.2	20

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Antimony, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52279002		0.1	104.0	103.0	75	125	1.1	20
MS/MSD	52281002		0.4	101.0	106.0	75	125	4.6	20
SPK/SPKD	52281006		0.1	105.0	105.0	75	125	0.0	20

Arsenic — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
MB		<0.002							
MS/MSD	52279001		0.4	102.0	102.0	75	125	0.5	20
MS/MSD	52281002		0.4	98.2	104.0	75	125	5.8	20

Arsenic, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
MB		<0.002							
SPK/SPKD	51858002		0.1	105.0	106.0	75	125	1.3	20
SPK/SPKD	52104004		0.1	103.0	102.0	75	125	0.5	20
MS/MSD	52279001		0.4	102.0	102.0	75	125	0.5	20
SPK/SPKD	52279002		0.1	104.0	104.0	75	125	0.2	20
MS/MSD	52281002		0.4	98.2	104.0	75	125	5.8	20
SPK/SPKD	52281006		0.1	113.0	114.0	75	125	0.4	20

Barium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.9		80	120		
MB		<0.002							
MS/MSD	52279001		0.4	95.2	94.8	75	125	0.5	20
MS/MSD	52281002		0.4	91.4	95.9	75	125	3.8	20

Barium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.9		80	120		
MB		<0.002							
SPK/SPKD	51858002		0.1	93.9	95.1	75	125	0.9	20
SPK/SPKD	52104004		0.1	92.2	91.5	75	125	0.6	20
MS/MSD	52279001		0.4	95.2	94.8	75	125	0.5	20

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Account #: 5109 **Client:** Great River Energy

Barium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52279002		0.1	92.1	92.9	75	125	0.4	20
MS/MSD	52281002		0.4	91.4	95.9	75	125	3.8	20
SPK/SPKD	52281006		0.1	167.0	166.0	75	125	0.7	20

Beryllium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
MB		<0.0005							
MS/MSD	52279001		0.4	107.0	106.0	75	125	0.9	20
MS/MSD	52281002		0.4	105.0	110.0	75	125	4.7	20

Beryllium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
MB		<0.0005							
SPK/SPKD	51858002		0.1	115.0	116.0	75	125	0.6	20
SPK/SPKD	52104004		0.1	114.0	112.0	75	125	1.0	20
MS/MSD	52279001		0.4	107.0	106.0	75	125	0.9	20
SPK/SPKD	52279002		0.1	113.0	110.0	75	125	2.6	20
MS/MSD	52281002		0.4	105.0	110.0	75	125	4.7	20
SPK/SPKD	52281006		0.1	112.0	112.0	75	125	0.3	20

Cadmium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.6		80	120		
MB		<0.0005							
MS/MSD	52279001		0.4	99.3	101.0	75	125	1.5	20
MS/MSD	52281002		0.4	95.2	99.9	75	125	4.6	20

Cadmium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.6		80	120		
MB		<0.0005							
SPK/SPKD	51858002		0.1	97.0	98.7	75	125	1.7	20
SPK/SPKD	52104004		0.1	95.1	93.6	75	125	1.6	20
MS/MSD	52279001		0.4	99.3	101.0	75	125	1.5	20

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Cadmium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52279002		0.1	96.0	95.7	75	125	0.3	20
MS/MSD	52281002		0.4	95.2	99.9	75	125	4.6	20
SPK/SPKD	52281006		0.1	94.2	95.1	75	125	1.0	20

Chromium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
MB		<0.002							
MS/MSD	52279001		0.4	101.0	101.0	75	125	0.0	20
MS/MSD	52281002		0.4	96.5	102.0	75	125	6.0	20

Chromium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
MB		<0.002							
SPK/SPKD	51858002		0.1	99.8	99.5	75	125	0.3	20
SPK/SPKD	52104004		0.1	98.6	97.9	75	125	0.7	20
MS/MSD	52279001		0.4	101.0	101.0	75	125	0.0	20
SPK/SPKD	52279002		0.1	100.0	100.0	75	125	0.2	20
MS/MSD	52281002		0.4	96.5	102.0	75	125	6.0	20
SPK/SPKD	52281006		0.1	102.0	102.0	75	125	0.2	20

Cobalt Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
MB		<0.002							
MS/MSD	52279001		0.4	98.1	99.2	75	125	1.3	20
MS/MSD	52281002		0.4	94.0	99.4	75	125	5.7	20

Cobalt, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
MB		<0.002							
SPK/SPKD	51858002		0.1	97.8	97.9	75	125	0.1	20
SPK/SPKD	52104004		0.1	96.4	96.2	75	125	0.2	20
MS/MSD	52279001		0.4	98.1	99.2	75	125	1.3	20

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Cobalt, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52279002		0.1	98.9	98.9	75	125	0.0	20
MS/MSD	52281002		0.4	94.0	99.4	75	125	5.7	20
SPK/SPKD	52281006		0.1	101.0	100.0	75	125	0.6	20

Lead				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
MB		<0.0005							
MS/MSD	52279001		0.4	99.7	98.9	75	125	0.8	20
MS/MSD	52281002		0.4	94.3	99.6	75	125	5.4	20

Lead, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
MB		<0.0005							
SPK/SPKD	51858002		0.1	97.2	96.9	75	125	0.3	20
SPK/SPKD	52104004		0.1	94.7	94.8	75	125	0.1	20
MS/MSD	52279001		0.4	99.7	98.9	75	125	0.8	20
SPK/SPKD	52279002		0.1	94.9	94.4	75	125	0.5	20
MS/MSD	52281002		0.4	94.3	99.6	75	125	5.4	20
SPK/SPKD	52281006		0.1	94.4	93.8	75	125	0.6	20

Molybdenum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
MS/MSD	52279001		0.4	97.4	98.2	75	125	0.7	20
MS/MSD	52281002		0.4	92.6	99.6	75	125	6.9	20

Molybdenum, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
SPK/SPKD	51858002		0.1	97.8	97.8	75	125	0.1	20
SPK/SPKD	52104004		0.1	97.8	97.8	75	125	0.0	20
MS/MSD	52279001		0.4	97.4	98.2	75	125	0.7	20

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Molybdenum, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52279002		0.1	99.2	98.9	75	125	0.2	20
MS/MSD	52281002		0.4	92.6	99.6	75	125	6.9	20
SPK/SPKD	52281006		0.1	107.0	106.0	75	125	0.4	20

Selenium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	104.0		80	120		
MB		<0.005							
MS/MSD	52279001		0.4	105.0	109.0	75	125	3.2	20
MS/MSD	52281002		0.4	102.0	105.0	75	125	3.3	20

Selenium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	104.0		80	120		
MB		<0.005							
SPK/SPKD	51858002		0.1	106.0	106.0	75	125	0.4	20
SPK/SPKD	52104004		0.1	104.0	102.0	75	125	1.7	20
MS/MSD	52279001		0.4	105.0	109.0	75	125	3.2	20
SPK/SPKD	52279002		0.1	106.0	104.0	75	125	1.6	20
MS/MSD	52281002		0.4	102.0	105.0	75	125	3.3	20
SPK/SPKD	52281006		0.1	111.0	115.0	75	125	3.7	20

Thallium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
MB		<0.0005							
MS/MSD	52279001		0.4	96.1	95.2	75	125	0.8	20
MS/MSD	52281002		0.4	90.5	95.3	75	125	5.1	20

Thallium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
MB		<0.0005							
SPK/SPKD	51858002		0.1	95.0	94.2	75	125	0.8	20
SPK/SPKD	52104004		0.1	91.6	91.7	75	125	0.1	20
MS/MSD	52279001		0.4	96.1	95.2	75	125	0.8	20

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Account #: 5109 **Client:** Great River Energy

Thallium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52279002		0.1	92.3	92.3	75	125	0.0	20
MS/MSD	52281002		0.4	90.5	95.3	75	125	5.1	20
SPK/SPKD	52281006		0.1	92.1	91.4	75	125	0.8	20

Mercury Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	100.0		85	115		
LFB			0.002	90.7		85	115		
LFB			0.002	107.0		85	115		
LRB		<0.0002							
LRB		<0.0002							
MB		<0.0002							
MS/MSD	52104001		0.002	114.0	113.0	70	130	4.4	20
MS/MSD	52104004		0.002	100.0	102.0	70	130	0.0	20
MS/MSD	52281002		0.002	90.9	92.2	70	130	0.0	20
MS/MSD	52281006		0.002	106.0	101.0	70	130	4.9	20

Mercury, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	90.8		85	115		
LFB			0.002	100.0		85	115		
LFB			0.002	90.7		85	115		
LFB			0.002	107.0		85	115		
LRB		<0.0002							
LRB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MS/MSD	52102004		0.002	112.0	108.0	70	130	0.0	20
MS/MSD	52104004		0.002	113.0	112.0	70	130	4.4	20
MS/MSD	52281002		0.002	92.2	94.8	70	130	5.4	20
MS/MSD	52281004		0.002	122.0	123.0	70	130	0.0	20

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Alkalinity, Total — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			501	92.1		80	120		
LFB			410	90.6		90	110		
LFB			410	91.0		90	110		
LFB			410	90.9		90	110		
LFB			410	91.3		90	110		
MB		<20.5							
MB		26							
MB		<20.5							
MB		<20.5							
MB		<20.5							
MS/MSD	52270001		410	90.2	90.7	80	120	0.8	20
MS/MSD	52271002		410	93.4	93.0	80	120	0.3	20
MS/MSD	52281002		410	75.5	73.4	80	120	0.9	20

pH — Units: units

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	99.8		98.33	101.67		
CRM-PH			6	99.7		98.33	101.67		
CRM-PH			6	100.2		98.33	101.67		
CRM-PH			6	100.7		98.33	101.67		
DUP	52271001							0.1	20
DUP	52281002							0.6	20
DUP	52319001							0.1	20

Fluoride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			3.06	108.0		83.99	111.11		
LFB-F			0.5	108.0		90	110		
LFB-F			0.5	106.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MS/MSD-F	52281002		0.5	100.0	100.0	80	120	0.0	20

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Total Dissolved Solids Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	102.0		90.35	110.33		
MB		<10							
DUP	52281002							0.0	20
DUP	52479001							9.1	20

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Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 52281

Chain of Custody Record

Report To:	Great River Energy	CC:	Golder Associates
Attn:	Cassie Johnston		44 Union Blvd, Suite 300
Address:			Lakewood, CO 80228
Phone:			
Email:	CJohnston@GREnergy.com		

Project Name: SS 2022 Wells
Event: June 2024
Sampled By: Jeremy Meyer

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric				Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-210	19 June 24	1053	GW	X	X	X						10.39	1590	7.79	265.06	App III, AppIV, Additional List (total and dissolved for all metals) (See Attachments)
002	MW-211/MS/MSD	19 June 24	0830	GW	3	3	3						8.47	2871	7.72	13.23	
003	MW-212	19 June 24	0958	GW	X	X	X						9.67	1959	8.23	6.29	
004	MW-213	19 June 24	1200	GW	X	X	X						9.71	1527	7.82	18.46	
005	Dup-2022	19 June 24	1200	GW	X	X	X						NA	NA	NA	NA	
006	MW-214	19 June 24	0737	GW	X	X	X						9.01	2021	7.66	8.47	

Comments:

Relinquished By			Sample Condition		Received By	
	Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1		19 Jun 24 1705	Log In ~~Walk In #2~~	9.9 °C/TM ROI ~~EDS~~ ~~ON~~		20 Jun 24 0800
2						

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: June 2024
Sample ID: 210
Sampling Personal: [signature]

Weather Conditions: Temp: 55 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	13.60	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	13.65	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	2	Sec.
Recover:	28	Sec.
PSI:	—	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
											clear, slightly turbid, turbid
19 June 24	1028	Start of Well Purge									
	1033	10.39	1583	7.81	0.52	-103.1	356.53	13.64	200.0	1.0	Slightly Turbid (ST)
	1038	10.38	1564	7.80	0.25	-103.7	309.18	13.65	200.0	1.0	ST
	1042	10.36	1624	7.79	0.16	-103.9	430.40	13.65	200.0	1.0	ST
	1048	10.25	1611	7.79	0.14	-106.0	509.54	13.64	200.0	1.0	ST
	1053	10.39	1590	7.79	0.17	-98.1	265.06	13.64	200.0	1.0	ST

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
19 June 24	1053	10.39	1590	7.79			265.06				ST

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	211
Sampling Personal:	JTH

Weather Conditions: Temp: 55 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	19.00	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	19.30	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	—	

Bottle List:		
1 Liter Raw	1 Gal Nitric	
500mL Nitric		×3
500mL Nitric (filtered)		

Duplicate Sample?
(YES) / NO
Duplicate Sample ID:
MS/MSD

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
19 June 24	0805	Start of Well Purge									
	0810	8.48	3027	7.60	0.60	99.2	114.66	19.10	200.0	1.0	Clear
	0815	8.52	3020	7.61	0.59	86.8	40.14	19.13	200.0	1.0	Clear
	0820	8.55	2947	7.65	0.37	73.2	27.56	19.17	200.0	1.0	Clear
	0825	8.49	2933	7.69	0.40	66.9	12.82	19.20	200.0	1.0	Clear
	0830	8.47	2871	7.72	0.36	57.0	13.23	19.26	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
19 June 24	0830	8.47	2871	7.72			13.23				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	212
Sampling Personal:	JMH

Weather Conditions: Temp: 55 °F Wind: N @ 5-10 Precip: Sunny / ~~Partly Cloudy~~ / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	19.86	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	20.05	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 2	Sec.
Recover: 2e	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
19Jun24	0933	Start of Well Purge									
	0938	9.82	1903	8.21	0.19	73.9	81.78	19.91	200.0	1.0	Clear
	0943	9.65	1938	8.22	0.11	30.1	27.62	19.93	200.0	1.0	Clear
	0948	9.68	1949	8.22	0.08	23.4	20.19	19.95	200.0	1.0	Clear
	0953	9.71	1952	8.23	0.06	17.0	13.34	19.97	200.0	1.0	Clear
	0958	9.67	1959	8.23	0.04	-0.2	6.29	20.02	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
19Jun24	0958	9.67	1959	8.23			6.29				Clear

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	213
Sampling Personal:	

Weather Conditions: Temp: 60 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	16.89	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	17.05	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 3	Sec.
Recover: 27	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
(YES) / NO
Duplicate Sample ID:
Dup 2022

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
19 Jun 24	1135	Start of Well Purge									
	1140	10.29	1537	7.90	0.77	-105.3	156.87	16.94	200.0	1.0	Slightly Turbid (ST)
	1145	10.10	1538	7.87	0.31	-112.6	95.20	16.97	200.0	1.0	Clear
	1150	9.81	1532	7.84	0.09	-133.5	40.36	17.00	200.0	1.0	Clear
	1155	9.71	1544	7.83	0.10	-132.3	131.55	17.02	200.0	1.0	~~Clear~~ ST
	1200	9.71	1527	7.82	0.10	-130.9	18.46	17.04	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
19 Jun 24	1200	9.71	1527	7.82			18.46				Clear

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	214
Sampling Personal:	JM

Weather Conditions: Temp: 50 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	7.85	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	8.36	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
											clear, slightly turbid, turbid
19 June 24	0712	Start of Well Purge									
	0717	8.66	1786	7.72	0.35	100.0	35.76	8.38	200	1.0	Clear
	0722	8.79	1992	7.69	0.23	89.0	23.04	8.36	200	1.0	Clear
	0727	8.91	1995	7.68	0.19	87.5	23.12	8.37	200	1.0	Clear
	0732	8.97	1982	7.67	0.15	85.2	15.72	8.35	200	1.0	Clear
	0737	9.01	2021	7.66	0.14	89.1	8.47	8.34	200	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
19 June 24	0737	9.01	2021	7.66			8.47				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

February 2024 GL21509219.000

Table 2. Parameter and Analysis Summary - Appendix III Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/11	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	SM 4500 F E/11	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	ASTM D516-16	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	USGS I-1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total and dissolved)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:
1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent methods.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

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Account #: 5109 **Client:** Great River Energy

February 2024 GL21509219.000

Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

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Account #: 5109 **Client:** Great River Energy

Table 4: Additional List Parameter and Analysis Summary

Parameter [1]	Method Reference [2]	Reporting Limit	Preparation Method Reference [2]	Sample Container [3]	Required Preservation [4]	Maximum Holding Time from Sampling [5]
General Chemistry						
Total Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Bicarbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Carbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Metals (Total and Dissolved)						
Iron	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Magnesium	EPA 6010D	0.2 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Potassium	EPA 6010D	3.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Sodium	EPA 6010D	1.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Aluminum	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Manganese	EPA 6010D	0.05 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months

Notes:

1. All listed parameters are tested in the laboratory. Listed parameters are to be collected in conjunction with other CCR parameter lists (Table 2 and Table 3).

2. Or equivalent method.
3. Containers and volumes will be specified by the analytical laboratory.
4. In addition to the required preservation for each sample container, sufficient ice should be placed with the sample containers in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when samples arrive, measurement of the temperature of samples immediately upon receipt is necessary to confirm that the 4° C temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible following collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid, without the use of qualifiers.

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS 2022 Wells (52283) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52283001 **Date Collected:** 06/19/2024 10:53 **Matrix:** Groundwater
Sample ID: MW-210 **Date Received:** 06/19/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 14.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		08/07/2024 08:29	
Radium 228	See Attached			1		08/07/2024 08:29	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52283002 **Date Collected:** 06/19/2024 08:30 **Matrix:** Groundwater
Sample ID: MW-211 **Date Received:** 06/19/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 14.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		08/07/2024 08:29	
Radium 228	See Attached			1		08/07/2024 08:29	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52283003 **Date Collected:** 06/19/2024 09:58 **Matrix:** Groundwater
Sample ID: MW-212 **Date Received:** 06/19/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 14.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		08/07/2024 08:29	
Radium 228	See Attached			1		08/07/2024 08:29	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52283004 **Date Collected:** 06/19/2024 12:00 **Matrix:** Groundwater
Sample ID: MW-213 **Date Received:** 06/19/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 14.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		08/07/2024 08:29	
Radium 228	See Attached			1		08/07/2024 08:29	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52283005 **Date Collected:** 06/19/2024 12:00 **Matrix:** Groundwater
Sample ID: Dup-2022 **Date Received:** 06/19/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 14.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		08/07/2024 08:29	
Radium 228	See Attached			1		08/07/2024 08:29	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52283006 **Date Collected:** 06/19/2024 07:37 **Matrix:** Groundwater
Sample ID: MW-214 **Date Received:** 06/19/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 14.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		08/07/2024 08:29	
Radium 228	See Attached			1		08/07/2024 08:29	

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ANALYTICAL SUMMARY REPORT

August 06, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24060862 Quote ID: C15480
Project Name: 52283

Energy Laboratories, Inc. Casper WY received the following 6 samples for Minnesota Valley Testing Laboratories on 6/24/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24060862-001	52283001, MW-210	06/19/24 10:53	06/24/24	Groundwater	Radium 226, Total Radium 228, Total
C24060862-002	52283002, MW-211	06/19/24 8:30	06/24/24	Groundwater	Same As Above
C24060862-003	52283003, MW-212	06/19/24 9:58	06/24/24	Groundwater	Same As Above
C24060862-004	52283004, MW-213	06/19/24 12:00	06/24/24	Groundwater	Same As Above
C24060862-005	52283005, Dup-2022	06/19/24 12:00	06/24/24	Groundwater	Same As Above
C24060862-006	52283006, MW-214	06/19/24 7:37	06/24/24	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy, Casper, WY 82601-9601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

Energy Laboratories, Inc. verifies the reported results for the analysis has been technically reviewed and approved for release.

If you have any questions regarding these test results, please contact your Project Manager.

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52283
Lab ID: C24060862-001
Client Sample ID: 52283001, MW-210

Report Date: 08/06/24
Collection Date: 06/19/24 10:53
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.2	pCi/L				E903.0	07/08/24 11:22 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	07/08/24 11:22 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	07/08/24 11:22 / alb
Radium 228	1.4	pCi/L				RA-05	07/02/24 12:38 / trs
Radium 228 precision (±)	0.8	pCi/L				RA-05	07/02/24 12:38 / trs
Radium 228 MDC	1.0	pCi/L				RA-05	07/02/24 12:38 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52283
Lab ID: C24060862-002
Client Sample ID: 52283002, MW-211

Report Date: 08/06/24
Collection Date: 06/19/24 08:30
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.2	pCi/L	U			E903.0	07/08/24 11:22 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/08/24 11:22 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	07/08/24 11:22 / alb
Radium 228	1.2	pCi/L				RA-05	07/02/24 12:38 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	07/02/24 12:38 / trs
Radium 228 MDC	1.0	pCi/L				RA-05	07/02/24 12:38 / trs

Report Definitions:
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QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52283
Lab ID: C24060862-003
Client Sample ID: 52283003, MW-212

Report Date: 08/06/24
Collection Date: 06/19/24 09:58
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L				E903.0	07/08/24 13:37 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/08/24 13:37 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	07/08/24 13:37 / alb
Radium 228	2.1	pCi/L				RA-05	07/02/24 12:38 / trs
Radium 228 precision (±)	0.9	pCi/L				RA-05	07/02/24 12:38 / trs
Radium 228 MDC	1.1	pCi/L				RA-05	07/02/24 12:38 / trs

Report Definitions:
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MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52283
Lab ID: C24060862-004
Client Sample ID: 52283004, MW-213

Report Date: 08/06/24
Collection Date: 06/19/24 12:00
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.2	pCi/L				E903.0	07/08/24 13:37 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/08/24 13:37 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	07/08/24 13:37 / alb
Radium 228	2.4	pCi/L				RA-05	07/02/24 12:38 / trs
Radium 228 precision (±)	1.0	pCi/L				RA-05	07/02/24 12:38 / trs
Radium 228 MDC	1.3	pCi/L				RA-05	07/02/24 12:38 / trs

Report Definitions:
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QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52283
Lab ID: C24060862-005
Client Sample ID: 52283005, Dup-2022

Report Date: 08/06/24
Collection Date: 06/19/24 12:00
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.7	pCi/L				E903.0	07/08/24 13:37 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/08/24 13:37 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	07/08/24 13:37 / alb
Radium 228	0.9	pCi/L	U			RA-05	07/02/24 12:38 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	07/02/24 12:38 / trs
Radium 228 MDC	0.9	pCi/L				RA-05	07/02/24 12:38 / trs

Report Definitions:
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QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52283
Lab ID: C24060862-006
Client Sample ID: 52283006, MW-214

Report Date: 08/06/24
Collection Date: 06/19/24 07:37
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.09	pCi/L	U			E903.0	07/08/24 13:37 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/08/24 13:37 / alb
Radium 226 MDC	0.3	pCi/L				E903.0	07/08/24 13:37 / alb
Radium 228	0.7	pCi/L	U			RA-05	07/02/24 12:38 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	07/02/24 12:38 / trs
Radium 228 MDC	1.0	pCi/L				RA-05	07/02/24 12:38 / trs

Report Definitions:
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QCL - Quality Control Limit
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MCL - Maximum Contaminant Level
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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24060862 **Report Date:** 07/11/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11357
Lab ID: LCS-RA226-11357	3	Laboratory Control Sample				Run: TENNELEC-3_240625D				07/08/24 11:22
Radium 226		12	pCi/L		119	70	130			
Radium 226 precision (±)		2.3	pCi/L							
Radium 226 MDC		0.22	pCi/L							
Lab ID: MB-RA226-11357	3	Method Blank				Run: TENNELEC-3_240625D				07/08/24 11:22
Radium 226		0.2	pCi/L							
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C24060862-002AMS	3	Sample Matrix Spike				Run: TENNELEC-3_240625D				07/08/24 11:22
Radium 226		11	pCi/L		108	70	130			
Radium 226 precision (±)		2.2	pCi/L							
Radium 226 MDC		0.20	pCi/L							
Lab ID: C24060862-002AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-3_240625D				07/08/24 13:37
Radium 226		11	pCi/L		105	70	130	3.2	30	
Radium 226 precision (±)		2.1	pCi/L							
Radium 226 MDC		0.19	pCi/L							

- The RER result is 0.12.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24060862 **Report Date:** 07/11/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7425
Lab ID: LCS-228-RA226-11357	3	Laboratory Control Sample				Run: TENNELEC-4_240625A				07/02/24 12:38
Radium 228		12	pCi/L		112	70	130			
Radium 228 precision (±)		2.3	pCi/L							
Radium 228 MDC		0.95	pCi/L							
Lab ID: MB-RA226-11357	3	Method Blank				Run: TENNELEC-4_240625A				07/02/24 12:38
Radium 228		0.6	pCi/L							U
Radium 228 precision (±)		0.6	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C24060862-002AMS1	3	Sample Matrix Spike				Run: TENNELEC-4_240625A				07/02/24 12:38
Radium 228		12	pCi/L		100	70	130			
Radium 228 precision (±)		2.3	pCi/L							
Radium 228 MDC		0.96	pCi/L							
Lab ID: C24060862-002AMSD1	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_240625A				07/02/24 12:38
Radium 228		12	pCi/L		101	70	130	1.2	30	
Radium 228 precision (±)		2.3	pCi/L							
Radium 228 MDC		1.0	pCi/L							

- The RER result is 0.04.

Qualifiers:

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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24060862

Login completed by: Aaron J. Smith
Reviewed by: lcadreau
Reviewed Date: 7/9/2024
Date Received: 6/24/2024
Received by: LFN
Carrier name: UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	26.0°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Trip Blanks and/or Blind Duplicate samples are assigned the earliest collection time for the associated requested analysis in order to evaluate the holding time unless specifically indicated.

Contact and Corrective Action Comments:

The temperature blank temperature in shipping container 1 was 24.8°C, shipping container 2 was 25.0°C, shipping container 3 was 26.0°C, shipping container 4 was 24.4°C, and shipping container 7 was 25.3°C. The temperature of the

Page 10 of 12

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Work Order Receipt Checklist - Continued

Minnesota Valley Testing Laboratories C24060862

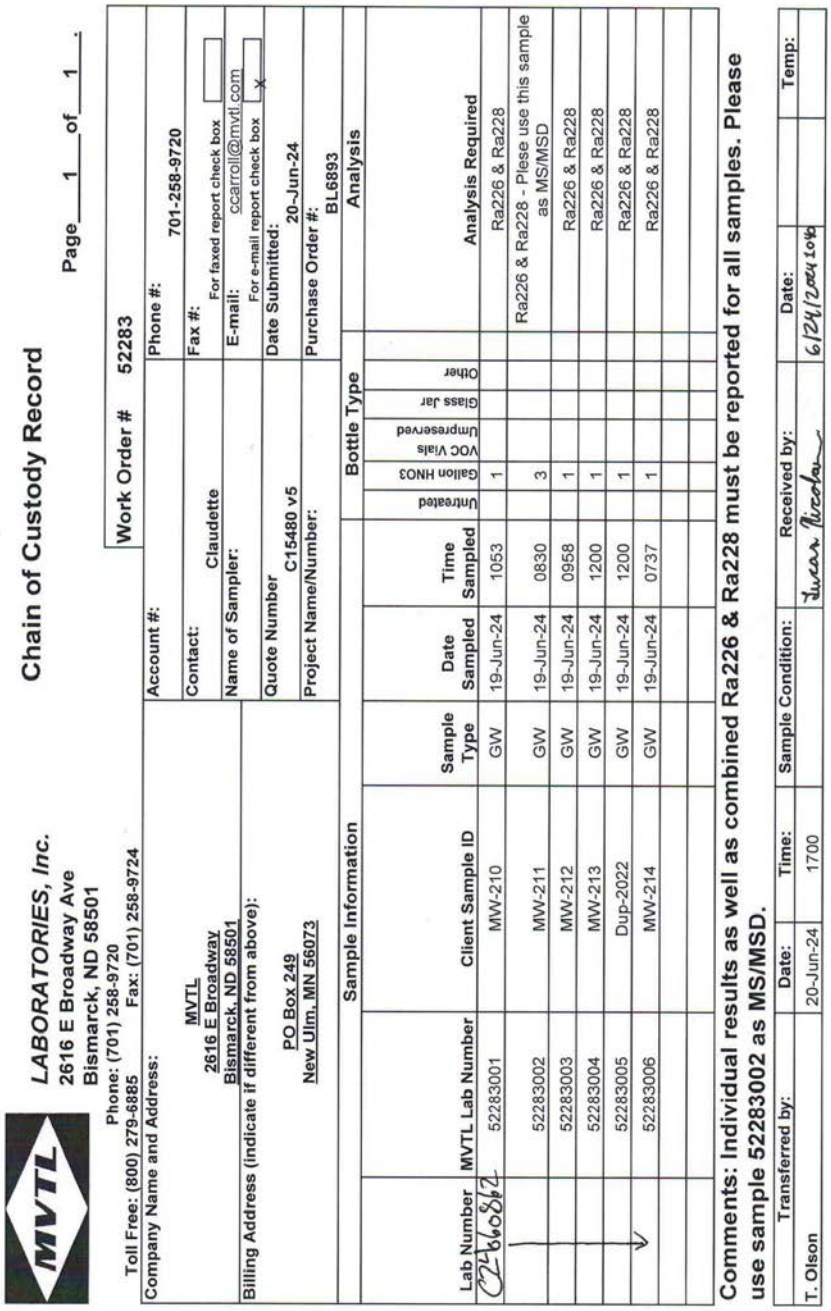
sample(s) in shipping container 5 was 25.3°C and shipping container 6 was 25.1°C. AS 6/24/24

Cancel combined radium per Tera Olson via email on 7/1/2024.-7/9/2024 mas.

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1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy



LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

Page 1 of 1

Work Order # 52283

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501

Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073

Account #:
Contact: Claudette
Name of Sampler:
Quote Number C15480 v5
Project Name/Number:

Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box
Date Submitted: 20-Jun-24
Purchase Order #: BL6893

Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Untreated	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis Required
2266862	52283001	MW-210	GW	19-Jun-24	1053		1				Ra226 & Ra228
	52283002	MW-211	GW	19-Jun-24	0830		3				Ra226 & Ra228 - Plese use this sample as MS/MSD
	52283003	MW-212	GW	19-Jun-24	0958		1				Ra226 & Ra228
	52283004	MW-213	GW	19-Jun-24	1200		1				Ra226 & Ra228
	52283005	Dup-2022	GW	19-Jun-24	1200		1				Ra226 & Ra228
↓	52283006	MW-214	GW	19-Jun-24	0737		1				Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples. Please use sample 52283002 as MS/MSD.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
T. Olson	20-Jun-24	1700		Susan Nicolay	6/24/2024 1045	

Page 12 of 12

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Member ACIL

Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 52283

Chain of Custody Record

Report To:	Great River Energy	CC:	Golder Associates
Attn:	Cassie Johnston		44 Union Blvd, Suite 300
Address:			Lakewood, CO 80228
Phone:			
Email:	CJohnston@GREnergy.com		

Project Name: SS 2022 Wells
Event: June 2024
Sampled By: Jeremy Meyer

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Gal Nitric	Field Readings	Analysis Required
001	MW-210	19 Jun 24	1053	GW					X		Radium 226 and 228 Combined
002	MW-211/MS/MSD	19 Jun 24	0830	GW					3		
003	MW-212	19 Jun 24	0950	GW					X		
004	MW-213	19 Jun 24	1200	GW					X		
005	Dup-2022	19 Jun 24	1200	GW					X		
006	MW-214	19 Jun 24	0737	GW					X		

Comments:

	Relinquished By		Sample Condition		Received By	
	Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1		19 Jun 24 1705	Log In ~~Walk In #2~~	14.1 °C/TM BUS ROI Y/N	H Hanse	20 Jun 24 0800
2						

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: June 2024
Sample ID: 210
Sampling Personal: JTM

Weather Conditions: Temp: 55 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	13.60	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	13.65	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:
Purge: 2 Sec.
Recover: 28 Sec.
PSI: —

Bottle List:
1 Liter Raw
1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample? YES / (NO)
Duplicate Sample ID: —

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
19 June 24	1028	Start of Well Purge									clear, slightly turbid, turbid
	1033	10.39	1583	7.81	0.52	-103.1	356.53	13.64	200.0	1.0	Slightly Turbid (ST)
	1038	10.38	1564	7.80	0.25	-103.7	309.18	13.65	200.0	1.0	ST
	1042	10.36	1624	7.79	0.16	-103.9	430.40	13.65	200.0	1.0	ST
	1048	10.25	1611	7.79	0.14	-106.0	509.54	13.64	200.0	1.0	ST
	1053	10.39	1590	7.79	0.17	-98.1	265.06	13.64	200.0	1.0	ST

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
19 June 24	1053	10.39	1590	7.79			265.06				ST

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	21
Sampling Personal:	JH

Weather Conditions: Temp: 55 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	19.00	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	19.30	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	—	

Bottle List:		
1 Liter Raw	1 Gal Nitric	
500mL Nitric		×3
500mL Nitric (filtered)		

Duplicate Sample?
(YES) / NO
Duplicate Sample ID:
MS/MSD

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
											clear, slightly turbid, turbid
19 June 24	0805	Start of Well Purge									
	0810	8.48	3027	7.60	0.60	99.2	114.66	19.10	200.0	1.0	Clear
	0815	8.52	3020	7.61	0.59	86.8	40.14	19.13	200.0	1.0	Clear
	0820	8.55	2947	7.65	0.37	73.2	27.56	19.17	200.0	1.0	Clear
	0825	8.49	2933	7.69	0.40	66.9	12.82	19.20	200.0	1.0	Clear
	0830	8.47	2871	7.72	0.36	57.0	13.23	19.26	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
19 June 24	0830	8.47	2871	7.72			13.23				Clear

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	212
Sampling Personal:	

Weather Conditions: Temp: 55 °F Wind: N @ 5-10 Precip: Sunny / ~~Partly Cloudy~~ / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	19.86	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	20.05	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 2	Sec.
Recover: 2e	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
19 Jun 24	0933	Start of Well Purge									
	0938	9.82	1903	8.21	0.19	73.9	81.78	19.91	200.0	1.0	Clear
	0943	9.65	1938	8.22	0.11	30.1	27.62	19.93	200.0	1.0	Clear
	0948	9.68	1949	8.22	0.08	23.4	20.19	19.95	200.0	1.0	Clear
	0953	9.71	1952	8.23	0.06	17.0	13.34	19.97	200.0	1.0	Clear
	0958	9.67	1959	8.23	0.04	-0.2	6.29	20.02	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
19 Jun 24	0958	9.67	1959	8.23			6.29				Clear

Comments:

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www.MVTL.com

Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	213
Sampling Personal:	JM

Weather Conditions: Temp: 60 °F Wind: N @ 5~10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	16.89	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	17.05	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 3	Sec.
Recover: 27	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
(YES) / NO
Duplicate Sample ID:
Dup 2022

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
19 June 24	1135	Start of Well Purge									
	1140	10.29	1537	7.90	0.77	-105.3	156.87	16.94	200.0	1.0	Slightly Turbid (ST)
	1145	10.10	1538	7.87	0.31	-112.6	95.20	16.97	200.0	1.0	Clear
	1150	9.81	1532	7.84	0.09	-133.5	40.36	17.00	200.0	1.0	Clear
	1155	9.71	1544	7.83	0.10	-132.3	131.55	17.02	200.0	1.0	~~Clear~~ ST
	1200	9.71	1527	7.82	0.10	-130.9	18.46	17.04	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
19 June 24	1200	9.71	1527	7.82			18.46				Clear

Comments:

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	214
Sampling Personal:	

Weather Conditions: Temp: 50 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	7.85	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	8.36	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:
1 Liter Raw
500mL Nitric
500mL Nitric (filtered)
1 Gal Nitric

Duplicate Sample? YES / NO
Duplicate Sample ID: —

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
19 June 24	0712	Start of Well Purge									
	0717	8.66	1786	7.72	0.35	100.0	35.76	8.38	200.0	1.0	Clear
	0722	8.79	1992	7.69	0.23	89.0	23.04	8.36	200.0	1.0	Clear
	0727	8.91	1995	7.68	0.19	87.5	23.12	8.37	200.0	1.0	Clear
	0732	8.97	1982	7.67	0.15	85.2	15.72	8.35	200.0	1.0	Clear
	0737	9.01	2021	7.66	0.14	89.1	8.47	8.34	202.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
19 June 24	0737	9.01	2021	7.66			8.47				Clear

Comments:

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS Internal (51858) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51858001 **Date Collected:** 06/17/2024 15:27 **Matrix:** Groundwater
Sample ID: MW-1R **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1504**	umhos/cm	1	1		06/17/2024 15:27	
Method: 150.2							
pH - Field	**7.84**	units	0.01	1		06/17/2024 15:27	
Method: 170.1							
Temperature - Field C	**10.32**	degrees C		1		06/17/2024 15:27	
Method: ASTM D516-16							
Sulfate	**408**	mg/L	25	5		06/19/2024 14:26	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/24/2024 09:50	06/24/2024 16:38	
Method: EPA 6010D							
Boron	**1.13**	mg/L	0.1	1	06/19/2024 07:07	07/02/2024 10:35	
Calcium	**91.6**	mg/L	1	1	06/19/2024 07:07	06/25/2024 09:32	
Lithium	**0.0401**	mg/L	0.02	1	06/19/2024 07:07	06/20/2024 14:24	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 07:07	07/09/2024 12:17	
Arsenic	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:17	
Barium	**0.0423**	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:17	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 12:17	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 12:17	
Chromium	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:17	
Cobalt	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:17	
Lead	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 12:17	
Molybdenum	**0.0141**	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:17	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 07:07	07/09/2024 12:17	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 12:17	

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51858001 **Date Collected:** 06/17/2024 15:27 **Matrix:** Groundwater
Sample ID: MW-1R **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		06/18/2024 17:51	*
Method: SM4500-Cl-E 2011							
Chloride	**12.1**	mg/L	2.0	1		06/19/2024 12:29	
Method: SM4500-F-C-2011							
Fluoride	**0.78**	mg/L	0.1	1		06/18/2024 17:51	
Method: USGS I-1750-85							
Total Dissolved Solids	**1010**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51858002 **Date Collected:** 06/17/2024 15:27 **Matrix:** Groundwater
Sample ID: Dup-Internal **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: ASTM D516-16							
Sulfate	**403**	mg/L	25	5		06/19/2024 14:27	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/24/2024 09:50	06/24/2024 16:38	
Method: EPA 6010D							
Boron	**1.10**	mg/L	0.1	1	06/19/2024 07:07	07/02/2024 10:35	
Calcium	**87.2**	mg/L	1	1	06/19/2024 07:07	06/25/2024 09:33	
Lithium	**0.0391**	mg/L	0.02	1	06/19/2024 07:07	06/20/2024 14:26	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 07:07	07/09/2024 12:21	
Arsenic	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:21	
Barium	**0.0424**	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:21	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 12:21	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 12:21	
Chromium	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:21	
Cobalt	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:21	
Lead	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 12:21	
Molybdenum	**0.0133**	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 12:21	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 07:07	07/09/2024 12:21	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 12:21	
Method: SM4500 H+ B-2011							
pH	**8.0**	units	0.1	1		06/18/2024 18:02	*
Method: SM4500-Cl-E 2011							
Chloride	**12.6**	mg/L	2.0	1		06/19/2024 12:30	
Method: SM4500-F-C-2011							
Fluoride	**0.79**	mg/L	0.1	1		06/18/2024 18:02	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51858002 **Date Collected:** 06/17/2024 15:27 **Matrix:** Groundwater
Sample ID: Dup-Internal **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: USGS I-1750-85							
Total Dissolved Solids	**1030**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51858003 **Date Collected:** 06/17/2024 14:42 **Matrix:** Groundwater
Sample ID: MW-104 **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1752**	umhos/cm	1	1		06/17/2024 14:42	
Method: 150.2							
pH - Field	**7.42**	units	0.01	1		06/17/2024 14:42	
Method: 170.1							
Temperature - Field C	**11.45**	degrees C		1		06/17/2024 14:42	
Method: ASTM D516-16							
Sulfate	**412**	mg/L	25	5		06/19/2024 14:50	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/24/2024 09:50	06/24/2024 16:38	
Method: EPA 6010D							
Boron	**0.69**	mg/L	0.1	1	06/19/2024 07:07	07/02/2024 10:36	
Calcium	**72.8**	mg/L	1	1	06/19/2024 07:07	06/25/2024 09:35	
Lithium	**0.0245**	mg/L	0.02	1	06/19/2024 07:07	06/20/2024 14:26	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 07:07	07/09/2024 13:09	
Arsenic	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 13:09	
Barium	**0.0453**	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 13:09	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 13:09	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 13:09	
Chromium	<0.002	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 13:09	
Cobalt	**0.0023**	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 13:09	
Lead	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 13:09	
Molybdenum	**0.0440**	mg/L	0.002	5	06/19/2024 07:07	07/09/2024 13:09	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 07:07	07/09/2024 13:09	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 07:07	07/09/2024 13:09	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51858003 **Date Collected:** 06/17/2024 14:42 **Matrix:** Groundwater
Sample ID: MW-104 **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.8**	units	0.1	1		06/18/2024 18:12	*
Method: SM4500-Cl-E 2011							
Chloride	**13.6**	mg/L	2.0	1		06/19/2024 12:31	
Method: SM4500-F-C-2011							
Fluoride	**0.79**	mg/L	0.1	1		06/18/2024 18:12	
Method: USGS I-1750-85							
Total Dissolved Solids	**1180**	mg/L	10	1		06/19/2024 10:55	

Task Comments

2873448 - METb/2570

Aluminum matrix spike and matrix spike duplicate recovery was high; the associated laboratory fortified blank recovery was acceptable.

Analysis Results Comments

pH

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 51858

Sulfate — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			100	101.0		85	115		
LFB			100	101.0		85	115		
LFB			100	109.0		85	115		
LFB			100	97.4		85	115		
LFB			100	99.5		85	115		
LFB			100	100.0		85	115		
LFB			100	102.0		85	115		
LFB			100	104.0		85	115		
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MS/MSD	51572002		100	100.0	96.8	85	115	2.6	20
MS/MSD	51572009		100	98.8	96.1	85	115	1.8	20
MS/MSD	51671003		500	96.1	96.1	85	115	0.0	20
MS/MSD	51714006		500	104.9	105.2	85	115	0.3	20
MS/MSD	51770005		100	89.5	87.7	85	115	2.0	20
MS/MSD	51856007		100	104.4	107.1	85	115	2.8	20
MS/MSD	51858003		500	92.9	101.3	85	115	4.7	20

Chloride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	97.0		90	110		
LFB			30	96.9		90	110		
LFB			30	95.1		90	110		
LFB			30	98.8		90	110		

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Chloride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	103.0		90	110		
LFB			30	102.0		90	110		
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MS/MSD	51925001		30	113.4	118.6	80	120	0.8	20
MS/MSD	52104001		30	106.8	102.8	80	120	2.3	20
MS/MSD	52104004		30	110.0	110.3	80	120	0.2	20

Aluminum Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	104.0		85	115		
MB		<0.1							
MS/MSD	51856004		0.4	120.0	123.0	70	130	2.0	20
MS/MSD	51858003		0.4	135.0	131.0	70	130	2.8	20
PDS	52095001					75	125		
PDS/PDSD	52095001		2	94.4	97.0	75	125	1.5	20
PDS	52102001					75	125		
PDS/PDSD	52102001		1	102.0	104.0	75	125	2.0	20
PDS	52104004					75	125		
PDS/PDSD	52104004		0.4	100.0	99.5	75	125	0.6	20
PDS	52107001					75	125		
PDS/PDSD	52107001		5	99.5	95.7	75	125	1.7	20
PDS	52425001					75	125		
PDS	52425001					75	125		
PDS/PDSD	52425001		4	120.0	116.0	75	125	3.6	20
PDS/PDSD	52425001		20	99.0	101.0	75	125	1.7	20
PDS	52467001					75	125		

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Account #: 5109 **Client:** Great River Energy

Aluminum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	52467001		0.4	100.0	100.0	75	125	0.1	20

Aluminum, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	104.0		85	115		
MB		<0.1							
SPK/SPKD	51175005		0.4	106.0	106.0	75	125	0.3	20
SPK/SPKD	51714006		0.4	113.0	110.0	75	125	2.1	20
SPK/SPKD	51858001		0.4	110.0	110.0	75	125	0.3	20
PDS	52095001								
PDS	52102001								
PDS	52104004								
SPK/SPKD	52104004		0.4	107.0	108.0	75	125	0.2	20
PDS	52107001								
SPK/SPKD	52281002		0.4	106.0	107.0	75	125	0.9	20
PDS	52425001								
PDS	52425001								
SPK/SPKD	52429006		0.4	89.5	91.5	75	125	2.2	20
SPK/SPKD	52454002		0.4	95.9	93.8	75	125	2.2	20
PDS	52467001								
SPK/SPKD	52467001		0.4	101.0	100.0	75	125	0.7	20

Boron				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	102.0		85	115		
MB		<0.1							
MS/MSD	51856004		0.4	101.0	106.0	70	130	2.8	20
MS/MSD	51858003		0.4	98.4	100.0	70	130	0.6	20

Boron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	102.0		85	115		
MB		<0.1							
SPK/SPKD	51856004		0.4	93.1	93.4	75	125	0.2	20

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Account #: 5109 **Client:** Great River Energy

Boron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52104004		0.4	86.8	85.8	75	125	0.4	20
SPK/SPKD	52279001		0.4	81.0	81.3	75	125	0.1	20
SPK/SPKD	52281002		0.4	76.5	78.8	75	125	0.5	20
SPK/SPKD	52454006		0.4	99.7	100.0	75	125	0.3	20
SPK/SPKD	52467001		0.4	97.7	96.3	75	125	1.1	20
SPK/SPKD	52964008		0.4	97.2	97.4	75	125	0.2	20

Calcium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	111.0		85	115		
MB		<1							
DUP	51856003							1.1	20
PDS	51856004					75	125		
PDS/PDSD	51856004		100	108.0	107.0	75	125	0.8	20
DUP	51858002							5.6	20
PDS	52101002					75	125		
PDS/PDSD	52101002		100	114.0	113.0	75	125	0.7	20
PDS	52101008					75	125		
PDS/PDSD	52101008		100	111.0	113.0	75	125	1.8	20
PDS	52104004					75	125		
PDS/PDSD	52104004		100	104.0	104.0	75	125	0.1	20
PDS	52104011					75	125		
PDS/PDSD	52104011		100	75.1	76.2	75	125	0.8	20
PDS	52281002					75	125		
PDS/PDSD	52281002		100	92.4	92.3	75	125	0.1	20
PDS	52429003					75	125		
PDS/PDSD	52429003		100	92.7	92.2	75	125	0.2	20
PDS	52429006					75	125		
PDS/PDSD	52429006		100	101.0	101.0	75	125	0.3	20
PDS	52461002					75	125		
PDS/PDSD	52461002		100	99.3	99.3	75	125	0.1	20

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Calcium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS	52467001					75	125		
PDS/PDSD	52467001		100	96.0	95.5	75	125	0.3	20

Calcium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	111.0		85	115		
MB		<1							
DUP	51856003								
PDS	51856004								
SPK/SPKD	51856004		100	95.9	96.1	75	125	0.1	20
DUP	51858002								
PDS	52101002								
PDS	52101008								
PDS	52104004								
SPK/SPKD	52104004		100	94.7	94.5	75	125	0.1	20
SPK/SPKD	52104004		500	101.0	99.9	75	125	1.1	20
PDS	52104011								
SPK/SPKD	52279001		100	96.8	96.7	75	125	0.1	20
PDS	52281002								
SPK/SPKD	52281002		500	102.0	103.0	75	125	1.0	20
SPK/SPKD	52281002		100	95.9	96.2	75	125	0.2	20
PDS	52429003								
PDS	52429006								
PDS	52461002								
PDS	52467001								
SPK/SPKD	52964008		100	104.0	103.0	75	125	0.8	20

Iron				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
MB		<0.1							
MS/MSD	51856004		0.4	105.0	107.0	70	130	1.1	20
MS/MSD	51858003		0.4	111.0	110.0	70	130	1.4	20

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Account #: 5109 **Client:** Great River Energy

Iron				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS	52095001					75	125		
PDS/PDSD	52095001		2	91.8	90.6	75	125	0.5	20
PDS	52102001					75	125		
PDS/PDSD	52102001		1	87.6	86.8	75	125	0.9	20
PDS	52107001					75	125		
PDS/PDSD	52107001		5	97.0	98.6	75	125	0.6	20
PDS	52425001					75	125		
PDS	52425001					75	125		
PDS/PDSD	52425001		4	106.0	107.0	75	125	1.3	20
PDS/PDSD	52425001		20	88.6	87.6	75	125	1.1	20
PDS	52467001					75	125		
PDS/PDSD	52467001		0.4	97.7	97.0	75	125	0.4	20

Iron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
MB		<0.1							
SPK/SPKD	51175005		0.4	84.9	89.3	75	125	1.3	20
SPK/SPKD	51714006		0.4	90.7	90.5	75	125	0.1	20
SPK/SPKD	51858001		0.4	78.4	79.3	75	125	0.3	20
PDS	52095001								
PDS	52102001								
SPK/SPKD	52104004		0.4	75.5	79.4	75	125	1.0	20
PDS	52107001								
SPK/SPKD	52281002		0.4	97.8	97.8	75	125	0.0	20
PDS	52425001								
PDS	52425001								
SPK/SPKD	52429006		0.4	85.5	86.3	75	125	0.7	20
SPK/SPKD	52454002		0.4	93.0	94.8	75	125	2.0	20
PDS	52467001								
SPK/SPKD	52467001		0.4	91.3	90.2	75	125	1.2	20

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Account #: 5109 **Client:** Great River Energy

Lithium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	102.0		85	115		
MB		<0.04							
MS/MSD	51856004		0.4	93.8	99.0	70	130	4.6	20
MS/MSD	51858003		0.4	94.6	95.0	70	130	0.4	20

Lithium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	102.0		85	115		
MB		<0.04							
SPK/SPKD	51856004		0.4	91.2	89.2	75	125	1.9	20
SPK/SPKD	52104004		0.4	88.3	88.1	75	125	0.2	20
SPK/SPKD	52279001		0.4	89.7	91.0	75	125	1.3	20
SPK/SPKD	52281002		0.4	90.9	89.7	75	125	1.2	20

Magnesium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	108.0		85	115		
MB		<1							
DUP	51856003							1.5	20
PDS	51856004					75	125		
PDS/PDSD	51856004		100	110.0	108.0	75	125	0.8	20
DUP	51858002							2.5	20
PDS	52101002					75	125		
PDS/PDSD	52101002		100	117.0	116.0	75	125	0.9	20
PDS	52101008					75	125		
PDS/PDSD	52101008		100	114.0	116.0	75	125	2.0	20
PDS	52104004					75	125		
PDS/PDSD	52104004		100	111.0	111.0	75	125	0.1	20
PDS	52104011					75	125		
PDS/PDSD	52104011		100	94.7	95.8	75	125	0.8	20
PDS	52281002					75	125		
PDS/PDSD	52281002		100	95.5	94.8	75	125	0.4	20
PDS	52429003					75	125		

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Account #: 5109 **Client:** Great River Energy

Magnesium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	52429003		100	97.3	96.7	75	125	0.4	20
PDS	52429006					75	125		
PDS/PDSD	52429006		100	104.0	104.0	75	125	0.4	20
PDS	52461002					75	125		
PDS/PDSD	52461002		100	101.0	101.0	75	125	0.1	20
PDS	52467001					75	125		
PDS/PDSD	52467001		100	100.0	99.7	75	125	0.4	20

Magnesium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	108.0		85	115		
MB		<1							
DUP	51856003								
PDS	51856004								
SPK/SPKD	51856004		100	97.8	98.2	75	125	0.2	20
DUP	51858002								
PDS	52101002								
PDS	52101008								
PDS	52104004								
SPK/SPKD	52104004		500	104.0	103.0	75	125	1.0	20
SPK/SPKD	52104004		100	101.0	101.0	75	125	0.1	20
PDS	52104011								
SPK/SPKD	52279001		100	102.0	102.0	75	125	0.2	20
PDS	52281002								
SPK/SPKD	52281002		500	104.0	105.0	75	125	1.0	20
SPK/SPKD	52281002		100	98.6	98.5	75	125	0.1	20
PDS	52429003								
PDS	52429006								
PDS	52461002								
PDS	52467001								
SPK/SPKD	52964008		100	105.0	105.0	75	125	0.6	20

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Account #: 5109 **Client:** Great River Energy

Manganese Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
PDS	51735001					75	125		
PDS/PDSD	51735001		25	97.1	97.4	75	125	0.3	20
MS/MSD	51856004		0.4	96.0	97.1	70	130	0.9	20
MS/MSD	51858003		0.4	87.4	86.0	70	130	0.4	20
PDS	52095001					75	125		
PDS/PDSD	52095001		2	100.0	99.5	75	125	0.5	20
PDS	52102001					75	125		
PDS/PDSD	52102001		1	75.8	73.7	75	125	1.1	20
PDS	52104004					75	125		
PDS/PDSD	52104004		0.4	90.9	92.7	75	125	1.4	20
PDS	52107001					75	125		
PDS/PDSD	52107001		5	92.7	93.6	75	125	0.7	20
PDS	52425001					75	125		
PDS	52425001					75	125		
PDS/PDSD	52425001		4	86.8	88.4	75	125	1.5	20
PDS/PDSD	52425001		20	84.7	84.0	75	125	0.8	20
PDS	52467001					75	125		
PDS/PDSD	52467001		0.4	106.0	106.0	75	125	0.3	20

Manganese, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
SPK/SPKD	51175005		0.4	99.1	101.0	75	125	1.3	20
SPK/SPKD	51714006		0.4	77.3	76.9	75	125	0.1	20
PDS	51735001								
SPK/SPKD	51858001		0.4	93.9	94.1	75	125	0.2	20
PDS	52095001								
PDS	52102001								

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Account #: 5109 **Client:** Great River Energy

Manganese, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS	52104004								
SPK/SPKD	52104004		0.4	90.6	92.4	75	125	1.5	20
PDS	52107001								
SPK/SPKD	52281002		0.4	77.4	77.5	75	125	0.1	20
PDS	52425001								
PDS	52425001								
SPK/SPKD	52429006		0.4	92.5	93.1	75	125	0.6	20
SPK/SPKD	52454002		0.4	95.1	96.5	75	125	1.5	20
PDS	52467001								
SPK/SPKD	52467001		0.4	93.5	92.6	75	125	1.0	20

Potassium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	108.0		85	115		
MB		<1							
DUP	51856003							0.0	20
PDS	51856004					75	125		
PDS/PDSD	51856004		100	112.0	112.0	75	125	0.3	20
DUP	51858002							1.8	20
PDS	52101002					75	125		
PDS/PDSD	52101002		100	113.0	113.0	75	125	0.2	20
PDS	52101008					75	125		
PDS/PDSD	52101008		100	109.0	114.0	75	125	3.2	20
PDS	52104004					75	125		
PDS/PDSD	52104004		100	112.0	113.0	75	125	0.9	20
PDS	52104011					75	125		
PDS/PDSD	52104011		100	109.0	110.0	75	125	0.6	20
PDS	52281002					75	125		
PDS/PDSD	52281002		100	99.8	98.3	75	125	1.4	20
PDS	52429003					75	125		
PDS/PDSD	52429003		100	101.0	101.0	75	125	0.4	20

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Account #: 5109 **Client:** Great River Energy

Potassium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS	52429006					75	125		
PDS/PDSD	52429006		100	103.0	103.0	75	125	0.5	20
PDS	52461002					75	125		
PDS/PDSD	52461002		100	99.5	99.7	75	125	0.2	20
PDS	52467001					75	125		
PDS/PDSD	52467001		100	99.7	99.9	75	125	0.2	20

Potassium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	108.0		85	115		
MB		<1							
DUP	51856003								
PDS	51856004								
SPK/SPKD	51856004		100	101.0	102.0	75	125	1.4	20
DUP	51858002								
PDS	52101002								
PDS	52101008								
PDS	52104004								
SPK/SPKD	52104004		500	100.0	99.8	75	125	0.4	20
SPK/SPKD	52104004		100	101.0	101.0	75	125	0.8	20
PDS	52104011								
SPK/SPKD	52279001		100	102.0	101.0	75	125	0.9	20
PDS	52281002								
SPK/SPKD	52281002		500	101.0	102.0	75	125	1.1	20
SPK/SPKD	52281002		100	102.0	101.0	75	125	0.4	20
PDS	52429003								
PDS	52429006								
PDS	52461002								
PDS	52467001								
SPK/SPKD	52964008		100	102.0	102.0	75	125	0.1	20

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Account #: 5109 **Client:** Great River Energy

Sodium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	109.0		85	115		
MB		<1							
DUP	51856003							0.4	20
PDS	51856004					75	125		
PDS/PDSD	51856004		100	101.0	94.1	75	125	2.5	20
DUP	51858002							4.5	20
PDS	52101002					75	125		
PDS/PDSD	52101002		100	117.0	117.0	75	125	0.5	20
PDS	52101008					75	125		
PDS/PDSD	52101008		100	117.0	117.0	75	125	0.1	20
PDS	52104004					75	125		
PDS/PDSD	52104004		100	74.5	80.1	75	125	1.2	20
PDS	52104011					75	125		
PDS/PDSD	52104011		100	85.2	84.0	75	125	0.3	20
PDS	52281002					75	125		
PDS/PDSD	52281002		500	88.8	89.0	75	125	0.1	20
PDS	52429003					75	125		
PDS/PDSD	52429003		100	92.0	90.6	75	125	0.6	20
PDS	52429006					75	125		
PDS/PDSD	52429006		100	75.4	74.4	75	125	0.2	20
PDS	52461002					75	125		
PDS/PDSD	52461002		100	101.0	103.0	75	125	1.9	20
PDS	52467001					75	125		
PDS/PDSD	52467001		100	94.4	92.4	75	125	1.1	20

Sodium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	109.0		85	115		
MB		<1							
DUP	51856003								
PDS	51856004								

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Account #: 5109 **Client:** Great River Energy

Sodium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	51856004		100	87.2	89.9	75	125	1.0	20
DUP	51858002								
PDS	52101002								
PDS	52101008								
PDS	52104004								
SPK/SPKD	52104004		500	97.4	96.9	75	125	0.3	20
SPK/SPKD	52104004		100	63.8	53.8	75	125	0.1	20
PDS	52104011								
SPK/SPKD	52279001		100	80.9	76.6	75	125	1.3	20
PDS	52281002								
SPK/SPKD	52281002		100	34.0	26.3	75	125	1.3	20
SPK/SPKD	52281002		500	94.4	96.0	75	125	0.8	20
PDS	52429003								
PDS	52429006								
PDS	52461002								
PDS	52467001								
SPK/SPKD	52964008		100	103.0	104.0	75	125	1.0	20

Antimony — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.6		80	120		
MB		<0.001							
MS/MSD	51856004		0.4	99.2	103.0	75	125	3.2	20
MS/MSD	51858003		0.4	103.0	99.6	75	125	3.2	20

Antimony, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.6		80	120		
MB		<0.001							
MS/MSD	51856004		0.4	99.2	103.0	75	125	3.2	20
SPK/SPKD	51858002		0.1	106.0	106.0	75	125	0.6	20
MS/MSD	51858003		0.4	103.0	99.6	75	125	3.2	20
SPK/SPKD	52104004		0.1	104.0	103.0	75	125	1.1	20

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Account #: 5109 **Client:** Great River Energy

Antimony, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52279002		0.1	104.0	103.0	75	125	1.1	20
SPK/SPKD	52281006		0.1	105.0	105.0	75	125	0.0	20

Arsenic Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.2		80	120		
MB		<0.002							
MS/MSD	51856004		0.4	98.4	102.0	75	125	3.7	20
MS/MSD	51858003		0.4	103.0	98.0	75	125	4.7	20

Arsenic, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.2		80	120		
MB		<0.002							
MS/MSD	51856004		0.4	98.4	102.0	75	125	3.7	20
SPK/SPKD	51858002		0.1	105.0	106.0	75	125	1.3	20
MS/MSD	51858003		0.4	103.0	98.0	75	125	4.7	20
SPK/SPKD	52104004		0.1	103.0	102.0	75	125	0.5	20
SPK/SPKD	52279002		0.1	104.0	104.0	75	125	0.2	20
SPK/SPKD	52281006		0.1	113.0	114.0	75	125	0.4	20

Barium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	89.8		80	120		
MB		<0.002							
MS/MSD	51856004		0.4	90.6	96.9	75	125	6.2	20
MS/MSD	51858003		0.4	98.0	90.4	75	125	7.1	20

Barium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	89.8		80	120		
MB		<0.002							
MS/MSD	51856004		0.4	90.6	96.9	75	125	6.2	20
SPK/SPKD	51858002		0.1	93.9	95.1	75	125	0.9	20
MS/MSD	51858003		0.4	98.0	90.4	75	125	7.1	20
SPK/SPKD	52104004		0.1	92.2	91.5	75	125	0.6	20

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Barium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52279002		0.1	92.1	92.9	75	125	0.4	20
SPK/SPKD	52281006		0.1	167.0	166.0	75	125	0.7	20

Beryllium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
MB		<0.0005							
MS/MSD	51856004		0.4	110.0	116.0	75	125	5.1	20
MS/MSD	51858003		0.4	116.0	106.0	75	125	9.0	20

Beryllium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
MB		<0.0005							
MS/MSD	51856004		0.4	110.0	116.0	75	125	5.1	20
SPK/SPKD	51858002		0.1	115.0	116.0	75	125	0.6	20
MS/MSD	51858003		0.4	116.0	106.0	75	125	9.0	20
SPK/SPKD	52104004		0.1	114.0	112.0	75	125	1.0	20
SPK/SPKD	52279002		0.1	113.0	110.0	75	125	2.6	20
SPK/SPKD	52281006		0.1	112.0	112.0	75	125	0.3	20

Cadmium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.6		80	120		
MB		<0.0005							
MS/MSD	51856004		0.4	95.0	98.6	75	125	3.6	20
MS/MSD	51858003		0.4	99.6	95.3	75	125	4.4	20

Cadmium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.6		80	120		
MB		<0.0005							
MS/MSD	51856004		0.4	95.0	98.6	75	125	3.6	20
SPK/SPKD	51858002		0.1	97.0	98.7	75	125	1.7	20
MS/MSD	51858003		0.4	99.6	95.3	75	125	4.4	20
SPK/SPKD	52104004		0.1	95.1	93.6	75	125	1.6	20

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Cadmium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52279002		0.1	96.0	95.7	75	125	0.3	20
SPK/SPKD	52281006		0.1	94.2	95.1	75	125	1.0	20

Chromium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.7		80	120		
MB		<0.002							
MS/MSD	51856004		0.4	92.0	95.9	75	125	4.3	20
MS/MSD	51858003		0.4	96.0	93.4	75	125	2.9	20

Chromium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.7		80	120		
MB		<0.002							
MS/MSD	51856004		0.4	92.0	95.9	75	125	4.3	20
SPK/SPKD	51858002		0.1	99.8	99.5	75	125	0.3	20
MS/MSD	51858003		0.4	96.0	93.4	75	125	2.9	20
SPK/SPKD	52104004		0.1	98.6	97.9	75	125	0.7	20
SPK/SPKD	52279002		0.1	100.0	100.0	75	125	0.2	20
SPK/SPKD	52281006		0.1	102.0	102.0	75	125	0.2	20

Cobalt Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	94.5		80	120		
MB		<0.002							
MS/MSD	51856004		0.4	91.0	94.7	75	125	4.0	20
MS/MSD	51858003		0.4	93.6	92.1	75	125	1.3	20

Cobalt, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	94.5		80	120		
MB		<0.002							
MS/MSD	51856004		0.4	91.0	94.7	75	125	4.0	20
SPK/SPKD	51858002		0.1	97.8	97.9	75	125	0.1	20
MS/MSD	51858003		0.4	93.6	92.1	75	125	1.3	20
SPK/SPKD	52104004		0.1	96.4	96.2	75	125	0.2	20

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Cobalt, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52279002		0.1	98.9	98.9	75	125	0.0	20
SPK/SPKD	52281006		0.1	101.0	100.0	75	125	0.6	20

Lead Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	94.9		80	120		
MB		<0.0005							
MS/MSD	51856004		0.4	93.5	98.4	75	125	5.0	20
MS/MSD	51858003		0.4	99.0	92.9	75	125	6.3	20

Lead, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	94.9		80	120		
MB		<0.0005							
MS/MSD	51856004		0.4	93.5	98.4	75	125	5.0	20
SPK/SPKD	51858002		0.1	97.2	96.9	75	125	0.3	20
MS/MSD	51858003		0.4	99.0	92.9	75	125	6.3	20
SPK/SPKD	52104004		0.1	94.7	94.8	75	125	0.1	20
SPK/SPKD	52279002		0.1	94.9	94.4	75	125	0.5	20
SPK/SPKD	52281006		0.1	94.4	93.8	75	125	0.6	20

Molybdenum Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.7		80	120		
MB		<0.002							
MS/MSD	51856004		0.4	92.7	96.1	75	125	3.4	20
MS/MSD	51858003		0.4	93.9	91.8	75	125	2.2	20

Molybdenum, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.7		80	120		
MB		<0.002							
MS/MSD	51856004		0.4	92.7	96.1	75	125	3.4	20
SPK/SPKD	51858002		0.1	97.8	97.8	75	125	0.1	20
MS/MSD	51858003		0.4	93.9	91.8	75	125	2.2	20
SPK/SPKD	52104004		0.1	97.8	97.8	75	125	0.0	20

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Molybdenum, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52279002		0.1	99.2	98.9	75	125	0.2	20
SPK/SPKD	52281006		0.1	107.0	106.0	75	125	0.4	20

Selenium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.5		80	120		
MB		<0.005							
MS/MSD	51856004		0.4	100.0	104.0	75	125	3.7	20
MS/MSD	51858003		0.4	105.0	100.0	75	125	4.4	20

Selenium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.5		80	120		
MB		<0.005							
MS/MSD	51856004		0.4	100.0	104.0	75	125	3.7	20
SPK/SPKD	51858002		0.1	106.0	106.0	75	125	0.4	20
MS/MSD	51858003		0.4	105.0	100.0	75	125	4.4	20
SPK/SPKD	52104004		0.1	104.0	102.0	75	125	1.7	20
SPK/SPKD	52279002		0.1	106.0	104.0	75	125	1.6	20
SPK/SPKD	52281006		0.1	111.0	115.0	75	125	3.7	20

Thallium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.7		80	120		
MB		<0.0005							
MS/MSD	51856004		0.4	92.7	97.9	75	125	5.5	20
MS/MSD	51858003		0.4	97.6	91.7	75	125	6.1	20

Thallium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.7		80	120		
MB		<0.0005							
MS/MSD	51856004		0.4	92.7	97.9	75	125	5.5	20
SPK/SPKD	51858002		0.1	95.0	94.2	75	125	0.8	20
MS/MSD	51858003		0.4	97.6	91.7	75	125	6.1	20
SPK/SPKD	52104004		0.1	91.6	91.7	75	125	0.1	20

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Thallium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52279002		0.1	92.3	92.3	75	125	0.0	20
SPK/SPKD	52281006		0.1	92.1	91.4	75	125	0.8	20

Mercury — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	94.8		85	115		
LFB			0.002	91.4		85	115		
LFB			0.002	98.8		85	115		
LRB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MS/MSD	51498002		0.002	96.3	97.7	70	130	5.1	20
MS/MSD	51498012		0.002	87.6	90.8	70	130	0.0	20
MS/MSD	51498022		0.002	96.8	100.0	70	130	5.1	20
MS/MSD	51753001		0.002	93.2	98.8	70	130	5.1	20
MS/MSD	51856007		0.002	91.4	92.8	70	130	0.0	20

Mercury, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	98.8		85	115		
LRB		<0.0002							

Alkalinity, Total — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			501	91.8		80	120		
LFB			410	90.8		90	110		
LFB			410	91.0		90	110		
LFB			410	91.3		90	110		
LFB			410	90.9		90	110		
MB		<20.5							
MB		<20.5							
MB		<20.5							
MB		<20.5							
MS/MSD	51838002		410	85.9	87.3	80	120	1.0	20

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Account #: 5109 **Client:** Great River Energy

Alkalinity, Total Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	51856006		410	97.5	97.6	80	120	0.0	20
MS/MSD	51886002		410	90.6	90.8	80	120	0.0	20

pH Units: units

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	100.5		98.33	101.67		
CRM-PH			6	100.3		98.33	101.67		
CRM-PH			6	100.3		98.33	101.67		
CRM-PH			6	100.5		98.33	101.67		
DUP	51790001							0.7	20
DUP	51856001							0.6	20
DUP	51886004							0.3	20

Fluoride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			3.06	106.0		83.99	111.11		
LFB-F			0.5	102.0		90	110		
LFB-F			0.5	102.0		90	110		
LFB-F			0.5	104.0		90	110		
LFB-F			0.5	102.0		90	110		
LFB-F			0.5	100.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MS/MSD-F	51753001		0.5	94.0	94.0	80	120	0.0	20
MS/MSD-F	51770005		0.5	102.0	102.0	80	120	0.0	20
MS/MSD-F	51856005		0.5	100.0	100.0	80	120	0.0	20
MS/MSD-F	51856007		0.5	102.0	106.0	80	120	3.9	20

Total Dissolved Solids Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	100.0		90.35	110.33		

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
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Account #: 5109 **Client:** Great River Energy

Total Dissolved Solids Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	101.0		90.35	110.33		
MB		<10							
MB		<10							
DUP	51856005							1.5	20
DUP	52102002							0.7	20
DUP	52104004							0.0	20
DUP	52104013							0.0	20

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Member ACIL

Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 51858

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS Internal
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: June 2024
Address:		Lakewood, CO 80228	Sampled By: Jeremy Meyer
Phone:			
Email:	CJohnston@GREnergy.com		

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric				Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-1R	17 Jun 24	1527	GW	X	X	X						10.32	1504	7.84	42.18	App III, AppIV, Additional List (total and dissolved for all metals) (See Attachments)
002	Dup - Internal	17 Jun 24	1527	GW	X	X	X						NA	NA	NA	NA	
003	MW-104	17 Jun 24	1442	GW	X	X	X						11.45	1752	7.42	0.61	

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1	17 Jun 24 1713	~~Log In~~ Walk In #2	9.0 °C/TM 805 ROI Y/N	H Hause	18 Jun 24 0800
2					

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: June 2024
Sample ID: LR
Sampling Personal:

Weather Conditions: Temp: 60 °F Wind: E @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	17.09	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	17.13	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:
Purge: 3 Sec.
Recover: 27 Sec.
PSI: —

Bottle List:
1 Liter Raw 1 Gal Nitric
500mL Nitric
500mL Nitric (filtered) x2

Duplicate Sample? YES / NO
Duplicate Sample ID: Dup - Internal

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
17 June 24	1502	Start of Well Purge									
	1507	10.79	1494	8.11	0.67	-104.4	108.70	17.13	200.0	1.0	Clear
	1512	10.56	1502	8.01	0.27	-122.2	117.25	17.13	200.0	1.0	Clear
	1517	10.47	1504	7.92	0.05	-141.3	72.03	17.13	200.0	1.0	Clear
	1522	10.37	1504	7.86	0.00	-153.7	51.28	17.13	200.0	1.0	Clear
	1527	10.32	1504	7.84	0.00	-160.6	42.18	17.13	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
17 June 24	1527	10.32	1504	7.84			42.18				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

Field Datasheet

Groundwater Assessment

2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	104
Sampling Personal:	

Weather Conditions: Temp: 60 °F Wind: E @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	22.10	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	22.15	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge:	2 Sec.
Recover:	28 Sec.
PSI:	—

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
											clear, slightly turbid, turbid
17June24	1408	Start of Well Purge									
	1413	11.72	1744	7.75	0.39	125.8	19.15	22.15	200.0	1.0	Clear
	1428	11.53	1747	7.60	0.16	94.2	13.08	22.15	200.0	1.0	Clear
	1433	11.57	1751	7.47	0.12	83.4	5.39	22.15	200.0	1.0	Clear
	1438	11.55	1751	7.44	0.08	76.0	3.96	22.15	200.0	1.0	Clear
	1442	11.45	1752	7.42	0.09	75.9	0.61	22.15	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
17June24	1442	11.45	1752	7.42			0.61				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

February 2024 GL21509219.000

Table 2. Parameter and Analysis Summary - Appendix III Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/11	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	SM 4500 F E/11	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	ASTM D516-16	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	USGS I-1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total and dissolved)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:
1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent methods.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

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Account #: 5109 **Client:** Great River Energy

February 2024 GL21509219.000

Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

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Account #: 5109 **Client:** Great River Energy

February 2024 GL21509219.000

Table 4: Additional List Parameter and Analysis Summary

Parameter [1]	Method Reference [2]	Reporting Limit	Preparation Method Reference [2]	Sample Container [3]	Required Preservation [4]	Maximum Holding Time from Sampling [5]
General Chemistry						
Total Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Bicarbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Carbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Metals (Total and Dissolved)						
Iron	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Magnesium	EPA 6010D	0.2 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Potassium	EPA 6010D	3.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Sodium	EPA 6010D	1.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Aluminum	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Manganese	EPA 6010D	0.05 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months

Notes:

1. All listed parameters are tested in the laboratory. Listed parameters are to be collected in conjunction with other CCR parameter lists (Table 2 and Table 3).

2. Or equivalent method.
3. Containers and volumes will be specified by the analytical laboratory.
4. In addition to the required preservation for each sample container, sufficient ice should be placed with the sample containers in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when samples arrive, measurement of the temperature of samples immediately upon receipt is necessary to confirm that the 4° C temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible following collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid, without the use of qualifiers.

1

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS Internal (51859) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51859001 **Date Collected:** 06/17/2024 15:27 **Matrix:** Groundwater
Sample ID: MW-1R **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 20.6

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/24/2024 16:21	
Radium 228	See Attached			1		07/24/2024 16:21	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51859002 **Date Collected:** 06/17/2024 15:27 **Matrix:** Groundwater
Sample ID: Dup-Internal **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 20.6

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/24/2024 16:21	
Radium 228	See Attached			1		07/24/2024 16:21	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 51859003 **Date Collected:** 06/17/2024 14:42 **Matrix:** Groundwater
Sample ID: MW-104 **Date Received:** 06/17/2024 17:13 **Collector:** MVTL Field Service

Temp @ Receipt (C): 20.6

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/24/2024 16:21	
Radium 228	See Attached			1		07/24/2024 16:21	

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Account #: 5109 **Client:** Great River Energy

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ANALYTICAL SUMMARY REPORT

July 23, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24060772 Quote ID: C15480
Project Name: 51859

Energy Laboratories, Inc. Casper WY received the following 3 samples for Minnesota Valley Testing Laboratories on 6/20/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24060772-001	51859001, MW-1R	06/17/24 15:27	06/20/24	Groundwater	Radium 226, Total Radium 228, Total
C24060772-002	51859002, Dup-Internal	06/17/24 15:27	06/20/24	Groundwater	Same As Above
C24060772-003	51859003, MW-104	06/17/24 14:42	06/20/24	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy, Casper, WY 82601-9601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

Energy Laboratories, Inc. verifies the reported results for the analysis has been technically reviewed and approved for release.

If you have any questions regarding these test results, please contact your Project Manager.

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Account #: 5109 **Client:** Great River Energy

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 51859
Lab ID: C24060772-001
Client Sample ID: 51859001, MW-1R

Report Date: 07/23/24
Collection Date: 06/17/24 15:27
DateReceived: 06/20/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 226 MDC	0.3	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 228	0.6	pCi/L	U			RA-05	06/27/24 13:47 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	06/27/24 13:47 / trs
Radium 228 MDC	1.0	pCi/L				RA-05	06/27/24 13:47 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 51859
Lab ID: C24060772-002
Client Sample ID: 51859002, Dup-Internal

Report Date: 07/23/24
Collection Date: 06/17/24 15:27
DateReceived: 06/20/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.2	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 228	0.6	pCi/L	U			RA-05	06/27/24 13:47 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	06/27/24 13:47 / trs
Radium 228 MDC	1	pCi/L				RA-05	06/27/24 13:47 / trs

Report Definitions:
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QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 3 of 9

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 51859
Lab ID: C24060772-003
Client Sample ID: 51859003, MW-104

Report Date: 07/23/24
Collection Date: 06/17/24 14:42
DateReceived: 06/20/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.03	pCi/L	U			E903.0	07/02/24 15:33 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	07/02/24 15:33 / alb
Radium 228	1.2	pCi/L				RA-05	06/27/24 13:47 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	06/27/24 13:47 / trs
Radium 228 MDC	1	pCi/L				RA-05	06/27/24 13:47 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 4 of 9

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24060772 **Report Date:** 07/03/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11355
Lab ID: LCS-RA226-11355	3	Laboratory Control Sample				Run: TENNELEC-3_240621B			07/02/24 13:28	
Radium 226		9.9	pCi/L		99	70	130			
Radium 226 precision (±)		1.9	pCi/L							
Radium 226 MDC		0.23	pCi/L							
Lab ID: MB-RA226-11355	3	Method Blank				Run: TENNELEC-3_240621B			07/02/24 13:28	
Radium 226		0.06	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C24060770-007ADUP	3	Sample Duplicate				Run: TENNELEC-3_240621B			07/02/24 15:33	
Radium 226		0.074	pCi/L					180	30	UR
Radium 226 precision (±)		0.15	pCi/L							
Radium 226 MDC		0.24	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than or equal to the limit of 3, the RER result is 0.33.

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24060772 **Report Date:** 07/03/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7423
Lab ID: LCS-228-RA226-11355	3	Laboratory Control Sample				Run: TENNELEC-4_240621B				06/27/24 13:47
Radium 228		9.8	pCi/L		94	70	130			
Radium 228 precision (±)		2.0	pCi/L							
Radium 228 MDC		1.1	pCi/L							
Lab ID: MB-RA226-11355	3	Method Blank				Run: TENNELEC-4_240621B				06/27/24 13:47
Radium 228		-0.3	pCi/L							U
Radium 228 precision (±)		0.6	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C24060770-007ADUP	3	Sample Duplicate				Run: TENNELEC-4_240621B				06/27/24 13:47
Radium 228		-0.042	pCi/L					130	30	UR
Radium 228 precision (±)		0.62	pCi/L							
Radium 228 MDC		1.0	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than or equal to the limit of 3, the RER result is 0.17.

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
ND - Not detected at the Reporting Limit (RL)
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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24060772

Login completed by: Aaron J. Smith
Reviewed by: lcadreau
Reviewed Date: 6/27/2024
Date Received: 6/20/2024
Received by: CCS
Carrier name: UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	16.1°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Trip Blanks and/or Blind Duplicate samples are assigned the earliest collection time for the associated requested analysis in order to evaluate the holding time unless specifically indicated.

Contact and Corrective Action Comments:

The temperature blank temperature in shipping container 1 was 16.0°C and shipping container 2 was 16.1°C. AS 06/20/24

Page 7 of 9

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Work Order Receipt Checklist - Continued

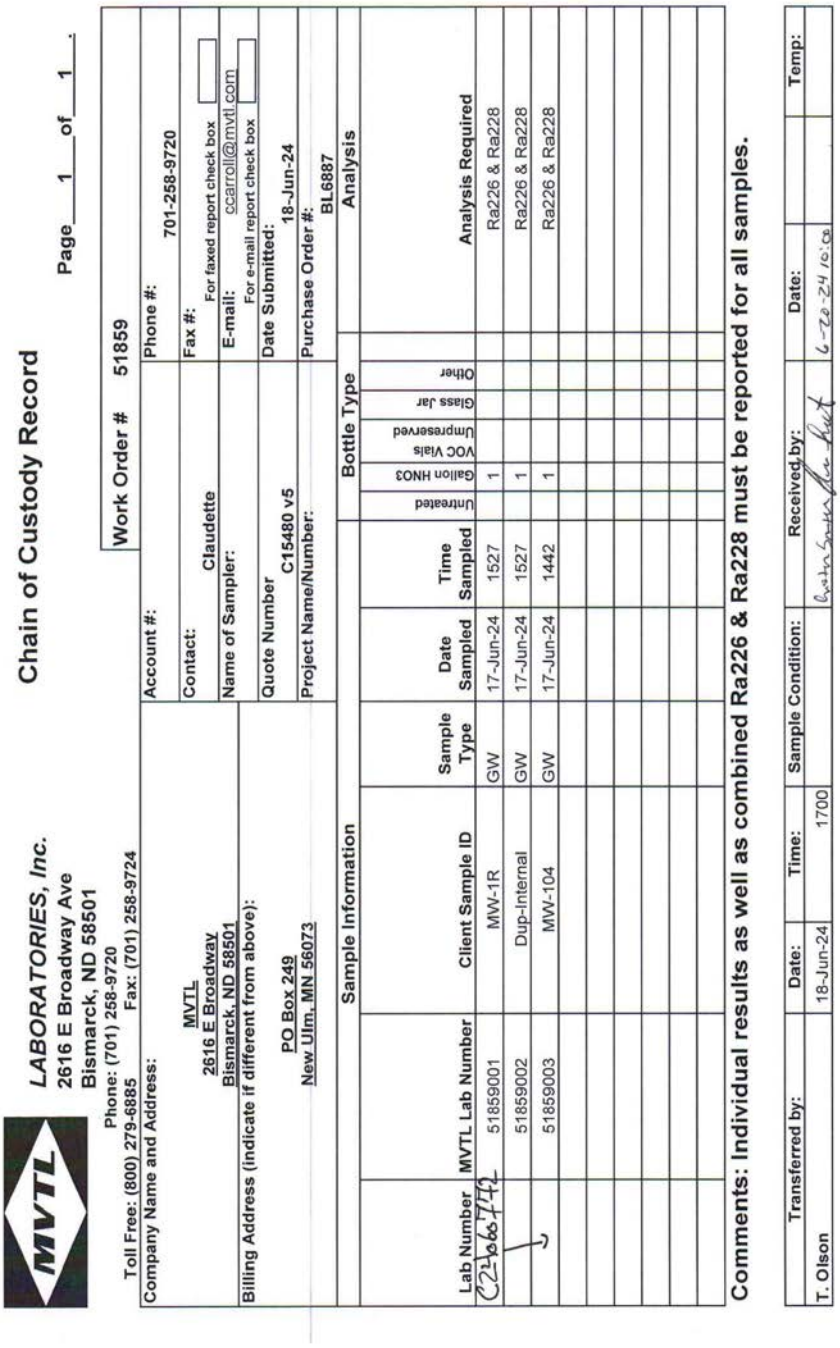
Minnesota Valley Testing Laboratories C24060772

Cancel combined radium per Tera Olson via email on 7/1/2024.-7/9/2024 mas.

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Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

Page 1 of 1

Work Order # 51859

Company Name and Address: MVTL, 2616 E Broadway, Bismarck, ND 58501
Account #:
Phone #: 701-258-9720
Contact: Claudette
Fax #: For faxed report check box
Name of Sampler:
E-mail: ccarroll@mvtl.com For e-mail report check box
Billing Address (indicate if different from above): PO Box 249, New Ulm, MN 56073
Quote Number C15480 v5
Date Submitted: 18-Jun-24
Project Name/Number:
Purchase Order #: BL6887

Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Untreated	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis Required
C21866742	51859001	MW-1R	GW	17-Jun-24	1527		1				Ra226 & Ra228
	51859002	Dup-Internal	GW	17-Jun-24	1527		1				Ra226 & Ra228
	51859003	MW-104	GW	17-Jun-24	1442		1				Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
T. Olson	18-Jun-24	1700		Cathy Sachs Jodi Hutt	6-20-24 10:00	

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Minnesota Valley Testing Laboratories
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Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 51859

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS Internal
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: June 2024
Address:		Lakewood, CO 80228	Sampled By:
Phone:			
Email:	CJohnston@GREnergy.com		

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric	Field Readings	Analysis Required
001	MW-1R	17 Jun 24	1527	GW					X		Radium 226 and 228 Combined
002	Dup - Internal	17 Jun 24	1527	GW					X		
003	MW-104	17 Jun 24	1442	GW					X		

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1	17 Jun 24 1713	Log In Walk In #2	20.6 °C/TM 805 ROI Y/N	M Horst	18 Jun 24 0800
2					

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: June 2024
Sample ID: 1R
Sampling Personal:

Weather Conditions: Temp: 60 °F Wind: E @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	17.09	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	17.13	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 3	Sec.
Recover: 27	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	x2

Duplicate Sample?
YES / NO
Duplicate Sample ID:
Dup - Internal

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
17 June 24	1502	Start of Well Purge									clear, slightly turbid, turbid
	1507	10.79	1494	8.11	0.67	-104.4	108.70	17.13	200.0	1.0	Clear
	1512	10.56	1502	8.01	0.27	-122.2	117.25	17.13	200.0	1.0	Clear
	1517	10.47	1504	7.92	0.05	-141.3	72.03	17.13	200.0	1.0	Clear
	1522	10.37	1504	7.86	0.00	-153.7	51.28	17.13	200.0	1.0	clear
	1527	10.32	1504	7.84	0.00	-160.6	42.18	17.13	200.0	1.0	clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
17 June 24	1527	10.32	1504	7.84			42.18				Clear

Comments:

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	104
Sampling Personal:	[illegible]

Weather Conditions: Temp: 60 °F Wind: E @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	22.10	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	22.15	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	2	Sec.
Recover:	28	Sec.
PSI:	—	

Bottle List:
1 Liter Raw — 1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample?
YES (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
17 June 24	1408	Start of Well Purge									
	1413	11.72	1744	7.75	0.39	125.8	19.15	22.15	200.0	1.0	Clear
	1428	11.53	1747	7.60	0.16	94.2	13.08	22.15	200.0	1.0	Clear
	1433	11.57	1751	7.47	0.12	83.4	5.39	22.15	200.0	1.0	Clear
	1438	11.55	1751	7.44	0.08	76.0	3.96	22.15	200.0	1.0	Clear
	1442	11.45	1752	7.42	0.09	75.9	0.61	22.15	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
17 June 24	1442	11.45	1752	7.42			0.61				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS BAI June 2024 (52103) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52103001 **Date Collected:** 06/18/2024 13:29 **Matrix:** Groundwater
Sample ID: MW-201 **Date Received:** 06/18/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**3019**	umhos/cm	1	1		06/18/2024 13:29	
Method: 150.2							
pH - Field	**7.46**	units	0.01	1		06/18/2024 13:29	
Method: 170.1							
Temperature - Field C	**9**	degrees C		1		06/18/2024 13:29	
Method: ASTM D516-16							
Sulfate	**1150**	mg/L	50	10		06/26/2024 09:49	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**1.38**	mg/L	0.1	1	06/19/2024 16:24	07/02/2024 10:51	
Calcium	**99.6**	mg/L	1	1	06/19/2024 16:24	06/25/2024 10:09	
Lithium	<0.02	mg/L	0.02	1	06/19/2024 16:24	06/20/2024 14:35	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 16:24	07/09/2024 16:12	
Arsenic	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:12	
Barium	**0.0147**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:12	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 16:12	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 16:12	
Chromium	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:12	
Cobalt	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:12	
Lead	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 16:12	
Molybdenum	**0.1492**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:12	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 16:24	07/09/2024 16:12	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 16:12	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52103001 **Date Collected:** 06/18/2024 13:29 **Matrix:** Groundwater
Sample ID: MW-201 **Date Received:** 06/18/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.8**	units	0.1	1		06/19/2024 14:21	*
Method: SM4500-Cl-E 2011							
Chloride	**18.5**	mg/L	2.0	1		06/19/2024 15:18	
Method: SM4500-F-C-2011							
Fluoride	**0.74**	mg/L	0.1	1		06/19/2024 14:21	
Method: USGS I-1750-85							
Total Dissolved Solids	**2190**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

Alkalinity, Total

Matrix spike and/or matrix spike duplicate recovery was low; the associated laboratory control sample recovery was acceptable.

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52103002 **Date Collected:** 06/18/2024 12:29 **Matrix:** Groundwater
Sample ID: MW-202 **Date Received:** 06/18/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2063**	umhos/cm	1	1		06/18/2024 12:29	
Method: 150.2							
pH - Field	**7.21**	units	0.01	1		06/18/2024 12:29	
Method: 170.1							
Temperature - Field C	**9.18**	degrees C		1		06/18/2024 12:29	
Method: ASTM D516-16							
Sulfate	**607**	mg/L	25	5		06/26/2024 09:50	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**1.74**	mg/L	0.1	1	06/19/2024 16:24	07/02/2024 10:51	
Calcium	**196**	mg/L	1	1	06/19/2024 16:24	06/25/2024 10:11	
Lithium	**0.0238**	mg/L	0.02	1	06/19/2024 16:24	06/20/2024 14:35	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 16:24	07/09/2024 16:16	
Arsenic	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:16	
Barium	**0.0675**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:16	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 16:16	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 16:16	
Chromium	**0.0054**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:16	
Cobalt	**0.0033**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:16	
Lead	**0.0015**	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 16:16	
Molybdenum	**0.0029**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:16	
Selenium	**0.0075**	mg/L	0.005	5	06/19/2024 16:24	07/09/2024 16:16	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 16:16	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52103002 **Date Collected:** 06/18/2024 12:29 **Matrix:** Groundwater
Sample ID: MW-202 **Date Received:** 06/18/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.6**	units	0.1	1		06/19/2024 14:32	*
Method: SM4500-Cl-E 2011							
Chloride	**13.6**	mg/L	2.0	1		06/19/2024 15:19	
Method: SM4500-F-C-2011							
Fluoride	**0.12**	mg/L	0.1	1		06/19/2024 14:32	
Method: USGS I-1750-85							
Total Dissolved Solids	**1530**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52103003 **Date Collected:** 06/18/2024 11:37 **Matrix:** Groundwater
Sample ID: MW-203 **Date Received:** 06/18/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**4497**	umhos/cm	1	1		06/18/2024 11:37	
Method: 150.2							
pH - Field	**8.27**	units	0.01	1		06/18/2024 11:37	
Method: 170.1							
Temperature - Field C	**9.77**	degrees C		1		06/18/2024 11:37	
Method: ASTM D516-16							
Sulfate	**1570**	mg/L	100	20		06/26/2024 09:51	
Method: EPA 245.1							
Mercury	**0.0002**	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**2.36**	mg/L	0.1	1	06/19/2024 16:24	07/02/2024 10:52	
Calcium	**80.3**	mg/L	5	5	06/19/2024 16:24	06/25/2024 10:12	
Lithium	**0.0289**	mg/L	0.02	1	06/19/2024 16:24	06/20/2024 14:37	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 16:24	07/09/2024 16:20	
Arsenic	**0.0091**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:20	
Barium	**0.0822**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:20	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 16:20	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 16:20	
Chromium	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:20	
Cobalt	**0.0023**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:20	
Lead	**0.0020**	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 16:20	
Molybdenum	**0.0416**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:20	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 16:24	07/09/2024 16:20	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 16:20	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52103003 **Date Collected:** 06/18/2024 11:37 **Matrix:** Groundwater
Sample ID: MW-203 **Date Received:** 06/18/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**8.4**	units	0.1	1		06/19/2024 14:43	*
Method: SM4500-Cl-E 2011							
Chloride	**20.9**	mg/L	2.0	1		06/19/2024 15:20	
Method: SM4500-F-C-2011							
Fluoride	**0.57**	mg/L	0.1	1		06/19/2024 14:43	
Method: USGS I-1750-85							
Total Dissolved Solids	**3340**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 52103

Sulfate — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			100	94.4		85	115		
LFB			100	93.2		85	115		
LFB			100	92.6		85	115		
LFB			100	92.7		85	115		
LFB			100	98.1		85	115		
LFB			100	98.8		85	115		
LFB			100	92.5		85	115		
LFB			100	104.0		85	115		
LFB			100	89.1		85	115		
LFB			100	96.0		85	115		
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MS/MSD	52101007		500	82.2	80.1	85	115	2.2	20
MS/MSD	52104002		500	72.3	77.1	85	115	2.5	20
MS/MSD	52104004		1000	79.6	82.5	85	115	2.1	20
MS/MSD	52281002		1000	75.2	77.5	85	115	1.8	20
MS/MSD	52396002		1000	69.0	72.5	85	115	2.4	20
MS/MSD	52454005		100	97.1	96.0	85	115	1.1	20
MS/MSD	52461002		100	96.3	96.0	85	115	0.3	20
MS/MSD	52575002		500	70.7	73.4	85	115	1.8	20

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Account #: 5109 **Client:** Great River Energy

Sulfate				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	52649007		100	73.1	68.5	85	115	3.5	20

Chloride				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	102.0		90	110		
LFB			30	103.0		90	110		
LFB			30	98.8		90	110		
LFB			30	96.9		90	110		
LFB			30	97.0		90	110		
LFB			30	95.1		90	110		
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MS/MSD	51925001		30	113.4	118.6	80	120	0.8	20
MS/MSD	52104001		30	106.8	102.8	80	120	2.3	20
MS/MSD	52104004		30	110.0	110.3	80	120	0.2	20

Aluminum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	104.0		85	115		
MB		<0.1							
PDS/PDSD	52095001		2	94.4	97.0	75	125	1.5	20
PDS/PDSD	52102001		1	102.0	104.0	75	125	2.0	20
PDS/PDSD	52104004		0.4	100.0	99.5	75	125	0.6	20
PDS/PDSD	52107001		5	99.5	95.7	75	125	1.7	20
PDS/PDSD	52425001		20	99.0	101.0	75	125	1.7	20
PDS/PDSD	52425001		4	120.0	116.0	75	125	3.6	20
PDS/PDSD	52467001		0.4	100.0	100.0	75	125	0.1	20

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Account #: 5109 **Client:** Great River Energy

Aluminum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	104.0		85	115		
MB		<0.1							
SPK/SPKD	51175005		0.4	106.0	106.0	75	125	0.3	20
SPK/SPKD	51714006		0.4	113.0	110.0	75	125	2.1	20
SPK/SPKD	51858001		0.4	110.0	110.0	75	125	0.3	20
SPK/SPKD	52104004		0.4	107.0	108.0	75	125	0.2	20
SPK/SPKD	52281002		0.4	106.0	107.0	75	125	0.9	20
SPK/SPKD	52429006		0.4	89.5	91.5	75	125	2.2	20
SPK/SPKD	52454002		0.4	95.9	93.8	75	125	2.2	20
SPK/SPKD	52467001		0.4	101.0	100.0	75	125	0.7	20

Boron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	101.0		85	115		
MB		<0.1							
MS/MSD	52102001		0.4	108.0	91.5	70	130	2.4	20

Boron, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	101.0		85	115		
MB		<0.1							
SPK/SPKD	51856004		0.4	93.1	93.4	75	125	0.2	20
SPK/SPKD	52104004		0.4	86.8	85.8	75	125	0.4	20
SPK/SPKD	52279001		0.4	81.0	81.3	75	125	0.1	20
SPK/SPKD	52281002		0.4	76.5	78.8	75	125	0.5	20
SPK/SPKD	52454006		0.4	99.7	100.0	75	125	0.3	20
SPK/SPKD	52467001		0.4	97.7	96.3	75	125	1.1	20
SPK/SPKD	52964008		0.4	97.2	97.4	75	125	0.2	20

Calcium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	112.0		85	115		
MB		<1							
PDS/PDSD	51856004		100	108.0	107.0	75	125	0.8	20

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Account #: 5109 **Client:** Great River Energy

Calcium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	52101002		100	114.0	113.0	75	125	0.7	20
PDS/PDSD	52101008		100	111.0	113.0	75	125	1.8	20
DUP	52102002							1.1	20
PDS/PDSD	52104004		100	104.0	104.0	75	125	0.1	20
PDS/PDSD	52104011		100	75.1	76.2	75	125	0.8	20
PDS/PDSD	52281002		100	92.4	92.3	75	125	0.1	20
PDS/PDSD	52429003		100	92.7	92.2	75	125	0.2	20
PDS/PDSD	52429006		100	101.0	101.0	75	125	0.3	20
PDS/PDSD	52461002		100	99.3	99.3	75	125	0.1	20
PDS/PDSD	52467001		100	96.0	95.5	75	125	0.3	20

Calcium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	112.0		85	115		
MB		<1							
SPK/SPKD	51856004		100	95.9	96.1	75	125	0.1	20
SPK/SPKD	52104004		100	94.7	94.5	75	125	0.1	20
SPK/SPKD	52104004		500	101.0	99.9	75	125	1.1	20
SPK/SPKD	52279001		100	96.8	96.7	75	125	0.1	20
SPK/SPKD	52281002		100	95.9	96.2	75	125	0.2	20
SPK/SPKD	52281002		500	102.0	103.0	75	125	1.0	20
SPK/SPKD	52964008		100	104.0	103.0	75	125	0.8	20

Iron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	110.0		85	115		
MB		<0.1							
PDS/PDSD	52095001		2	91.8	90.6	75	125	0.5	20
MS/MSD	52102001		0.4	99.5	101.0	70	130	1.2	20
PDS/PDSD	52102001		1	87.6	86.8	75	125	0.9	20
PDS/PDSD	52107001		5	97.0	98.6	75	125	0.6	20
PDS/PDSD	52425001		4	106.0	107.0	75	125	1.3	20
PDS/PDSD	52425001		20	88.6	87.6	75	125	1.1	20

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Iron				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	52467001		0.4	97.7	97.0	75	125	0.4	20

Iron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	110.0		85	115		
MB		<0.1							
SPK/SPKD	51175005		0.4	84.9	89.3	75	125	1.3	20
SPK/SPKD	51714006		0.4	90.7	90.5	75	125	0.1	20
SPK/SPKD	51858001		0.4	78.4	79.3	75	125	0.3	20
SPK/SPKD	52104004		0.4	75.5	79.4	75	125	1.0	20
SPK/SPKD	52281002		0.4	97.8	97.8	75	125	0.0	20
SPK/SPKD	52429006		0.4	85.5	86.3	75	125	0.7	20
SPK/SPKD	52454002		0.4	93.0	94.8	75	125	2.0	20
SPK/SPKD	52467001		0.4	91.3	90.2	75	125	1.2	20

Lithium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	102.0		85	115		
MB		<0.04							
MS/MSD	52102001		0.4	95.2	96.4	70	130	1.1	20

Lithium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	102.0		85	115		
MB		<0.04							
SPK/SPKD	51856004		0.4	91.2	89.2	75	125	1.9	20
SPK/SPKD	52104004		0.4	88.3	88.1	75	125	0.2	20
SPK/SPKD	52279001		0.4	89.7	91.0	75	125	1.3	20
SPK/SPKD	52281002		0.4	90.9	89.7	75	125	1.2	20

Magnesium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	110.0		85	115		
MB		<1							
PDS/PDSD	51856004		100	110.0	108.0	75	125	0.8	20
PDS/PDSD	52101002		100	117.0	116.0	75	125	0.9	20

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Magnesium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	52101008		100	114.0	116.0	75	125	2.0	20
DUP	52102002							0.7	20
PDS/PDSD	52104004		100	111.0	111.0	75	125	0.1	20
PDS/PDSD	52104011		100	94.7	95.8	75	125	0.8	20
PDS/PDSD	52281002		100	95.5	94.8	75	125	0.4	20
PDS/PDSD	52429003		100	97.3	96.7	75	125	0.4	20
PDS/PDSD	52429006		100	104.0	104.0	75	125	0.4	20
PDS/PDSD	52461002		100	101.0	101.0	75	125	0.1	20
PDS/PDSD	52467001		100	100.0	99.7	75	125	0.4	20

Magnesium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	110.0		85	115		
MB		<1							
SPK/SPKD	51856004		100	97.8	98.2	75	125	0.2	20
SPK/SPKD	52104004		500	104.0	103.0	75	125	1.0	20
SPK/SPKD	52104004		100	101.0	101.0	75	125	0.1	20
SPK/SPKD	52279001		100	102.0	102.0	75	125	0.2	20
SPK/SPKD	52281002		500	104.0	105.0	75	125	1.0	20
SPK/SPKD	52281002		100	98.6	98.5	75	125	0.1	20
SPK/SPKD	52964008		100	105.0	105.0	75	125	0.6	20

Manganese				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
MB		<0.05							
PDS/PDSD	51735001		25	97.1	97.4	75	125	0.3	20
PDS/PDSD	52095001		2	100.0	99.5	75	125	0.5	20
PDS/PDSD	52102001		1	75.8	73.7	75	125	1.1	20
PDS/PDSD	52104004		0.4	90.9	92.7	75	125	1.4	20
PDS/PDSD	52107001		5	92.7	93.6	75	125	0.7	20
PDS/PDSD	52425001		4	86.8	88.4	75	125	1.5	20
PDS/PDSD	52425001		20	84.7	84.0	75	125	0.8	20

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Account #: 5109 **Client:** Great River Energy

Manganese				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	52467001		0.4	106.0	106.0	75	125	0.3	20

Manganese, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
MB		<0.05							
SPK/SPKD	51175005		0.4	99.1	101.0	75	125	1.3	20
SPK/SPKD	51714006		0.4	77.3	76.9	75	125	0.1	20
SPK/SPKD	51858001		0.4	93.9	94.1	75	125	0.2	20
SPK/SPKD	52104004		0.4	90.6	92.4	75	125	1.5	20
SPK/SPKD	52281002		0.4	77.4	77.5	75	125	0.1	20
SPK/SPKD	52429006		0.4	92.5	93.1	75	125	0.6	20
SPK/SPKD	52454002		0.4	95.1	96.5	75	125	1.5	20
SPK/SPKD	52467001		0.4	93.5	92.6	75	125	1.0	20

Potassium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	109.0		85	115		
MB		<1							
PDS/PDSD	51856004		100	112.0	112.0	75	125	0.3	20
PDS/PDSD	52101002		100	113.0	113.0	75	125	0.2	20
PDS/PDSD	52101008		100	109.0	114.0	75	125	3.2	20
DUP	52102002							0.2	20
PDS/PDSD	52104004		100	112.0	113.0	75	125	0.9	20
PDS/PDSD	52104011		100	109.0	110.0	75	125	0.6	20
PDS/PDSD	52281002		100	99.8	98.3	75	125	1.4	20
PDS/PDSD	52429003		100	101.0	101.0	75	125	0.4	20
PDS/PDSD	52429006		100	103.0	103.0	75	125	0.5	20
PDS/PDSD	52461002		100	99.5	99.7	75	125	0.2	20
PDS/PDSD	52467001		100	99.7	99.9	75	125	0.2	20

Potassium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	109.0		85	115		

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Potassium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<1							
SPK/SPKD	51856004		100	101.0	102.0	75	125	1.4	20
SPK/SPKD	52104004		100	101.0	101.0	75	125	0.8	20
SPK/SPKD	52104004		500	100.0	99.8	75	125	0.4	20
SPK/SPKD	52279001		100	102.0	101.0	75	125	0.9	20
SPK/SPKD	52281002		500	101.0	102.0	75	125	1.1	20
SPK/SPKD	52281002		100	102.0	101.0	75	125	0.4	20
SPK/SPKD	52964008		100	102.0	102.0	75	125	0.1	20

Sodium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	111.0		85	115		
MB		<1							
PDS/PDSD	51856004		100	101.0	94.1	75	125	2.5	20
PDS/PDSD	52101002		100	117.0	117.0	75	125	0.5	20
PDS/PDSD	52101008		100	117.0	117.0	75	125	0.1	20
DUP	52102002							0.1	20
PDS/PDSD	52104004		100	74.5	80.1	75	125	1.2	20
PDS/PDSD	52104011		100	85.2	84.0	75	125	0.3	20
PDS/PDSD	52281002		500	88.8	89.0	75	125	0.1	20
PDS/PDSD	52429003		100	92.0	90.6	75	125	0.6	20
PDS/PDSD	52429006		100	75.4	74.4	75	125	0.2	20
PDS/PDSD	52461002		100	101.0	103.0	75	125	1.9	20
PDS/PDSD	52467001		100	94.4	92.4	75	125	1.1	20

Sodium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	111.0		85	115		
MB		<1							
SPK/SPKD	51856004		100	87.2	89.9	75	125	1.0	20
SPK/SPKD	52104004		500	97.4	96.9	75	125	0.3	20
SPK/SPKD	52104004		100	63.8	53.8	75	125	0.1	20
SPK/SPKD	52279001		100	80.9	76.6	75	125	1.3	20

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Sodium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52281002		500	94.4	96.0	75	125	0.8	20
SPK/SPKD	52281002		100	34.0	26.3	75	125	1.3	20
SPK/SPKD	52964008		100	103.0	104.0	75	125	1.0	20

Antimony Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.7		80	120		
MB		<0.001							
MS/MSD	52102001		0.4	100.0	99.7	75	125	0.5	20
SPK/SPKD	52107001		0.4	103.0	102.0	75	125	0.4	20

Antimony, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.7		80	120		
MB		<0.001							
SPK/SPKD	51858002		0.1	106.0	106.0	75	125	0.6	20
MS/MSD	52102001		0.4	100.0	99.7	75	125	0.5	20
SPK/SPKD	52104004		0.1	104.0	103.0	75	125	1.1	20
SPK/SPKD	52107001		0.4	103.0	102.0	75	125	0.4	20
SPK/SPKD	52279002		0.1	104.0	103.0	75	125	1.1	20
SPK/SPKD	52281006		0.1	105.0	105.0	75	125	0.0	20

Arsenic Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.5		80	120		
MB		<0.002							
MS/MSD	52102001		0.4	99.6	98.8	75	125	0.8	20
SPK/SPKD	52107001		0.4	105.0	104.0	75	125	0.9	20

Arsenic, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.5		80	120		
MB		<0.002							
SPK/SPKD	51858002		0.1	105.0	106.0	75	125	1.3	20
MS/MSD	52102001		0.4	99.6	98.8	75	125	0.8	20
SPK/SPKD	52104004		0.1	103.0	102.0	75	125	0.5	20

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Arsenic, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52107001		0.4	105.0	104.0	75	125	0.9	20
SPK/SPKD	52279002		0.1	104.0	104.0	75	125	0.2	20
SPK/SPKD	52281006		0.1	113.0	114.0	75	125	0.4	20

Barium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	89.1		80	120		
MB		<0.002							
MS/MSD	52102001		0.4	90.3	89.2	75	125	1.0	20
SPK/SPKD	52107001		0.4	167.0	168.0	75	125	0.5	20

Barium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	89.1		80	120		
MB		<0.002							
SPK/SPKD	51858002		0.1	93.9	95.1	75	125	0.9	20
MS/MSD	52102001		0.4	90.3	89.2	75	125	1.0	20
SPK/SPKD	52104004		0.1	92.2	91.5	75	125	0.6	20
SPK/SPKD	52107001		0.4	167.0	168.0	75	125	0.5	20
SPK/SPKD	52279002		0.1	92.1	92.9	75	125	0.4	20
SPK/SPKD	52281006		0.1	167.0	166.0	75	125	0.7	20

Beryllium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	93.2		80	120		
MB		<0.0005							
MS/MSD	52102001		0.4	106.0	104.0	75	125	1.0	20
SPK/SPKD	52107001		0.4	105.0	105.0	75	125	0.2	20

Beryllium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	93.2		80	120		
MB		<0.0005							
SPK/SPKD	51858002		0.1	115.0	116.0	75	125	0.6	20
MS/MSD	52102001		0.4	106.0	104.0	75	125	1.0	20
SPK/SPKD	52104004		0.1	114.0	112.0	75	125	1.0	20

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Beryllium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52107001		0.4	105.0	105.0	75	125	0.2	20
SPK/SPKD	52279002		0.1	113.0	110.0	75	125	2.6	20
SPK/SPKD	52281006		0.1	112.0	112.0	75	125	0.3	20

Cadmium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	93.5		80	120		
MB		<0.0005							
MS/MSD	52102001		0.4	94.2	94.0	75	125	0.3	20
SPK/SPKD	52107001		0.4	94.4	93.7	75	125	0.7	20

Cadmium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	93.5		80	120		
MB		<0.0005							
SPK/SPKD	51858002		0.1	97.0	98.7	75	125	1.7	20
MS/MSD	52102001		0.4	94.2	94.0	75	125	0.3	20
SPK/SPKD	52104004		0.1	95.1	93.6	75	125	1.6	20
SPK/SPKD	52107001		0.4	94.4	93.7	75	125	0.7	20
SPK/SPKD	52279002		0.1	96.0	95.7	75	125	0.3	20
SPK/SPKD	52281006		0.1	94.2	95.1	75	125	1.0	20

Chromium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.0		80	120		
MB		<0.002							
MS/MSD	52102001		0.4	95.7	95.4	75	125	0.5	20
SPK/SPKD	52107001		0.4	107.0	106.0	75	125	1.2	20

Chromium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.0		80	120		
MB		<0.002							
SPK/SPKD	51858002		0.1	99.8	99.5	75	125	0.3	20
MS/MSD	52102001		0.4	95.7	95.4	75	125	0.5	20
SPK/SPKD	52104004		0.1	98.6	97.9	75	125	0.7	20

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Chromium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52107001		0.4	107.0	106.0	75	125	1.2	20
SPK/SPKD	52279002		0.1	100.0	100.0	75	125	0.2	20
SPK/SPKD	52281006		0.1	102.0	102.0	75	125	0.2	20

Cobalt Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.6		80	120		
MB		<0.002							
MS/MSD	52102001		0.4	93.5	92.8	75	125	0.8	20
SPK/SPKD	52107001		0.4	104.0	103.0	75	125	1.2	20

Cobalt, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.6		80	120		
MB		<0.002							
SPK/SPKD	51858002		0.1	97.8	97.9	75	125	0.1	20
MS/MSD	52102001		0.4	93.5	92.8	75	125	0.8	20
SPK/SPKD	52104004		0.1	96.4	96.2	75	125	0.2	20
SPK/SPKD	52107001		0.4	104.0	103.0	75	125	1.2	20
SPK/SPKD	52279002		0.1	98.9	98.9	75	125	0.0	20
SPK/SPKD	52281006		0.1	101.0	100.0	75	125	0.6	20

Lead Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	94.8		80	120		
MB		<0.0005							
MS/MSD	52102001		0.4	90.9	91.1	75	125	0.0	20
SPK/SPKD	52107001		0.4	97.8	97.2	75	125	0.6	20

Lead, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	94.8		80	120		
MB		<0.0005							
SPK/SPKD	51858002		0.1	97.2	96.9	75	125	0.3	20
MS/MSD	52102001		0.4	90.9	91.1	75	125	0.0	20
SPK/SPKD	52104004		0.1	94.7	94.8	75	125	0.1	20

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Lead, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52107001		0.4	97.8	97.2	75	125	0.6	20
SPK/SPKD	52279002		0.1	94.9	94.4	75	125	0.5	20
SPK/SPKD	52281006		0.1	94.4	93.8	75	125	0.6	20

Molybdenum Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.2		80	120		
MB		<0.002							
MS/MSD	52102001		0.4	95.9	94.6	75	125	1.4	20
SPK/SPKD	52107001		0.4	113.0	107.0	75	125	5.3	20

Molybdenum, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.2		80	120		
MB		<0.002							
SPK/SPKD	51858002		0.1	97.8	97.8	75	125	0.1	20
MS/MSD	52102001		0.4	95.9	94.6	75	125	1.4	20
SPK/SPKD	52104004		0.1	97.8	97.8	75	125	0.0	20
SPK/SPKD	52107001		0.4	113.0	107.0	75	125	5.3	20
SPK/SPKD	52279002		0.1	99.2	98.9	75	125	0.2	20
SPK/SPKD	52281006		0.1	107.0	106.0	75	125	0.4	20

Selenium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.2		80	120		
MB		<0.005							
MS/MSD	52102001		0.4	100.0	99.4	75	125	1.0	20
SPK/SPKD	52107001		0.4	100.0	100.0	75	125	0.5	20

Selenium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.2		80	120		
MB		<0.005							
SPK/SPKD	51858002		0.1	106.0	106.0	75	125	0.4	20
MS/MSD	52102001		0.4	100.0	99.4	75	125	1.0	20
SPK/SPKD	52104004		0.1	104.0	102.0	75	125	1.7	20

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Selenium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52107001		0.4	100.0	100.0	75	125	0.5	20
SPK/SPKD	52279002		0.1	106.0	104.0	75	125	1.6	20
SPK/SPKD	52281006		0.1	111.0	115.0	75	125	3.7	20

Thallium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.2		80	120		
MB		<0.0005							
MS/MSD	52102001		0.4	90.1	89.8	75	125	0.3	20
SPK/SPKD	52107001		0.4	92.6	92.6	75	125	0.1	20

Thallium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.2		80	120		
MB		<0.0005							
SPK/SPKD	51858002		0.1	95.0	94.2	75	125	0.8	20
MS/MSD	52102001		0.4	90.1	89.8	75	125	0.3	20
SPK/SPKD	52104004		0.1	91.6	91.7	75	125	0.1	20
SPK/SPKD	52107001		0.4	92.6	92.6	75	125	0.1	20
SPK/SPKD	52279002		0.1	92.3	92.3	75	125	0.0	20
SPK/SPKD	52281006		0.1	92.1	91.4	75	125	0.8	20

Mercury Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	100.0		85	115		
LFB			0.002	90.7		85	115		
LFB			0.002	107.0		85	115		
LRB		<0.0002							
LRB		<0.0002							
MB		<0.0002							
MS/MSD	52104001		0.002	114.0	113.0	70	130	4.4	20
MS/MSD	52104004		0.002	100.0	102.0	70	130	0.0	20
MS/MSD	52281002		0.002	90.9	92.2	70	130	0.0	20
MS/MSD	52281006		0.002	106.0	101.0	70	130	4.9	20

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Mercury, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	107.0		85	115		
LFB			0.002	90.8		85	115		
LFB			0.002	90.7		85	115		
LFB			0.002	100.0		85	115		
LRB		<0.0002							
LRB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MS/MSD	52102004		0.002	112.0	108.0	70	130	0.0	20
MS/MSD	52104004		0.002	113.0	112.0	70	130	4.4	20
MS/MSD	52281002		0.002	92.2	94.8	70	130	5.4	20
MS/MSD	52281004		0.002	122.0	123.0	70	130	0.0	20

Alkalinity, Total Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			501	92.1		80	120		
LFB			410	91.3		90	110		
LFB			410	91.3		90	110		
LFB			410	91.3		90	110		
LFB			410	91.3		90	110		
LFB			410	91.4		90	110		
MB		<20.5							
MB		<20.5							
MB		<20.5							
MB		<20.5							
MB		<20.5							
MS/MSD	52101001		410	92.8	92.5	80	120	0.2	20
MS/MSD	52101002		410	93.2	93.5	80	120	0.2	20
MS/MSD	52103001		410	78.8	77.2	80	120	1.2	20
MS/MSD	52104004		410	75.2	74.4	80	120	0.4	20

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pH Units: units

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	100.5		98.33	101.67		
CRM-PH			6	100.7		98.33	101.67		
CRM-PH			6	100.7		98.33	101.67		
CRM-PH			6	100.8		98.33	101.67		
CRM-PH			6	100.7		98.33	101.67		
DUP	52094001							0.7	20
DUP	52101008							0.7	20
DUP	52104004							0.6	20
DUP	52104011							2.2	20

Fluoride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			3.06	99.7		83.99	111.11		
LFB-F			0.5	96.0		90	110		
LFB-F			0.5	98.0		90	110		
LFB-F			0.5	96.0		90	110		
LFB-F			0.5	98.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MS/MSD-F	52087002		0.5	102.0	102.0	80	120	0.0	20
MS/MSD-F	52103003		0.5	104.0	100.0	80	120	1.9	20
MS/MSD-F	52104004		0.5	102.0	102.0	80	120	0.0	20

Total Dissolved Solids Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	100.0		90.35	110.33		
CRM			736	101.0		90.35	110.33		
MB		<10							
MB		<10							
DUP	51856005							1.5	20
DUP	52102002							0.7	20

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Account #: 5109 **Client:** Great River Energy

Total Dissolved Solids Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
DUP	52104004							0.0	20
DUP	52104013							0.0	20

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Member ACIL

Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 52103

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS BAI
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: June 2024
Address:		Lakewood, CO 80228	Sampled By:
Phone:			
Email:	CJohnston@GREnergy.com		

Sample Information					Sample Containers									Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric					Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-201	18 June 24	1329	GW	X	X	X							9.02	3019	7.46	1.92	App III, AppIV, Additional List (total and dissolved for all metals) (See Attachments)
002	MW-202	18 June 24	1229	GW	X	X	X							9.18	2063	7.21	100.0	
003	MW-203	18 June 24	1137	GW	X	X	X							9.77	4497	8.27	3.54	

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1	18 June 24 1705	Log In Walk In #2	9.2 °C/TM 805 ROI (Y)N		19 Jun 24 0800
2					

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February 2024 GL21509219.000

Table 2. Parameter and Analysis Summary - Appendix III Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/11	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	SM 4500 F E/11	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	ASTM D516-16	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	USGS I-1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total and dissolved)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:
1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent methods.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

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February 2024 GL21509219.000

Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

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Account #: 5109 **Client:** Great River Energy

Table 4: Additional List Parameter and Analysis Summary

Parameter [1]	Method Reference [2]	Reporting Limit	Preparation Method Reference [2]	Sample Container [3]	Required Preservation [4]	Maximum Holding Time from Sampling [5]
General Chemistry						
Total Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Bicarbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Carbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Metals (Total and Dissolved)						
Iron	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Magnesium	EPA 6010D	0.2 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Potassium	EPA 6010D	3.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Sodium	EPA 6010D	1.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Aluminum	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Manganese	EPA 6010D	0.05 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months

Notes:

1. All listed parameters are tested in the laboratory. Listed parameters are to be collected in conjunction with other CCR parameter lists (Table 2 and Table 3).

2. Or equivalent method.
3. Containers and volumes will be specified by the analytical laboratory.
4. In addition to the required preservation for each sample container, sufficient ice should be placed with the sample containers in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when samples arrive, measurement of the temperature of samples immediately upon receipt is necessary to confirm that the 4° C temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible following collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid, without the use of qualifiers.

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	201
Sampling Personal:	JTM

Weather Conditions: Temp: 50 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	10.19	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	10.85	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 3	Sec.
Recover: 57	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
18 June 24	1304	Start of Well Purge									
	1309	9.44	3017	7.48	1.62	129.0	1.47	10.75	200.0	1.0	Clear
	1314	9.05	3025	7.48	0.39	99.2	0.66	10.78	200.0	1.0	Clear
	1319	9.06	3024	7.47	0.18	78.7	1.14	10.80	200.0	1.0	Clear
	1324	8.98	3022	7.47	0.18	73.5	1.15	10.81	200.0	1.0	Clear
	1329	9.00	3019	7.46	0.10	63.0	1.92	10.83	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18 June 24	1329	9.00	3019	7.46			1.92				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

Field Datasheet

Groundwater Assessment

2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	202
Sampling Personal:	Jerry Kleyn

Weather Conditions: Temp: 50°F Wind: NW @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	10.53	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	11.82	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 3	Sec.
Recover: 57	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
18 June 24	1204	Start of Well Purge									
	1209	9.31	2083	7.25	3.09	187.9	389.56	10.89	200.0	1.0	Slightly Turbid
	1214	9.26	2078	7.24	2.61	189.1	275.36	11.05	200.0	1.0	Slightly Turbid (ST)
	1219	9.20	2072	7.23	2.25	186.5	229.31	11.65	200.0	1.0	ST
	1224	9.16	2067	7.22	2.03	182.2	188.04	11.75	200.0	1.0	ST
	1229	9.18	2063	7.21	1.85	177.5	100.00	11.80	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18 June 24	1229	9.18	2063	7.21			100.0				Clear

Comments:	

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet
Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	203
Sampling Personal:	Jeremy Meyer

Weather Conditions: Temp: 50 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	8.05	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	11.00	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 3	Sec.
Recover: 57	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
18 June 24	1057	Start of Well Purge									
	1102	9.20	4660	8.17	0.91	78.6	0.00	9.41	200.0	1.0	Clear
	1107	9.45	4736	8.08	0.38	70.5	0.00	9.77	200.0	1.0	Clear
	1112	9.58	4739	8.07	0.21	60.6	0.00	10.05	200.0	1.0	Clear
	1117	9.65	4734	8.07	0.19	56.0	0.00	10.25	200.0	1.0	Clear
	1122	9.77	4626	8.11	0.26	58.2	0.00	10.41	200.0	1.0	Clear
	1127	9.80	4548	8.19	0.52	67.4	1.50	10.60	200.0	1.0	Clear
	1132	9.75	4524	8.23	0.55	70.7	2.40	10.73	200.0	1.0	Clear
	1137	9.77	4497	8.27	0.49	65.6	3.54	10.90	200.0	1.0	Clear
		Well Stabilized?	(YES)	NO				Total Volume Purged:		8.0	Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18 June 24	1137	9.77	4497	8.27			3.54				Clear

Comments:	

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS BAI June 2024 (52145) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

C. Carroll

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID:	52145001	**Date Collected:**	06/18/2024 13:29	**Matrix:**	Groundwater
Sample ID:	MW-201	**Date Received:**	06/18/2024 17:05	**Collector:**	MVTL Field Service

Temp @ Receipt (C): 19.8

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/26/2024 10:49	
Radium 228	See Attached			1		07/26/2024 10:49	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID:	52145002	**Date Collected:**	06/18/2024 12:29	**Matrix:**	Groundwater
Sample ID:	MW-202	**Date Received:**	06/18/2024 17:05	**Collector:**	MVTL Field Service

Temp @ Receipt (C): 19.8

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/26/2024 10:49	
Radium 228	See Attached			1		07/26/2024 10:49	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52145003 **Date Collected:** 06/18/2024 11:37 **Matrix:** Groundwater
Sample ID: MW-203 **Date Received:** 06/18/2024 17:05 **Collector:** MVTL Field Service

Temp @ Receipt (C): 19.8

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/26/2024 10:49	
Radium 228	See Attached			1		07/26/2024 10:49	

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Account #: 5109 **Client:** Great River Energy

ANALYTICAL SUMMARY REPORT

July 24, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24060864 Quote ID: C15480
Project Name: 52145

Energy Laboratories, Inc. Casper WY received the following 2 samples for Minnesota Valley Testing Laboratories on 6/24/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24060864-002	52145002, MW-202	06/18/24 12:29	06/24/24	Groundwater	Radium 226, Total Radium 228, Total
C24060864-003	52145003, MW-203	06/18/24 11:37	06/24/24	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy, Casper, WY 82601-9601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

Energy Laboratories, Inc. verifies the reported results for the analysis has been technically reviewed and approved for release.

If you have any questions regarding these test results, please contact your Project Manager.

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52145
Lab ID: C24060864-002
Client Sample ID: 52145002, MW-202

Report Date: 07/24/24
Collection Date: 06/18/24 12:29
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.2	pCi/L	U			E903.0	07/08/24 13:37 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/08/24 13:37 / alb
Radium 226 MDC	0.3	pCi/L				E903.0	07/08/24 13:37 / alb
Radium 228	1.8	pCi/L				RA-05	07/02/24 12:38 / trs
Radium 228 precision (±)	1.1	pCi/L				RA-05	07/02/24 12:38 / trs
Radium 228 MDC	1.4	pCi/L				RA-05	07/02/24 12:38 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52145
Lab ID: C24060864-003
Client Sample ID: 52145003, MW-203

Report Date: 07/24/24
Collection Date: 06/18/24 11:37
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.5	pCi/L				E903.0	07/08/24 13:37 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/08/24 13:37 / alb
Radium 226 MDC	0.3	pCi/L				E903.0	07/08/24 13:37 / alb
Radium 228	2.1	pCi/L				RA-05	07/02/24 12:38 / trs
Radium 228 precision (±)	1.0	pCi/L				RA-05	07/02/24 12:38 / trs
Radium 228 MDC	1.4	pCi/L				RA-05	07/02/24 12:38 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24060864 **Report Date:** 07/11/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11357
Lab ID: LCS-RA226-11357	3	Laboratory Control Sample				Run: TENNELEC-3_240625D				07/08/24 11:22
Radium 226		12	pCi/L		119	70	130			
Radium 226 precision (±)		2.3	pCi/L							
Radium 226 MDC		0.22	pCi/L							
Lab ID: MB-RA226-11357	3	Method Blank				Run: TENNELEC-3_240625D				07/08/24 11:22
Radium 226		0.2	pCi/L							
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C24060862-002AMS	3	Sample Matrix Spike				Run: TENNELEC-3_240625D				07/08/24 11:22
Radium 226		11	pCi/L		108	70	130			
Radium 226 precision (±)		2.2	pCi/L							
Radium 226 MDC		0.20	pCi/L							
Lab ID: C24060862-002AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-3_240625D				07/08/24 13:37
Radium 226		11	pCi/L		105	70	130	3.2	30	
Radium 226 precision (±)		2.1	pCi/L							
Radium 226 MDC		0.19	pCi/L							

- The RER result is 0.12.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24060864 **Report Date:** 07/11/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7425
Lab ID: LCS-228-RA226-11357	3	Laboratory Control Sample				Run: TENNELEC-4_240625A				07/02/24 12:38
Radium 228		12	pCi/L		112	70	130			
Radium 228 precision (±)		2.3	pCi/L							
Radium 228 MDC		0.95	pCi/L							
Lab ID: MB-RA226-11357	3	Method Blank				Run: TENNELEC-4_240625A				07/02/24 12:38
Radium 228		0.6	pCi/L							U
Radium 228 precision (±)		0.6	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C24060862-002AMS1	3	Sample Matrix Spike				Run: TENNELEC-4_240625A				07/02/24 12:38
Radium 228		12	pCi/L		100	70	130			
Radium 228 precision (±)		2.3	pCi/L							
Radium 228 MDC		0.96	pCi/L							
Lab ID: C24060862-002AMSD1	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_240625A				07/02/24 12:38
Radium 228		12	pCi/L		101	70	130	1.2	30	
Radium 228 precision (±)		2.3	pCi/L							
Radium 228 MDC		1.0	pCi/L							

- The RER result is 0.04.

Qualifiers:

RL - Analyte Reporting Limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24060864

Login completed by: Aaron J. Smith
Reviewed by: lcadreau
Reviewed Date: 7/9/2024
Date Received: 6/24/2024
Received by: LFN
Carrier name: UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☐	No ☑	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	26.0°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Trip Blanks and/or Blind Duplicate samples are assigned the earliest collection time for the associated requested analysis in order to evaluate the holding time unless specifically indicated.

Contact and Corrective Action Comments:

Sample 52145001, MW-201 for Radium 226 and 228 was received broken with all sample volume lost. Cancel all analysis per phone conversation with Terra Olson on 6/25/24. AS 6/25/24

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Work Order Receipt Checklist - Continued

Minnesota Valley Testing Laboratories C24060864

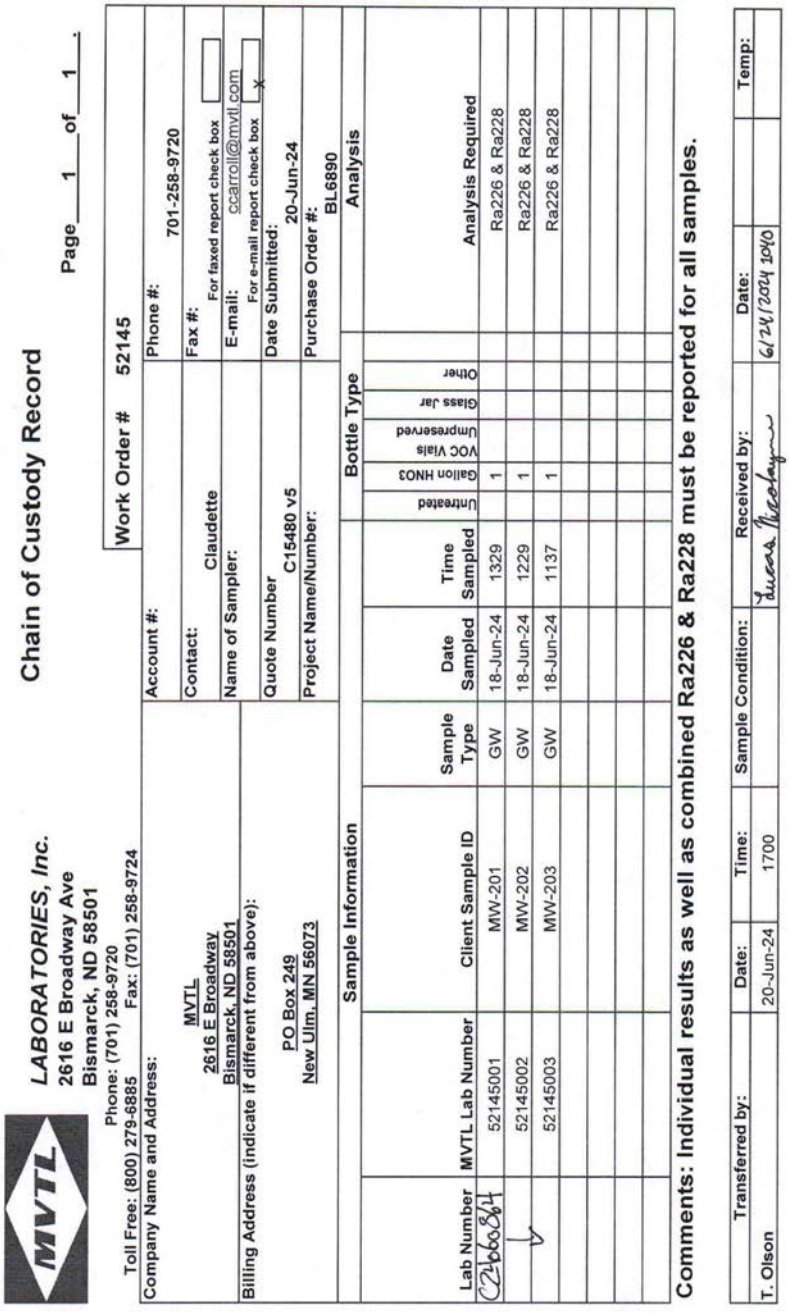
Cancel combined radium per Tera Olson via email on 7/1/2024.-7/9/2024 mas.

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Chain of Custody Record

Page 1 of 1

Work Order # 52145

Company Name and Address: MVTL, 2616 E Broadway, Bismarck, ND 58501
Billing Address (indicate if different from above): PO Box 249, New Ulm, MN 56073

Account #:
Contact: Claudette
Name of Sampler:
Quote Number C15480 v5
Project Name/Number:

Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box x
Date Submitted: 20-Jun-24
Purchase Order #: BL6890

Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Unpreserved	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis Required
C21660824	52145001	MW-201	GW	18-Jun-24	1329		1				Ra226 & Ra228
	52145002	MW-202	GW	18-Jun-24	1229		1				Ra226 & Ra228
	52145003	MW-203	GW	18-Jun-24	1137		1				Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
T. Olson	20-Jun-24	1700		Lucas Nachtigall	6/24/2024 1040	

Page 8 of 8

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Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 52145

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS BAI
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: June 2024
Address:		Lakewood, CO 80228	Sampled By:
Phone:			
Email:	CJohnston@GREnergy.com		

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric	Analysis Required
001	MW-201	18 Jun 24	1329	GW					X	Radium 226 and 228 Combined
002	MW-202	18 Jun 24	1229	GW					X	
003	MW-203	18 Jun 24	1137	GW					X	

Comments:

Relinquished By			Sample Condition		Received By	
	Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1		18 Jun 24 1705	Log In Walk In #2	19.8°C/TM ROI Y/N		19 Jun 24 0800
2						

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	201
Sampling Personal:	[illegible]

Weather Conditions: Temp: 50 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	10.19	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	10.85	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	3	Sec.
Recover:	57	Sec.
PSI:	—	

Bottle List:
1 Liter Raw
1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample? YES / NO
Duplicate Sample ID: —

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
											clear, slightly turbid, turbid
18 June 24	1304	Start of Well Purge									
	1309	9.44	3017	7.48	1.62	129.0	1.47	10.75	200.0	1.0	Clear
	1314	9.05	3025	7.48	0.39	99.2	0.66	10.78	200.0	1.0	Clear
	1319	9.06	3024	7.47	0.18	78.7	1.14	10.80	200.0	1.0	Clear
	1324	8.98	3022	7.47	0.18	73.5	1.15	10.81	200.0	1.0	Clear
	1329	9.00	3019	7.46	0.10	63.0	1.92	10.83	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18 June 24	1329	9.00	3019	7.46			1.92				Clear

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	202
Sampling Personal:	Jerry Meyer

Weather Conditions: Temp: 50°F Wind: NW @ 5-10 Precip: Sunny / Partly Cloudy / (Cloudy)

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	10.53	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	11.82	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 3	Sec.
Recover: 57	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
18 June 24	1204	Start of Well Purge									
	1209	9.31	2083	7.25	3.09	187.9	389.56	10.89	200.0	1.0	Slightly Turbid
	1214	9.26	2078	7.24	2.61	189.1	275.36	11.05	200.0	1.0	Slightly Turbid (ST)
	1219	9.20	2072	7.23	2.25	186.5	229.31	11.65	200.0	1.0	ST
	1224	9.16	2067	7.22	2.03	182.2	188.04	11.75	200.0	1.0	ST
	1229	9.18	2063	7.21	1.85	177.5	100.00	11.80	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18 June 24	1229	9.18	2063	7.21			100.0				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	203
Sampling Personal:	Jeremy Meyer

Weather Conditions: Temp: 50 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	8.05	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	11.00	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 3	Sec.
Recover: 57	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
18 June 24	1057	Start of Well Purge									
	1102	9.20	4660	8.17	0.91	78.6	0.00	9.41	200.0	1.0	Clear
	1107	9.45	4736	8.08	0.38	70.5	0.00	9.77	200.0	1.0	Clear
	1112	9.58	4739	8.07	0.21	60.6	0.00	10.05	200.0	1.0	Clear
	1117	9.65	4734	8.07	0.19	56.0	0.00	10.25	200.0	1.0	Clear
	1122	9.77	4626	8.11	0.26	58.2	0.00	10.41	200.0	1.0	Clear
	1127	9.80	4548	8.19	0.52	67.4	1.50	10.60	200.0	1.0	Clear
	1132	9.75	4524	8.23	0.55	70.7	2.40	10.73	200.0	1.0	Clear
	1137	9.77	4497	8.27	0.49	65.6	3.54	10.90	200.0	1.0	Clear
		Well Stabilized?	(YES)	NO				Total Volume Purged:		8.0 Liters	

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18 June 24	1137	9.77	4497	8.27			3.54				Clear

Comments:	

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS BAI June 2024 (53799) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 53799001 **Date Collected:** 07/03/2024 15:15 **Matrix:** Groundwater
Sample ID: MW-201 **Date Received:** 07/03/2024 16:42 **Collector:** MVTL Field Service

Temp @ Receipt (C): 12.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		08/19/2024 12:46	
Radium 228	See Attached			1		08/19/2024 12:46	

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Account #: 5109 **Client:** Great River Energy

ANALYTICAL SUMMARY REPORT

August 16, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24070312 Quote ID: C15480
Project Name: 53799

Energy Laboratories, Inc. Casper WY received the following 1 sample for Minnesota Valley Testing Laboratories on 7/9/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24070312-001	53799001, MW-201	07/03/24 15:15	07/09/24	Groundwater	Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy, Casper, WY 82601-9601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

Energy Laboratories, Inc. verifies the reported results for the analysis has been technically reviewed and approved for release.

If you have any questions regarding these test results, please contact your Project Manager.

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Account #: 5109 **Client:** Great River Energy

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 53799
Lab ID: C24070312-001
Client Sample ID: 53799001, MW-201

Report Date: 08/16/24
Collection Date: 07/03/24 15:15
DateReceived: 07/09/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	07/29/24 09:49 / apt
Radium 226 precision (±)	0.1	pCi/L				E903.0	07/29/24 09:49 / apt
Radium 226 MDC	0.1	pCi/L				E903.0	07/29/24 09:49 / apt
Radium 228	0.6	pCi/L	U			RA-05	07/22/24 13:32 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	07/22/24 13:32 / trs
Radium 228 MDC	0.9	pCi/L				RA-05	07/22/24 13:32 / trs
Radium 226 + Radium 228	0.5	pCi/L	U			A7500-RA	07/29/24 16:45 / dmf
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	07/29/24 16:45 / dmf
Radium 226 + Radium 228 MDC	0.9	pCi/L				A7500-RA	07/29/24 16:45 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24070312 **Report Date:** 07/30/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11374
Lab ID: LCS-RA226-11374	3	Laboratory Control Sample				Run: TENNELEC-4_240716D			07/29/24 09:49	
Radium 226		10	pCi/L		105	70	130			
Radium 226 precision (±)		2.0	pCi/L							
Radium 226 MDC		0.16	pCi/L							
Lab ID: MB-RA226-11374	3	Method Blank				Run: TENNELEC-4_240716D			07/29/24 09:49	
Radium 226		0.05	pCi/L							U
Radium 226 precision (±)		0.09	pCi/L							
Radium 226 MDC		0.1	pCi/L							
Lab ID: C24070424-001HDUP	3	Sample Duplicate				Run: TENNELEC-4_240716D			07/29/24 09:49	
Radium 226		0.16	pCi/L					70	30	UR
Radium 226 precision (±)		0.16	pCi/L							
Radium 226 MDC		0.24	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than or equal to the limit of 3, the RER result is 0.75.

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24070312 **Report Date:** 07/30/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7437
Lab ID: LCS-228-RA226-11374	3	Laboratory Control Sample				Run: TENNELEC-4_240716A			07/22/24 13:32	
Radium 228		7.5	pCi/L		73	70	130			
Radium 228 precision (±)		1.6	pCi/L							
Radium 228 MDC		1.0	pCi/L							
Lab ID: MB-RA226-11374	3	Method Blank				Run: TENNELEC-4_240716A			07/22/24 13:32	
Radium 228		0.4	pCi/L							U
Radium 228 precision (±)		0.6	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C24070424-001HDUP	3	Sample Duplicate				Run: TENNELEC-4_240716A			07/22/24 13:32	
Radium 228		0.78	pCi/L					96	30	UR
Radium 228 precision (±)		0.81	pCi/L							
Radium 228 MDC		1.3	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than or equal to the limit of 3, the RER result is 1.15.

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

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Account #: 5109 **Client:** Great River Energy

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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24070312

Login completed by: Lisa X. Quezada
Date Received: 7/9/2024
Reviewed by: lcadreau
Received by: CCS
Reviewed Date: 7/13/2024
Carrier name: UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	24.1°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Trip Blanks and/or Blind Duplicate samples are assigned the earliest collection time for the associated requested analysis in order to evaluate the holding time unless specifically indicated.

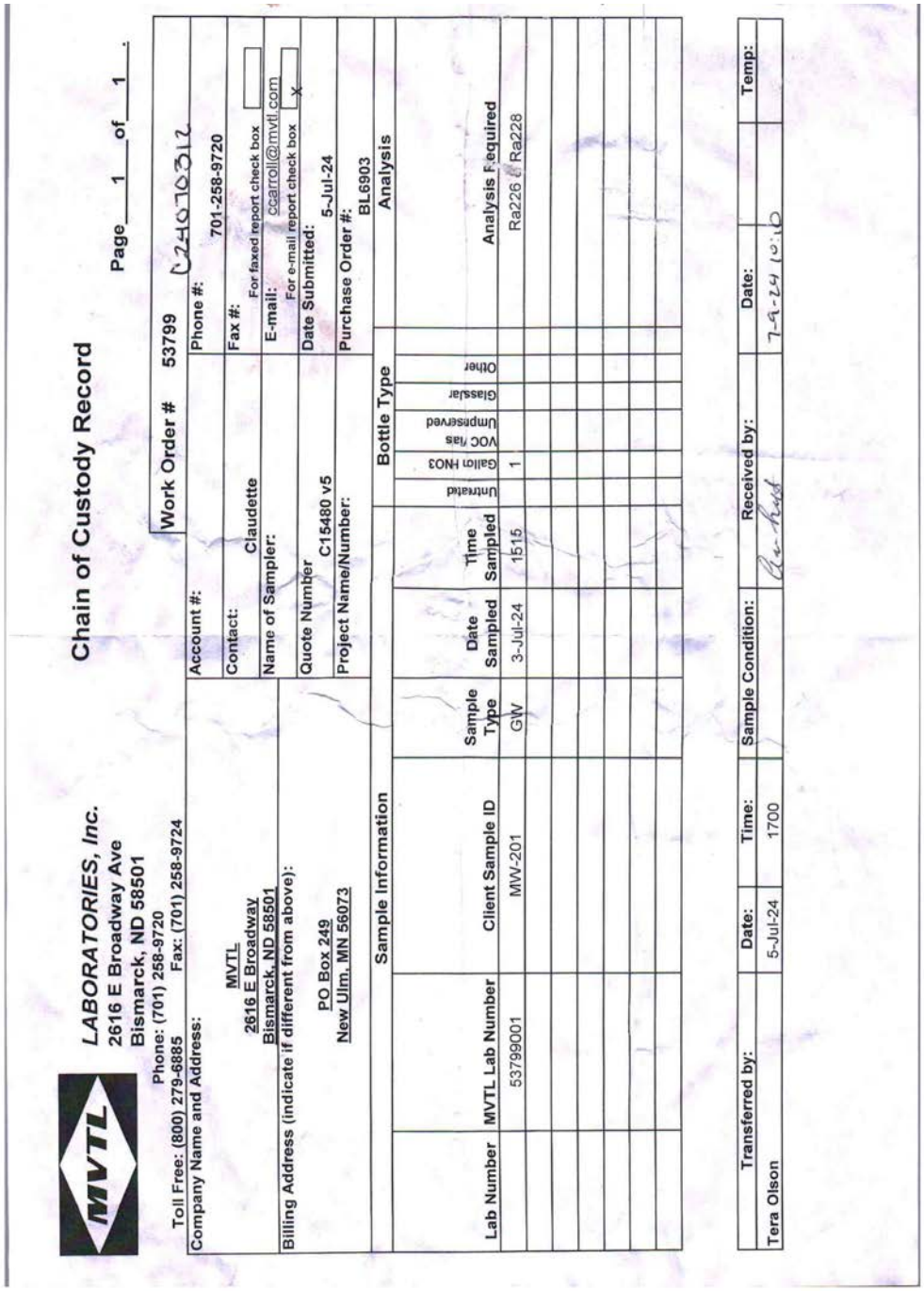
Contact and Corrective Action Comments:

None

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Account #: 5109 **Client:** Great River Energy



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2616 E Broadway Ave
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Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

Page 1 of 1

Work Order # 53799 C24070312

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501

Account #:
Contact: Claudette
Name of Sampler:
Quote Number C15480 v5
Project Name/Number:

Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box x
Date Submitted: 5-Jul-24
Purchase Order #: BL6903

Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073

Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Unpreserved	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis Required
	53799001	MW-201	GW	3-Jul-24	1515		1				Ra226 & Ra228

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
Tera Olson	5-Jul-24	1700			7-9-24 10:10	

Page 6 of 6

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Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 53799

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS BAI
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: June 2024
Address:		Lakewood, CO 80228	Sampled By: Dakota Kottsick
Phone:			
Email:	CJohnston@GREnergy.com		

Sample Information					Sample Containers										Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric										Analysis Required
001	MW-201	3July24	1515	GW					X										Radium 226 and 228 Combined

Comments:

Relinquished By			Sample Condition		Received By	
	Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1		3 July 24 1642	Log In ~~Walk In #2~~	12.2°C/TM&OS ROI Y/N		3JUL24 1642
2						

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	201
Sampling Personal:	Dakota Kottsick

Weather Conditions: Temp: 75 °F Wind: W @ 0-5 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	10.26	ft
Depth to Top of Pump:	18.57	ft
Water Level After Sample:	11.32	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	7	Sec.
Recover:	28	Sec.
PSI:	25	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?	
YES / NO	
Duplicate Sample ID:	—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
3July24	1450	Start of Well Purge									clear, slightly turbid, turbid
	1455	11.93	3062	7.40	0.32	270.4	13.50	11.02	200.0	1.0	Clear
	1500	11.77	3047	7.43	0.16	260.4	10.35	11.02	200.0	1.0	Clear
	1505	11.67	3067	7.44	0.10	257.6	4.91	11.04	200.0	1.0	Clear
	1510	11.49	3046	7.45	0.09	242.0	1.67	11.01	200.0	1.0	Clear
	1515	11.43	2914	7.45	0.11	238.1	0.50	11.02	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 3.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
3July24	1515	11.43	2914	7.45			0.50				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS 2023 Wells June 2024 (52104) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104001 **Date Collected:** 06/17/2024 14:38 **Matrix:** Groundwater
Sample ID: MW-215 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2356**	umhos/cm	1	1		06/17/2024 14:38	
Method: 150.2							
pH - Field	**7.48**	units	0.01	1		06/17/2024 14:38	
Method: 170.1							
Temperature - Field C	**11.12**	degrees C		1		06/17/2024 14:38	
Method: ASTM D516-16							
Sulfate	**679**	mg/L	25	5		06/26/2024 09:52	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**0.80**	mg/L	0.1	1	06/19/2024 16:24	07/02/2024 10:55	
Calcium	**93.3**	mg/L	1	1	06/19/2024 16:24	06/25/2024 10:17	
Lithium	**0.0432**	mg/L	0.02	1	06/19/2024 16:24	06/20/2024 14:40	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 16:24	07/09/2024 16:59	
Arsenic	**0.0038**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:59	
Barium	**0.0444**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:59	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 16:59	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 16:59	
Chromium	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:59	
Cobalt	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:59	
Lead	**0.0005**	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 16:59	
Molybdenum	**0.0127**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 16:59	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 16:24	07/09/2024 16:59	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 16:59	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104001 **Date Collected:** 06/17/2024 14:38 **Matrix:** Groundwater
Sample ID: MW-215 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		06/19/2024 16:50	*
Method: SM4500-Cl-E 2011							
Chloride	**19.6**	mg/L	2.0	1		06/19/2024 15:21	
Method: SM4500-F-C-2011							
Fluoride	**0.44**	mg/L	0.1	1		06/19/2024 16:50	
Method: USGS I-1750-85							
Total Dissolved Solids	**1700**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104002 **Date Collected:** 06/18/2024 12:17 **Matrix:** Groundwater
Sample ID: MW-216 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2050**	umhos/cm	1	1		06/18/2024 12:17	
Method: 150.2							
pH - Field	**7.46**	units	0.01	1		06/18/2024 12:17	
Method: 170.1							
Temperature - Field C	**9.07**	degrees C		1		06/18/2024 12:17	
Method: ASTM D516-16							
Sulfate	**580**	mg/L	25	5		06/26/2024 09:53	*
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**0.72**	mg/L	0.1	1	06/19/2024 16:24	07/02/2024 10:56	
Calcium	**88.4**	mg/L	1	1	06/19/2024 16:24	06/25/2024 10:19	
Lithium	**0.0486**	mg/L	0.02	1	06/19/2024 16:24	06/20/2024 14:40	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 16:24	07/09/2024 17:03	
Arsenic	**0.0040**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:03	
Barium	**0.0476**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:03	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:03	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:03	
Chromium	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:03	
Cobalt	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:03	
Lead	**0.0006**	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:03	
Molybdenum	**0.0101**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:03	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 16:24	07/09/2024 17:03	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:03	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104002 **Date Collected:** 06/18/2024 12:17 **Matrix:** Groundwater
Sample ID: MW-216 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		06/19/2024 17:01	*
Method: SM4500-Cl-E 2011							
Chloride	**17.1**	mg/L	2.0	1		06/19/2024 15:34	
Method: SM4500-F-C-2011							
Fluoride	**0.49**	mg/L	0.1	1		06/19/2024 17:01	
Method: USGS I-1750-85							
Total Dissolved Solids	**1500**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

Sulfate

Matrix spike and/or matrix spike duplicate recovery was low; the associated laboratory control sample recovery was acceptable.

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104003 **Date Collected:** 06/17/2024 13:42 **Matrix:** Groundwater
Sample ID: MW-217 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2318**	umhos/cm	1	1		06/17/2024 13:42	
Method: 150.2							
pH - Field	**7.51**	units	0.01	1		06/17/2024 13:42	
Method: 170.1							
Temperature - Field C	**10.51**	degrees C		1		06/17/2024 13:42	
Method: ASTM D516-16							
Sulfate	**660**	mg/L	25	5		06/26/2024 10:01	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**0.83**	mg/L	0.1	1	06/19/2024 16:24	07/02/2024 10:57	
Calcium	**101**	mg/L	1	1	06/19/2024 16:24	06/25/2024 10:20	
Lithium	**0.0462**	mg/L	0.02	1	06/19/2024 16:24	06/20/2024 14:41	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 16:24	07/09/2024 17:07	
Arsenic	**0.0046**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:07	
Barium	**0.0424**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:07	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:07	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:07	
Chromium	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:07	
Cobalt	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:07	
Lead	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:07	
Molybdenum	**0.0131**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:07	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 16:24	07/09/2024 17:07	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:07	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104003 **Date Collected:** 06/17/2024 13:42 **Matrix:** Groundwater
Sample ID: MW-217 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		06/19/2024 17:12	*
Method: SM4500-Cl-E 2011							
Chloride	**19.2**	mg/L	2.0	1		06/19/2024 15:35	
Method: SM4500-F-C-2011							
Fluoride	**0.61**	mg/L	0.1	1		06/19/2024 17:12	
Method: USGS I-1750-85							
Total Dissolved Solids	**1690**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104004 **Date Collected:** 06/18/2024 10:32 **Matrix:** Groundwater
Sample ID: MW-218 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2063**	umhos/cm	1	1		06/18/2024 10:32	
Method: 150.2							
pH - Field	**7.48**	units	0.01	1		06/18/2024 10:32	
Method: 170.1							
Temperature - Field C	**8.85**	degrees C		1		06/18/2024 10:32	
Method: ASTM D516-16							
Sulfate	**596**	mg/L	50	10		06/26/2024 10:18	*
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**0.78**	mg/L	0.1	1	06/19/2024 16:24	07/02/2024 10:58	
Calcium	**94.3**	mg/L	1	1	06/19/2024 16:24	06/25/2024 10:21	
Lithium	**0.0466**	mg/L	0.02	1	06/19/2024 16:24	06/20/2024 14:41	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 16:24	07/09/2024 17:12	
Arsenic	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:12	
Barium	**0.0428**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:12	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:12	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:12	
Chromium	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:12	
Cobalt	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:12	
Lead	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:12	
Molybdenum	**0.0101**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:12	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 16:24	07/09/2024 17:12	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:12	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104004 **Date Collected:** 06/18/2024 10:32 **Matrix:** Groundwater
Sample ID: MW-218 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		06/19/2024 17:23	*
Method: SM4500-Cl-E 2011							
Chloride	**17.3**	mg/L	2.0	1		06/19/2024 15:36	
Method: SM4500-F-C-2011							
Fluoride	**0.57**	mg/L	0.1	1		06/19/2024 17:23	
Method: USGS I-1750-85							
Total Dissolved Solids	**1480**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

Alkalinity, Total

Matrix spike and/or matrix spike duplicate recovery was low; the associated laboratory control sample recovery was acceptable.

Sulfate

Matrix spike and/or matrix spike duplicate recovery was low; the associated laboratory control sample recovery was acceptable.

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104005 **Date Collected:** 06/17/2024 15:48 **Matrix:** Groundwater
Sample ID: MW-219 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**3862**	umhos/cm	1	1		06/17/2024 15:48	
Method: 150.2							
pH - Field	**7.12**	units	0.01	1		06/17/2024 15:48	
Method: 170.1							
Temperature - Field C	**9.6**	degrees C		1		06/17/2024 15:48	
Method: ASTM D516-16							
Sulfate	**1380**	mg/L	50	10		06/26/2024 10:03	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**1.25**	mg/L	0.1	1	06/19/2024 16:24	07/02/2024 11:00	
Calcium	**281**	mg/L	1	1	06/19/2024 16:24	06/25/2024 10:27	
Lithium	**0.0288**	mg/L	0.02	1	06/19/2024 16:24	06/20/2024 14:43	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 16:24	07/09/2024 17:29	
Arsenic	**0.0047**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:29	
Barium	**0.0286**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:29	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:29	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:29	
Chromium	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:29	
Cobalt	**0.0021**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:29	
Lead	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:29	
Molybdenum	**0.0161**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:29	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 16:24	07/09/2024 17:29	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:29	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104005 **Date Collected:** 06/17/2024 15:48 **Matrix:** Groundwater
Sample ID: MW-219 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.7**	units	0.1	1		06/19/2024 17:33	*
Method: SM4500-Cl-E 2011							
Chloride	**20.0**	mg/L	2.0	1		06/19/2024 15:38	
Method: SM4500-F-C-2011							
Fluoride	**0.21**	mg/L	0.1	1		06/19/2024 17:33	
Method: USGS I-1750-85							
Total Dissolved Solids	**3210**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104006 **Date Collected:** 06/18/2024 13:29 **Matrix:** Groundwater
Sample ID: MW-220 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2008**	umhos/cm	1	1		06/18/2024 13:29	
Method: 150.2							
pH - Field	**7.42**	units	0.01	1		06/18/2024 13:29	
Method: 170.1							
Temperature - Field C	**9.81**	degrees C		1		06/18/2024 13:29	
Method: ASTM D516-16							
Sulfate	**556**	mg/L	25	5		06/26/2024 10:04	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**0.75**	mg/L	0.1	1	06/19/2024 16:24	07/02/2024 11:02	
Calcium	**89.1**	mg/L	1	1	06/19/2024 16:24	06/25/2024 10:28	
Lithium	**0.0477**	mg/L	0.02	1	06/19/2024 16:24	06/20/2024 14:44	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 16:24	07/09/2024 17:33	
Arsenic	**0.0029**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:33	
Barium	**0.0590**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:33	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:33	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:33	
Chromium	**0.0038**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:33	
Cobalt	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:33	
Lead	**0.0009**	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:33	
Molybdenum	**0.0100**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:33	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 16:24	07/09/2024 17:33	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:33	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104006 **Date Collected:** 06/18/2024 13:29 **Matrix:** Groundwater
Sample ID: MW-220 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		06/19/2024 17:44	*
Method: SM4500-Cl-E 2011							
Chloride	**17.1**	mg/L	2.0	1		06/19/2024 15:39	
Method: SM4500-F-C-2011							
Fluoride	**0.55**	mg/L	0.1	1		06/19/2024 17:44	
Method: USGS I-1750-85							
Total Dissolved Solids	**1420**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104007 **Date Collected:** 06/18/2024 14:41 **Matrix:** Groundwater
Sample ID: MW-221 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2160**	umhos/cm	1	1		06/18/2024 14:41	
Method: 150.2							
pH - Field	**7.39**	units	0.01	1		06/18/2024 14:41	
Method: 170.1							
Temperature - Field C	**9.67**	degrees C		1		06/18/2024 14:41	
Method: ASTM D516-16							
Sulfate	**608**	mg/L	25	5		06/26/2024 10:05	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**0.81**	mg/L	0.1	1	06/19/2024 16:24	07/02/2024 11:03	
Calcium	**73.8**	mg/L	1	1	06/19/2024 16:24	06/25/2024 10:30	
Lithium	**0.0417**	mg/L	0.02	1	06/19/2024 16:24	06/20/2024 14:45	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 16:24	07/09/2024 17:37	
Arsenic	**0.0130**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:37	
Barium	**0.0388**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:37	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:37	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:37	
Chromium	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:37	
Cobalt	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:37	
Lead	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:37	
Molybdenum	**0.0242**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:37	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 16:24	07/09/2024 17:37	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:37	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104007 **Date Collected:** 06/18/2024 14:41 **Matrix:** Groundwater
Sample ID: MW-221 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		06/19/2024 17:55	*
Method: SM4500-Cl-E 2011							
Chloride	**19.4**	mg/L	2.0	1		06/19/2024 15:40	
Method: SM4500-F-C-2011							
Fluoride	**0.44**	mg/L	0.1	1		06/19/2024 17:55	
Method: USGS I-1750-85							
Total Dissolved Solids	**1550**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104008 **Date Collected:** 06/18/2024 15:47 **Matrix:** Groundwater
Sample ID: MW-222 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2583**	umhos/cm	1	1		06/18/2024 15:47	
Method: 150.2							
pH - Field	**7.75**	units	0.01	1		06/18/2024 15:47	
Method: 170.1							
Temperature - Field C	**10.18**	degrees C		1		06/18/2024 15:47	
Method: ASTM D516-16							
Sulfate	**672**	mg/L	25	5		06/26/2024 10:07	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**2.34**	mg/L	0.1	1	06/19/2024 16:24	07/02/2024 11:04	
Calcium	**36.3**	mg/L	1	1	06/19/2024 16:24	06/25/2024 10:31	
Lithium	<0.02	mg/L	0.02	1	06/19/2024 16:24	06/20/2024 14:45	
Method: EPA 6020B							
Antimony	**0.0017**	mg/L	0.001	5	06/19/2024 16:24	07/29/2024 15:27	
Arsenic	**0.0207**	mg/L	0.002	5	06/19/2024 16:24	07/29/2024 15:27	
Barium	**0.0967**	mg/L	0.002	5	06/19/2024 16:24	07/29/2024 15:27	
Beryllium	**0.0013**	mg/L	0.0005	5	06/19/2024 16:24	07/29/2024 15:27	
Cadmium	**0.0010**	mg/L	0.0005	5	06/19/2024 16:24	07/29/2024 15:27	
Chromium	**0.0124**	mg/L	0.002	5	06/19/2024 16:24	07/29/2024 15:27	
Cobalt	**0.0124**	mg/L	0.002	5	06/19/2024 16:24	07/29/2024 15:27	
Lead	**0.0105**	mg/L	0.0005	5	06/19/2024 16:24	07/29/2024 15:27	
Molybdenum	**0.5852**	mg/L	0.004	10	06/19/2024 16:24	07/29/2024 15:37	
Selenium	**0.0125**	mg/L	0.005	5	06/19/2024 16:24	07/29/2024 15:27	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/29/2024 15:27	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104008 **Date Collected:** 06/18/2024 15:47 **Matrix:** Groundwater
Sample ID: MW-222 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**8.0**	units	0.1	1		06/19/2024 18:06	*
Method: SM4500-Cl-E 2011							
Chloride	**37.3**	mg/L	10.0	5		06/19/2024 15:41	
Method: SM4500-F-C-2011							
Fluoride	**1.50**	mg/L	0.1	1		06/19/2024 18:06	
Method: USGS I-1750-85							
Total Dissolved Solids	**2110**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104009 **Date Collected:** 06/18/2024 14:41 **Matrix:** Groundwater
Sample ID: FB-2023 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: ASTM D516-16							
Sulfate	<5	mg/L	5	1		06/26/2024 10:14	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	<0.1	mg/L	0.1	1	06/19/2024 16:24	07/02/2024 11:04	
Calcium	<1	mg/L	1	1	06/19/2024 16:24	06/25/2024 10:32	
Lithium	<0.02	mg/L	0.02	1	06/19/2024 16:24	06/20/2024 14:46	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 16:24	07/09/2024 17:46	
Arsenic	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:46	
Barium	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:46	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:46	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:46	
Chromium	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:46	
Cobalt	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:46	
Lead	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:46	
Molybdenum	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:46	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 16:24	07/09/2024 17:46	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:46	
Method: SM4500 H+ B-2011							
pH	**6.2**	units	0.1	1		06/19/2024 18:16	*
Method: SM4500-Cl-E 2011							
Chloride	<2.0	mg/L	2.0	1		06/19/2024 15:42	
Method: SM4500-F-C-2011							
Fluoride	<0.1	mg/L	0.1	1		06/19/2024 18:16	

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104009 **Date Collected:** 06/18/2024 14:41 **Matrix:** Groundwater
Sample ID: FB-2023 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: USGS I-1750-85							
Total Dissolved Solids	<10	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104010 **Date Collected:** 06/17/2024 12:32 **Matrix:** Groundwater
Sample ID: MW-300 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2584**	umhos/cm	1	1		06/17/2024 12:32	
Method: 150.2							
pH - Field	**7.25**	units	0.01	1		06/17/2024 12:32	
Method: 170.1							
Temperature - Field C	**10.47**	degrees C		1		06/17/2024 12:32	
Method: ASTM D516-16							
Sulfate	**663**	mg/L	25	5		06/26/2024 10:09	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**0.90**	mg/L	0.1	1	06/19/2024 16:24	07/02/2024 11:05	
Calcium	**134**	mg/L	1	1	06/19/2024 16:24	06/25/2024 10:33	
Lithium	**0.0391**	mg/L	0.02	1	06/19/2024 16:24	06/20/2024 14:47	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 16:24	07/09/2024 17:50	
Arsenic	**0.0066**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:50	
Barium	**0.0761**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:50	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:50	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:50	
Chromium	**0.0026**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:50	
Cobalt	**0.0047**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:50	
Lead	**0.0008**	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:50	
Molybdenum	**0.0146**	mg/L	0.002	5	06/19/2024 16:24	07/09/2024 17:50	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 16:24	07/09/2024 17:50	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/09/2024 17:50	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104010 **Date Collected:** 06/17/2024 12:32 **Matrix:** Groundwater
Sample ID: MW-300 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.8**	units	0.1	1		06/19/2024 18:26	*
Method: SM4500-Cl-E 2011							
Chloride	**46.7**	mg/L	2.0	1		06/19/2024 15:44	
Method: SM4500-F-C-2011							
Fluoride	**0.63**	mg/L	0.1	1		06/19/2024 18:26	
Method: USGS I-1750-85							
Total Dissolved Solids	**1910**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104011 **Date Collected:** 06/17/2024 09:26 **Matrix:** Groundwater
Sample ID: MW-301 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1257**	umhos/cm	1	1		06/17/2024 09:26	
Method: 150.2							
pH - Field	**7.69**	units	0.01	1		06/17/2024 09:26	
Method: 170.1							
Temperature - Field C	**10.31**	degrees C		1		06/17/2024 09:26	
Method: ASTM D516-16							
Sulfate	**178**	mg/L	10	2		06/26/2024 10:10	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**0.38**	mg/L	0.1	1	06/19/2024 16:24	07/02/2024 11:06	
Calcium	**67.9**	mg/L	1	1	06/19/2024 16:24	06/25/2024 10:37	
Lithium	**0.104**	mg/L	0.02	1	06/19/2024 16:24	06/20/2024 14:48	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 16:24	07/10/2024 10:00	
Arsenic	**0.0196**	mg/L	0.002	5	06/19/2024 16:24	07/10/2024 10:00	
Barium	**0.3188**	mg/L	0.004	10	06/19/2024 16:24	07/10/2024 11:06	
Beryllium	**0.0057**	mg/L	0.0005	5	06/19/2024 16:24	07/10/2024 10:00	
Cadmium	**0.0006**	mg/L	0.0005	5	06/19/2024 16:24	07/10/2024 10:00	
Chromium	**0.0396**	mg/L	0.002	5	06/19/2024 16:24	07/10/2024 10:00	
Cobalt	**0.0242**	mg/L	0.002	5	06/19/2024 16:24	07/10/2024 10:00	
Lead	**0.0583**	mg/L	0.0005	5	06/19/2024 16:24	07/10/2024 10:00	
Molybdenum	**0.0021**	mg/L	0.002	5	06/19/2024 16:24	07/10/2024 10:00	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 16:24	07/10/2024 10:00	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/10/2024 10:00	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104011 **Date Collected:** 06/17/2024 09:26 **Matrix:** Groundwater
Sample ID: MW-301 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**8.0**	units	0.1	1		06/19/2024 20:28	*
Method: SM4500-Cl-E 2011							
Chloride	**7.8**	mg/L	2.0	1		07/30/2024 09:35	
Method: SM4500-F-C-2011							
Fluoride	**0.34**	mg/L	0.1	1		06/19/2024 20:28	
Method: USGS I-1750-85							
Total Dissolved Solids	**1310**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104012 **Date Collected:** 06/17/2024 09:26 **Matrix:** Groundwater
Sample ID: Dup-2023 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: ASTM D516-16							
Sulfate	**200**	mg/L	25	5		06/26/2024 10:11	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**0.40**	mg/L	0.1	1	06/19/2024 16:24	07/02/2024 11:07	
Calcium	**63.9**	mg/L	1	1	06/19/2024 16:24	06/25/2024 10:38	
Lithium	**0.107**	mg/L	0.02	1	06/19/2024 16:24	06/20/2024 14:49	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 16:24	07/10/2024 10:05	
Arsenic	**0.0180**	mg/L	0.002	5	06/19/2024 16:24	07/10/2024 10:05	
Barium	**0.2950**	mg/L	0.002	5	06/19/2024 16:24	07/10/2024 10:05	
Beryllium	**0.0056**	mg/L	0.0005	5	06/19/2024 16:24	07/10/2024 10:05	
Cadmium	**0.0006**	mg/L	0.0005	5	06/19/2024 16:24	07/10/2024 10:05	
Chromium	**0.0384**	mg/L	0.002	5	06/19/2024 16:24	07/10/2024 10:05	
Cobalt	**0.0225**	mg/L	0.002	5	06/19/2024 16:24	07/10/2024 10:05	
Lead	**0.0530**	mg/L	0.0005	5	06/19/2024 16:24	07/10/2024 10:05	
Molybdenum	**0.0022**	mg/L	0.002	5	06/19/2024 16:24	07/10/2024 10:05	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 16:24	07/10/2024 10:05	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/10/2024 10:05	
Method: SM4500 H+ B-2011							
pH	**8.1**	units	0.1	1		06/19/2024 20:38	*
Method: SM4500-Cl-E 2011							
Chloride	**8.3**	mg/L	2.0	1		06/25/2024 09:36	
Method: SM4500-F-C-2011							
Fluoride	**0.35**	mg/L	0.1	1		06/19/2024 20:38	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104012 **Date Collected:** 06/17/2024 09:26 **Matrix:** Groundwater
Sample ID: Dup-2023 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: USGS I-1750-85							
Total Dissolved Solids	**1210**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104013 **Date Collected:** 06/17/2024 11:29 **Matrix:** Groundwater
Sample ID: MW-PB3 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2104**	umhos/cm	1	1		06/17/2024 11:29	
Method: 150.2							
pH - Field	**7.21**	units	0.01	1		06/17/2024 11:29	
Method: 170.1							
Temperature - Field C	**10.16**	degrees C		1		06/17/2024 11:29	
Method: ASTM D516-16							
Sulfate	**600**	mg/L	25	5		06/26/2024 10:37	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	06/27/2024 11:38	06/27/2024 13:49	
Method: EPA 6010D							
Boron	**0.89**	mg/L	0.1	1	06/19/2024 16:24	07/02/2024 11:07	
Calcium	**119**	mg/L	1	1	06/19/2024 16:24	06/25/2024 10:40	
Lithium	**0.0335**	mg/L	0.02	1	06/19/2024 16:24	06/20/2024 14:49	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	06/19/2024 16:24	07/10/2024 10:09	
Arsenic	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/10/2024 10:09	
Barium	**0.0421**	mg/L	0.002	5	06/19/2024 16:24	07/10/2024 10:09	
Beryllium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/10/2024 10:09	
Cadmium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/10/2024 10:09	
Chromium	<0.002	mg/L	0.002	5	06/19/2024 16:24	07/10/2024 10:09	
Cobalt	**0.0020**	mg/L	0.002	5	06/19/2024 16:24	07/10/2024 10:09	
Lead	**0.0005**	mg/L	0.0005	5	06/19/2024 16:24	07/10/2024 10:09	
Molybdenum	**0.0306**	mg/L	0.002	5	06/19/2024 16:24	07/10/2024 10:09	
Selenium	<0.005	mg/L	0.005	5	06/19/2024 16:24	07/10/2024 10:09	
Thallium	<0.0005	mg/L	0.0005	5	06/19/2024 16:24	07/10/2024 10:09	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52104013 **Date Collected:** 06/17/2024 11:29 **Matrix:** Groundwater
Sample ID: MW-PB3 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		06/19/2024 20:49	*
Method: SM4500-Cl-E 2011							
Chloride	**19.5**	mg/L	2.0	1		06/25/2024 09:37	
Method: SM4500-F-C-2011							
Fluoride	**0.62**	mg/L	0.1	1		06/19/2024 20:49	
Method: USGS I-1750-85							
Total Dissolved Solids	**1520**	mg/L	10	1		06/19/2024 10:55	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 52104

Sulfate — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			100	104.0		85	115		
LFB			100	92.6		85	115		
LFB			100	94.4		85	115		
LFB			100	98.8		85	115		
LFB			100	92.7		85	115		
LFB			100	89.1		85	115		
LFB			100	96.0		85	115		
LFB			100	93.2		85	115		
LFB			100	92.5		85	115		
LFB			100	98.1		85	115		
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MS/MSD	52101007		500	82.2	80.1	85	115	2.2	20
MS/MSD	52104002		500	72.3	77.1	85	115	2.5	20
MS/MSD	52104004		1000	79.6	82.5	85	115	2.1	20
MS/MSD	52281002		1000	75.2	77.5	85	115	1.8	20
MS/MSD	52396002		1000	69.0	72.5	85	115	2.4	20
MS/MSD	52454005		100	97.1	96.0	85	115	1.1	20
MS/MSD	52461002		100	96.3	96.0	85	115	0.3	20
MS/MSD	52575002		500	70.7	73.4	85	115	1.8	20

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Account #: 5109 **Client:** Great River Energy

Sulfate Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	52649007		100	73.1	68.5	85	115	3.5	20

Chloride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	95.8		90	110		
LFB			30	94.9		90	110		
LFB			30	94.5		90	110		
LFB			30	94.6		90	110		
LFB			30	94.7		90	110		
LFB			30	95.0		90	110		
LFB			30	95.3		90	110		
LFB			30	102.0		90	110		
LFB			30	96.9		90	110		
LFB			30	98.8		90	110		
LFB			30	103.0		90	110		
LFB			30	95.1		90	110		
LFB			30	97.0		90	110		
LFB			30	95.1		90	110		
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							

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Account #: 5109 **Client:** Great River Energy

Chloride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<2.0							
MS/MSD	51925001		30	113.4	118.6	80	120	0.8	20
MS/MSD	52104001		30	106.8	102.8	80	120	2.3	20
MS/MSD	52104004		30	110.0	110.3	80	120	0.2	20
MS/MSD	52281002		30	95.4	94.7	80	120	0.4	20
MS/MSD	52454006		30	94.7	94.9	80	120	0.4	20
MS/MSD	52649002		30	96.5	95.9	80	120	0.5	20
MS/MSD	52649007		30	94.7	94.2	80	120	0.5	20

Aluminum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	105.0		85	115		
MB		<0.1							
PDS/PDSD	52095001		2	94.4	97.0	75	125	1.5	20
PDS/PDSD	52102001		1	102.0	104.0	75	125	2.0	20
PDS/PDSD	52104004		0.4	100.0	99.5	75	125	0.6	20
PDS/PDSD	52107001		5	99.5	95.7	75	125	1.7	20
PDS/PDSD	52425001		4	120.0	116.0	75	125	3.6	20
PDS/PDSD	52425001		20	99.0	101.0	75	125	1.7	20
PDS/PDSD	52467001		0.4	100.0	100.0	75	125	0.1	20

Aluminum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	105.0		85	115		
MB		<0.1							
SPK/SPKD	51175005		0.4	106.0	106.0	75	125	0.3	20
SPK/SPKD	51714006		0.4	113.0	110.0	75	125	2.1	20
SPK/SPKD	51858001		0.4	110.0	110.0	75	125	0.3	20
SPK/SPKD	52104004		0.4	107.0	108.0	75	125	0.2	20
SPK/SPKD	52281002		0.4	106.0	107.0	75	125	0.9	20
SPK/SPKD	52429006		0.4	89.5	91.5	75	125	2.2	20
SPK/SPKD	52454002		0.4	95.9	93.8	75	125	2.2	20
SPK/SPKD	52467001		0.4	101.0	100.0	75	125	0.7	20

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Account #: 5109 **Client:** Great River Energy

Boron				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	100.0		85	115		
MB		<0.1							
MS/MSD	52102001		0.4	108.0	91.5	70	130	2.4	20
MS/MSD	52104004		0.4	100.0	94.6	70	130	2.0	20
MS/MSD	52107001		0.4	98.3	110.0	70	130	2.7	20

Boron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	100.0		85	115		
MB		<0.1							
SPK/SPKD	51856004		0.4	93.1	93.4	75	125	0.2	20
SPK/SPKD	52104004		0.4	86.8	85.8	75	125	0.4	20
SPK/SPKD	52279001		0.4	81.0	81.3	75	125	0.1	20
SPK/SPKD	52281002		0.4	76.5	78.8	75	125	0.5	20
SPK/SPKD	52454006		0.4	99.7	100.0	75	125	0.3	20
SPK/SPKD	52467001		0.4	97.7	96.3	75	125	1.1	20
SPK/SPKD	52964008		0.4	97.2	97.4	75	125	0.2	20

Calcium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	111.0		85	115		
MB		<1							
PDS/PDSD	51856004		100	108.0	107.0	75	125	0.8	20
PDS/PDSD	52101002		100	114.0	113.0	75	125	0.7	20
PDS/PDSD	52101008		100	111.0	113.0	75	125	1.8	20
DUP	52102002							1.1	20
DUP	52104004							3.2	20
PDS/PDSD	52104004		100	104.0	104.0	75	125	0.1	20
PDS/PDSD	52104011		100	75.1	76.2	75	125	0.8	20
DUP	52107001							1.0	20
PDS/PDSD	52281002		100	92.4	92.3	75	125	0.1	20
PDS/PDSD	52429003		100	92.7	92.2	75	125	0.2	20
PDS/PDSD	52429006		100	101.0	101.0	75	125	0.3	20

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Calcium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	52461002		100	99.3	99.3	75	125	0.1	20
PDS/PDSD	52467001		100	96.0	95.5	75	125	0.3	20

Calcium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	111.0		85	115		
MB		<1							
SPK/SPKD	51856004		100	95.9	96.1	75	125	0.1	20
SPK/SPKD	52104004		100	94.7	94.5	75	125	0.1	20
SPK/SPKD	52104004		500	101.0	99.9	75	125	1.1	20
SPK/SPKD	52279001		100	96.8	96.7	75	125	0.1	20
SPK/SPKD	52281002		500	102.0	103.0	75	125	1.0	20
SPK/SPKD	52281002		100	95.9	96.2	75	125	0.2	20
SPK/SPKD	52964008		100	104.0	103.0	75	125	0.8	20

Iron				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
MB		<0.1							
PDS/PDSD	52095001		2	91.8	90.6	75	125	0.5	20
MS/MSD	52102001		0.4	99.5	101.0	70	130	1.2	20
PDS/PDSD	52102001		1	87.6	86.8	75	125	0.9	20
MS/MSD	52104004		0.4	112.0	104.0	70	130	0.5	20
PDS/PDSD	52107001		5	97.0	98.6	75	125	0.6	20
PDS/PDSD	52425001		20	88.6	87.6	75	125	1.1	20
PDS/PDSD	52425001		4	106.0	107.0	75	125	1.3	20
PDS/PDSD	52467001		0.4	97.7	97.0	75	125	0.4	20

Iron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
MB		<0.1							
SPK/SPKD	51175005		0.4	84.9	89.3	75	125	1.3	20
SPK/SPKD	51714006		0.4	90.7	90.5	75	125	0.1	20

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Account #: 5109 **Client:** Great River Energy

Iron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	51858001		0.4	78.4	79.3	75	125	0.3	20
SPK/SPKD	52104004		0.4	75.5	79.4	75	125	1.0	20
SPK/SPKD	52281002		0.4	97.8	97.8	75	125	0.0	20
SPK/SPKD	52429006		0.4	85.5	86.3	75	125	0.7	20
SPK/SPKD	52454002		0.4	93.0	94.8	75	125	2.0	20
SPK/SPKD	52467001		0.4	91.3	90.2	75	125	1.2	20

Lithium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	102.0		85	115		
MB		<0.04							
MS/MSD	52102001		0.4	97.3	96.4	70	130	1.1	20
MS/MSD	52104004		0.4	97.0	95.8	70	130	1.5	20
MS/MSD	52107001		0.4	95.2	99.3	70	130	2.1	20

Lithium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	102.0		85	115		
MB		<0.04							
SPK/SPKD	51856004		0.4	91.2	89.2	75	125	1.9	20
SPK/SPKD	52104004		0.4	88.3	88.1	75	125	0.2	20
SPK/SPKD	52279001		0.4	89.7	91.0	75	125	1.3	20
SPK/SPKD	52281002		0.4	90.9	89.7	75	125	1.2	20

Magnesium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	109.0		85	115		
MB		<1							
PDS/PDSD	51856004		100	110.0	108.0	75	125	0.8	20
PDS/PDSD	52101002		100	117.0	116.0	75	125	0.9	20
PDS/PDSD	52101008		100	114.0	116.0	75	125	2.0	20
DUP	52102002							0.7	20
DUP	52104004							2.3	20
PDS/PDSD	52104004		100	111.0	111.0	75	125	0.1	20

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Account #: 5109 **Client:** Great River Energy

Magnesium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	52104011		100	94.7	95.8	75	125	0.8	20
DUP	52107001							1.3	20
PDS/PDSD	52281002		100	95.5	94.8	75	125	0.4	20
PDS/PDSD	52429003		100	97.3	96.7	75	125	0.4	20
PDS/PDSD	52429006		100	104.0	104.0	75	125	0.4	20
PDS/PDSD	52461002		100	101.0	101.0	75	125	0.1	20
PDS/PDSD	52467001		100	100.0	99.7	75	125	0.4	20

Magnesium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	109.0		85	115		
MB		<1							
SPK/SPKD	51856004		100	97.8	98.2	75	125	0.2	20
SPK/SPKD	52104004		100	101.0	101.0	75	125	0.1	20
SPK/SPKD	52104004		500	104.0	103.0	75	125	1.0	20
SPK/SPKD	52279001		100	102.0	102.0	75	125	0.2	20
SPK/SPKD	52281002		100	98.6	98.5	75	125	0.1	20
SPK/SPKD	52281002		500	104.0	105.0	75	125	1.0	20
SPK/SPKD	52964008		100	105.0	105.0	75	125	0.6	20

Manganese				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
PDS/PDSD	51735001		25	97.1	97.4	75	125	0.3	20
PDS/PDSD	52095001		2	100.0	99.5	75	125	0.5	20
PDS/PDSD	52102001		1	75.8	73.7	75	125	1.1	20
MS/MSD	52104004		0.4	93.6	92.9	70	130	0.5	20
PDS/PDSD	52104004		0.4	90.9	92.7	75	125	1.4	20
MS/MSD	52107001		0.4	86.2	92.4	70	130	1.4	20
PDS/PDSD	52107001		5	92.7	93.6	75	125	0.7	20
PDS/PDSD	52425001		20	84.7	84.0	75	125	0.8	20
PDS/PDSD	52425001		4	86.8	88.4	75	125	1.5	20

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Manganese				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	52467001		0.4	106.0	106.0	75	125	0.3	20

Manganese, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
SPK/SPKD	51175005		0.4	99.1	101.0	75	125	1.3	20
SPK/SPKD	51714006		0.4	77.3	76.9	75	125	0.1	20
SPK/SPKD	51858001		0.4	93.9	94.1	75	125	0.2	20
SPK/SPKD	52104004		0.4	90.6	92.4	75	125	1.5	20
SPK/SPKD	52281002		0.4	77.4	77.5	75	125	0.1	20
SPK/SPKD	52429006		0.4	92.5	93.1	75	125	0.6	20
SPK/SPKD	52454002		0.4	95.1	96.5	75	125	1.5	20
SPK/SPKD	52467001		0.4	93.5	92.6	75	125	1.0	20

Potassium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	107.0		85	115		
MB		<1							
PDS/PDSD	51856004		100	112.0	112.0	75	125	0.3	20
PDS/PDSD	52101002		100	113.0	113.0	75	125	0.2	20
PDS/PDSD	52101008		100	109.0	114.0	75	125	3.2	20
DUP	52102002							0.2	20
DUP	52104004							2.2	20
PDS/PDSD	52104004		100	112.0	113.0	75	125	0.9	20
PDS/PDSD	52104011		100	109.0	110.0	75	125	0.6	20
DUP	52107001							2.8	20
PDS/PDSD	52281002		100	99.8	98.3	75	125	1.4	20
PDS/PDSD	52429003		100	101.0	101.0	75	125	0.4	20
PDS/PDSD	52429006		100	103.0	103.0	75	125	0.5	20
PDS/PDSD	52461002		100	99.5	99.7	75	125	0.2	20
PDS/PDSD	52467001		100	99.7	99.9	75	125	0.2	20

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Account #: 5109 **Client:** Great River Energy

Potassium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	107.0		85	115		
MB		<1							
SPK/SPKD	51856004		100	101.0	102.0	75	125	1.4	20
SPK/SPKD	52104004		100	101.0	101.0	75	125	0.8	20
SPK/SPKD	52104004		500	100.0	99.8	75	125	0.4	20
SPK/SPKD	52279001		100	102.0	101.0	75	125	0.9	20
SPK/SPKD	52281002		100	102.0	101.0	75	125	0.4	20
SPK/SPKD	52281002		500	101.0	102.0	75	125	1.1	20
SPK/SPKD	52964008		100	102.0	102.0	75	125	0.1	20

Sodium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	111.0		85	115		
MB		<1							
PDS/PDSD	51856004		100	101.0	94.1	75	125	2.5	20
PDS/PDSD	52101002		100	117.0	117.0	75	125	0.5	20
PDS/PDSD	52101008		100	117.0	117.0	75	125	0.1	20
DUP	52102002							0.1	20
DUP	52104004							1.9	20
PDS/PDSD	52104004		100	74.5	80.1	75	125	1.2	20
PDS/PDSD	52104011		100	85.2	84.0	75	125	0.3	20
DUP	52107001							3.1	20
PDS/PDSD	52281002		500	88.8	89.0	75	125	0.1	20
PDS/PDSD	52429003		100	92.0	90.6	75	125	0.6	20
PDS/PDSD	52429006		100	75.4	74.4	75	125	0.2	20
PDS/PDSD	52461002		100	101.0	103.0	75	125	1.9	20
PDS/PDSD	52467001		100	94.4	92.4	75	125	1.1	20

Sodium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	111.0		85	115		
MB		<1							
SPK/SPKD	51856004		100	87.2	89.9	75	125	1.0	20

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Account #: 5109 **Client:** Great River Energy

Sodium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52104004		100	63.8	53.8	75	125	0.1	20
SPK/SPKD	52104004		500	97.4	96.9	75	125	0.3	20
SPK/SPKD	52279001		100	80.9	76.6	75	125	1.3	20
SPK/SPKD	52281002		100	34.0	26.3	75	125	1.3	20
SPK/SPKD	52281002		500	94.4	96.0	75	125	0.8	20
SPK/SPKD	52964008		100	103.0	104.0	75	125	1.0	20

Antimony — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	95.7		80	120		
MB		<0.001							
MB		<0.001							
MS/MSD	52102001		0.4	100.0	99.7	75	125	0.5	20
MS/MSD	52104004		0.4	94.4	95.8	75	125	1.3	20
SPK/SPKD	52107001		0.4	103.0	102.0	75	125	0.4	20

Antimony, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	95.7		80	120		
MB		<0.001							
MB		<0.001							
SPK/SPKD	51858002		0.1	106.0	106.0	75	125	0.6	20
MS/MSD	52102001		0.4	100.0	99.7	75	125	0.5	20
MS/MSD	52104004		0.4	94.4	95.8	75	125	1.3	20
SPK/SPKD	52104004		0.1	104.0	103.0	75	125	1.1	20
SPK/SPKD	52107001		0.4	103.0	102.0	75	125	0.4	20
SPK/SPKD	52279002		0.1	104.0	103.0	75	125	1.1	20
SPK/SPKD	52281006		0.1	105.0	105.0	75	125	0.0	20

Arsenic — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	104.0		80	120		

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Arsenic — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.4		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	52102001		0.4	99.6	98.8	75	125	0.8	20
MS/MSD	52104004		0.4	95.0	95.8	75	125	0.8	20
SPK/SPKD	52107001		0.4	105.0	104.0	75	125	0.9	20

Arsenic, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.4		80	120		
LFB-MS			0.1	104.0		80	120		
MB		<0.002							
MB		<0.002							
SPK/SPKD	51858002		0.1	105.0	106.0	75	125	1.3	20
MS/MSD	52102001		0.4	99.6	98.8	75	125	0.8	20
MS/MSD	52104004		0.4	95.0	95.8	75	125	0.8	20
SPK/SPKD	52104004		0.1	103.0	102.0	75	125	0.5	20
SPK/SPKD	52107001		0.4	105.0	104.0	75	125	0.9	20
SPK/SPKD	52279002		0.1	104.0	104.0	75	125	0.2	20
SPK/SPKD	52281006		0.1	113.0	114.0	75	125	0.4	20

Barium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	90.1		80	120		
LFB-MS			0.1	99.6		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	52102001		0.4	90.3	89.2	75	125	1.0	20
MS/MSD	52104004		0.4	87.9	89.0	75	125	1.3	20
SPK/SPKD	52107001		0.4	167.0	168.0	75	125	0.5	20

Barium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	90.1		80	120		

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Barium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.6		80	120		
MB		<0.002							
MB		<0.002							
SPK/SPKD	51858002		0.1	93.9	95.1	75	125	0.9	20
MS/MSD	52102001		0.4	90.3	89.2	75	125	1.0	20
MS/MSD	52104004		0.4	87.9	89.0	75	125	1.3	20
SPK/SPKD	52104004		0.1	92.2	91.5	75	125	0.6	20
SPK/SPKD	52107001		0.4	167.0	168.0	75	125	0.5	20
SPK/SPKD	52279002		0.1	92.1	92.9	75	125	0.4	20
SPK/SPKD	52281006		0.1	167.0	166.0	75	125	0.7	20

Beryllium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.7		80	120		
LFB-MS			0.1	99.0		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	52102001		0.4	106.0	104.0	75	125	1.0	20
MS/MSD	52104004		0.4	104.0	104.0	75	125	1.0	20
SPK/SPKD	52107001		0.4	105.0	105.0	75	125	0.2	20

Beryllium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.7		80	120		
LFB-MS			0.1	99.0		80	120		
MB		<0.0005							
MB		<0.0005							
SPK/SPKD	51858002		0.1	115.0	116.0	75	125	0.6	20
MS/MSD	52102001		0.4	106.0	104.0	75	125	1.0	20
MS/MSD	52104004		0.4	104.0	104.0	75	125	1.0	20
SPK/SPKD	52104004		0.1	114.0	112.0	75	125	1.0	20
SPK/SPKD	52107001		0.4	105.0	105.0	75	125	0.2	20
SPK/SPKD	52279002		0.1	113.0	110.0	75	125	2.6	20

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Beryllium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52281006		0.1	112.0	112.0	75	125	0.3	20

Cadmium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.2		80	120		
LFB-MS			0.1	95.2		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	52102001		0.4	94.2	94.0	75	125	0.3	20
MS/MSD	52104004		0.4	90.6	93.0	75	125	2.7	20
SPK/SPKD	52107001		0.4	94.4	93.7	75	125	0.7	20

Cadmium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.2		80	120		
LFB-MS			0.1	99.2		80	120		
MB		<0.0005							
MB		<0.0005							
SPK/SPKD	51858002		0.1	97.0	98.7	75	125	1.7	20
MS/MSD	52102001		0.4	94.2	94.0	75	125	0.3	20
MS/MSD	52104004		0.4	90.6	93.0	75	125	2.7	20
SPK/SPKD	52104004		0.1	95.1	93.6	75	125	1.6	20
SPK/SPKD	52107001		0.4	94.4	93.7	75	125	0.7	20
SPK/SPKD	52279002		0.1	96.0	95.7	75	125	0.3	20
SPK/SPKD	52281006		0.1	94.2	95.1	75	125	1.0	20

Chromium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
LFB-MS			0.1	96.9		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	52102001		0.4	95.7	95.4	75	125	0.5	20
MS/MSD	52104004		0.4	90.5	91.9	75	125	1.6	20

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Chromium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	52107001		0.4	107.0	106.0	75	125	1.2	20

Chromium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.9		80	120		
LFB-MS			0.1	105.0		80	120		
MB		<0.002							
MB		<0.002							
SPK/SPKD	51858002		0.1	99.8	99.5	75	125	0.3	20
MS/MSD	52102001		0.4	95.7	95.4	75	125	0.5	20
MS/MSD	52104004		0.4	90.5	91.9	75	125	1.6	20
SPK/SPKD	52104004		0.1	98.6	97.9	75	125	0.7	20
SPK/SPKD	52107001		0.4	107.0	106.0	75	125	1.2	20
SPK/SPKD	52279002		0.1	100.0	100.0	75	125	0.2	20
SPK/SPKD	52281006		0.1	102.0	102.0	75	125	0.2	20

Cobalt — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	104.0		80	120		
LFB-MS			0.1	94.8		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	52102001		0.4	93.5	92.8	75	125	0.8	20
MS/MSD	52104004		0.4	89.0	90.0	75	125	1.1	20
SPK/SPKD	52107001		0.4	104.0	103.0	75	125	1.2	20

Cobalt, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	94.8		80	120		
LFB-MS			0.1	104.0		80	120		
MB		<0.002							
MB		<0.002							
SPK/SPKD	51858002		0.1	97.8	97.9	75	125	0.1	20
MS/MSD	52102001		0.4	93.5	92.8	75	125	0.8	20

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Cobalt, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	52104004		0.4	89.0	90.0	75	125	1.1	20
SPK/SPKD	52104004		0.1	96.4	96.2	75	125	0.2	20
SPK/SPKD	52107001		0.4	104.0	103.0	75	125	1.2	20
SPK/SPKD	52279002		0.1	98.9	98.9	75	125	0.0	20
SPK/SPKD	52281006		0.1	101.0	100.0	75	125	0.6	20

Lead — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	95.3		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	52102001		0.4	90.9	91.1	75	125	0.0	20
MS/MSD	52104004		0.4	88.3	90.0	75	125	2.0	20
SPK/SPKD	52107001		0.4	97.8	97.2	75	125	0.6	20

Lead, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.3		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.0005							
MB		<0.0005							
SPK/SPKD	51858002		0.1	97.2	96.9	75	125	0.3	20
MS/MSD	52102001		0.4	90.9	91.1	75	125	0.0	20
MS/MSD	52104004		0.4	88.3	90.0	75	125	2.0	20
SPK/SPKD	52104004		0.1	94.7	94.8	75	125	0.1	20
SPK/SPKD	52107001		0.4	97.8	97.2	75	125	0.6	20
SPK/SPKD	52279002		0.1	94.9	94.4	75	125	0.5	20
SPK/SPKD	52281006		0.1	94.4	93.8	75	125	0.6	20

Molybdenum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	104.0		80	120		
LFB-MS			0.1	96.0		80	120		

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Molybdenum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.002							
MB		<0.002							
MS/MSD	52102001		0.4	95.9	94.6	75	125	1.4	20
MS/MSD	52104004		0.4	90.5	92.0	75	125	1.6	20
SPK/SPKD	52107001		0.4	113.0	107.0	75	125	5.3	20

Molybdenum, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	104.0		80	120		
LFB-MS			0.1	96.0		80	120		
MB		<0.002							
MB		<0.002							
SPK/SPKD	51858002		0.1	97.8	97.8	75	125	0.1	20
MS/MSD	52102001		0.4	95.9	94.6	75	125	1.4	20
MS/MSD	52104004		0.4	90.5	92.0	75	125	1.6	20
SPK/SPKD	52104004		0.1	97.8	97.8	75	125	0.0	20
SPK/SPKD	52107001		0.4	113.0	107.0	75	125	5.3	20
SPK/SPKD	52279002		0.1	99.2	98.9	75	125	0.2	20
SPK/SPKD	52281006		0.1	107.0	106.0	75	125	0.4	20

Selenium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	93.4		80	120		
MB		<0.005							
MB		<0.005							
MS/MSD	52102001		0.4	100.0	99.4	75	125	1.0	20
MS/MSD	52104004		0.4	94.6	93.4	75	125	1.1	20
SPK/SPKD	52107001		0.4	100.0	100.0	75	125	0.5	20

Selenium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	93.4		80	120		
LFB-MS			0.1	101.0		80	120		

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Selenium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.005							
MB		<0.005							
SPK/SPKD	51858002		0.1	106.0	106.0	75	125	0.4	20
MS/MSD	52102001		0.4	100.0	99.4	75	125	1.0	20
MS/MSD	52104004		0.4	94.6	93.4	75	125	1.1	20
SPK/SPKD	52104004		0.1	104.0	102.0	75	125	1.7	20
SPK/SPKD	52107001		0.4	100.0	100.0	75	125	0.5	20
SPK/SPKD	52279002		0.1	106.0	104.0	75	125	1.6	20
SPK/SPKD	52281006		0.1	111.0	115.0	75	125	3.7	20

Thallium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.2		80	120		
LFB-MS			0.1	99.5		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	52102001		0.4	90.1	89.8	75	125	0.3	20
MS/MSD	52104004		0.4	87.5	89.7	75	125	2.5	20
SPK/SPKD	52107001		0.4	92.6	92.6	75	125	0.1	20

Thallium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.2		80	120		
LFB-MS			0.1	99.5		80	120		
MB		<0.0005							
MB		<0.0005							
SPK/SPKD	51858002		0.1	95.0	94.2	75	125	0.8	20
MS/MSD	52102001		0.4	90.1	89.8	75	125	0.3	20
MS/MSD	52104004		0.4	87.5	89.7	75	125	2.5	20
SPK/SPKD	52104004		0.1	91.6	91.7	75	125	0.1	20
SPK/SPKD	52107001		0.4	92.6	92.6	75	125	0.1	20
SPK/SPKD	52279002		0.1	92.3	92.3	75	125	0.0	20
SPK/SPKD	52281006		0.1	92.1	91.4	75	125	0.8	20

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Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	107.0		85	115		
LFB			0.002	90.7		85	115		
LFB			0.002	100.0		85	115		
LRB		<0.0002							
LRB		<0.0002							
MB		<0.0002							
MS/MSD	52104001		0.002	114.0	113.0	70	130	4.4	20
MS/MSD	52104004		0.002	100.0	102.0	70	130	0.0	20
MS/MSD	52281002		0.002	90.9	92.2	70	130	0.0	20
MS/MSD	52281006		0.002	106.0	101.0	70	130	4.9	20

Mercury, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	90.7		85	115		
LFB			0.002	100.0		85	115		
LFB			0.002	90.8		85	115		
LFB			0.002	107.0		85	115		
LRB		<0.0002							
LRB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MS/MSD	52102004		0.002	112.0	108.0	70	130	0.0	20
MS/MSD	52104004		0.002	113.0	112.0	70	130	4.4	20
MS/MSD	52281002		0.002	92.2	94.8	70	130	5.4	20
MS/MSD	52281004		0.002	122.0	123.0	70	130	0.0	20

Alkalinity, Total				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			501	92.1		80	120		
LFB			410	91.4		90	110		
LFB			410	91.3		90	110		
LFB			410	91.3		90	110		
LFB			410	91.3		90	110		

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Alkalinity, Total — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			410	91.3		90	110		
MB		<20.5							
MB		<20.5							
MB		<20.5							
MB		<20.5							
MB		<20.5							
MS/MSD	52101001		410	92.8	92.5	80	120	0.2	20
MS/MSD	52101002		410	93.2	93.5	80	120	0.2	20
MS/MSD	52103001		410	78.8	77.2	80	120	1.2	20
MS/MSD	52104004		410	75.2	74.4	80	120	0.4	20

pH — Units: units

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	100.5		98.33	101.67		
CRM-PH			6	100.7		98.33	101.67		
CRM-PH			6	100.7		98.33	101.67		
CRM-PH			6	100.7		98.33	101.67		
CRM-PH			6	100.8		98.33	101.67		
DUP	52094001							0.7	20
DUP	52101008							0.7	20
DUP	52104004							0.6	20
DUP	52104011							2.2	20

Fluoride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			3.06	99.7		83.99	111.11		
LFB-F			0.5	96.0		90	110		
LFB-F			0.5	96.0		90	110		
LFB-F			0.5	98.0		90	110		
LFB-F			0.5	98.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							

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Fluoride				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB-F		<0.1							
MS/MSD-F	52087002		0.5	102.0	102.0	80	120	0.0	20
MS/MSD-F	52103003		0.5	104.0	100.0	80	120	1.9	20
MS/MSD-F	52104004		0.5	102.0	102.0	80	120	0.0	20

Total Dissolved Solids				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	101.0		90.35	110.33		
CRM			736	100.0		90.35	110.33		
MB		<10							
MB		<10							
DUP	51856005							1.5	20
DUP	52102002							0.7	20
DUP	52104004							0.0	20
DUP	52104013							0.0	20

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Great River Energy
WO: 52104

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS 2023 Wells
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: June 2024
Address:		Lakewood, CO 80228	Sampled By: Dakota Kottsick
Phone:			
Email:	CJohnston@GREnergy.com		

Sample Information				Sample Containers									Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric				Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-215	17 June 24	1438	GW	X	X	X						11.12	2356	7.48	49.80	App III, AppIV, Additional List (total and dissolved for all metals) (See Attachments)
002	MW-216	18 June 24	1217	GW	X	X	X						9.07	2050	7.46	40.57	
003	MW-217	17 June 24	1342	GW	X	X	X						10.51	2318	7.51	21.50	
004	MW-218/MS/MSD	18 June 24	1037	GW	3	3	3						8.85	2063	7.48	31.64	
005	MW-219	17 June 24	1548	GW	X	X	X						9.60	3862	7.12	13.83	
006	MW-220	18 June 24	1329	GW	X	X	X						9.81	2008	7.42	84.85	
007	MW-221	18 June 24	1441	GW	X	X	X						9.67	2160	7.39	29.44	
008	MW-222	18 June 24	1547	GW	X	X	X						10.18	2583	7.75	14.66	
009	FB-2023	18 June 24	1441	GW	X	X	X						NA	NA	NA	NA	

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1 Dakota Kottsick	18 June 24 1810	Log In Walk In #2	2.7°C/TM 805 ROI (Y)/N		19 Jun 24 0800
2					

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Bismarck, ND 58501
(701) 258-9720

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS 2023 Wells
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: June 2024
Address:		Lakewood, CO 80228	Sampled By: Dakota Kottsick
Phone:			
Email:	CJohnston@GREnergy.com		

	Sample Information				Sample Containers									Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric					Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
010	MW-300	17June24	1232	GW	X	X	X							10.47	2584	7.25	69.62	App III, AppIV, Additional List (total and dissolved for all metals) (See Attachments)
011	MW-301	17June24	0926	GW	X	X	X							10.31	1257	7.69	2804	
012	Dup - 2023	17June24	0926	GW	X	X	X							NA	NA	NA	NA	
013	MW-PB3	17June24	1129	GW	X	X	X							10.16	2104	7.21	3.56	

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1	18June24 1810	Log In Walk In #2	2.7 °C/TM 805 RO Y/N		19 Jun 24 0800
2					

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February 2024 GL21509219.000

Table 2. Parameter and Analysis Summary - Appendix III Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/11	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	SM 4500 F E/11	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	ASTM D516-16	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	USGS I-1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total and dissolved)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:
1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent methods.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

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February 2024 GL21509219.000

Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Table 4: Additional List Parameter and Analysis Summary

Parameter [1]	Method Reference [2]	Reporting Limit	Preparation Method Reference [2]	Sample Container [3]	Required Preservation [4]	Maximum Holding Time from Sampling [5]
General Chemistry						
Total Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Bicarbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Carbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Metals (Total and Dissolved)						
Iron	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Magnesium	EPA 6010D	0.2 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Potassium	EPA 6010D	3.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Sodium	EPA 6010D	1.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Aluminum	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Manganese	EPA 6010D	0.05 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months

Notes:

1. All listed parameters are tested in the laboratory. Listed parameters are to be collected in conjunction with other CCR parameter lists (Table 2 and Table 3).

2. Or equivalent method.
3. Containers and volumes will be specified by the analytical laboratory.
4. In addition to the required preservation for each sample container, sufficient ice should be placed with the sample containers in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when samples arrive, measurement of the temperature of samples immediately upon receipt is necessary to confirm that the 4° C temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible following collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid, without the use of qualifiers.

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	215
Sampling Personal:	DaNota Kottsick

Weather Conditions: Temp: 57 °F Wind: E @ 0-5 Precip: Sunny / Partly Cloudy / (Cloudy)

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	12.65	ft
Depth to Top of Pump:	17.14	ft
Water Level After Sample:	13.68	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	3	Sec.
Recover:	57	Sec.
PSI:	20	

Bottle List:
1 Liter Raw
500mL Nitric
500mL Nitric (filtered)
1 Gal Nitric

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
17June24	1413	Start of Well Purge									
	1418	11.48	7357	7.53	0.42	-120.6	1205	13.67	200.0	1.0	Turbid / Brown
	1423	11.59	2356	7.51	0.30	-125.8	178	13.78	200.0	1.0	Turbid / Brown
	1428	11.70	2353	7.50	0.20	-126.8	76.76	13.77	200.0	1.0	ST
	1433	10.95	2356	7.49	0.17	-128.5	84.97	13.82	200.0	1.0	ST
	1438	11.17	2356	7.48	0.09	-130.0	49.80	13.71	200.0	1.0	ST

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
17June24	1436	11.17	2356	7.48			49.80				ST

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	216
Sampling Personal:	Dakota Rottsick

Weather Conditions: Temp: 50 °F Wind: W @ 0-5 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	———	
Casing Diameter:	2"	
Water Level Before Purge:	13.44	ft
Depth to Top of Pump:	16.93	ft
Water Level After Sample:	13.46	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	3	Sec.
Recover:	57	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
18June24	1152	Start of Well Purge									
	1157	9.32	2053	7.47	0.14	-132.8	36.55	13.45	200.0	1.0	Slightly Turbid
	1202	9.13	2054	7.47	0.13	-135.1	42.18	13.49	200.0	1.0	ST
	1207	9.18	2051	7.47	0.11	-137.8	49.41	13.45	200.0	1.0	ST
	1212	9.19	2050	7.47	0.11	-139.0	44.37	13.46	200.0	1.0	ST
	1217	9.07	2050	7.46	0.09	-139.9	40.57	13.46	200.0	1.0	ST

Well Stabilized? YES NO Total Volume Purged: 6.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18June24	1217	9.07	2050	7.46			40.57				ST

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: June 2024
Sample ID: 17
Sampling Personal: DaKota Kottsick

Weather Conditions: Temp: 57 °F Wind: E @ 0-5 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	10.95	ft
Depth to Top of Pump:	17.58	ft
Water Level After Sample:	10.97	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
	1317	Start of Well Purge									clear, slightly turbid, turbid
	1322	10.51	7326	7.55	0.15	-129	1086	10.97	200.0	1.0	Red / Turbid
	1327	10.48	7321	7.54	0.12	-132	62.89	10.96	200.0	1.0	Brown/Red / Turbid
	1332	10.57	2315	7.52	0.11	-137	26.48	11.04	200.0	1.0	Slightly Turbid
	1337	10.58	2316	7.52	0.11	-133	23.38	10.99	200.0	1.0	ST
	1342	10.51	2318	7.51	0.10	-133	21.50	11.04	200.0	1.0	ST

17 June 24

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
17 June 24	1342	10.51	2318	7.51			21.50				ST

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: June 2024
Sample ID: 218
Sampling Personal: Dakota Hoffsiek

Weather Conditions: Temp: 50 °F Wind: W @ 0-5 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	11.96	ft
Depth to Top of Pump:	17.64	ft
Water Level After Sample:	11.91	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	4	Sec.
Recover:	56	Sec.
PSI:	20	

Bottle List:
1 Liter Raw
1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample? YES / NO
Duplicate Sample ID: MS/MSD

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
18 June 24	1007	Start of Well Purge									
	1012	8.85	2074	7.48	1.45	-119	624.31	11.96	200.0	1.0	Turbid
	1017	8.87	2071	7.49	0.19	-139.6	106.46	11.96	200.0	1.0	Slightly Turbid
	1022	8.79	2062	7.49	0.16	-142.7	38.41	11.96	200.0	1.0	Slightly Turbid
	1027	8.76	2057	7.49	0.15	-144.3	41.41	11.96	200.0	1.0	Slightly Turbid
	1032	8.85	2063	7.48	0.14	-145.2	31.66	11.96	200.0	1.0	Slightly Turbid

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18 June 24	1032	8.85	2063	7.48			31.66				ST

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	219
Sampling Personal:	Dakota Kottsick

Weather Conditions: Temp: 97 °F Wind: E @ 0-5 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	14.74	ft
Depth to Top of Pump:	18.17	ft
Water Level After Sample:	15.23	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
17June24	1523	Start of Well Purge									
	1528	9.62	4002	7.34	0.17	14.8	40.38	15.43	200.0	1.0	Turbid
	1533	9.83	3941	7.23	0.13	23.5	43.24	15.32	200.0	1.0	Turbid
	1538	9.49	3900	7.18	0.13	29.0	23.23	15.40	200.0	1.0	Slightly Turbid
	1543	9.59	3869	7.13	0.11	33.4	15.28	15.38	200.0	1.0	ST
	1548	9.60	3862	7.12	0.11	34.3	13.83	15.41	200.0	1.0	ST

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
17June24	1548	9.60	3862	7.12			13.83				ST

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	220
Sampling Personal:	DaKota Kottsick

Weather Conditions: Temp: 49 °F Wind: W @ 0-5 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	12.92	ft
Depth to Top of Pump:	32.67	ft
Water Level After Sample:	13.10	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	20	

Bottle List:
1 Liter Raw
1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample?
YES / (NO)
Duplicate Sample ID: —

FIELD READINGS

Stabilization Parameters (3 Consecutive) Purge Date	Time	Temp. (°C) ±0.3°	Spec. Cond. ±3%	pH ±0.1	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	Pumping Rate mL/Min	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
18 June 24	1304	Start of Well Purge									
	1309	10.03	2005	7.40	0.78	-31.1	114.19	13.02	200.0	1.0	Slightly Turbid
	1314	9.81	2009	7.41	0.39	-71.8	KK6.24	13.06	200.0	1.0	Slightly Turbid
	1319	9.90	2007	7.42	0.27	-87.9	117.09	13.04	200.0	1.0	ST
	1324	9.84	2007	7.42	0.20	-99.4	95.91	13.02	200.0	1.0	ST
	1329	9.81	2008	7.42	0.17	-106.5	84.85	13.02	200.0	1.0	ST

Well Stabilized? (YES) NO

Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18 June 24	1329	9.81	2008	7.42			84.85				ST

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet
Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	221
Sampling Personal:	Jakota Kuffsick

Weather Conditions: Temp: 48 °F Wind: W @ 0-5 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	15.47	ft
Depth to Top of Pump:	30.68	ft
Water Level After Sample:	15.46	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	20	

Bottle List:
1 Liter Raw
1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample? YES / NO
Duplicate Sample ID: —

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
	1411	Start of Well Purge									clear, slightly turbid, turbid
18June24	1421	9.70	2160	7.41	0.50	-115.4	87.47	15.45	200.0	1.0	Slightly Turbid
	1426	9.69	2161	7.40	0.29	-120.2	48.75	15.48	200.0	1.0	ST
	1431	9.79	2160	7.39	0.16	-123.7	156.39	15.53	200.0	1.0	ST
	1436	9.70	2159	7.39	0.15	-125.7	69.69	15.53	200.0	1.0	ST
	1441	9.67	2160	7.39	0.12	-128.0	29.44	15.50	200.0	1.0	ST

Well Stabilized? YES NO Total Volume Purged: 9.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18June24	1441	9.67	2160	7.39			29.44				ST

Comments: FB 2023 Collected prior @ 1418

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	222
Sampling Personal:	Dakota Kottsick

Weather Conditions: Temp: 48 °F Wind: W @ 0-5 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	31.98	ft
Depth to Top of Pump:	34.17	ft
Water Level After Sample:	Below Pump	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	20	

Bottle List:
1 Liter Raw
1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample? YES (NO)
Duplicate Sample ID: —

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
											clear, slightly turbid, turbid
18June24	1522	Start of Well Purge									
	1527	10.33	2526	7.78	0.43	1.7	16.64	32.36	200.0	1.0	Slightly Turb. / Brown
	1532	10.06	2534	7.79	0.34	9.1	18.26	32.59	200.0	1.0	Brown / ST
	1537	10.04	2534	7.78	0.29	12.7	16.83	32.93	200.0	1.0	Brown/ST
	1542	10.17	2531	7.76	0.26	15.7	15.87	33.11	200.0	1.0	Brown/ST
	1547	10.18	2533	7.75	0.26	17.4	14.66	33.17	200.0	1.0	Brown ST

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18June24	1547	10.18	2533	7.75			14.66				Brown, ST

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	300
Sampling Personal:	DaVota Kottsieck

Weather Conditions: Temp: 57 °F Wind: [illegible] @ 0-5 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	11.84	ft
Depth to Top of Pump:	17.11	ft
Water Level After Sample:	11.99	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	3	Sec.
Recover:	57	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
17 June 24	1207	Start of Well Purge									
	1212	10.63	2582	7.26	0.20	-112.4	101.47	12.11	200.0	1.0	Slightly Turbid
	1217	10.32	2580	7.26	0.17	-116.0	115.88	11.99	200.0	1.0	Slightly Turbid
	1222	10.46	2583	7.25	0.09	-119.2	73.32	12.04	200.0	1.0	ST
	1227	10.72	2583	7.25	0.06	-121.6	53.21	11.95	200.0	1.0	ST
	1232	10.47	2584	7.25	0.05	-123.2	69.62	12.07	200.0	1.0	ST

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
17 June 24	1232	10.47	2584	7.25			69.62				ST

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet
Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	MW-301
Sampling Personal:	DaKota Kottsick

Weather Conditions: Temp: 55 °F Wind: N @ 0-5 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	17.44	ft
Depth to Top of Pump:	32.53	ft
Water Level After Sample:	24.28	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Tubing x

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
(YES) / NO
Duplicate Sample ID:
Dup-2023

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
17June24	MW1	Start of Well Purge							200.0	1.0	
	0906	10.48	1251	7.69	0.27	220.8	1001.2	19.70	200.0	200.0	Turbid
	0911	10.35	1252	7.69	0.19	214.3	1171.4	20.65	200.0	1.0	Turbid
	0916	10.21	1256	7.68	0.16	205.8	1859.8	21.66	200.0	1.0	Turbid
	0921	10.33	1255	7.68	0.13	196.6	2662.3	22.57	200.0	1.0	Turbid
	0926	10.31	1257	7.69	0.13	186.7	2804.8	23.22	200.0	1.0	Turbid

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
17June24	0926	10.31	1257	7.69			2804				Turbid

Comments: x Has pump dedicated as well DK

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Account #: 5109 **Client:** Great River Energy

Field Datasheet

Groundwater Assessment

2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Company: GRE Stanton Station
Event: June 2024
Sample ID: PB-3
Sampling Personal: Dalton Kottsick

Weather Conditions: Temp: 55 °F Wind: E @ 0-5 Precip: Sunny / Partly Cloudy / (Cloudy)

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	27.49	ft
Depth to Top of Pump:	36.89	ft
Water Level After Sample:	29.43	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	4	Sec.
Recover:	26	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
17June24	1104	Start of Well Purge									
	1109	10.35	2100	7.24	0.76	168.3	3.59	28.94	200.0	1.0	Slightly Turbid
	1114	10.15	2104	7.23	0.79	152.3	4.17	29.05	200.0	1.0	Clear
	1119	10.11	2102	7.22	0.47	142.8	2.31	29.12	200.0	1.0	Clear
	1124	10.00	2105	7.21	1.11	135.9	2.99	29.04	200.0	1.0	Clear
	1129	10.16	2104	7.21	1.39	133.3	3.56	29.31	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
17June24	1129	10.16	2104	7.21			3.56				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS 2023 Wells June 2024 (52174) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52174001 **Date Collected:** 06/17/2024 14:38 **Matrix:** Groundwater
Sample ID: MW-215 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/26/2024 10:49	
Radium 228	See Attached			1		07/26/2024 10:49	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52174002 **Date Collected:** 06/18/2024 12:17 **Matrix:** Groundwater
Sample ID: MW-216 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/26/2024 10:49	
Radium 228	See Attached			1		07/26/2024 10:49	

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52174003 **Date Collected:** 06/17/2024 13:42 **Matrix:** Groundwater
Sample ID: MW-217 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/26/2024 10:49	
Radium 228	See Attached			1		07/26/2024 10:49	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52174004 **Date Collected:** 06/18/2024 10:32 **Matrix:** Groundwater
Sample ID: MW-218 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/26/2024 10:49	
Radium 228	See Attached			1		07/26/2024 10:49	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52174005 **Date Collected:** 06/17/2024 15:48 **Matrix:** Groundwater
Sample ID: MW-219 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/26/2024 10:49	
Radium 228	See Attached			1		07/26/2024 10:49	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52174006 **Date Collected:** 06/18/2024 13:29 **Matrix:** Groundwater
Sample ID: MW-220 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/26/2024 10:49	
Radium 228	See Attached			1		07/26/2024 10:49	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52174007 **Date Collected:** 06/18/2024 14:41 **Matrix:** Groundwater
Sample ID: MW-221 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/26/2024 10:49	
Radium 228	See Attached			1		07/26/2024 10:49	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID:	52174008	**Date Collected:**	06/18/2024 15:47	**Matrix:**	Groundwater
Sample ID:	MW-222	**Date Received:**	06/18/2024 18:10	**Collector:**	MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/26/2024 10:49	
Radium 228	See Attached			1		07/26/2024 10:49	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52174009 **Date Collected:** 06/18/2024 14:41 **Matrix:** Groundwater
Sample ID: FB-2023 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/26/2024 10:49	
Radium 228	See Attached			1		07/26/2024 10:49	

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52174010 **Date Collected:** 06/17/2024 12:32 **Matrix:** Groundwater
Sample ID: MW-300 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/26/2024 10:49	
Radium 228	See Attached			1		07/26/2024 10:49	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52174011 **Date Collected:** 06/17/2024 09:26 **Matrix:** Groundwater
Sample ID: MW-301 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/26/2024 10:49	
Radium 228	See Attached			1		07/26/2024 10:49	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID:	52174012	**Date Collected:**	06/17/2024 09:26	**Matrix:**	Groundwater
Sample ID:	Dup-2023	**Date Received:**	06/18/2024 18:10	**Collector:**	MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/26/2024 10:49	
Radium 228	See Attached			1		07/26/2024 10:49	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 52174013 **Date Collected:** 06/17/2024 11:29 **Matrix:** Groundwater
Sample ID: MW-PB3 **Date Received:** 06/18/2024 18:10 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		07/26/2024 10:49	
Radium 228	See Attached			1		07/26/2024 10:49	

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ANALYTICAL SUMMARY REPORT

July 24, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24060880 Quote ID: C15480
Project Name: 52174

Energy Laboratories, Inc. Casper WY received the following 13 samples for Minnesota Valley Testing Laboratories on 6/24/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24060880-001	52174001, MW-215	06/17/24 14:38	06/24/24	Groundwater	Radium 226, Total Radium 228, Total
C24060880-002	52174002, MW-216	06/18/24 12:17	06/24/24	Groundwater	Same As Above
C24060880-003	52174003, MW-217	06/17/24 13:42	06/24/24	Groundwater	Same As Above
C24060880-004	52174004, MW-218	06/18/24 10:32	06/24/24	Groundwater	Same As Above
C24060880-005	52174005, MW-219	06/17/24 15:48	06/24/24	Groundwater	Same As Above
C24060880-006	52174006, MW-220	06/18/24 13:29	06/24/24	Groundwater	Same As Above
C24060880-007	52174007, MW-221	06/18/24 14:41	06/24/24	Groundwater	Same As Above
C24060880-008	52174008, MW-222	06/18/24 15:47	06/24/24	Groundwater	Same As Above
C24060880-009	52174009, FB-2023	06/18/24 14:41	06/24/24	Groundwater	Same As Above
C24060880-010	52174010, MW-300	06/17/24 12:32	06/24/24	Groundwater	Same As Above
C24060880-011	52174011, MW-301	06/17/24 9:26	06/24/24	Groundwater	Same As Above
C24060880-012	52174012, Dup - 2023	06/17/24 9:26	06/24/24	Groundwater	Same As Above
C24060880-013	52174013, MW-PB3	06/17/24 11:29	06/24/24	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy, Casper, WY 82601-9601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

Energy Laboratories, Inc. verifies the reported results for the analysis has been technically reviewed and approved for release.

If you have any questions regarding these test results, please contact your Project Manager.

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52174
Lab ID: C24060880-001
Client Sample ID: 52174001, MW-215

Report Date: 07/24/24
Collection Date: 06/17/24 14:38
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 228	1.6	pCi/L				RA-05	07/02/24 14:16 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	07/02/24 14:16 / trs
Radium 228 MDC	0.8	pCi/L				RA-05	07/02/24 14:16 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 2 of 19

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52174
Lab ID: C24060880-002
Client Sample ID: 52174002, MW-216

Report Date: 07/24/24
Collection Date: 06/18/24 12:17
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 228	0.8	pCi/L				RA-05	07/02/24 14:16 / trs
Radium 228 precision (±)	0.5	pCi/L				RA-05	07/02/24 14:16 / trs
Radium 228 MDC	0.7	pCi/L				RA-05	07/02/24 14:16 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 3 of 19

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52174
Lab ID: C24060880-003
Client Sample ID: 52174003, MW-217

Report Date: 07/24/24
Collection Date: 06/17/24 13:42
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.09	pCi/L	U			E903.0	07/08/24 11:30 / alb
Radium 226 precision (±)	0.1	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 228	0.7	pCi/L	U			RA-05	07/02/24 14:16 / trs
Radium 228 precision (±)	0.5	pCi/L				RA-05	07/02/24 14:16 / trs
Radium 228 MDC	0.8	pCi/L				RA-05	07/02/24 14:16 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 4 of 19

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52174
Lab ID: C24060880-004
Client Sample ID: 52174004, MW-218

Report Date: 07/24/24
Collection Date: 06/18/24 10:32
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	07/08/24 11:30 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 226 MDC	0.3	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 228	0.4	pCi/L	U			RA-05	07/02/24 14:16 / trs
Radium 228 precision (±)	0.5	pCi/L				RA-05	07/02/24 14:16 / trs
Radium 228 MDC	0.8	pCi/L				RA-05	07/02/24 14:16 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52174
Lab ID: C24060880-005
Client Sample ID: 52174005, MW-219

Report Date: 07/24/24
Collection Date: 06/17/24 15:48
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	-0.03	pCi/L	U			E903.0	07/08/24 11:30 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 226 MDC	0.3	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 228	0.7	pCi/L	U			RA-05	07/02/24 14:16 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	07/02/24 14:16 / trs
Radium 228 MDC	1	pCi/L				RA-05	07/02/24 14:16 / trs

Report Definitions:
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QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52174
Lab ID: C24060880-006
Client Sample ID: 52174006, MW-220

Report Date: 07/24/24
Collection Date: 06/18/24 13:29
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L	U			E903.0	07/08/24 11:30 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 226 MDC	0.3	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 228	1.1	pCi/L				RA-05	07/02/24 14:16 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	07/02/24 14:16 / trs
Radium 228 MDC	1	pCi/L				RA-05	07/02/24 14:16 / trs

Report Definitions:
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QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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Account #: 5109 **Client:** Great River Energy

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52174
Lab ID: C24060880-007
Client Sample ID: 52174007, MW-221

Report Date: 07/24/24
Collection Date: 06/18/24 14:41
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	-0.02	pCi/L	U			E903.0	07/08/24 11:30 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 226 MDC	0.3	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 228	0.6	pCi/L	U			RA-05	07/02/24 14:16 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	07/02/24 14:16 / trs
Radium 228 MDC	1	pCi/L				RA-05	07/02/24 14:16 / trs

Report Definitions:
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QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52174
Lab ID: C24060880-008
Client Sample ID: 52174008, MW-222

Report Date: 07/24/24
Collection Date: 06/18/24 15:47
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	-1	pCi/L	U			E903.0	07/08/24 13:30 / alb
Radium 226 precision (±)	1.7	pCi/L				E903.0	07/08/24 13:30 / alb
Radium 226 MDC	3.1	pCi/L				E903.0	07/08/24 13:30 / alb
Radium 228	8.2	pCi/L	U			RA-05	07/10/24 12:57 / trs
Radium 228 precision (±)	7.8	pCi/L				RA-05	07/10/24 12:57 / trs
Radium 228 MDC	12.4	pCi/L				RA-05	07/10/24 12:57 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 9 of 19

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52174
Lab ID: C24060880-009
Client Sample ID: 52174009, FB-2023

Report Date: 07/24/24
Collection Date: 06/18/24 14:41
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	-0.2	pCi/L	U			E903.0	07/08/24 11:30 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 226 MDC	0.3	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 228	1	pCi/L				RA-05	07/02/24 14:16 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	07/02/24 14:16 / trs
Radium 228 MDC	0.9	pCi/L				RA-05	07/02/24 14:16 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 10 of 19

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52174
Lab ID: C24060880-010
Client Sample ID: 52174010, MW-300

Report Date: 07/24/24
Collection Date: 06/17/24 12:32
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 228	0.9	pCi/L				RA-05	07/02/24 14:16 / trs
Radium 228 precision (±)	0.5	pCi/L				RA-05	07/02/24 14:16 / trs
Radium 228 MDC	0.8	pCi/L				RA-05	07/02/24 14:16 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52174
Lab ID: C24060880-011
Client Sample ID: 52174011, MW-301

Report Date: 07/24/24
Collection Date: 06/17/24 09:26
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	2.9	pCi/L	U			E903.0	07/08/24 13:30 / alb
Radium 226 precision (±)	1.1	pCi/L				E903.0	07/08/24 13:30 / alb
Radium 226 MDC	2.9	pCi/L				E903.0	07/08/24 13:30 / alb
Radium 228	0.04	pCi/L	U			RA-05	07/15/24 14:00 / trs
Radium 228 precision (±)	6.4	pCi/L				RA-05	07/15/24 14:00 / trs
Radium 228 MDC	10.7	pCi/L				RA-05	07/15/24 14:00 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 12 of 19

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52174
Lab ID: C24060880-012
Client Sample ID: 52174012, Dup - 2023

Report Date: 07/24/24
Collection Date: 06/17/24 09:26
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	4.8	pCi/L				E903.0	07/08/24 13:30 / alb
Radium 226 precision (±)	2.1	pCi/L				E903.0	07/08/24 13:30 / alb
Radium 226 MDC	1.9	pCi/L				E903.0	07/08/24 13:30 / alb
Radium 228	0.7	pCi/L	U			RA-05	07/15/24 14:00 / trs
Radium 228 precision (±)	6.3	pCi/L				RA-05	07/15/24 14:00 / trs
Radium 228 MDC	10.6	pCi/L				RA-05	07/15/24 14:00 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 13 of 19

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 52174
Lab ID: C24060880-013
Client Sample ID: 52174013, MW-PB3

Report Date: 07/24/24
Collection Date: 06/17/24 11:29
DateReceived: 06/24/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 226 precision (±)	0.2	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 226 MDC	0.2	pCi/L				E903.0	07/08/24 11:30 / alb
Radium 228	0.5	pCi/L	U			RA-05	07/02/24 14:16 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	07/02/24 14:16 / trs
Radium 228 MDC	1	pCi/L				RA-05	07/02/24 14:16 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 14 of 19

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24060880 **Report Date:** 07/16/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11359
Lab ID: LCS-RA226-11359	3	Laboratory Control Sample				Run: TENNELEC-4_240625C				07/08/24 11:30
Radium 226		11	pCi/L		110	70	130			
Radium 226 precision (±)		2.1	pCi/L							
Radium 226 MDC		0.17	pCi/L							
Lab ID: MB-RA226-11359	3	Method Blank				Run: TENNELEC-4_240625C				07/08/24 11:30
Radium 226		0.1	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.1	pCi/L							
Lab ID: C24060880-004AMS	3	Sample Matrix Spike				Run: TENNELEC-4_240625C				07/08/24 11:30
Radium 226		10	pCi/L		103	70	130			
Radium 226 precision (±)		2.0	pCi/L							
Radium 226 MDC		0.20	pCi/L							
Lab ID: C24060880-004AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_240625C				07/08/24 11:30
Radium 226		10	pCi/L		102	70	130	1.4	30	
Radium 226 precision (±)		2.0	pCi/L							
Radium 226 MDC		0.30	pCi/L							

- The RER result is 0.05.

Qualifiers:

RL - Analyte Reporting Limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24060880 **Report Date:** 07/16/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7427R
Lab ID: LCS-228-RA226-11359	3	Laboratory Control Sample				Run: TENNELEC-4_240625B				07/02/24 14:16
Radium 228		8.9	pCi/L		85	70	130			
Radium 228 precision (±)		1.8	pCi/L							
Radium 228 MDC		0.79	pCi/L							
Lab ID: MB-RA226-11359	3	Method Blank				Run: TENNELEC-4_240625B				07/02/24 14:16
Radium 228		0.03	pCi/L							U
Radium 228 precision (±)		0.5	pCi/L							
Radium 228 MDC		0.8	pCi/L							
Lab ID: C24060880-004AMS1	3	Sample Matrix Spike				Run: TENNELEC-4_240625B				07/02/24 14:16
Radium 228		8.5	pCi/L		78	70	130			
Radium 228 precision (±)		1.7	pCi/L							
Radium 228 MDC		0.80	pCi/L							
Lab ID: C24060880-004AMSD1	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_240625B				07/02/24 14:16
Radium 228		8.7	pCi/L		80	70	130	2.2	30	
Radium 228 precision (±)		1.7	pCi/L							
Radium 228 MDC		0.81	pCi/L							
- The RER result is 0.08.										
Method: RA-05										Batch: RA228-7435
Lab ID: LCS-228-RA228-7435	3	Laboratory Control Sample				Run: TENNELEC-4_240711A				07/15/24 11:30
Radium 228		9.8	pCi/L		94	70	130			
Radium 228 precision (±)		1.9	pCi/L							
Radium 228 MDC		0.87	pCi/L							
Lab ID: MB-228-RA228-7435	3	Method Blank				Run: TENNELEC-4_240711A				07/15/24 11:30
Radium 228		0.6	pCi/L							U
Radium 228 precision (±)		0.5	pCi/L							
Radium 228 MDC		0.8	pCi/L							
Lab ID: C24060880-011ADUP	3	Sample Duplicate				Run: TENNELEC-4_240711A				07/15/24 14:00
Radium 228		4.1	pCi/L					200	30	UR
Radium 228 precision (±)		6.4	pCi/L							
Radium 228 MDC		10	pCi/L							
- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than or equal to the limit of 3, the RER result is 0.45.										
Lab ID: C24060880-012ADUP	3	Sample Duplicate				Run: TENNELEC-4_240711A				07/15/24 14:00
Radium 228		12	pCi/L					180	30	R
Radium 228 precision (±)		6.9	pCi/L							
Radium 228 MDC		11	pCi/L							
- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than or equal to the limit of 3, the RER result is 1.17.										

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24060880

Login completed by: Aaron J. Smith
Date Received: 6/24/2024
Reviewed by: lcadreau
Received by: LFN
Reviewed Date: 7/10/2024
Carrier name: UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	26.0°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Trip Blanks and/or Blind Duplicate samples are assigned the earliest collection time for the associated requested analysis in order to evaluate the holding time unless specifically indicated.

Contact and Corrective Action Comments:

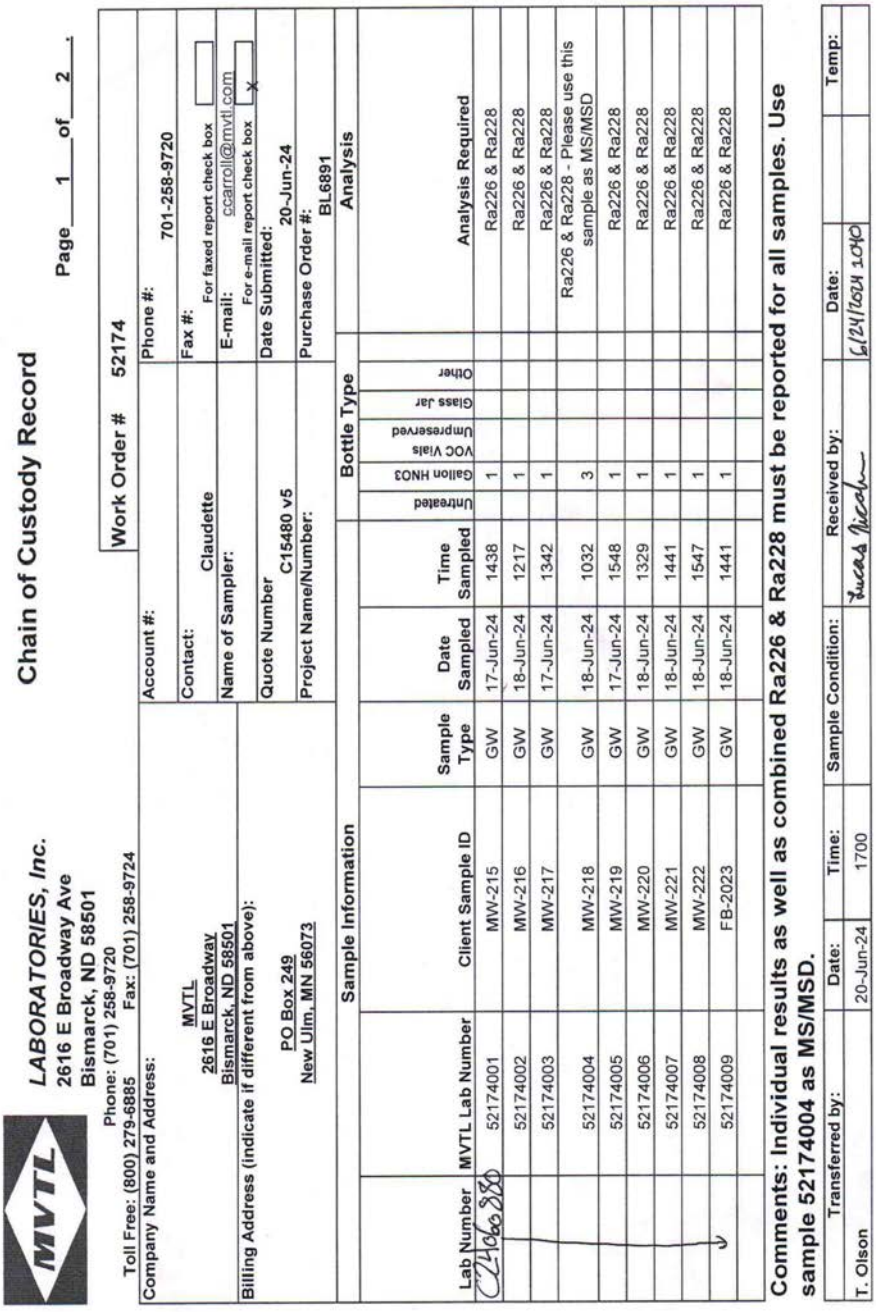
Cancel combined radium per Tera Olson via email on 7/1/2024.-7/9/2024 mas.

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Chain of Custody Record

Page 1 of 2

Work Order # 52174

Company Name and Address: MVTL, 2616 E Broadway, Bismarck, ND 58501
Account #:
Contact: Claudette
Name of Sampler:
Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box X
Billing Address (indicate if different from above): PO Box 249, New Ulm, MN 56073
Quote Number C15480 v5
Project Name/Number:
Date Submitted: 20-Jun-24
Purchase Order #: BL6891

Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Untreated	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis: Analysis Required
C24060880	52174001	MW-215	GW	17-Jun-24	1438		1				Ra226 & Ra228
	52174002	MW-216	GW	18-Jun-24	1217		1				Ra226 & Ra228
	52174003	MW-217	GW	17-Jun-24	1342		1				Ra226 & Ra228
	52174004	MW-218	GW	18-Jun-24	1032		3				Ra226 & Ra228 - Please use this sample as MS/MSD
	52174005	MW-219	GW	17-Jun-24	1548		1				Ra226 & Ra228
	52174006	MW-220	GW	18-Jun-24	1329		1				Ra226 & Ra228
	52174007	MW-221	GW	18-Jun-24	1441		1				Ra226 & Ra228
	52174008	MW-222	GW	18-Jun-24	1547		1				Ra226 & Ra228
	52174009	FB-2023	GW	18-Jun-24	1441		1				Ra226 & Ra228

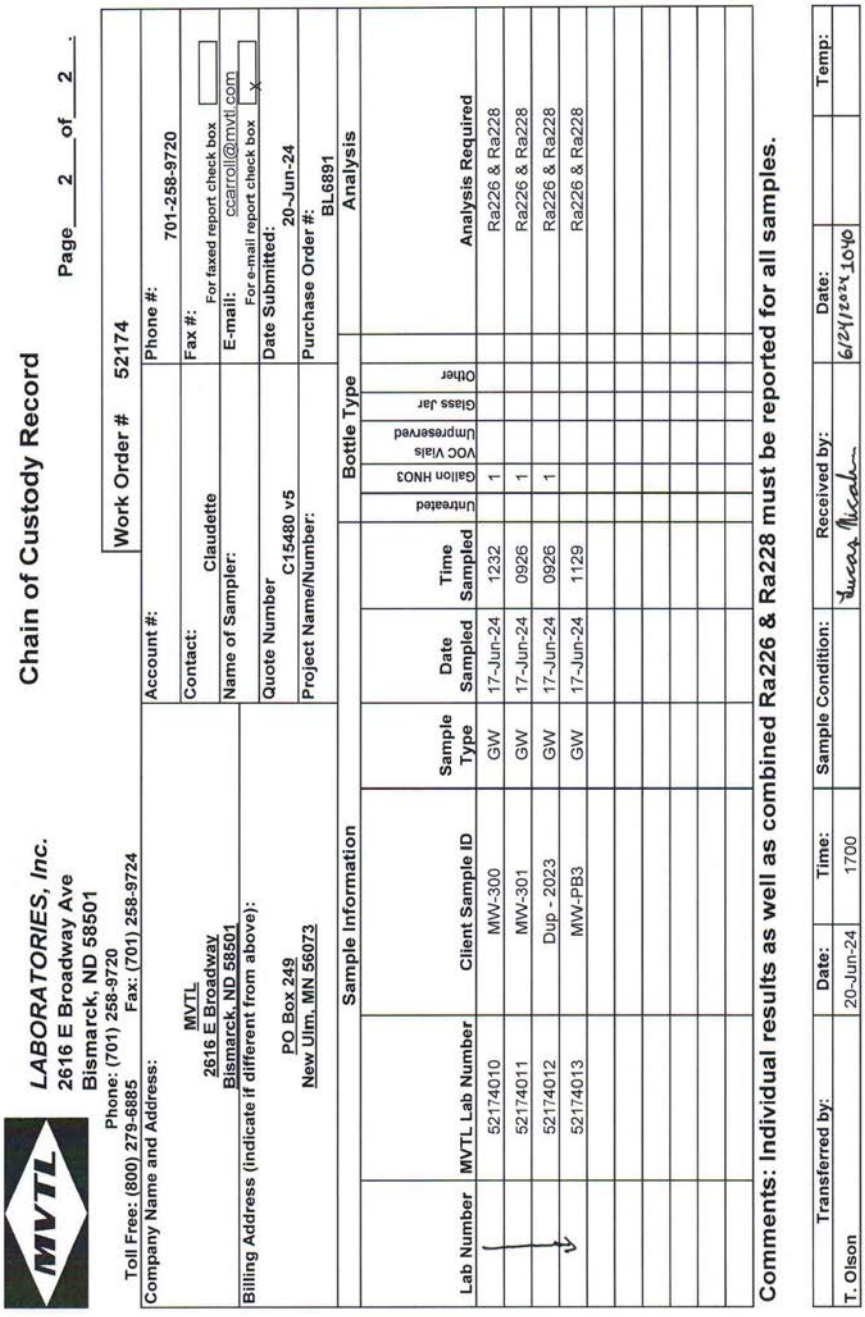
Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples. Use sample 52174004 as MS/MSD.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
T. Olson	20-Jun-24	1700		Lucas Nicolai	6/24/2024 1040	

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Chain of Custody Record

Page 2 of 2

Work Order # 52174

Company Name and Address: MVTL, 2616 E Broadway, Bismarck, ND 58501
Billing Address (indicate if different from above): PO Box 249, New Ulm, MN 56073

Account #:
Contact: Claudette
Name of Sampler:
Quote Number C15480 v5
Project Name/Number:

Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box x
Date Submitted: 20-Jun-24
Purchase Order #: BL6891

Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Untreated	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis Required
	52174010	MW-300	GW	17-Jun-24	1232		1				Ra226 & Ra228
	52174011	MW-301	GW	17-Jun-24	0926		1				Ra226 & Ra228
	52174012	Dup - 2023	GW	17-Jun-24	0926		1				Ra226 & Ra228
	52174013	MW-PB3	GW	17-Jun-24	1129						Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:		Temp:
T. Olson	20-Jun-24	1700		Lucas Micah	6/24/2024 1040		

Page 19 of 19

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2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Member ACIL

Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 52174

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS 2023 Wells
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: June 2024
Address:		Lakewood, CO 80228	Sampled By: Dakota Kottsick
Phone:			
Email:	CJohnston@GREnergy.com		

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Gal Nitric	Analysis Required
001	MW-215	17June24	1438	GW					X	Radium 226 and 228 Combined
002	MW-216	18June24	1217	GW					X	
003	MW-217	17June24	1342	GW					X	
004	MW-218/MS/MSD	18June24	1032	GW					3	
005	MW-219	17June24	1548	GW					X	
006	MW-220	18June24	1329	GW					X	
007	MW-221	18June24	1441	GW					X	
008	MW-222	18June24	1547	GW					X	
009	FB-2023	18June24	1441	GW					X	

Comments:

	Relinquished By		Sample Condition		Received By	
	Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1		18June24 1810	Log In Walk In #2	2.7 °C/TM 805 RO Y/N		19Jun24 0800
2						

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS 2023 Wells
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: June 2024
Address:		Lakewood, CO 80228	Sampled By: Dakota Kottsick
Phone:			
Email:	CJohnston@GREnergy.com		

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Gal Nitric	Analysis Required
010	MW-300	17 June 24	1232	GW					X	Radium 226 and 228 Combined
011	MW-301	17 June 24	0926	GW					X	
012	Dup - 2023	17 June 24	0926	GW					X	
013	MW-PB3	17 June 24	1129	GW					X	

Comments:

Relinquished By			Sample Condition		Received By	
	Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1	Dakota Kottsick	18 June 24 1810	Log In Walk In #2	2.7 °C/TM3505 RO(Y)N	Tera Olson	19 Jun 24 0820
2						

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet
Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	215
Sampling Personal:	DeVota Kottsick

Weather Conditions: Temp: 57 °F Wind: E @ 0-5 Precip: Sunny / Partly Cloudy / (Cloudy)

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	12.63	ft
Depth to Top of Pump:	17.14	ft
Water Level After Sample:	13.68	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	3	Sec.
Recover:	57	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
	1413	Start of Well Purge									clear, slightly turbid, turbid
17June24	1418	11.48	2357	7.53	0.42	-120.6	1205	13.67	200.0	1.0	Turbid/Brown
	1423	11.59	2356	7.51	0.30	-125.8	178	13.78	200.0	1.0	Turbid/Brown
	1428	11.70	2353	7.50	0.20	-126.8	36.76	13.77	200.0	1.0	ST
	1433	10.95	2356	7.49	0.17	-128.5	84.97	13.82	200.0	1.0	ST
	1438	11.17	2356	7.48	0.09	-130.0	49.80	13.71	200.0	1.0	ST

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
17June24	1436	11.17	2356	7.48			49.80				ST

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet
Groundwater Assessment

Company: GRE Stanton Station
Event: June 2024
Sample ID: ZL
Sampling Personal: Dakota Gottsick

Weather Conditions: Temp: 50 °F Wind: W @ 0-5 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	13.44	ft
Depth to Top of Pump:	16.93	ft
Water Level After Sample:	13.46	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	3	Sec.
Recover:	57	Sec.
PSI:	20	

Bottle List:
1 Liter Raw
1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample? YES / NO
Duplicate Sample ID: —

FIELD READINGS

Stabilization Parameters (3 Consecutive) Purge Date	Time	Temp. (°C) ±0.3°	Spec. Cond. ±3%	pH ±0.1	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	Pumping Rate mL/Min	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
18June24	1152	Start of Well Purge									
	1157	9.32	2063	7.47	0.14	-132.8	36.55	13.45	200.0	1.0	Slightly Turbid
	1202	9.13	2064	7.47	0.13	-135.1	42.18	13.49	200.0	1.0	ST
	1207	9.18	2051	7.47	0.11	-137.8	49.41	13.45	200.0	1.0	ST
	1212	9.19	2050	7.47	0.11	-139.0	44.37	13.46	200.0	1.0	ST
	1217	9.07	2050	7.46	0.09	-139.9	40.57	13.46	200.0	1.0	ST

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18June24	1217	9.07	2050	7.46			40.57				ST

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: June 2024
Sample ID: 27
Sampling Personal: DaKota Lottsich

Weather Conditions: Temp: 57 °F Wind: E @ 0-5 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	10.95	ft
Depth to Top of Pump:	17.58	ft
Water Level After Sample:	10.97	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	20	

Bottle List:
1 Liter Raw
1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample? YES / NO
Duplicate Sample ID: —

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
17June24	1317	Start of Well Purge									clear, slightly turbid, turbid
	1322	10.51	7376	7.55	0.15	-129	10.86	10.97	200.0	1.0	Red / Turbid
	1327	10.48	7361	7.54	0.12	-132	62.89	10.96	200.0	1.0	Brown/Red / Turbid
	1332	10.57	2315	7.52	0.11	-137	26.48	11.04	200.0	1.0	Slightly Turbid
	1337	10.56	2316	7.52	0.11	-133	23.38	10.99	200.0	1.0	ST
	1342	10.51	2318	7.51	0.10	-133	21.50	11.04	200.0	1.0	ST

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
17June24	1342	10.51	2318	7.51			21.50				ST

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: June 2024
Sample ID: 218
Sampling Personal: Brandon Hoffsick

Weather Conditions: Temp: 50 °F Wind: W @ 0-5 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		—
Casing Diameter:	2"	
Water Level Before Purge:	11.96	ft
Depth to Top of Pump:	17.64	ft
Water Level After Sample:	11.94	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	4	Sec.
Recover:	56	Sec.
PSI:	20	

Bottle List:
1 Liter Raw — 1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample?
YES / NO
Duplicate Sample ID:
MS/MSD

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
18 June 24	1007	Start of Well Purge									
	1012	8.85	2074	7.48	1.45	-119	624.31	11.96	200.0	1.0	Turbid
	1017	8.87	2071	7.49	0.19	-139.6	166.46	11.96	200.0	1.0	Slightly Turbid
	1022	8.79	2062	7.49	0.16	-142.7	38.61	11.96	200.0	1.0	Slightly Turbid
	1027	8.76	2057	7.49	0.15	-144.3	41.41	11.96	200.0	1.0	Slightly Turbid
	1032	8.85	2063	7.48	0.14	-145.2	31.66	11.96	200.0	1.0	Slightly Turbid

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18 June 24	1032	8.85	2063	7.48			31.66				ST

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: June 2024
Sample ID: 219
Sampling Personal: Dakota Kottsick

Weather Conditions: Temp: 97 °F Wind: E @ 0-5 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	14.74	ft
Depth to Top of Pump:	18.17	ft
Water Level After Sample:	15.23	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:
Purge: 3 Sec.
Recover: 27 Sec.
PSI: 20

Bottle List:
1 Liter Raw
1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample? YES / NO
Duplicate Sample ID: —

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
	1523	Start of Well Purge									clear, slightly turbid, turbid
17June24	1528	9.67	4002	7.34	0.17	41.8	40.38	15.43	200.0	1.0	Turbid
	1533	9.83	3941	7.23	0.13	23.5	43.24	15.32	200.0	1.0	Turbid
	1538	9.49	3900	7.18	0.13	29.0	73.23	15.40	200.0	1.0	Slightly Turbid
	1543	9.59	3869	7.13	0.11	33.4	15.28	15.38	200.0	1.0	ST
	1548	9.60	3862	7.12	0.11	34.3	13.83	15.41	200.0	1.0	ST

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
17June24	1548	9.60	3862	7.12			13.83				ST

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: June 2024
Sample ID: 220
Sampling Personal: Dakota Kottsick

Weather Conditions: Temp: 49 °F Wind: W @ 0-5 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	12.92	ft
Depth to Top of Pump:	32.67	ft
Water Level After Sample:	13.10	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	20	

Bottle List:
1 Liter Raw — 1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample?
YES / NO
Duplicate Sample ID: —

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
18 June 24	1304	Start of Well Purge									
	1309	10.03	2005	7.40	0.78	-31.1	114.19	13.02	200.0	1.0	Slightly Turbid
	1314	9.81	2009	7.41	0.39	-71.8	106.24	13.06	200.0	1.0	Slightly Turbid
	1319	9.90	2007	7.42	0.27	-87.9	117.09	13.04	200.0	1.0	ST
	1324	9.84	2007	7.42	0.20	-99.4	95.91	13.02	200.0	1.0	ST
	1329	9.81	2008	7.42	0.17	-106.5	84.85	13.02	200.0	1.0	ST

Well Stabilized? YES NO

Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18 June 24	1329	9.81	2008	7.42			84.85				ST

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: June 2024
Sample ID: 22
Sampling Personal: Jakota Kuffsick

Weather Conditions: Temp: 48 °F Wind: W @ 0-5 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	15.47	ft
Depth to Top of Pump:	30.68	ft
Water Level After Sample:	15.46	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	20	

Bottle List:
1 Liter Raw 1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample? YES / NO
Duplicate Sample ID: —

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
18 June 24	1416	Start of Well Purge									
	1421	9.70	2160	7.41	0.50	-115.4	87.47	15.45	200.0	1.0	Slightly Turbid
	1426	9.69	2161	7.40	0.29	-120.2	418.75	15.48	200.0	1.0	ST
	1431	9.79	2160	7.39	0.16	-123.7	156.39	15.53	200.0	1.0	ST
	1436	9.70	2159	7.39	0.15	-125.7	69.69	15.53	200.0	1.0	ST
	1441	9.67	2160	7.39	0.12	-128.0	29.44	15.50	200.0	1.0	ST

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18 June 24	1441	9.67	2160	7.39			29.44				ST

Comments: FB 2023 Collected prior @ 1448

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet
Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	222
Sampling Personal:	Dakota Kottsick

Weather Conditions: Temp: 48 °F Wind: W @ 0-5 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	31.88	ft
Depth to Top of Pump:	34.17	ft
Water Level After Sample:	Below Pump	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?	
YES	NO
Duplicate Sample ID:	—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
	1522	Start of Well Purge									clear, slightly turbid, turbid
18June24	1527	10.33	2526	7.78	0.43	1.7	16.64	32.36	200.0	1.0	Slightly Turb. / Brown
	1532	10.06	2534	7.79	0.32	9.1	18.26	32.59	200.0	1.0	Brown / ST
	1537	10.04	2534	7.78	0.29	12.7	16.83	32.93	200.0	1.0	Brown/ST
	1542	10.17	2531	7.76	0.26	15.7	13.87	33.11	200.0	1.0	Brown/ST
	1547	10.18	2533	7.75	0.26	17.4	14.66	33.17	200.0	1.0	Brown ST

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18June24	1547	10.18	2533	7.75			14.66				Brown, ST

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	300
Sampling Personal:	Dakota Kottsick

Weather Conditions: Temp: 57 °F Wind: E @ 0-5 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	11.84	ft
Depth to Top of Pump:	17.11	ft
Water Level After Sample:	11.89	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	3	Sec.
Recover:	57	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
17 June 24	1207	Start of Well Purge									
	1212	10.63	2582	7.26	0.20	-112.4	101.47	12.11	200.0	1.0	Slightly Turbid
	1217	10.32	2580	7.26	0.17	-116.0	115.88	11.99	200.0	1.0	Slightly Turbid
	1222	10.46	2583	7.25	0.09	-119.2	77.32	12.04	200.0	1.0	ST
	1227	10.22	2583	7.25	0.06	-121.6	53.21	11.95	200.0	1.0	ST
	1232	10.47	2584	7.25	0.05	-123.2	69.62	12.07	200.0	1.0	ST

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
17 June 24	1232	10.47	2584	7.25			69.62				ST

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet
Groundwater Assessment

Company:	GRE Stanton Station
Event:	June 2024
Sample ID:	MW-301
Sampling Personal:	DaKota Kottsick

Weather Conditions: Temp: 53 °F Wind: N @ 0.3 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	17.44	ft
Depth to Top of Pump:	32.53	ft
Water Level After Sample:	24.28	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Tubing*

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	20	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
Dup-2023

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
	0901	Start of Well Purge							200.0	1.0	
17June24	0906	10.48	1251	7.69	0.27	220.8	1001.2	19.70	~~200.0~~	~~200.0~~	Turbid
	0911	10.35	1262	7.69	0.19	214.3	1171.4	20.65	200.0	1.0	Turbid
	0916	10.21	1256	7.68	0.16	205.8	1859.8	21.66	200.0	1.0	Turbid
	0921	10.33	1255	7.68	0.13	196.6	2662.3	22.57	200.0	1.0	Turbid
	0926	10.31	1257	7.69	0.13	186.7	2804.8	23.22	200.0	1.0	Turbid

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
17June24	0926	10.31	1257	7.69			2804				Turbid

Comments: *Has pump dedicated as well

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: June 2024
Sample ID: PB-3
Sampling Personal: Dalton Kottsick

Weather Conditions: Temp: 55 °F Wind: E @ 0-5 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?	—	
Casing Diameter:	2"	
Water Level Before Purge:	27.49	ft
Depth to Top of Pump:	36.89	ft
Water Level After Sample:	29.43	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge:	4 Sec.
Recover:	26 Sec.
PSI:	20

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID: —

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
17June24	1104	Start of Well Purge									
	1109	10.35	2100	7.24	0.26	168.3	3.59	28.94	200.0	1.0	Slightly Turbid
	1114	10.15	2104	7.23	0.29	152.3	4.17	29.05	200.0	1.0	Clear
	1119	10.11	2102	7.22	0.47	142.8	2.31	29.12	200.0	1.0	Clear
	1124	10.00	2105	7.21	1.11	135.9	2.99	29.24	200.0	1.0	Clear
	1129	10.16	2104	7.21	1.39	133.3	3.54	29.31	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
17June24	1129	10.16	2104	7.21			3.54				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS BAI Sept 2024 (64137) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 64137001 **Date Collected:** 09/16/2024 11:50 **Matrix:** Groundwater
Sample ID: MW-201 **Date Received:** 09/16/2024 14:22 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**3154**	umhos/cm	1	1		09/16/2024 11:50	
Method: 150.2							
pH - Field	**7.37**	units	0.01	1		09/16/2024 11:50	
Method: 170.1							
Temperature - Field C	**13.69**	degrees C		1		09/16/2024 11:50	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	09/19/2024 09:10	09/23/2024 09:30	
Method: EPA 6010D							
Lithium	<0.02	mg/L	0.02	1	09/16/2024 16:40	09/18/2024 10:36	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	09/16/2024 16:40	09/17/2024 12:05	
Arsenic	<0.002	mg/L	0.002	5	09/16/2024 16:40	09/17/2024 12:05	
Barium	**0.0212**	mg/L	0.002	5	09/16/2024 16:40	09/17/2024 12:05	
Beryllium	<0.0005	mg/L	0.0005	5	09/16/2024 16:40	09/17/2024 12:05	
Cadmium	<0.0005	mg/L	0.0005	5	09/16/2024 16:40	09/17/2024 12:05	
Chromium	<0.002	mg/L	0.002	5	09/16/2024 16:40	09/17/2024 12:05	
Cobalt	<0.002	mg/L	0.002	5	09/16/2024 16:40	09/17/2024 12:05	
Lead	<0.0005	mg/L	0.0005	5	09/16/2024 16:40	09/17/2024 12:05	
Molybdenum	**0.1966**	mg/L	0.002	5	09/16/2024 16:40	09/17/2024 12:05	
Selenium	<0.005	mg/L	0.005	5	09/16/2024 16:40	09/17/2024 12:05	
Thallium	<0.0005	mg/L	0.0005	5	09/16/2024 16:40	09/17/2024 12:05	
Method: SM4500 H+ B-2011							
pH	**7.5**	units	0.1	1		09/16/2024 18:31	*
Method: SM4500-F-C-2011							
Fluoride	**0.79**	mg/L	0.1	1		09/16/2024 18:31	

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Report Date: Tuesday, October 8, 2024 9:11:03 AM

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 64137002 **Date Collected:** 09/16/2024 10:53 **Matrix:** Groundwater
Sample ID: MW-202 **Date Received:** 09/16/2024 14:22 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2082**	umhos/cm	1	1		09/16/2024 10:53	
Method: 150.2							
pH - Field	**7.24**	units	0.01	1		09/16/2024 10:53	
Method: 170.1							
Temperature - Field C	**13.3**	degrees C		1		09/16/2024 10:53	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	09/19/2024 09:10	09/23/2024 09:30	
Method: EPA 6010D							
Lithium	**0.0235**	mg/L	0.02	1	09/16/2024 16:40	09/18/2024 10:37	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	09/16/2024 16:40	09/17/2024 12:10	
Arsenic	<0.002	mg/L	0.002	5	09/16/2024 16:40	09/17/2024 12:10	
Barium	**0.0480**	mg/L	0.002	5	09/16/2024 16:40	09/17/2024 12:10	
Beryllium	<0.0005	mg/L	0.0005	5	09/16/2024 16:40	09/17/2024 12:10	
Cadmium	<0.0005	mg/L	0.0005	5	09/16/2024 16:40	09/17/2024 12:10	
Chromium	**0.0032**	mg/L	0.002	5	09/16/2024 16:40	09/17/2024 12:10	
Cobalt	**0.0027**	mg/L	0.002	5	09/16/2024 16:40	09/17/2024 12:10	
Lead	**0.0007**	mg/L	0.0005	5	09/16/2024 16:40	09/17/2024 12:10	
Molybdenum	**0.0039**	mg/L	0.002	5	09/16/2024 16:40	09/17/2024 12:10	
Selenium	**0.0077**	mg/L	0.005	5	09/16/2024 16:40	09/17/2024 12:10	
Thallium	<0.0005	mg/L	0.0005	5	09/16/2024 16:40	09/17/2024 12:10	
Method: SM4500 H+ B-2011							
pH	**7.4**	units	0.1	1		09/16/2024 18:37	*
Method: SM4500-F-C-2011							
Fluoride	**0.12**	mg/L	0.1	1		09/16/2024 18:37	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 64137003 **Date Collected:** 09/16/2024 10:08 **Matrix:** Groundwater
Sample ID: MW-203 **Date Received:** 09/16/2024 14:22 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2700**	umhos/cm	1	1		09/16/2024 10:08	
Method: 150.2							
pH - Field	**9.23**	units	0.01	1		09/16/2024 10:08	
Method: 170.1							
Temperature - Field C	**14.87**	degrees C		1		09/16/2024 10:08	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	09/19/2024 09:10	09/23/2024 09:30	
Method: EPA 6010D							
Lithium	<0.02	mg/L	0.02	1	09/16/2024 16:40	09/18/2024 10:37	
Method: EPA 6020B							
Antimony	**0.0012**	mg/L	0.001	5	09/16/2024 16:40	09/17/2024 12:14	
Arsenic	**0.0260**	mg/L	0.002	5	09/16/2024 16:40	09/17/2024 12:14	
Barium	**0.0405**	mg/L	0.002	5	09/16/2024 16:40	09/17/2024 12:14	
Beryllium	<0.0005	mg/L	0.0005	5	09/16/2024 16:40	09/17/2024 12:14	
Cadmium	**0.0006**	mg/L	0.0005	5	09/16/2024 16:40	09/17/2024 12:14	
Chromium	**0.0022**	mg/L	0.002	5	09/16/2024 16:40	09/17/2024 12:14	
Cobalt	**0.0033**	mg/L	0.002	5	09/16/2024 16:40	09/17/2024 12:14	
Lead	**0.0076**	mg/L	0.0005	5	09/16/2024 16:40	09/17/2024 12:14	
Molybdenum	**0.0653**	mg/L	0.002	5	09/16/2024 16:40	09/17/2024 12:14	
Selenium	<0.005	mg/L	0.005	5	09/16/2024 16:40	09/17/2024 12:14	
Thallium	<0.0005	mg/L	0.0005	5	09/16/2024 16:40	09/17/2024 12:14	
Method: SM4500 H+ B-2011							
pH	**9.2**	units	0.1	1		09/16/2024 18:43	*
Method: SM4500-F-C-2011							
Fluoride	**0.78**	mg/L	0.1	1		09/16/2024 18:43	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 64137004 **Date Collected:** 09/16/2024 11:31 **Matrix:** Groundwater
Sample ID: Field Blank **Date Received:** 09/16/2024 14:22 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	09/19/2024 09:10	09/23/2024 09:30	
Method: EPA 6010D							
Lithium	<0.02	mg/L	0.02	1	09/16/2024 16:40	09/18/2024 10:38	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	09/16/2024 16:40	09/17/2024 12:19	
Arsenic	<0.002	mg/L	0.002	5	09/16/2024 16:40	09/17/2024 12:19	
Barium	<0.002	mg/L	0.002	5	09/16/2024 16:40	09/17/2024 12:19	
Beryllium	<0.0005	mg/L	0.0005	5	09/16/2024 16:40	09/17/2024 12:19	
Cadmium	<0.0005	mg/L	0.0005	5	09/16/2024 16:40	09/17/2024 12:19	
Chromium	<0.002	mg/L	0.002	5	09/16/2024 16:40	09/17/2024 12:19	
Cobalt	<0.002	mg/L	0.002	5	09/16/2024 16:40	09/17/2024 12:19	
Lead	<0.0005	mg/L	0.0005	5	09/16/2024 16:40	09/17/2024 12:19	
Molybdenum	<0.002	mg/L	0.002	5	09/16/2024 16:40	09/17/2024 12:19	
Selenium	<0.005	mg/L	0.005	5	09/16/2024 16:40	09/17/2024 12:19	
Thallium	<0.0005	mg/L	0.0005	5	09/16/2024 16:40	09/17/2024 12:19	
Method: SM4500 H+ B-2011							
pH	**6.1**	units	0.1	1		09/16/2024 19:46	*
Method: SM4500-F-C-2011							
Fluoride	<0.1	mg/L	0.1	1		09/16/2024 19:46	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 64137

Aluminum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	105.0		85	115		
MB		<0.1							
MS/MSD	64136001		0.4	126.0	121.0	75	125	4.1	20

Aluminum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	105.0		85	115		
MB		<0.1							
SPK/SPKD	63665006		0.5	108.0	110.0	75	125	2.2	20
SPK/SPKD	64137002		0.4	95.8	93.8	75	125	1.5	20
SPK/SPKD	64137004		0.5	90.8	92.9	75	125	2.3	20

Iron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	114.0		85	115		
MB		<0.1							
MS/MSD	64136001		0.4	105.0	106.0	75	125	0.5	20

Iron, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	114.0		85	115		
MB		<0.1							
SPK/SPKD	63665006		0.5	104.0	106.0	75	125	2.3	20
SPK/SPKD	64137002		0.4	92.5	92.5	75	125	0.0	20
SPK/SPKD	64137004		0.5	103.0	99.8	75	125	3.3	20

Lithium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
MB		<0.04							
MS/MSD	64136001		0.4	102.0	105.0	75	125	2.3	20

Lithium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
MB		<0.04							

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Lithium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	64137004		0.4	95.7	93.5	75	125	2.3	20

Manganese Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	114.0		85	115		
MB		<0.05							
MS/MSD	64136001		0.4	99.4	106.0	75	125	1.1	20

Manganese, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	114.0		85	115		
MB		<0.05							
SPK/SPKD	63665006		0.5	99.2	101.0	75	125	1.8	20
SPK/SPKD	64137002		0.4	91.1	91.3	75	125	0.2	20
SPK/SPKD	64137004		0.5	104.0	100.0	75	125	3.5	20

Antimony Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
MB		<0.001							
MS/MSD	64136001		0.4	111.0	110.0	75	125	0.5	20

Antimony, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
MB		<0.001							
MS/MSD	64136001		0.4	111.0	110.0	75	125	0.5	20
SPK/SPKD	64137004		0.1	103.0	104.0	75	125	0.5	20

Arsenic Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
MB		<0.002							
MS/MSD	64136001		0.4	108.0	110.0	75	125	0.7	20

Arsenic, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
MB		<0.002							

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Arsenic, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	64136001		0.4	108.0	110.0	75	125	0.7	20
SPK/SPKD	64137004		0.1	102.0	102.0	75	125	0.7	20

Barium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	104.0		80	120		
MB		<0.002							
MS/MSD	64136001		0.4	109.0	108.0	75	125	0.6	20

Barium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	104.0		80	120		
MB		<0.002							
MS/MSD	64136001		0.4	109.0	108.0	75	125	0.6	20
SPK/SPKD	64137004		0.1	103.0	101.0	75	125	1.7	20

Beryllium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
MB		<0.0005							
MS/MSD	64136001		0.4	112.0	110.0	75	125	2.0	20

Beryllium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
MB		<0.0005							
MS/MSD	64136001		0.4	112.0	110.0	75	125	2.0	20
SPK/SPKD	64137004		0.1	108.0	108.0	75	125	0.2	20

Cadmium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	104.0		80	120		
MB		<0.0005							
MS/MSD	64136001		0.4	106.0	106.0	75	125	0.0	20

Cadmium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	104.0		80	120		
MB		<0.0005							

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Cadmium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	64136001		0.4	106.0	106.0	75	125	0.0	20
SPK/SPKD	64137004		0.1	102.0	102.0	75	125	0.0	20

Chromium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	110.0		80	120		
MB		<0.002							
MS/MSD	64136001		0.4	106.0	107.0	75	125	0.5	20

Chromium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	110.0		80	120		
MB		<0.002							
MS/MSD	64136001		0.4	106.0	107.0	75	125	0.5	20
SPK/SPKD	64137004		0.1	104.0	103.0	75	125	0.9	20

Cobalt Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	109.0		80	120		
MB		<0.002							
MS/MSD	64136001		0.4	105.0	107.0	75	125	1.4	20

Cobalt, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	109.0		80	120		
MB		<0.002							
MS/MSD	64136001		0.4	105.0	107.0	75	125	1.4	20
SPK/SPKD	64137004		0.1	103.0	101.0	75	125	1.4	20

Lead Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	106.0		80	120		
MB		<0.0005							
MS/MSD	64136001		0.4	108.0	106.0	75	125	1.4	20

Lead, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	106.0		80	120		
MB		<0.0005							

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Lead, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	64136001		0.4	108.0	106.0	75	125	1.4	20
SPK/SPKD	64137004		0.1	103.0	101.0	75	125	2.0	20

Molybdenum Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	110.0		80	120		
MB		<0.002							
MS/MSD	64136001		0.4	105.0	107.0	75	125	1.1	20

Molybdenum, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	110.0		80	120		
MB		<0.002							
MS/MSD	64136001		0.4	105.0	107.0	75	125	1.1	20
SPK/SPKD	64137004		0.1	101.0	101.0	75	125	0.4	20

Selenium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	104.0		80	120		
MB		<0.005							
MS/MSD	64136001		0.4	113.0	109.0	75	125	3.6	20

Selenium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	104.0		80	120		
MB		<0.005							
MS/MSD	64136001		0.4	113.0	109.0	75	125	3.6	20
SPK/SPKD	64137004		0.1	108.0	106.0	75	125	1.8	20

Thallium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	107.0		80	120		
MB		<0.0005							
MS/MSD	64136001		0.4	104.0	103.0	75	125	0.5	20

Thallium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	107.0		80	120		
MB		<0.0005							

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Account #: 5109 **Client:** Great River Energy

Thallium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	64136001		0.4	104.0	103.0	75	125	0.5	20
SPK/SPKD	64137004		0.1	102.0	101.0	75	125	0.5	20

Mercury Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	90.4		85	115		
LFB			0.002	95.8		85	115		
LFB			0.002	98.4		85	115		
LFB			0.002	94.4		85	115		
LRB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MS/MSD	63279001		0.002	90.0	92.6	70	130	0.0	20
MS/MSD	63484001		0.002	86.9	90.2	70	130	5.7	20
MS/MSD	64216007		0.002	96.0	93.4	70	130	0.0	20
MS/MSD	64216015		0.002	96.0	98.1	70	130	5.1	20
MS/MSD	64342001		0.002	91.8	89.9	70	130	0.0	20

Mercury, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	95.8		85	115		
LFB			0.002	98.4		85	115		
LFB			0.002	94.4		85	115		
LRB		<0.0002							
MB		<0.0002							
MB		<0.0002							

pH Units: units

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	98.7		98.33	101.67		
CRM-PH			6	98.7		98.33	101.67		
CRM-PH			6	99.5		98.33	101.67		
DUP	64137001							0.8	20

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2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy

pH Units: units

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
DUP	64137004							2.7	20

Fluoride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			3.06	98.0		83.99	111.11		
LFB-F			0.5	100.0		90	110		
LFB-F			0.5	100.0		90	110		
LFB-F			0.5	100.0		90	110		
LFB-F			0.5	100.0		90	110		
LFB-F			0.5	98.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MS/MSD	63484005		0.5	104.0	104.0	80	120	0.0	20
MS/MSD	63665001		0.5	100.0	98.0	80	120	0.6	20
MS/MSD	63846001		0.5	98.0	98.0	80	120	0.0	20
MS/MSD	64137004		0.5	100.0	102.0	80	120	2.0	20

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Member ACIL

Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 64137

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS BAI
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: Sept 2024
Address:		Lakewood, CO 80228	Sampled By: Jeremy Flay
Phone:			
Email:	CJohnston@GREnergy.com		

Sample Information					Sample Containers								Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric				Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-201	16 Sept 24	1150	GW	X	X	X						13.69	3154	7.37	3.76	Subset List (See Attachments)
002	MW-202	16 Sept 24	1053	GW	X	X	X						13.30	2082	7.24	41.27	
003	MW-203	16 Sept 24	1008	GW	X	X	X						14.87	2700	9.23	5.67	
004	Field Blank	16 Sept 24	1131	GW	X	X	X										

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1	16 Sept 24 1422	~~Log In~~ Walk In #2	4.8 °C/TM805 RO (Y)N		16 Sept 24 1422
2					

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Account #: 5109 **Client:** Great River Energy

GRE Stanton

Subset List

Field Parameters
pH
Specific Conductance*
Temperature*
Turbidity*
Dissolved Oxygen (DO)*
Oxidation-Reduction Potential (ORP)*
General Chemistry
Fluoride
pH (lab)*
Metals (total and dissolved)
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Lead
Lithium
Molybdenum
Selenium
Thallium
Mercury
Iron
Aluminum
Manganese

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Sept 2024
Sample ID:	201
Sampling Personal:	JLM

Weather Conditions: Temp: 65°F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	10.72	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	11.53	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	3	Sec.
Recover:	87	Sec.
PSI:		

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
16 Sept 24	1125	Start of Well Purge									
	1130	13.31	3181	7.35	0.70	84.8	6.80	10.85	200	1.0	Clear
	1135	13.51	3215	7.33	0.31	67.7	3.03	11.06	200	1.0	Clear
	1140	13.42	3221	7.33	0.21	53.4	4.02	11.18	200	1.0	Clear
	1145	13.54	3164	7.36	0.17	46.5	4.01	11.30	200	1.0	Clear
	1150	13.69	3154	7.37	0.16	39.9	3.36	11.48	200	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
16 Sept 24	1150	13.69	3154	7.37			3.36				Clear

Comments: Collected Field Blank @ 1131

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Sept 2024
Sample ID:	202
Sampling Personal:	

Weather Conditions: Temp: 65°F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	11.05	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	12.85	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	3	Sec.
Recover:	57	Sec.
PSI:	—	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
16 Sept 24	1028	Start of Well Purge									
	1033	12.99	2098	7.25	2.25	198.4	52.71	10.10	200.0	1.0	Clear
	1038	13.17	2097	7.25	1.30	186.3	25.25	12.05	200.0	1.0	Clear
	1043	13.20	2091	7.25	1.12	176.4	18.77	12.18	200.0	1.0	Clear
	1048	13.38	2088	7.25	1.34	184.2	25.27	12.37	200.0	1.0	Clear
	1053	13.30	2082	7.24	1.60	178.5	41.27	12.58	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
16 Sept 24	1053	13.30	2082	7.24			41.27				Clear

Comments:

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Sept 2024
Sample ID:	203
Sampling Personal:	JH

Weather Conditions: Temp: 60 °F Wind: N @5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	8.89	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	12.50	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 3	Sec.
Recover: 57	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
16 Sept 24	0933	Start of Well Purge									
	0938	14.93	2670	9.34	0.17	-20.2	4.74	9.75	200.0	1.0	Clear
	0943	15.74	2670	9.31	0.23	-22.5	23.18	10.97	200.0	1.0	Clear
	0948	15.54	2749	9.23	0.16	-21.2	87.72	12.30	200.0	1.0	Clear
	0953	15.38	2684	9.30	0.12	-39.3	34.40	12.36	200.0	1.0	Clear
	0958	15.07	2724	9.24	0.15	-38.3	12.48	12.40	200.0	1.0	Clear
	1003	14.95	2718	9.23	0.14	-35.7	7.01	12.43	200.0	1.0	Clear
	1008	14.87	2700	9.23	0.13	-35.7	5.67	12.45	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 7.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
16 Sept 24	1008	14.87	2700	9.23			5.67				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS BAI Sept 2024 (64150) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

C. Carroll

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 64150001 **Date Collected:** 09/16/2024 11:50 **Matrix:** Groundwater
Sample ID: MW-201 **Date Received:** 09/16/2024 14:22 **Collector:** MVTL Field Service

Temp @ Receipt (C): 15.9

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		10/21/2024 15:29	
Radium 228	See Attached			1		10/21/2024 15:29	

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 64150002 **Date Collected:** 09/16/2024 10:53 **Matrix:** Groundwater
Sample ID: MW-202 **Date Received:** 09/16/2024 14:22 **Collector:** MVTL Field Service

Temp @ Receipt (C): 15.9

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		10/21/2024 15:29	
Radium 228	See Attached			1		10/21/2024 15:29	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 64150003 **Date Collected:** 09/16/2024 10:08 **Matrix:** Groundwater
Sample ID: MW-203 **Date Received:** 09/16/2024 14:22 **Collector:** MVTL Field Service

Temp @ Receipt (C): 15.9

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		10/21/2024 15:29	
Radium 228	See Attached			1		10/21/2024 15:29	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 64150004 **Date Collected:** 09/16/2024 11:31 **Matrix:** Groundwater
Sample ID: Field Blank **Date Received:** 09/16/2024 14:22 **Collector:** MVTL Field Service

Temp @ Receipt (C): 15.9

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		10/21/2024 15:29	
Radium 228	See Attached			1		10/21/2024 15:29	

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ANALYTICAL SUMMARY REPORT

October 15, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24090764 Quote ID: C15480
Project Name: 64150

Energy Laboratories, Inc. Casper WY received the following 4 samples for Minnesota Valley Testing Laboratories on 9/19/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24090764-001	64150001, MW-201	09/16/24 11:50	09/19/24	Groundwater	Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total
C24090764-002	64150002, MW-202	09/16/24 10:53	09/19/24	Groundwater	Same As Above
C24090764-003	64150003, MW-203	09/16/24 10:08	09/19/24	Groundwater	Same As Above
C24090764-004	64150004, Field Blank	09/16/24 11:31	09/19/24	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy, Casper, WY 82601-9601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

Energy Laboratories, Inc. verifies the reported results for the analysis has been technically reviewed and approved for release.

If you have any questions regarding these test results, please contact your Project Manager.

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 64150
Lab ID: C24090764-001
Client Sample ID: 64150001, MW-201

Report Date: 10/15/24
Collection Date: 09/16/24 11:50
DateReceived: 09/19/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.2	pCi/L				E903.0	10/08/24 12:50 / apt
Radium 226 precision (±)	0.1	pCi/L				E903.0	10/08/24 12:50 / apt
Radium 226 MDC	0.2	pCi/L				E903.0	10/08/24 12:50 / apt
Radium 228	0.2	pCi/L	U			RA-05	10/01/24 14:11 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	10/01/24 14:11 / trs
Radium 228 MDC	1.1	pCi/L				RA-05	10/01/24 14:11 / trs
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	10/09/24 11:09 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	10/09/24 11:09 / dmf
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	10/09/24 11:09 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 64150
Lab ID: C24090764-002
Client Sample ID: 64150002, MW-202

Report Date: 10/15/24
Collection Date: 09/16/24 10:53
DateReceived: 09/19/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	10/08/24 12:50 / apt
Radium 226 precision (±)	0.1	pCi/L				E903.0	10/08/24 12:50 / apt
Radium 226 MDC	0.2	pCi/L				E903.0	10/08/24 12:50 / apt
Radium 228	0.8	pCi/L	U			RA-05	10/01/24 14:11 / trs
Radium 228 precision (±)	0.9	pCi/L				RA-05	10/01/24 14:11 / trs
Radium 228 MDC	1.4	pCi/L				RA-05	10/01/24 14:11 / trs
Radium 226 + Radium 228	0.8	pCi/L	U			A7500-RA	10/09/24 11:09 / dmf
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	10/09/24 11:09 / dmf
Radium 226 + Radium 228 MDC	1.4	pCi/L				A7500-RA	10/09/24 11:09 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 64150
Lab ID: C24090764-003
Client Sample ID: 64150003, MW-203

Report Date: 10/15/24
Collection Date: 09/16/24 10:08
DateReceived: 09/19/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.7	pCi/L				E903.0	10/08/24 12:50 / apt
Radium 226 precision (±)	0.2	pCi/L				E903.0	10/08/24 12:50 / apt
Radium 226 MDC	0.2	pCi/L				E903.0	10/08/24 12:50 / apt
Radium 228	0.9	pCi/L	U			RA-05	10/01/24 14:11 / trs
Radium 228 precision (±)	0.8	pCi/L				RA-05	10/01/24 14:11 / trs
Radium 228 MDC	1.3	pCi/L				RA-05	10/01/24 14:11 / trs
Radium 226 + Radium 228	1.3	pCi/L				A7500-RA	10/09/24 11:09 / dmf
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	10/09/24 11:09 / dmf
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	10/09/24 11:09 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 64150
Lab ID: C24090764-004
Client Sample ID: 64150004, Field Blank

Report Date: 10/15/24
Collection Date: 09/16/24 11:31
DateReceived: 09/19/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.05	pCi/L	U			E903.0	10/08/24 12:50 / apt
Radium 226 precision (±)	0.1	pCi/L				E903.0	10/08/24 12:50 / apt
Radium 226 MDC	0.2	pCi/L				E903.0	10/08/24 12:50 / apt
Radium 228	0.4	pCi/L	U			RA-05	10/01/24 14:11 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	10/01/24 14:11 / trs
Radium 228 MDC	1.1	pCi/L				RA-05	10/01/24 14:11 / trs
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	10/09/24 11:09 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	10/09/24 11:09 / dmf
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	10/09/24 11:09 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 5 of 10

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24090764 **Report Date:** 10/09/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11454
Lab ID: LCS-RA226-11454	3	Laboratory Control Sample				Run: TENNELEC-3_240925B			10/08/24	10:47
Radium 226		10	pCi/L		102	70	130			
Radium 226 precision (±)		2.0	pCi/L							
Radium 226 MDC		0.24	pCi/L							
Lab ID: MB-RA226-11454	3	Method Blank				Run: TENNELEC-3_240925B			10/08/24	10:47
Radium 226		0.1	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C24090764-004ADUP	3	Sample Duplicate				Run: TENNELEC-3_240925B			10/08/24	12:50
Radium 226		0.030	pCi/L					41	30	UR
Radium 226 precision (±)		0.12	pCi/L							
Radium 226 MDC		0.20	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than or equal to the limit of 3, the RER result is 0.09.

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories **Work Order:** C24090764 **Report Date:** 10/09/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7490
Lab ID: LCS-228-RA226-11454	3	Laboratory Control Sample				Run: TENNELEC-4_240925A			10/01/24 14:11	
Radium 228		9.0	pCi/L		89	70	130			
Radium 228 precision (±)		1.9	pCi/L							
Radium 228 MDC		1.1	pCi/L							
Lab ID: MB-RA226-11454	3	Method Blank				Run: TENNELEC-4_240925A			10/01/24 14:11	
Radium 228		0.4	pCi/L							U
Radium 228 precision (±)		0.7	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C24090764-004ADUP	3	Sample Duplicate				Run: TENNELEC-4_240925A			10/01/24 14:11	
Radium 228		1.9	pCi/L					130	30	R
Radium 228 precision (±)		0.85	pCi/L							
Radium 228 MDC		1.1	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than or equal to the limit of 3, the RER result is 1.36.

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24090764

Login completed by: Cristen C. Smith
Reviewed by: mstephens
Reviewed Date: 9/26/2024
Date Received: 9/19/2024
Received by: AJS
Carrier name: UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☐	No ☑	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	16.7°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Trip Blanks and/or Blind Duplicate samples are assigned the earliest collection time for the associated requested analysis in order to evaluate the holding time unless specifically indicated.

Contact and Corrective Action Comments:

The temperature blank temperature in shipping container 1 was 16.7°C and shipping container 2 was 16.6°C. CCS 09/20/24

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Work Order Receipt Checklist - Continued

Minnesota Valley Testing Laboratories C24090764

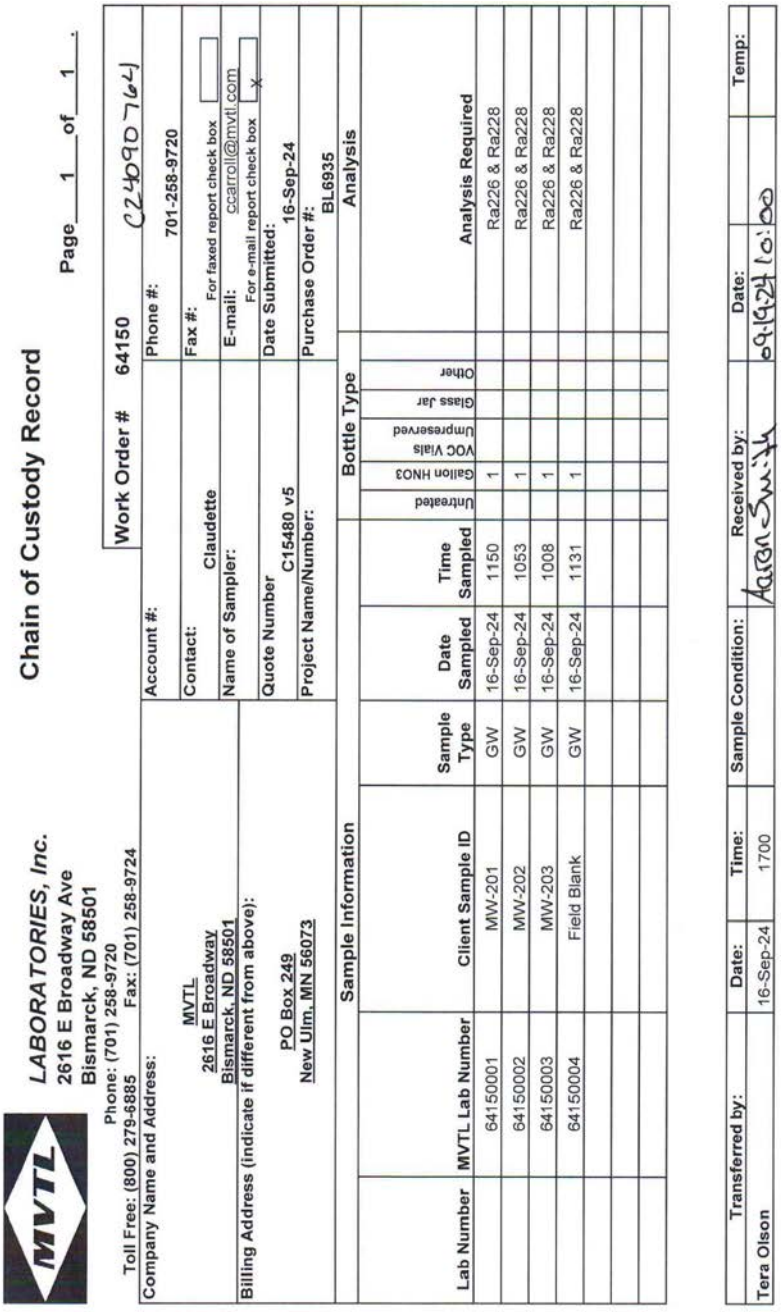
The one gallon container for Rad 226 and Rad 228 analysis for sample 64150002, MW-202 was received with a small hole in the container and some volume was lost. There is sufficient volume to proceed with analysis. The remaining volume was transferred to a new container. CCS 09/20/24

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Chain of Custody Record

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Toll Free: (800) 279-6885 Fax: (701) 258-9724

Work Order # 64150 C24090764

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501

Account #:
Contact: Claudette
Name of Sampler:
Quote Number C15480 v5
Project Name/Number:

Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box x
Date Submitted: 16-Sep-24
Purchase Order #: BL6935

Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073

Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Untreated	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis Required
	64150001	MW-201	GW	16-Sep-24	1150		1				Ra226 & Ra228
	64150002	MW-202	GW	16-Sep-24	1053		1				Ra226 & Ra228
	64150003	MW-203	GW	16-Sep-24	1008		1				Ra226 & Ra228
	64150004	Field Blank	GW	16-Sep-24	1131		1				Ra226 & Ra228

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
Tera Olson	16-Sep-24	1700		Aaron Swan	09/19/24 10:00	

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Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 64150

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS BAI
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: Sept 2024
Address:		Lakewood, CO 80228	Sampled By: Jeremy Meyer
Phone:			
Email:	CJohnston@GREnergy.com		

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric	Field Readings	Analysis Required
001	MW-201	16 Sept 24	1150	GW					X		Radium 226 and 228 Combined
002	MW-202	16 Sept 24	1053	GW					X		
003	MW-203	16 Sept 24	1008	GW					X		
004	Field Blank	16 Sept 24	1131	GW					X		

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1	16 Sept 24 1422	Log-In Walk In #2	15.9°C/TM 605 ROI Y/N		16 Sept 24 1422
2					

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Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Sept 2024
Sample ID:	201
Sampling Personal:	JM

Weather Conditions: Temp: 65°F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	10.72	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	11.53	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	3	Sec.
Recover:	57	Sec.
PSI:		

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
											clear, slightly turbid, turbid
16 Sept 24	1125	Start of Well Purge									
	1130	13.31	3181	7.35	0.70	84.8	6.80	10.85	200	1.0	Clear
	1135	13.51	3215	7.33	0.31	67.7	3.03	11.06	200.0	1.0	Clear
	1140	13.42	3221	7.33	0.21	53.4	4.02	11.18	200.0	1.0	Clear
	1145	13.54	3164	7.36	0.17	46.5	4.01	11.30	200.0	1.0	Clear
	1150	13.69	3154	7.37	0.16	39.9	3.36	11.48	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
16 Sept 24	1150	13.69	3154	7.37			3.36				Clear

Comments: Collected Field Blank @ 1131

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www.MVTL.com

Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Sept 2024
Sample ID:	202
Sampling Personal:	JMB

Weather Conditions: Temp: 65°F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	11.05	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	12.85	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	8	Sec.
Recover:	57	Sec.
PSI:	—	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
16 Sept 24	1028	Start of Well Purge									
	1033	12.99	2098	7.25	2.25	198.4	52.71	10.10	200.0	1.0	Clear
	1038	13.17	2097	7.25	1.30	186.3	25.25	12.05	200.0	1.0	Clear
	1043	13.20	2091	7.25	1.12	176.4	18.77	12.18	200.0	1.0	Clear
	1048	13.38	2088	7.25	1.34	184.2	25.27	12.37	200.0	1.0	Clear
	1053	13.30	2082	7.24	1.60	178.5	41.27	12.58	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
16 Sept 24	1053	13.30	2082	7.24			41.27				Clear

Comments:	

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Member ACIL

Account #: 5109 **Client:** Great River Energy

Field Datasheet

Groundwater Assessment

2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Company:	GRE Stanton Station
Event:	Sept 2024
Sample ID:	203
Sampling Personal:	JH

Weather Conditions: Temp: 60 °F Wind: N @5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	8.89	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	12.50	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	3	Sec.
Recover:	57	Sec.
PSI:	—	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
16 Sept 24	0933	Start of Well Purge									
	0938	14.93	2670	9.34	0.17	-20.2	4.74	9.75	200.0	1.0	Clear
	0943	15.14	2670	9.31	0.23	-22.5	23.18	10.97	200.0	1.0	Clear
	0948	15.54	2749	9.23	0.16	-21.2	87.72	12.30	200.0	1.0	Clear
	0953	15.38	2684	9.30	0.12	-39.3	34.40	12.36	200.0	1.0	Clear
	0958	15.07	2724	9.24	0.15	-38.3	12.48	12.40	200.0	1.0	Clear
	1003	14.95	2718	9.23	0.14	-35.7	7.08	12.43	200.0	1.0	Clear
	1008	14.87	2700	9.23	0.13	-35.7	5.67	12.45	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 7.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
16 Sept 24	1008	14.87	2700	9.23			5.67				Clear

Comments:

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Field Datasheet

Groundwater Assessment

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Company:	**GRE Stanton Station**
Event:	**2024**
Sample ID:	7A
Sampling Personal:	Ethan Gress

Weather Conditions: Temp: 50 °F Wind: NW @ 15-20 Precip: **Sunny / Partly Cloudy / Cloudy**

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	11.54	ft
Depth to Top of Pump:		ft
Water Level After Sample:		ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 5	Sec.
Recover: 25	Sec.
PSI:	

Bottle List:
1 Liter Raw
1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	**Time**	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
22Oct24	1617	**Start of Well Purge**									
	1622	10.99	16034	7.33	1.56	186.4	0.66	14.15	200.0	1.0	Clear
	1627	10.54	16373	7.31	1.10	180.6	0.33	below pump	200.0	1.0	Clear
	1632	10.12	16394	7.31	0.76	171.3	6.15	below pump	200.0	1.0	Clear
	1637	9.95	16372	7.31	0.50	158.9	1.63	below pump	200.0	1.0	Clear
	1642	9.92	16338	7.31	0.37	149.2	0.25	below pump	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
22Oct24	1642	9.92	16338	7.31			0.25				Clear

Comments:	

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	**GRE Stanton Station**
Event:	**2024**
Sample ID:	6B
Sampling Personal:	JM

Weather Conditions: Temp: 45 °F Wind: N @ 5-10 Precip: **Sunny / Partly Cloudy / Cloudy**

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	18.55	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:		ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge:	Sec.
Recover:	Sec.
PSI:	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	**Time**	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
											clear, slightly turbid, turbid
22 Oct 24	1625	**Start of Well Purge**									
	1630	9.18	1576	7.70	2.61	111.7	0.12	19.45	100.0	0.5	Clear
	1635	9.19	1579	7.70	2.56	112.3	0.11	21.72	100.0	0.5	Clear
	1640	9.20	1582	7.69	2.24	116.7	0.56	23.55	100.0	0.5	Clear
	1645	9.22	1584	7.69	1.65	116.0	0.74	24.71	100.0	0.5	Clear
	1650	9.18	1587	7.69	1.21	109.9	0.47	25.70	100.0	0.5	Clear

Well Stabilized? (YES) NO Total Volume Purged: 2.5 Liters

Sample Date	**Time**	**Temp. (°C)**	**Spec. Cond.**	**pH**			**Turbidity (NTU)**				**Appearance or Comment** Clarity, Color, Odor, Ect.
22 Oct 24	1650	9.18	1587	7.69			0.47				Clear

Comments:	

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Account #: 5109 **Client:** Great River Energy
Workorder: SS UP Nov 2024 (71292) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

Amended reports to correct event on field data sheets. CC 30Dec24

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Account #: 5109 **Client:** Great River Energy

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71292001 **Date Collected:** 11/18/2024 15:05 **Matrix:** Groundwater
Sample ID: MW-6B **Date Received:** 11/18/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1646**	umhos/cm	1	1		11/18/2024 15:05	
Method: 150.2							
pH - Field	**7.62**	units	0.01	1		11/18/2024 15:05	
Method: 170.1							
Temperature - Field C	**11.17**	degrees C		1		11/18/2024 15:05	
Method: ASTM D516-16							
Sulfate	**430**	mg/L	25	5		11/20/2024 14:27	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/20/2024 07:55	11/20/2024 11:36	
Method: EPA 6010D							
Boron	**0.30**	mg/L	0.1	1	11/19/2024 16:31	11/20/2024 11:11	
Calcium	**26.4**	mg/L	1	1	11/19/2024 16:31	11/21/2024 10:46	
Lithium	**0.0461**	mg/L	0.02	1	11/19/2024 16:31	11/20/2024 09:45	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/19/2024 16:31	11/26/2024 16:17	
Arsenic	**0.0035**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:17	
Barium	**0.0267**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:17	
Beryllium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/27/2024 10:42	
Cadmium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 16:17	
Chromium	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:17	
Cobalt	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:17	
Lead	**0.0012**	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 16:17	
Molybdenum	**0.0132**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:17	
Selenium	<0.005	mg/L	0.005	5	11/19/2024 16:31	11/26/2024 16:17	
Thallium	**0.0005**	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 16:17	

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71292001 **Date Collected:** 11/18/2024 15:05 **Matrix:** Groundwater
Sample ID: MW-6B **Date Received:** 11/18/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		11/19/2024 15:19	*
Method: SM4500-Cl-E 2011							
Chloride	**15.9**	mg/L	2.0	1		11/26/2024 09:38	
Method: SM4500-F-C-2011							
Fluoride	**0.57**	mg/L	0.1	1		11/19/2024 15:19	
Method: USGS I-1750-85							
Total Dissolved Solids	**1070**	mg/L	10	1		11/19/2024 15:38	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71292002 **Date Collected:** 11/18/2024 08:35 **Matrix:** Groundwater
Sample ID: MW-7A **Date Received:** 11/18/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**17160**	umhos/cm	1	1		11/18/2024 08:35	
Method: 150.2							
pH - Field	**7.26**	units	0.01	1		11/18/2024 08:35	
Method: 170.1							
Temperature - Field C	**8.14**	degrees C		1		11/18/2024 08:35	
Method: ASTM D516-16							
Sulfate	**10800**	mg/L	250	50		11/20/2024 14:28	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/20/2024 07:55	11/20/2024 11:36	
Method: EPA 6010D							
Boron	**0.66**	mg/L	0.5	5	11/19/2024 16:31	11/20/2024 11:12	
Calcium	**429**	mg/L	5	5	11/19/2024 16:31	11/21/2024 10:46	
Lithium	**0.268**	mg/L	0.1	5	11/19/2024 16:31	11/20/2024 09:45	
Method: EPA 6020B							
Antimony	<0.002	mg/L	0.002	10	11/19/2024 16:31	11/26/2024 17:51	*
Arsenic	<0.004	mg/L	0.004	10	11/19/2024 16:31	11/26/2024 17:51	*
Barium	**0.0092**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:22	
Beryllium	<0.001	mg/L	0.001	10	11/19/2024 16:31	11/27/2024 11:08	*
Cadmium	<0.001	mg/L	0.001	10	11/19/2024 16:31	11/26/2024 17:51	*
Chromium	<0.004	mg/L	0.004	10	11/19/2024 16:31	11/26/2024 17:51	*
Cobalt	<0.004	mg/L	0.004	10	11/19/2024 16:31	11/26/2024 17:51	*
Lead	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 16:22	
Molybdenum	**0.0128**	mg/L	0.004	10	11/19/2024 16:31	11/26/2024 17:51	*
Selenium	<0.01	mg/L	0.01	10	11/19/2024 16:31	11/26/2024 17:51	*
Thallium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 16:22	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71292002 **Date Collected:** 11/18/2024 08:35 **Matrix:** Groundwater
Sample ID: MW-7A **Date Received:** 11/18/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.5**	units	0.1	1		11/19/2024 15:30	*
Method: SM4500-Cl-E 2011							
Chloride	**39.7**	mg/L	2.0	1		11/26/2024 09:39	
Method: SM4500-F-C-2011							
Fluoride	**0.57**	mg/L	0.1	1		11/19/2024 15:30	
Method: USGS I-1750-85							
Total Dissolved Solids	**17100**	mg/L	10	1		11/19/2024 15:38	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Analysis Results Comments

Antimony

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Antimony, Dissolved

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Arsenic

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Beryllium

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Beryllium, Dissolved

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Cadmium

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Cadmium, Dissolved

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Chromium

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Cobalt

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Lead, Dissolved

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Molybdenum

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Selenium

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

Thallium, Dissolved

Recovery of internal standard out of acceptance limits; sample required dilution. Reporting limit has been elevated to account for this dilution.

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71292003 **Date Collected:** 11/18/2024 10:09 **Matrix:** Groundwater
Sample ID: MW-7B **Date Received:** 11/18/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1663**	umhos/cm	1	1		11/18/2024 10:09	
Method: 150.2							
pH - Field	**7.68**	units	0.01	1		11/18/2024 10:09	
Method: 170.1							
Temperature - Field C	**8.11**	degrees C		1		11/18/2024 10:09	
Method: ASTM D516-16							
Sulfate	**276**	mg/L	25	5		11/20/2024 14:29	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/20/2024 07:55	11/20/2024 11:36	
Method: EPA 6010D							
Boron	**0.43**	mg/L	0.1	1	11/19/2024 16:31	11/20/2024 11:13	
Calcium	**16.6**	mg/L	1	1	11/19/2024 16:31	11/21/2024 10:48	
Lithium	**0.0511**	mg/L	0.02	1	11/19/2024 16:31	11/20/2024 09:46	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/19/2024 16:31	11/26/2024 16:26	
Arsenic	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:26	
Barium	**0.0163**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:26	
Beryllium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/27/2024 10:48	
Cadmium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 16:26	
Chromium	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:26	
Cobalt	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:26	
Lead	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 16:26	
Molybdenum	**0.0043**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:26	
Selenium	<0.005	mg/L	0.005	5	11/19/2024 16:31	11/26/2024 16:26	
Thallium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 16:26	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71292003 **Date Collected:** 11/18/2024 10:09 **Matrix:** Groundwater
Sample ID: MW-7B **Date Received:** 11/18/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		11/19/2024 15:42	*
Method: SM4500-Cl-E 2011							
Chloride	**11.3**	mg/L	2.0	1		11/26/2024 09:40	
Method: SM4500-F-C-2011							
Fluoride	**0.62**	mg/L	0.1	1		11/19/2024 15:42	
Method: USGS I-1750-85							
Total Dissolved Solids	**1020**	mg/L	10	1		11/19/2024 15:38	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71292004 **Date Collected:** 11/18/2024 13:55 **Matrix:** Groundwater
Sample ID: MW-8B **Date Received:** 11/18/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1541**	umhos/cm	1	1		11/18/2024 13:55	
Method: 150.2							
pH - Field	**7.31**	units	0.01	1		11/18/2024 13:55	
Method: 170.1							
Temperature - Field C	**10.61**	degrees C		1		11/18/2024 13:55	
Method: ASTM D516-16							
Sulfate	**330**	mg/L	10	2		11/20/2024 14:45	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**0.33**	mg/L	0.1	1	11/19/2024 16:31	11/20/2024 11:15	
Calcium	**83.2**	mg/L	1	1	11/19/2024 16:31	11/21/2024 10:49	
Lithium	**0.0805**	mg/L	0.02	1	11/19/2024 16:31	11/20/2024 09:48	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/19/2024 16:31	11/26/2024 16:48	
Arsenic	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:48	
Barium	**0.0300**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:48	
Beryllium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/27/2024 11:13	
Cadmium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 16:48	
Chromium	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:48	
Cobalt	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:48	
Lead	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 16:48	
Molybdenum	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:48	
Selenium	<0.005	mg/L	0.005	5	11/19/2024 16:31	11/26/2024 16:48	
Thallium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 16:48	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71292004 **Date Collected:** 11/18/2024 13:55 **Matrix:** Groundwater
Sample ID: MW-8B **Date Received:** 11/18/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.7**	units	0.1	1		11/19/2024 15:53	*
Method: SM4500-Cl-E 2011							
Chloride	**11.8**	mg/L	2.0	1		11/26/2024 09:42	
Method: SM4500-F-C-2011							
Fluoride	**0.28**	mg/L	0.1	1		11/19/2024 15:53	
Method: USGS I-1750-85							
Total Dissolved Solids	**971**	mg/L	10	1		11/19/2024 15:38	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71292005 **Date Collected:** 11/18/2024 12:25 **Matrix:** Groundwater
Sample ID: MW-105 **Date Received:** 11/18/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1864**	umhos/cm	1	1		11/18/2024 12:25	
Method: 150.2							
pH - Field	**7.77**	units	0.01	1		11/18/2024 12:25	
Method: 170.1							
Temperature - Field C	**10.62**	degrees C		1		11/18/2024 12:25	
Method: ASTM D516-16							
Sulfate	**378**	mg/L	25	5		11/20/2024 14:31	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**0.34**	mg/L	0.1	1	11/19/2024 16:31	11/20/2024 11:16	
Calcium	**36.7**	mg/L	1	1	11/19/2024 16:31	11/21/2024 10:52	
Lithium	**0.0461**	mg/L	0.02	1	11/19/2024 16:31	11/20/2024 09:49	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/19/2024 16:31	11/26/2024 16:53	
Arsenic	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:53	
Barium	**0.0360**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:53	
Beryllium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/27/2024 11:16	
Cadmium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 16:53	
Chromium	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:53	
Cobalt	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:53	
Lead	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 16:53	
Molybdenum	**0.0313**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:53	
Selenium	**0.0225**	mg/L	0.005	5	11/19/2024 16:31	11/26/2024 16:53	
Thallium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 16:53	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71292005 **Date Collected:** 11/18/2024 12:25 **Matrix:** Groundwater
Sample ID: MW-105 **Date Received:** 11/18/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**8.0**	units	0.1	1		11/19/2024 16:04	*
Method: SM4500-Cl-E 2011							
Chloride	**8.8**	mg/L	2.0	1		11/26/2024 09:43	
Method: SM4500-F-C-2011							
Fluoride	**0.98**	mg/L	0.1	1		11/19/2024 16:04	
Method: USGS I-1750-85							
Total Dissolved Solids	**1190**	mg/L	10	1		11/19/2024 15:38	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 71292

Sulfate — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			100	96.4		85	115		
LFB			100	105.0		85	115		
LFB			100	95.7		85	115		
LFB			100	102.0		85	115		
LFB			100	109.0		85	115		
LFB			100	104.0		85	115		
LFB			100	99.7		85	115		
LFB			100	106.0		85	115		
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MS/MSD	70896004		1000	100.4	95.9	85	115	1.6	20
MS/MSD	71087001		2000	99.0	97.8	85	115	0.7	20
MS/MSD	71089005		500	93.5	91.7	85	115	1.0	20
MS/MSD	71089015		1000	103.2	99.7	85	115	1.2	20
MS/MSD	71089025		100	92.8	97.4	85	115	4.8	20
MS/MSD	71292003		500	94.8	95.5	85	115	0.5	20
MS/MSD	71294007		100	109.1	103.1	85	115	5.7	20

Chloride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	94.4		90	110		
LFB			30	95.0		90	110		
LFB			30	94.9		90	110		
LFB			30	92.6		90	110		

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Account #: 5109 **Client:** Great River Energy

Chloride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	93.3		90	110		
LFB			30	93.9		90	110		
LFB			30	94.1		90	110		
LFB			30	94.2		90	110		
LFB			30	95.1		90	110		
LFB			30	92.3		90	110		
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MS/MSD	71292003		30	97.4	97.0	80	120	0.5	20
MS/MSD	71545001		30	103.2	102.2	80	120	0.0	20
MS/MSD	71688001		30	100.0	99.5	80	120	0.4	20
MS/MSD	71890007		30	104.3	106.8	80	120	0.9	20
MS/MSD	72123002		30	94.7	94.7	80	120	0.0	20

Aluminum Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	101.0		85	115		
LFB-OE			0.4	92.5		85	115		
MB		<0.1							
MB		<0.1							
MS/MSD	71261001		0.4	92.6	93.4	70	130	0.6	20
MS/MSD	71292003		0.4	102.0	101.0	70	130	0.6	20
PDS/PDSD	71294002		10	94.9	99.4	75	125	3.3	20

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Aluminum, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	101.0		85	115		
LFB-OE			0.4	92.5		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	71292001		0.4	109.0	109.0	75	125	0.4	20
MS/MSD	71292003		0.4	102.0	100.0	75	125	1.8	20
SPK/SPKD	71688001		2	100.0	104.0	75	125	4.0	20
SPK/SPKD	71690001		0.4	112.0	113.0	75	125	1.4	20
SPK/SPKD	71694001		0.4	95.8	97.5	75	125	1.4	20

Boron				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	95.8		85	115		
MB		<0.1							
PDS/PDSD	70864001		2	98.4	94.6	75	125	2.4	20
MS/MSD	71261001		0.4	97.8	96.3	70	130	1.0	20
MS/MSD	71292003		0.4	99.6	97.3	70	130	1.1	20

Calcium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	104.0		85	115		
MB		<1							
PDS/PDSD	71089017		100	94.1	93.2	75	125	0.4	20
DUP	71276001							0.3	20
DUP	71292003							2.4	20
PDS/PDSD	71292004		100	94.9	98.3	75	125	1.9	20
DUP	71293004							2.7	20
PDS/PDSD	71294005		100	93.6	95.7	75	125	1.1	20
PDS/PDSD	71485007		100	97.4	97.2	75	125	0.1	20
PDS/PDSD	71544001		100	101.0	101.0	75	125	0.5	20

Iron				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	105.0		85	115		

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Iron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
MB		<0.1							
MS/MSD	71261001		0.4	91.7	90.9	70	130	0.9	20
MS/MSD	71292003		0.4	87.1	89.2	70	130	0.8	20
PDS/PDSD	71294002		10	103.0	104.0	75	125	0.6	20

Iron, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
LFB-OE			0.4	105.0		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	71292001		0.4	101.0	102.0	75	125	0.6	20
MS/MSD	71292003		0.4	91.8	84.1	75	125	2.9	20
SPK/SPKD	71688001		2	93.8	94.0	75	125	0.2	20
SPK/SPKD	71690001		0.4	74.7	81.3	75	125	1.9	20
SPK/SPKD	71694001		0.4	86.0	85.5	75	125	0.6	20

Lithium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
MB		<0.04							
MS/MSD	71292003		0.4	100.0	101.0	70	130	0.4	20

Magnesium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	104.0		85	115		
MB		<1							
PDS/PDSD	71089017		100	98.4	97.5	75	125	0.6	20
DUP	71276001							0.0	20
DUP	71292003							1.9	20
PDS/PDSD	71292004		100	95.6	98.7	75	125	1.8	20
DUP	71293004							2.4	20

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Magnesium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	71294005		100	98.9	100.0	75	125	1.1	20
PDS/PDSD	71485007		100	101.0	101.0	75	125	0.3	20
PDS/PDSD	71544001		100	102.0	102.0	75	125	0.4	20

Manganese				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	106.0		85	115		
LFB-OE			0.4	103.0		85	115		
MB		<0.05							
MB		<0.05							
MS/MSD	71261001		0.4	94.5	94.6	70	130	0.2	20
MS/MSD	71292003		0.4	91.2	92.6	70	130	1.4	20
PDS/PDSD	71294002		10	108.0	108.0	75	125	0.1	20

Manganese, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	103.0		85	115		
LFB-OE			0.4	106.0		85	115		
MB		<0.05							
MB		<0.05							
SPK/SPKD	71292001		0.4	100.0	101.0	75	125	0.8	20
MS/MSD	71292003		0.4	93.0	90.3	75	125	2.5	20
SPK/SPKD	71688001		2	90.0	89.8	75	125	0.1	20
SPK/SPKD	71690001		0.4	90.3	94.3	75	125	3.1	20
SPK/SPKD	71694001		0.4	83.0	82.5	75	125	0.4	20

Potassium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	103.0		85	115		
MB		<1							
PDS/PDSD	71089017		100	102.0	101.0	75	125	0.9	20
DUP	71276001							0.0	20
DUP	71292003							2.5	20
PDS/PDSD	71292004		100	101.0	102.0	75	125	1.1	20

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Potassium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
DUP	71293004							2.3	20
PDS/PDSD	71294005		100	100.0	102.0	75	125	1.3	20
PDS/PDSD	71485007		100	102.0	101.0	75	125	0.9	20
PDS/PDSD	71544001		100	102.0	101.0	75	125	0.7	20

Sodium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	102.0		85	115		
MB		<1							
PDS/PDSD	71089017		100	101.0	99.7	75	125	1.5	20
DUP	71276001							0.1	20
DUP	71292003							1.4	20
PDS/PDSD	71292004		100	87.1	88.3	75	125	0.4	20
DUP	71293004							2.2	20
PDS/PDSD	71294005		100	79.4	83.4	75	125	1.1	20
PDS/PDSD	71485007		100	74.1	73.9	75	125	0.0	20
PDS/PDSD	71544001		100	91.7	92.1	75	125	0.2	20

Antimony				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
MB		<0.001							
MS/MSD	71261001		0.4	101.0	101.0	70	130	0.7	20
SPK	71261001		0.1	104.0		75	125		
MS/MSD	71292003		0.4	102.0	102.0	75	125	0.0	20
SPK	71292003		0.1	104.0		75	125		
SPK	71294002		0.1	99.3		75	125		
SPK/SPKD	71350001		0.2	103.0	103.0	75	125	0.2	20

Arsenic				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
MB		<0.002							
MS/MSD	71261001		0.4	102.0	102.0	70	130	0.0	20

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Arsenic — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK	71261001		0.1	103.0		75	125		
MS/MSD	71292003		0.4	103.0	101.0	75	125	2.0	20
SPK	71292003		0.1	103.0		75	125		
SPK	71294002		0.1	102.0		75	125		
SPK/SPKD	71350001		0.2	110.0	110.0	75	125	0.2	20

Barium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.8		80	120		
MB		<0.002							
MS/MSD	71261001		0.4	99.3	96.1	70	130	2.7	20
SPK	71261001		0.1	96.8		75	125		
MS/MSD	71292003		0.4	97.4	98.2	75	125	0.7	20
SPK	71292003		0.1	97.2		75	125		
SPK	71294002		0.1	94.2		75	125		
SPK/SPKD	71350001		0.2	104.0	103.0	75	125	0.9	20

Beryllium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
MB		<0.0005							
MS/MSD	71292003		0.4	117.0	110.0	75	125	6.0	20
SPK	71292003		0.1	112.0		75	125		
SPK	71294002		0.1	110.0		75	125		

Cadmium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
MB		<0.0005							
MS/MSD	71261001		0.4	98.2	96.5	70	130	1.8	20
SPK	71261001		0.1	96.9		75	125		
MS/MSD	71292003		0.4	104.0	104.0	75	125	0.2	20
SPK	71292003		0.1	102.0		75	125		
SPK	71294002		0.1	94.7		75	125		

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Cadmium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	71350001		0.2	96.9	95.9	75	125	1.0	20

Chromium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
MS/MSD	71261001		0.4	95.8	96.3	70	130	0.5	20
SPK	71261001		0.1	100.0		75	125		
MS/MSD	71292003		0.4	99.5	97.6	75	125	2.0	20
SPK	71292003		0.1	97.8		75	125		
SPK	71294002		0.1	96.0		75	125		
SPK/SPKD	71350001		0.2	103.0	102.0	75	125	1.3	20

Cobalt				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
MB		<0.002							
MS/MSD	71261001		0.4	97.2	97.6	70	130	0.5	20
SPK	71261001		0.1	101.0		75	125		
MS/MSD	71292003		0.4	100.0	99.6	75	125	0.8	20
SPK	71292003		0.1	100.0		75	125		
SPK	71294002		0.1	98.3		75	125		
SPK/SPKD	71350001		0.2	102.0	102.0	75	125	0.4	20

Lead				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
MB		<0.0005							
MS/MSD	71261001		0.4	94.5	94.1	70	130	0.3	20
SPK	71261001		0.1	93.2		75	125		
MS/MSD	71292003		0.4	96.7	94.8	75	125	2.1	20
SPK	71292003		0.1	95.1		75	125		
SPK	71294002		0.1	88.7		75	125		
SPK/SPKD	71350001		0.2	91.1	90.0	75	125	1.2	20

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Molybdenum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
MB		<0.002							
MS/MSD	71261001		0.4	99.1	98.6	70	130	0.5	20
SPK	71261001		0.1	106.0		75	125		
MS/MSD	71292003		0.4	101.0	102.0	75	125	0.7	20
SPK	71292003		0.1	104.0		75	125		
SPK	71294002		0.1	104.0		75	125		
SPK/SPKD	71350001		0.2	108.0	107.0	75	125	0.6	20

Selenium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
MB		<0.005							
MS/MSD	71261001		0.4	101.0	102.0	70	130	0.3	20
SPK	71261001		0.1	99.2		75	125		
MS/MSD	71292003		0.4	105.0	103.0	75	125	1.4	20
SPK	71292003		0.1	103.0		75	125		
SPK	71294002		0.1	95.4		75	125		
SPK/SPKD	71350001		0.2	99.8	100.0	75	125	0.1	20

Thallium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.9		80	120		
MB		<0.0005							
MS/MSD	71261001		0.4	83.9	82.5	70	130	1.5	20
SPK	71261001		0.1	91.5		75	125		
MS/MSD	71292003		0.4	93.7	88.6	75	125	5.8	20
SPK	71292003		0.1	91.8		75	125		
SPK	71294002		0.1	86.3		75	125		
SPK/SPKD	71350001		0.2	88.0	86.4	75	125	1.8	20

Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	107.0		85	115		

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Mercury Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	105.0		85	115		
LFB			0.002	103.0		85	115		
LFB			0.002	106.0		85	115		
LFB			0.002	106.0		85	115		
LFB			0.002	100.0		85	115		
LRB		<0.0002							
LRB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MS/MSD	71020004		0.002	97.0	97.5	70	130	5.1	20
MS/MSD	71089009		0.002	101.0	102.0	70	130	0.0	20
MS/MSD	71089019		0.002	104.0	104.0	70	130	0.0	20
MS/MSD	71292003		0.002	102.0	102.0	70	130	0.0	20
MS/MSD	71294004		0.002	97.5	98.0	70	130	0.0	20
MS/MSD	71485004		0.002	100.0	100.0	70	130	0.0	20
MS/MSD	71688001		0.002	77.5	78.0	70	130	0.0	20
MS/MSD	71693001		0.002	97.0	97.0	70	130	0.0	20

Alkalinity, Total Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			501	92.2		80	120		
LFB			80.9	94.5		90	110		
LFB			80.9	92.0		90	110		
LFB			80.9	95.3		90	110		
MB		<20.5							
MB		<20.5							
MB		<20.5							
MS/MSD	71292003		410	81.1	80.6	80	120	0.2	20
MS/MSD	71293003		410	96.1	93.8	80	120	1.0	20

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Account #: 5109 **Client:** Great River Energy

pH — Units: units

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	99.5		98.33	101.67		
CRM-PH			6	99.2		98.33	101.67		
CRM-PH			6	99.3		98.33	101.67		
CRM-PH			6	99.0		98.33	101.67		
DUP	70736002							0.2	20
DUP	71292003							1.3	20
DUP	71294005							0.3	20

Fluoride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			3.06	98.0		83.99	111.11		
LFB-F			0.5	94.0		90	110		
LFB-F			0.5	100.0		90	110		
LFB-F			0.5	102.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MS/MSD	71292003		0.5	100.0	108.0	80	120	3.5	20
MS/MSD	71294001		0.5	104.0	102.0	80	120	0.9	20

Total Dissolved Solids — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	98.0		90.35	110.33		
MB		<10							
DUP	71292003							2.0	20
DUP	71294006							1.5	20

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QC Results Summary — WO #: 71292

Sulfate — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			100	96.4		85	115		
LFB			100	105.0		85	115		
LFB			100	106.0		85	115		
LFB			100	104.0		85	115		
LFB			100	102.0		85	115		
LFB			100	109.0		85	115		
LFB			100	99.7		85	115		
LFB			100	95.7		85	115		
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MS/MSD	70896004		1000	100.4	95.9	85	115	1.6	20
MS/MSD	71087001		2000	99.0	97.8	85	115	0.7	20
MS/MSD	71089005		500	93.5	91.7	85	115	1.0	20
MS/MSD	71089015		1000	103.2	99.7	85	115	1.2	20
MS/MSD	71089025		100	92.8	97.4	85	115	4.8	20
MS/MSD	71292003		500	94.8	95.5	85	115	0.5	20
MS/MSD	71294007		100	109.1	103.1	85	115	5.7	20

Chloride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	95.0		90	110		
LFB			30	93.9		90	110		
LFB			30	94.4		90	110		
LFB			30	95.1		90	110		

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Chloride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	94.2		90	110		
LFB			30	94.1		90	110		
LFB			30	92.3		90	110		
LFB			30	92.6		90	110		
LFB			30	93.3		90	110		
LFB			30	94.9		90	110		
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MS/MSD	71292003		30	97.4	97.0	80	120	0.5	20
MS/MSD	71545001		30	103.2	102.2	80	120	0.0	20
MS/MSD	71688001		30	100.0	99.5	80	120	0.4	20
MS/MSD	71890007		30	104.3	106.8	80	120	0.9	20
MS/MSD	72123002		30	94.7	94.7	80	120	0.0	20

Aluminum Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	92.5		85	115		
LFB-OE			0.4	101.0		85	115		
MB		<0.1							
MB		<0.1							
MS/MSD	71261001		0.4	92.6	93.4	70	130	0.6	20
MS/MSD	71292003		0.4	102.0	101.0	70	130	0.6	20
PDS/PDSD	71294002		10	94.9	99.4	75	125	3.3	20

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Aluminum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	101.0		85	115		
LFB-OE			0.4	92.5		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	71292001		0.4	109.0	109.0	75	125	0.4	20
MS/MSD	71292003		0.4	102.0	100.0	75	125	1.8	20
SPK/SPKD	71688001		2	100.0	104.0	75	125	4.0	20
SPK/SPKD	71690001		0.4	112.0	113.0	75	125	1.4	20
SPK/SPKD	71694001		0.4	95.8	97.5	75	125	1.4	20

Boron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	95.8		85	115		
LFB-OE			0.4	100.0		85	115		
MB		<0.1							
MB		<0.1							
PDS/PDSD	70864001		2	98.4	94.6	75	125	2.4	20
MS/MSD	71261001		0.4	97.8	96.3	70	130	1.0	20
MS/MSD	71292003		0.4	99.6	97.3	70	130	1.1	20

Boron, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	100.0		85	115		
LFB-OE			0.4	95.8		85	115		
MB		<0.1							
MB		<0.1							
MS/MSD	71292003		0.4	102.0	96.5	70	130	2.5	20
SPK/SPKD	71292004		0.4	85.6	89.4	75	125	2.2	20
SPK/SPKD	71294006		0.4	89.8	89.6	75	125	0.1	20

Calcium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	107.0		85	115		
LFB-MI			100	104.0		85	115		

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Calcium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<1							
MB		<1							
PDS/PDSD	71089017		100	94.1	93.2	75	125	0.4	20
DUP	71276001							0.3	20
PDS/PDSD	71292004		100	94.9	98.3	75	125	1.9	20
PDS/PDSD	71294005		100	93.6	95.7	75	125	1.1	20
PDS/PDSD	71485007		100	97.4	97.2	75	125	0.1	20
PDS/PDSD	71544001		100	101.0	101.0	75	125	0.5	20
PDS/PDSD	73065004		100	98.6	99.9	75	125	0.9	20
PDS/PDSD	73065007		100	97.1	97.2	75	125	0.1	20
PDS/PDSD	73210009		100	103.0	104.0	75	125	0.2	20
PDS/PDSD	73530005		100	97.8	95.3	75	125	1.0	20
PDS/PDSD	73530009		100	93.4	94.1	75	125	0.3	20

Calcium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	104.0		85	115		
LFB-MI			100	107.0		85	115		
MB		<1							
MB		<1							
DUP	71292003							4.2	20
SPK/SPKD	71292004		100	99.1	98.2	75	125	0.5	20
DUP	71293004							1.5	20
PDS/PDSD	71294002		100	94.7	92.2	75	125	1.4	20
SPK/SPKD	71294005		100	99.3	99.2	75	125	0.1	20

Iron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
LFB-OE			0.4	105.0		85	115		
MB		<0.1							
MB		<0.1							
MS/MSD	71261001		0.4	91.7	90.9	70	130	0.9	20

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Iron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	71292003		0.4	87.1	89.2	70	130	0.8	20
PDS/PDSD	71294002		10	103.0	104.0	75	125	0.6	20

Iron, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	105.0		85	115		
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	71292001		0.4	101.0	102.0	75	125	0.6	20
MS/MSD	71292003		0.4	91.8	84.1	75	125	2.9	20
SPK/SPKD	71688001		2	93.8	94.0	75	125	0.2	20
SPK/SPKD	71690001		0.4	74.7	81.3	75	125	1.9	20
SPK/SPKD	71694001		0.4	86.0	85.5	75	125	0.6	20

Lithium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
LFB-OE			0.4	111.0		85	115		
MB		<0.04							
MB		<0.04							
MS/MSD	71292003		0.4	100.0	101.0	70	130	0.4	20

Lithium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
LFB-OE			0.4	111.0		85	115		
MB		<0.04							
MB		<0.04							
MS/MSD	71292003		0.4	90.2	90.6	70	130	0.4	20
SPK/SPKD	71292004		0.4	90.4	89.4	75	125	1.0	20
SPK/SPKD	71294006		0.4	88.1	87.4	75	125	0.7	20

Magnesium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	107.0		85	115		

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Magnesium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	104.0		85	115		
MB		<1							
MB		<1							
PDS/PDSD	71089017		100	98.4	97.5	75	125	0.6	20
DUP	71276001							0.0	20
PDS/PDSD	71292004		100	95.6	98.7	75	125	1.8	20
PDS/PDSD	71294005		100	98.9	100.0	75	125	1.1	20
PDS/PDSD	71485007		100	101.0	101.0	75	125	0.3	20
PDS/PDSD	71544001		100	102.0	102.0	75	125	0.4	20
PDS/PDSD	73065004		100	101.0	102.0	75	125	1.0	20
PDS/PDSD	73065007		100	101.0	101.0	75	125	0.1	20
PDS/PDSD	73210009		100	105.0	105.0	75	125	0.1	20
PDS/PDSD	73530005		100	103.0	102.0	75	125	0.7	20
PDS/PDSD	73530009		100	99.9	101.0	75	125	0.4	20

Magnesium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	104.0		85	115		
LFB-MI			100	107.0		85	115		
MB		<1							
MB		<1							
DUP	71292003							4.6	20
SPK/SPKD	71292004		100	100.0	99.5	75	125	0.6	20
DUP	71293004							0.9	20
PDS/PDSD	71294002		100	99.1	98.0	75	125	0.9	20
SPK/SPKD	71294005		100	103.0	103.0	75	125	0.1	20

Manganese — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	106.0		85	115		
LFB-OE			0.4	103.0		85	115		
MB		<0.05							
MB		<0.05							

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Manganese				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	71261001		0.4	94.5	94.6	70	130	0.2	20
MS/MSD	71292003		0.4	91.2	92.6	70	130	1.4	20
PDS/PDSD	71294002		10	111.0	111.0	75	125	0.1	20

Manganese, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	103.0		85	115		
LFB-OE			0.4	106.0		85	115		
MB		<0.05							
MB		<0.05							
SPK/SPKD	71292001		0.4	100.0	101.0	75	125	0.8	20
MS/MSD	71292003		0.4	93.0	90.3	75	125	2.5	20
SPK/SPKD	71688001		2	90.0	89.8	75	125	0.1	20
SPK/SPKD	71690001		0.4	90.3	94.3	75	125	3.1	20
SPK/SPKD	71694001		0.4	83.0	82.5	75	125	0.4	20

Potassium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	103.0		85	115		
LFB-MI			100	106.0		85	115		
MB		<1							
MB		<1							
PDS/PDSD	71089017		100	102.0	101.0	75	125	0.9	20
DUP	71276001							0.0	20
PDS/PDSD	71292004		100	101.0	102.0	75	125	1.1	20
PDS/PDSD	71294005		100	100.0	102.0	75	125	1.3	20
PDS/PDSD	71485007		100	102.0	101.0	75	125	0.9	20
PDS/PDSD	71544001		100	102.0	101.0	75	125	0.7	20
PDS/PDSD	73065004		100	101.0	103.0	75	125	2.3	20
PDS/PDSD	73065007		100	102.0	103.0	75	125	1.1	20
PDS/PDSD	73210009		100	105.0	104.0	75	125	0.1	20
PDS/PDSD	73530005		100	108.0	107.0	75	125	0.7	20
PDS/PDSD	73530009		100	104.0	105.0	75	125	1.3	20

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Account #: 5109 **Client:** Great River Energy

Potassium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	103.0		85	115		
LFB-MI			100	106.0		85	115		
MB		<1							
MB		<1							
DUP	71292003							1.1	20
SPK/SPKD	71292004		100	105.0	104.0	75	125	1.1	20
DUP	71293004							4.9	20
PDS/PDSD	71294002		100	98.9	98.0	75	125	0.8	20
SPK/SPKD	71294005		100	103.0	103.0	75	125	0.2	20

Sodium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	108.0		85	115		
LFB-MI			100	102.0		85	115		
MB		<1							
MB		<1							
PDS/PDSD	71089017		100	101.0	99.7	75	125	1.5	20
DUP	71276001							0.1	20
PDS/PDSD	71292004		100	87.1	88.3	75	125	0.4	20
PDS/PDSD	71294002							1.6	20
PDS/PDSD	71294005		100	79.4	83.4	75	125	1.1	20
PDS/PDSD	71485007		100	74.1	73.9	75	125	0.0	20
PDS/PDSD	71544001		100	91.7	92.1	75	125	0.2	20
PDS/PDSD	73065004		100	89.2	88.9	75	125	0.1	20
PDS/PDSD	73065007		100	92.5	93.2	75	125	0.3	20
PDS/PDSD	73210009		100	83.3	80.8	75	125	0.6	20
PDS/PDSD	73530005		100	92.6	91.3	75	125	0.5	20
PDS/PDSD	73530009		100	88.4	75.0	75	125	4.3	20

Sodium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	102.0		85	115		
LFB-MI			100	108.0		85	115		

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Account #: 5109 **Client:** Great River Energy

Sodium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<1							
MB		<1							
SPK/SPKD	71292004		100	89.5	86.9	75	125	0.9	20
DUP	71293004							0.6	20
PDS/PDSD	71294002		100	72.2	78.2	75	125	1.6	20
SPK/SPKD	71294005		100	84.6	80.7	75	125	1.0	20

Antimony				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	99.1		80	120		
LFB-MS			0.1	98.5		80	120		
MB		<0.001							
MB		<0.001							
MB		<0.001							
MS/MSD	71261001		0.4	101.0	101.0	70	130	0.7	20
SPK	71261001		0.1	104.0		75	125		
MS/MSD	71292003		0.4	102.0	102.0	75	125	0.0	20
MS/MSD	71292003		0.4	99.7	95.2	75	125	4.6	20
SPK	71292003		0.1	104.0		75	125		
SPK	71294002		0.1	99.3		75	125		
SPK/SPKD	71350001		0.2	103.0	103.0	75	125	0.2	20

Antimony, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	98.5		80	120		
LFB-MS			0.1	99.1		80	120		
MB		<0.001							
MB		<0.001							
MB		<0.001							
MS/MSD	71261001		0.4	101.0	101.0	70	130	0.7	20
SPK	71261001		0.1	104.0		75	125		

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Account #: 5109 **Client:** Great River Energy

Antimony, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	71292003		0.4	102.0	102.0	75	125	0.0	20
MS/MSD	71292003		0.4	99.7	95.2	75	125	4.6	20
SPK	71292003		0.1	104.0		75	125		
SPK	71294002		0.1	99.3		75	125		
SPK/SPKD	71294005		0.1	110.0	114.0	75	125	3.5	20
SPK/SPKD	71294007		0.1	105.0	109.0	75	125	3.9	20
SPK/SPKD	71350001		0.2	103.0	103.0	75	125	0.2	20

Arsenic — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.4		80	120		
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	96.3		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
MS/MSD	71261001		0.4	102.0	102.0	70	130	0.0	20
SPK	71261001		0.1	103.0		75	125		
MS/MSD	71292003		0.4	101.0	95.6	75	125	5.4	20
MS/MSD	71292003		0.4	103.0	101.0	75	125	2.0	20
SPK	71292003		0.1	103.0		75	125		
SPK	71294002		0.1	102.0		75	125		
SPK/SPKD	71350001		0.2	110.0	110.0	75	125	0.2	20

Arsenic, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	96.3		80	120		
LFB-MS			0.1	99.4		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
MS/MSD	71261001		0.4	102.0	102.0	70	130	0.0	20

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Account #: 5109 **Client:** Great River Energy

Arsenic, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK	71261001		0.1	103.0		75	125		
MS/MSD	71292003		0.4	101.0	95.6	75	125	5.4	20
MS/MSD	71292003		0.4	103.0	101.0	75	125	2.0	20
SPK	71292003		0.1	103.0		75	125		
SPK	71294002		0.1	102.0		75	125		
SPK/SPKD	71294005		0.1	109.0	117.0	75	125	7.3	20
SPK/SPKD	71294007		0.1	102.0	105.0	75	125	2.7	20
SPK/SPKD	71350001		0.2	110.0	110.0	75	125	0.2	20

Barium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.4		80	120		
LFB-MS			0.1	98.5		80	120		
LFB-MS			0.1	99.8		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
MS/MSD	71261001		0.4	99.3	96.1	70	130	2.7	20
SPK	71261001		0.1	96.8		75	125		
MS/MSD	71292003		0.4	97.4	98.2	75	125	0.7	20
MS/MSD	71292003		0.4	98.4	95.7	75	125	2.7	20
SPK	71292003		0.1	97.2		75	125		
SPK	71294002		0.1	94.2		75	125		
SPK/SPKD	71350001		0.2	104.0	103.0	75	125	0.9	20

Barium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.8		80	120		
LFB-MS			0.1	98.5		80	120		
LFB-MS			0.1	96.4		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							

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Barium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	71261001		0.4	99.3	96.1	70	130	2.7	20
SPK	71261001		0.1	96.8		75	125		
MS/MSD	71292003		0.4	98.4	95.7	75	125	2.7	20
MS/MSD	71292003		0.4	97.4	98.2	75	125	0.7	20
SPK	71292003		0.1	97.2		75	125		
SPK	71294002		0.1	94.2		75	125		
SPK/SPKD	71294005		0.1	102.0	105.0	75	125	2.2	20
SPK/SPKD	71294007		0.1	103.0	104.0	75	125	1.0	20
SPK/SPKD	71350001		0.2	104.0	103.0	75	125	0.9	20

Beryllium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	98.2		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	71292003		0.4	119.0	115.0	75	125	3.6	20
MS/MSD	71292003		0.4	117.0	110.0	75	125	6.0	20
SPK	71292003		0.1	112.0		75	125		
SPK	71294002		0.1	110.0		75	125		

Beryllium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	98.2		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	71292003		0.4	119.0	115.0	75	125	3.6	20
MS/MSD	71292003		0.4	117.0	110.0	75	125	6.0	20
SPK	71292003		0.1	112.0		75	125		
SPK	71294002		0.1	110.0		75	125		
SPK/SPKD	71294005		0.1	145.0	147.0	75	125	2.0	20
SPK/SPKD	71294007		0.1	130.0	123.0	75	125	5.1	20

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Account #: 5109 **Client:** Great River Energy

Cadmium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.1		80	120		
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	100.0		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
MS/MSD	71261001		0.4	98.2	96.5	70	130	1.8	20
SPK	71261001		0.1	96.9		75	125		
MS/MSD	71292003		0.4	104.0	104.0	75	125	0.2	20
MS/MSD	71292003		0.4	102.0	96.0	75	125	5.8	20
SPK	71292003		0.1	102.0		75	125		
SPK	71294002		0.1	94.7		75	125		
SPK/SPKD	71350001		0.2	96.9	95.9	75	125	1.0	20

Cadmium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.1		80	120		
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	100.0		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
MS/MSD	71261001		0.4	98.2	96.5	70	130	1.8	20
SPK	71261001		0.1	96.9		75	125		
MS/MSD	71292003		0.4	104.0	104.0	75	125	0.2	20
MS/MSD	71292003		0.4	102.0	96.0	75	125	5.8	20
SPK	71292003		0.1	102.0		75	125		
SPK	71294002		0.1	94.7		75	125		
SPK/SPKD	71294005		0.1	98.2	101.0	75	125	2.5	20
SPK/SPKD	71294007		0.1	97.7	99.4	75	125	1.7	20
SPK/SPKD	71350001		0.2	96.9	95.9	75	125	1.0	20

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Account #: 5109 **Client:** Great River Energy

Chromium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.1		80	120		
LFB-MS			0.1	99.3		80	120		
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
MS/MSD	71261001		0.4	95.8	96.3	70	130	0.5	20
SPK	71261001		0.1	100.0		75	125		
MS/MSD	71292003		0.4	99.5	97.6	75	125	2.0	20
MS/MSD	71292003		0.4	96.7	91.4	75	125	5.6	20
SPK	71292003		0.1	97.8		75	125		
SPK	71294002		0.1	96.0		75	125		
SPK/SPKD	71350001		0.2	103.0	102.0	75	125	1.3	20

Chromium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
LFB-MS			0.1	99.3		80	120		
LFB-MS			0.1	99.1		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
MS/MSD	71261001		0.4	95.8	96.3	70	130	0.5	20
SPK	71261001		0.1	100.0		75	125		
MS/MSD	71292003		0.4	96.7	91.4	75	125	5.6	20
MS/MSD	71292003		0.4	99.5	97.6	75	125	2.0	20
SPK	71292003		0.1	97.8		75	125		
SPK	71294002		0.1	96.0		75	125		
SPK/SPKD	71294005		0.1	110.0	117.0	75	125	6.3	20
SPK/SPKD	71294007		0.1	106.0	106.0	75	125	0.1	20
SPK/SPKD	71350001		0.2	103.0	102.0	75	125	1.3	20

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Account #: 5109 **Client:** Great River Energy

Cobalt Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	98.6		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
MS/MSD	71261001		0.4	97.2	97.6	70	130	0.5	20
SPK	71261001		0.1	101.0		75	125		
MS/MSD	71292003		0.4	98.5	92.6	75	125	6.3	20
MS/MSD	71292003		0.4	100.0	99.6	75	125	0.8	20
SPK	71292003		0.1	100.0		75	125		
SPK	71294002		0.1	98.3		75	125		
SPK/SPKD	71350001		0.2	102.0	102.0	75	125	0.4	20

Cobalt, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.6		80	120		
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	103.0		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
MS/MSD	71261001		0.4	97.2	97.6	70	130	0.5	20
SPK	71261001		0.1	101.0		75	125		
MS/MSD	71292003		0.4	98.5	92.6	75	125	6.3	20
MS/MSD	71292003		0.4	100.0	99.6	75	125	0.8	20
SPK	71292003		0.1	100.0		75	125		
SPK	71294002		0.1	98.3		75	125		
SPK/SPKD	71294005		0.1	108.0	117.0	75	125	8.4	20
SPK/SPKD	71294007		0.1	105.0	104.0	75	125	0.9	20
SPK/SPKD	71350001		0.2	102.0	102.0	75	125	0.4	20

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 515-382-5486 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Lead — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.3		80	120		
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	95.6		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
MS/MSD	71261001		0.4	94.5	94.1	70	130	0.3	20
SPK	71261001		0.1	93.2		75	125		
MS/MSD	71292003		0.4	96.7	94.8	75	125	2.1	20
MS/MSD	71292003		0.4	93.1	89.8	75	125	3.6	20
SPK	71292003		0.1	95.1		75	125		
SPK	71294002		0.1	88.7		75	125		
SPK/SPKD	71350001		0.2	91.1	90.0	75	125	1.2	20

Lead, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.6		80	120		
LFB-MS			0.1	97.3		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
MS/MSD	71261001		0.4	94.5	94.1	70	130	0.3	20
SPK	71261001		0.1	93.2		75	125		
MS/MSD	71292003		0.4	93.1	89.8	75	125	3.6	20
MS/MSD	71292003		0.4	96.7	94.8	75	125	2.1	20
SPK	71292003		0.1	95.1		75	125		
SPK	71294002		0.1	88.7		75	125		
SPK/SPKD	71294005		0.1	105.0	108.0	75	125	2.4	20
SPK/SPKD	71294007		0.1	102.0	105.0	75	125	2.3	20
SPK/SPKD	71350001		0.2	91.1	90.0	75	125	1.2	20

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Molybdenum Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
LFB-MS			0.1	103.0		80	120		
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
MS/MSD	71261001		0.4	99.1	98.6	70	130	0.5	20
SPK	71261001		0.1	106.0		75	125		
MS/MSD	71292003		0.4	101.0	102.0	75	125	0.7	20
MS/MSD	71292003		0.4	95.3	90.4	75	125	5.3	20
SPK	71292003		0.1	104.0		75	125		
SPK	71294002		0.1	104.0		75	125		
SPK/SPKD	71350001		0.2	108.0	107.0	75	125	0.6	20

Molybdenum, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
LFB-MS			0.1	105.0		80	120		
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
MS/MSD	71261001		0.4	99.1	98.6	70	130	0.5	20
SPK	71261001		0.1	106.0		75	125		
MS/MSD	71292003		0.4	95.3	90.4	75	125	5.3	20
MS/MSD	71292003		0.4	101.0	102.0	75	125	0.7	20
SPK	71292003		0.1	104.0		75	125		
SPK	71294002		0.1	104.0		75	125		
SPK/SPKD	71294005		0.1	104.0	110.0	75	125	4.9	20
SPK/SPKD	71294007		0.1	98.0	98.9	75	125	0.9	20
SPK/SPKD	71350001		0.2	108.0	107.0	75	125	0.6	20

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Account #: 5109 **Client:** Great River Energy

Selenium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	97.0		80	120		
LFB-MS			0.1	95.0		80	120		
MB		<0.005							
MB		<0.005							
MB		<0.005							
MS/MSD	71261001		0.4	101.0	102.0	70	130	0.3	20
SPK	71261001		0.1	99.2		75	125		
MS/MSD	71292003		0.4	105.0	103.0	75	125	1.4	20
MS/MSD	71292003		0.4	99.4	93.1	75	125	6.8	20
SPK	71292003		0.1	103.0		75	125		
SPK	71294002		0.1	95.4		75	125		
SPK/SPKD	71350001		0.2	99.8	100.0	75	125	0.1	20

Selenium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.0		80	120		
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	95.0		80	120		
MB		<0.005							
MB		<0.005							
MB		<0.005							
MS/MSD	71261001		0.4	101.0	102.0	70	130	0.3	20
SPK	71261001		0.1	99.2		75	125		
MS/MSD	71292003		0.4	105.0	103.0	75	125	1.4	20
MS/MSD	71292003		0.4	99.4	93.1	75	125	6.8	20
SPK	71292003		0.1	103.0		75	125		
SPK	71294002		0.1	95.4		75	125		
SPK/SPKD	71294005		0.1	105.0	111.0	75	125	5.7	20
SPK/SPKD	71294007		0.1	104.0	106.0	75	125	1.6	20
SPK/SPKD	71350001		0.2	99.8	100.0	75	125	0.1	20

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Thallium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	94.2		80	120		
LFB-MS			0.1	99.9		80	120		
LFB-MS			0.1	96.2		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
MS/MSD	71261001		0.4	83.9	82.5	70	130	1.5	20
SPK	71261001		0.1	91.5		75	125		
MS/MSD	71292003		0.4	93.7	88.6	75	125	5.8	20
MS/MSD	71292003		0.4	92.8	89.8	75	125	3.3	20
SPK	71292003		0.1	91.8		75	125		
SPK	71294002		0.1	86.3		75	125		
SPK/SPKD	71350001		0.2	88.0	86.4	75	125	1.8	20

Thallium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.2		80	120		
LFB-MS			0.1	99.9		80	120		
LFB-MS			0.1	94.2		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
MS/MSD	71261001		0.4	83.9	82.5	70	130	1.5	20
SPK	71261001		0.1	91.5		75	125		
MS/MSD	71292003		0.4	93.7	88.6	75	125	5.8	20
MS/MSD	71292003		0.4	92.8	89.8	75	125	3.3	20
SPK	71292003		0.1	91.8		75	125		
SPK	71294002		0.1	86.3		75	125		
SPK/SPKD	71294005		0.1	103.0	107.0	75	125	3.4	20
SPK/SPKD	71294007		0.1	111.0	113.0	75	125	2.1	20
SPK/SPKD	71350001		0.2	88.0	86.4	75	125	1.8	20

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Account #: 5109 **Client:** Great River Energy

Mercury — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	101.0		85	115		
LFB			0.002	105.0		85	115		
LFB			0.002	103.0		85	115		
LFB			0.002	106.0		85	115		
LFB			0.002	106.0		85	115		
LFB			0.002	107.0		85	115		
LFB			0.002	100.0		85	115		
LRB		<0.0002							
LRB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MS/MSD	71020004		0.002	97.0	97.5	70	130	5.1	20
MS/MSD	71089009		0.002	101.0	102.0	70	130	0.0	20
MS/MSD	71089019		0.002	104.0	104.0	70	130	0.0	20
MS/MSD	71292003		0.002	102.0	102.0	70	130	0.0	20
MS/MSD	71294004		0.002	97.5	98.0	70	130	0.0	20
MS/MSD	71485004		0.002	100.0	100.0	70	130	0.0	20
MS/MSD	71688001		0.002	77.5	78.0	70	130	0.0	20
MS/MSD	71693001		0.002	97.0	97.0	70	130	0.0	20

Mercury, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	101.0		85	115		
MB		<0.0002							
MS	71292003		0.002	87.8		70	130	5.4	20
MS/MSD	71294007		0.002	95.8	94.1	70	130	0.0	20

Alkalinity, Total — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			501	92.2		80	120		

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Account #: 5109 **Client:** Great River Energy

Alkalinity, Total — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			80.9	95.3		90	110		
LFB			80.9	94.5		90	110		
LFB			80.9	92.0		90	110		
MB		<20.5							
MB		<20.5							
MB		<20.5							
MS/MSD	71292003		410	81.1	80.6	80	120	0.2	20
MS/MSD	71293003		410	96.1	93.8	80	120	1.0	20

pH — Units: units

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	99.2		98.33	101.67		
CRM-PH			6	99.0		98.33	101.67		
CRM-PH			6	99.3		98.33	101.67		
CRM-PH			6	99.5		98.33	101.67		
DUP	70736002							0.2	20
DUP	71292003							1.3	20
DUP	71294005							0.3	20

Fluoride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			3.06	98.0		83.99	111.11		
LFB-F			0.5	94.0		90	110		
LFB-F			0.5	100.0		90	110		
LFB-F			0.5	102.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MS/MSD	71292003		0.5	100.0	108.0	80	120	3.5	20
MS/MSD	71294001		0.5	104.0	102.0	80	120	0.9	20

Total Dissolved Solids — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	98.0		90.35	110.33		

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Account #: 5109 **Client:** Great River Energy

Total Dissolved Solids Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<10							
DUP	71292003							2.0	20
DUP	71294006							1.5	20

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Bismarck, ND 58501
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Great River Energy
WO: 71292

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS UP
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: NOV ~~Sept~~ 2024
Address:		Lakewood, CO 80228	Sampled By: Ethan Gress
Phone:			
Email:	CJohnston@GREnergy.com		

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric	Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-6B	18Nov24	1505	GW	X	X	X			11.17	1646	7.62	0.00	App III, AppIV, Additional List (total and dissolved for all metals) (See Attachments)
002	MW-7A	18Nov24	0835	GW	X	X	X			8.14	1760	7.26	0.09	
003	MW-7B/MS/MSD	18Nov24	1009	GW	3	3	3			8.11	1663	7.68	0.00	
004	MW-8B	18Nov24	1355	GW	X	X	X			10.61	1541	7.31	1.07	
005	MW-105	18Nov24	1225	GW	X	X	X			10.62	1864	7.74	0.72	

Comments: Upgradient/Side-gradient Wells

Relinquished By			Sample Condition		Received By	
	Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1		18Nov24 1830	Log In / Walk In #2	4.7 °C/TM 80% ROI Y/N		~~18NOV24~~ 19NOV24 0800
2						

19Nov24

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Account #: 5109 **Client:** Great River Energy

Table 1: Proposed 2024 Stanton Station Plant Facilities Sampling Schedule

Location	Well ID		2024				
			Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-7A	1	Field Parameters (Field pH)				
	MW-7B	1					
	MW-8B	1					
	MW-105	1	Field Parameters (Field pH)				
Bottom Ash Landfill	MW-9N	1					
	MW-102	1					
	MW-103	1					
Property Boundary	MW-PB1	1					
Wells Installed in May 2022	MW-210	1					
	MW-211	1					
	MW-212	1					
	MW-213	1					
	MW-214	1					
Piezometers [1]	PZ-BA-A	1					
	PZ-BA-B	1					
Sumps [2]	BAI-Sump-S	1					
Surface Water [3]	Missouri-River	1					
	Rail-Drainage	1					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R	1					
	MW-104	1				Subset of App IV detected in Q1, Iron, Aluminum, Manganese (Dissolved and Total for Each Metal)	
Bottom Ash Impoundment	MW-201	1					
	MW-202	1					
	MW-203	1					
Closed Landfill	MW-10	1			App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)
	MW-204	1	Sulfate + Field parameters				
	MW-205	1	Sulfate + Field parameters				
Additional Internal Locations	MW-4	1					
	MW-PB2	1					
Wells Installed in February 2023	MW-215	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-216	1					
	MW-217	1					
	MW-218	1					
	MW-219	1					
	MW-220	1					
	MW-221	1					
	MW-222	1					
	MW-300	1					
	MW-301	1					
	MW-PB3	1					
Total # of Sample Locations			4	35	40	6	40

Notes:
App III - Appendix III Detection Monitoring List, Table 2
App IV - Appendix IV Assessment Monitoring List, Table 3
Additional List - Table 4
Required field parameters are listed in Table 2 and Table 3
Suggested locations for collection of QA/QC samples are listed in Table 5.
1. The piezometers do not have dedicated pumps and will need to be sampled by other methods.
2. The sump should be sampled using surface water collection methods via the sump riser.
3. Surface water samples to be collected if safely accessible and free water is present.

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Account #: 5109 **Client:** Great River Energy

February 2024 GL21509219.000

Table 2. Parameter and Analysis Summary - Appendix III Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/11	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	SM 4500 F E/11	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	ASTM D516-16	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	USGS I-1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total and dissolved)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:
1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent methods.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

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Account #: 5109 **Client:** Great River Energy

Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

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Account #: 5109 **Client:** Great River Energy

Table 4: Additional List Parameter and Analysis Summary

Parameter [1]	Method Reference [2]	Reporting Limit	Preparation Method Reference [2]	Sample Container [3]	Required Preservation [4]	Maximum Holding Time from Sampling [5]
General Chemistry						
Total Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Bicarbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Carbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Metals (Total and Dissolved)						
Iron	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Magnesium	EPA 6010D	0.2 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Potassium	EPA 6010D	3.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Sodium	EPA 6010D	1.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Aluminum	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Manganese	EPA 6010D	0.05 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months

Notes:

1. All listed parameters are tested in the laboratory. Listed parameters are to be collected in conjunction with other CCR parameter lists (Table 2 and Table 3).

2. Or equivalent method.
3. Containers and volumes will be specified by the analytical laboratory.
4. In addition to the required preservation for each sample container, sufficient ice should be placed with the sample containers in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when samples arrive, measurement of the temperature of samples immediately upon receipt is necessary to confirm that the 4° C temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible following collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid, without the use of qualifiers.

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Table 5: 2024 Proposed Quality Assurance/Quality Control Sample Collection Locations

Location	Well ID	Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B		Field Blank			
	MW-7A					
	MW-7B		Duplicate			MS/MSD
	MW-8B					
	MW-105			Duplicate		
Bottom Ash Landfill	MW-9N					Duplicate
	MW-102		MS/MSD			
	MW-103			Field Blank		
Property Boundary	MW-PB1					
Wells Installed in May 2022	MW-210					Duplicate
	MW-211			MS/MSD		
	MW-212					Field Blank
	MW-213			Duplicate		
	MW-214		Field Blank			
Piezometers [1]	PZ-BA-A					
	PZ-BA-B					Field Blank
Sumps [2]	BAI-Sump-S					
Surface Water [3]	Missouri-River					
	Rail-Drainage					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R			Duplicate		
	MW-104					
Bottom Ash Impoundment	MW-201			Field Blank		MS/MSD
	MW-202		Duplicate		Field Blank	
	MW-203					Duplicate
Closed Landfill	MW-10					
	MW-204					
	MW-205					
Additional Internal Locations	MW-4					
	MW-PB2					
Wells Installed in February 2023	MW-215			Field Blank		
	MW-216		Field Blank			
	MW-217					Duplicate
	MW-218			MS/MSD		
	MW-219					
	MW-220					Field Blank
	MW-221		Duplicate			
	MW-222					
	MW-300					
	MW-301			Duplicate		
	MW-PB3					
Total # of Sample Locations		4	35	40	6	40
Total # of QC Samples		0	7	9	1	9

Notes:
Locations to collect samples are **suggestions only** to help with the distribution of QA/QC samples across the site and between facilities while meeting QA/QC objectives for the sampling programs.
Notes for QA/QC
Duplicates = 10-15% of primary collected sample
Field Blanks = 1 per day; based on number of primary collected samples, assuming 2 to 4 total per event
Equipment Blanks - only needed for non-dedicated equipement, none required.
MS/MSD = 1 per 20 primary collected samples, assuming 1 or 2 total per event.

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: November ~~June~~ 2024
Sample ID: 6B
Sampling Personal: Ethan Groess

Weather Conditions: Temp: 45 °F Wind: NW @5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	18.39	ft
Depth to Top of Pump:		ft
Water Level After Sample:	20.35	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 3	Sec.
Recover: 57	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
18Nov24	1440	Start of Well Purge									clear, slightly turbid, turbid
	1445	11.50	1647	7.61	3.86	156.7	0.24	19.35	~~20~~ 100.0	0.5	Clear
	1450	11.17	1648	7.61	1.73	150.6	0.00	19.67	100.0	0.5	Clear
	1455	11.08	1641	7.62	1.51	149.5	0.00	19.84	100.0	0.5	Clear
	1500	11.01	1643	7.62	1.50	143.2	0.00	20.00	100.0	0.5	Clear
	1505	11.17	1646	7.62	1.28	137.0	0.00	20.17	100.0	0.5	Clear

Well Stabilized? (YES) NO Total Volume Purged: 2.5 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18Nov24	1505	11.17	1646	7.62			0.00				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: ~~Nov 30~~ Dec 24 (2) GRE Stanton Station
Event: ~~November~~ June 2024
Sample ID: 7A
Sampling Personal: Ethan Conness

Weather Conditions: Temp: 30 °F Wind: NW @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	11.48	ft
Depth to Top of Pump:		ft
Water Level After Sample:	13.90	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	(Bladder)	
Sampling Method:	(Bladder)	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	2	Sec.
Recover:	58	Sec.
PSI:	—	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
											clear, slightly turbid, turbid
18 Nov 24	0810	Start of Well Purge									
	0815	9.96	17135	7.21	1.67	180.0	0.08	12.24	~~100~~ 100.0	0.5	Clear
	0820	8.54	17158	7.23	1.56	175.3	0.00	12.41	100.0	0.5	Clear
	0825	8.24	17166	7.24	1.68	177.4	0.00	12.53	100.0	0.5	Clear
	0830	8.28	17157	7.26	2.16	182.7	0.00	12.65	100.0	0.5	Clear
	0835	8.14	17160	7.26	2.41	185.7	0.09		100.0	0.5	Clear

Well Stabilized? (YES) NO Total Volume Purged: 2.5 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18 Nov 24	0835	8.14	17160	7.26			0.09				

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: November ~~June~~ 2024
Sample ID: FB/MS/MSD
Sampling Personal: Ethan Gross

Weather Conditions: Temp: 30 °F Wind: NW @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	11.00	ft
Depth to Top of Pump:		ft
Water Level After Sample:	10.95	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 4	Sec.
Recover: 52	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
	0942	Start of Well Purge									clear, slightly turbid, turbid
18Nov24	0949	8.27	1818	7.68	0.13	-104.3	6.00	11.19	200.0	1.0	Clear
	0954	8.15	1710	7.69	0.02	-122.9	0.00	11.03	200.0	1.0	Clear
	0959	8.12	1692	7.68	0.00	-129.7	0.00	11.03	200.0	1.0	Clear
	~~0~~1004	8.15	1674	7.68	0.00	-136.1	0.00	11.23	200.0	1.0	Clear
	1009	8.11	1663	7.68	0.00	-138.2	0.00		200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18Nov24	1009	8.11	1663	7.68			0.00				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: ~~30 Day~~ 4 Day GRE Stanton Station
Event: ~~November~~ June 2024
Sample ID: 8B
Sampling Personal: Ethan Gress

Weather Conditions: Temp: 40 °F Wind: NW @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	41.68	ft
Depth to Top of Pump:		ft
Water Level After Sample:	41.76	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 5	Sec.
Recover: 5	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
	1315	Start of Well Purge									
18Nov24	1320	10.60	1765	7.35	0.27	-2.0	1.19	41.69	200.0	1.0	Clear
	1325	10.62	1754	7.33	0.19	-28.2	1.41	41.71	200.0	1.0	Clear
	1330	10.58	1772	7.32	0.22	-23.8	1.72	41.73	200.0	1.0	Clear
	1335	10.62	1721	7.33	0.19	-17.9	2.30	41.70	200.0	1.0	Clear
	1340	10.64	1645	7.31	0.17	-11.2	0.51	41.69	200.0	1.0	Clear
	1345	10.64	1560	7.32	0.18	-3.2	0.32	41.71	200.0	1.0	Clear
	1350	10.60	1540	7.33	0.19	2.8	0.17	41.72	200.0	1.0	Clear
	1355	10.61	1541	7.31	0.20	5.3	1.07	41.70	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 8.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18Nov24	1355	10.61	1541	7.31			1.07				Clear

Comments:

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 515-382-5486 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: ~~Dec~~ 30 Dec 24 GRE Stanton Station
Event: ~~November~~ June 2024
Sample ID: 105
Sampling Personal: Ethan Cress

Weather Conditions: Temp: 40 °F Wind: NW @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	14.45	ft
Depth to Top of Pump:		ft
Water Level After Sample:	14.56	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 3	Sec.
Recover 57	Sec.
PSI:	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES (NO)
Duplicate Sample ID:

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
18Nov24	1200	Start of Well Purge									
	1205	10.07	1873	7.77	0.47	63.9	0.69	14.52	200.0	1.0	Clear
	1210	10.43	1858	7.77	0.21	62.3	0.19	14.54	200.0	1.0	Clear
	1215	10.50	1864	7.77	0.15	58.8	0.89	14.63	200.0	1.0	Clear
	1220	10.54	1860	7.77	0.12	61.9	0.92	14.52	200.0	1.0	Clear
	1225	10.62	1864	7.77	0.11	63.2	0.72	14.53	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18Nov24	1225	10.62	1864	7.77	Dup	63.2	0.72				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy
Workorder: SS UP Nov 2024 (71313) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71313001 **Date Collected:** 11/18/2024 15:05 **Matrix:** Groundwater
Sample ID: MW-6B **Date Received:** 11/18/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.3 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:06	
Radium 228	See Attached			1		12/30/2024 13:08	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71313002 **Date Collected:** 11/18/2024 08:35 **Matrix:** Groundwater
Sample ID: MW-7A **Date Received:** 11/18/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.3 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:08	
Radium 228	See Attached			1		12/30/2024 13:08	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71313003 **Date Collected:** 11/18/2024 10:09 **Matrix:** Groundwater
Sample ID: MW-7B **Date Received:** 11/18/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.3 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:08	
Radium 228	See Attached			1		12/30/2024 13:08	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71313004 **Date Collected:** 11/18/2024 13:55 **Matrix:** Groundwater
Sample ID: MW-8B **Date Received:** 11/18/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.3 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:08	
Radium 228	See Attached			1		12/30/2024 13:08	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71313005 **Date Collected:** 11/18/2024 12:25 **Matrix:** Groundwater
Sample ID: MW-105 **Date Received:** 11/18/2024 18:30 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.3 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:08	
Radium 228	See Attached			1		12/30/2024 13:08	

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ANALYTICAL SUMMARY REPORT

December 23, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24110855 Quote ID: C15480
Project Name: 71313

Energy Laboratories, Inc. Casper WY received the following 5 samples for Minnesota Valley Testing Laboratories on 11/22/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24110855-001	71313001, MW-6B	11/18/24 15:05	11/22/24	Groundwater	Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total
C24110855-002	71313002, MW-7A	11/18/24 8:35	11/22/24	Groundwater	Same As Above
C24110855-003	71313003, MW-7B	11/18/24 10:09	11/22/24	Groundwater	Same As Above
C24110855-004	71313004, MW-8B	11/18/24 13:55	11/22/24	Groundwater	Same As Above
C24110855-005	71313005, MW-105	11/18/24 12:25	11/22/24	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy, Casper, WY 82601-9601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

Energy Laboratories, Inc. verifies the reported results for the analysis has been technically reviewed and approved for release.

If you have any questions regarding these test results, please contact your Project Manager.

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71313
Lab ID: C24110855-001
Client Sample ID: 71313001, MW-6B

Report Date: 12/23/24
Collection Date: 11/18/24 15:05
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 226 precision (±)	0.09	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 226 MDC	0.1	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 228	0.1	pCi/L	U			RA-05	12/11/24 16:05 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	12/11/24 16:05 / trs
Radium 228 MDC	1.0	pCi/L				RA-05	12/11/24 16:05 / trs
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 MDC	1.0	pCi/L				A7500-RA	12/18/24 14:50 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71313
Lab ID: C24110855-002
Client Sample ID: 71313002, MW-7A

Report Date: 12/23/24
Collection Date: 11/18/24 08:35
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.09	pCi/L	U			E903.0	12/16/24 09:59 / apt
Radium 226 precision (±)	0.1	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 226 MDC	0.2	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 228	0.6	pCi/L	U			RA-05	12/11/24 16:05 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	12/11/24 16:05 / trs
Radium 228 MDC	1	pCi/L				RA-05	12/11/24 16:05 / trs
Radium 226 + Radium 228	0.6	pCi/L	U			A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 MDC	1.0	pCi/L				A7500-RA	12/18/24 14:50 / dmf

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71313
Lab ID: C24110855-003
Client Sample ID: 71313003, MW-7B

Report Date: 12/23/24
Collection Date: 11/18/24 10:09
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 226 precision (±)	0.1	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 226 MDC	0.1	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 228	0.7	pCi/L	U			RA-05	12/11/24 16:05 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	12/11/24 16:05 / trs
Radium 228 MDC	1	pCi/L				RA-05	12/11/24 16:05 / trs
Radium 226 + Radium 228	0.6	pCi/L	U			A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 MDC	1	pCi/L				A7500-RA	12/18/24 14:50 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
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Page 4 of 12

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Account #: 5109 **Client:** Great River Energy

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71313
Lab ID: C24110855-004
Client Sample ID: 71313004, MW-8B

Report Date: 12/23/24
Collection Date: 11/18/24 13:55
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	12/16/24 09:59 / apt
Radium 226 precision (±)	0.1	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 226 MDC	0.2	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 228	1.0	pCi/L				RA-05	12/11/24 16:05 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	12/11/24 16:05 / trs
Radium 228 MDC	1	pCi/L				RA-05	12/11/24 16:05 / trs
Radium 226 + Radium 228	1.1	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 MDC	1	pCi/L				A7500-RA	12/18/24 14:50 / dmf

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ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71313
Lab ID: C24110855-005
Client Sample ID: 71313005, MW-105

Report Date: 12/23/24
Collection Date: 11/18/24 12:25
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	12/16/24 09:59 / apt
Radium 226 precision (±)	0.1	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 226 MDC	0.2	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 228	0.5	pCi/L	U			RA-05	12/11/24 16:05 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	12/11/24 16:05 / trs
Radium 228 MDC	1	pCi/L				RA-05	12/11/24 16:05 / trs
Radium 226 + Radium 228	0.6	pCi/L	U			A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 MDC	1	pCi/L				A7500-RA	12/18/24 14:50 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C24110855 **Report Date:** 12/18/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11530
Lab ID: LCS-RA226-11530	3	Laboratory Control Sample				Run: TENNELEC-4_241203G				12/16/24 09:59
Radium 226		10	pCi/L		101	70	130			
Radium 226 precision (±)		1.6	pCi/L							
Radium 226 MDC		0.15	pCi/L							
Lab ID: MB-RA226-11530	3	Method Blank				Run: TENNELEC-4_241203G				12/16/24 09:59
Radium 226		0.01	pCi/L							U
Radium 226 precision (±)		0.08	pCi/L							
Radium 226 MDC		0.1	pCi/L							
Lab ID: C24110855-003AMS	3	Sample Matrix Spike				Run: TENNELEC-4_241203G				12/16/24 09:59
Radium 226		8.8	pCi/L		87	70	130			
Radium 226 precision (±)		1.4	pCi/L							
Radium 226 MDC		0.14	pCi/L							
Lab ID: C24110855-003AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_241203G				12/16/24 09:59
Radium 226		9.4	pCi/L		93	70	130	6.4	30	
Radium 226 precision (±)		1.5	pCi/L							
Radium 226 MDC		0.18	pCi/L							

- The RER result is 0.28.

Qualifiers:

RL - Analyte Reporting Limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected

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QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C24110855 **Report Date:** 12/18/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7540
Lab ID: LCS-228-RA228-7540	3	Laboratory Control Sample				Run: TENNELEC-4_241203F				12/11/24 16:05
Radium 228		9.8	pCi/L		99	70	130			
Radium 228 precision (±)		2.6	pCi/L							
Radium 228 MDC		1.1	pCi/L							
Lab ID: MB-228-RA228-7540	3	Method Blank				Run: TENNELEC-4_241203F				12/11/24 16:05
Radium 228		0.9	pCi/L							U
Radium 228 precision (±)		0.7	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C24110855-003AMS	3	Sample Matrix Spike				Run: TENNELEC-4_241203F				12/11/24 16:05
Radium 228		6.3	pCi/L		57	70	130			S
Radium 228 precision (±)		1.8	pCi/L							
Radium 228 MDC		0.99	pCi/L							
Lab ID: C24110855-003AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_241203F				12/11/24 16:05
Radium 228		4.0	pCi/L		34	70	130	44	30	SR
Radium 228 precision (±)		1.2	pCi/L							
Radium 228 MDC		0.97	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than or equal to the limit of 3, the RER result is 1.04.

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
U - Not detected
ND - Not detected at the Reporting Limit (RL)
S - Spike recovery outside of advisory limits

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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24110855

Login completed by: Dakota R. Sawyer
Reviewed by: lquezada
Reviewed Date: 11/22/2024
Date Received: 11/22/2024
Received by: CCS
Carrier name: UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	11.0°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Trip Blanks and/or Blind Duplicate samples are assigned the earliest collection time for the associated requested analysis in order to evaluate the holding time unless specifically indicated.

Contact and Corrective Action Comments:

The temperature blank temperature in shipping container 1 was 10.1°C, shipping container 3 was 10.0°C, shipping container 5 was 11.0°C, and shipping container 6 was 10.7°C. The temperature of the sample(s) in shipping container 2

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Work Order Receipt Checklist - Continued

Minnesota Valley Testing Laboratories C24110855

was 9.4°C and shipping container 4 was 9.4°C. DRS 11/22/24

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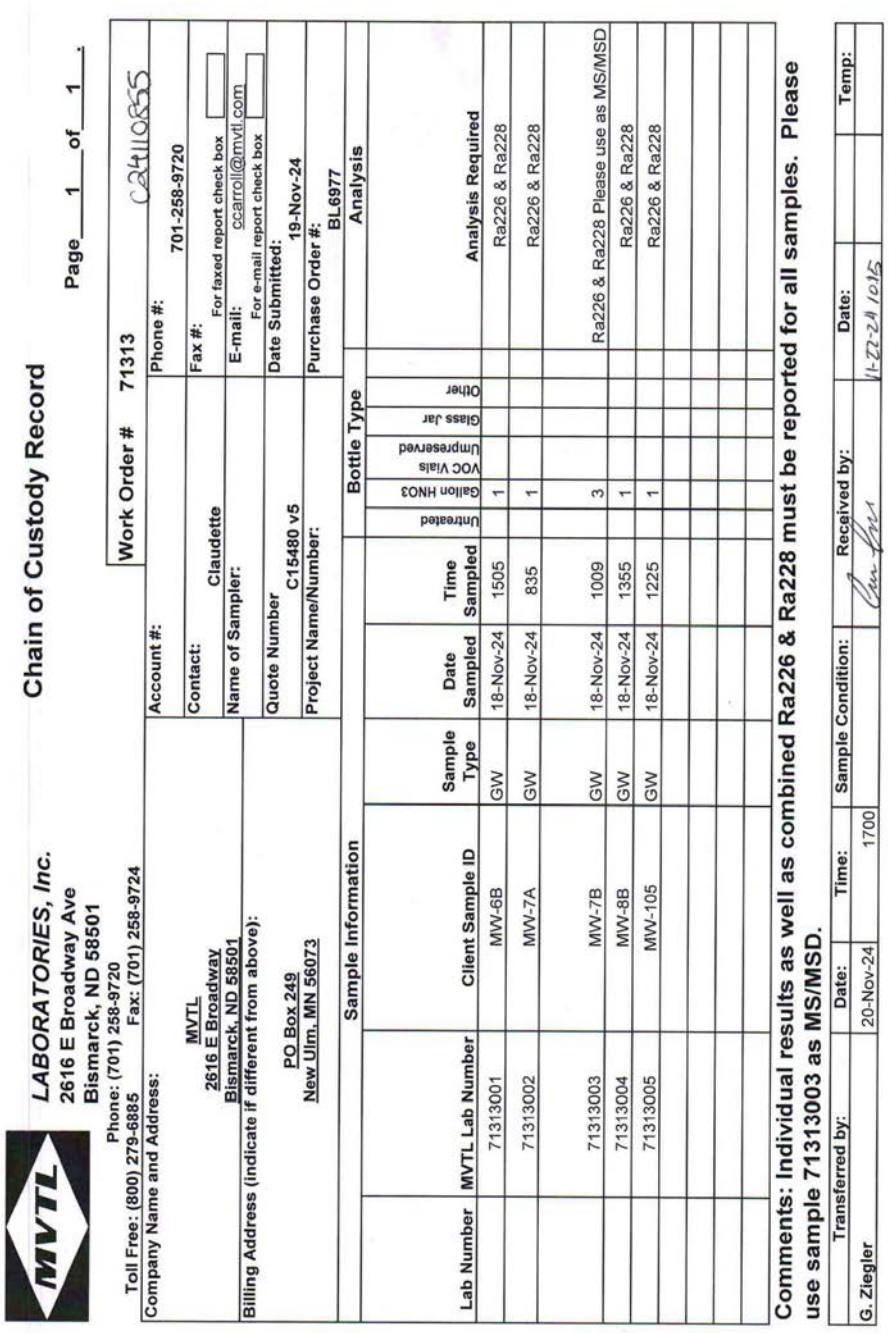
	Agency	Number
Billings, MT	Alaska	17-023
	California	3087
	Colorado	MT00005
	Department of Defense (DoD)/ISO17025	ADE-2588
	Florida (Primary NELAP)	E87668
	Idaho	MT00005
	Louisiana	05079
	Montana	CERT0044
	Nebraska	NE-OS-13-04
	Nevada	NV-C24-00250
	North Dakota	R-007
	National Radon Proficiency	109383-RMP
	Oregon	4184
	South Dakota	ARSD 74:04:07
	Texas	TX-C24-00302
	US EPA Region VIII	Reciprocal
	USDA Soil Permit	P330-20-00170
	Washington	C1039
Casper, WY	Alaska	20-006
	California	3021
	Colorado	WY00002
	Florida (Primary NELAP)	E87641
	Idaho	WY00002
	Louisiana	05083
	Montana	CERT0002
	Nebraska	NE-OS-08-04
	Nevada	NV-C24-00245
	North Dakota	R-125
	Oregon	WY200001
	South Dakota	WY00002
	Texas	T104704181-23-21
	US EPA Region VIII	WY00002
	USNRC License	49-26846-01
	Washington	C1012
Gillette, WY	US EPA Region VIII	WY00006
Helena, MT	Colorado	MT00945
	Montana	CERT0079
	Nevada	NV-C24-00119
	US EPA Region VIII	Reciprocal
	USDA Soil Permit	P330-20-00090

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Chain of Custody Record

Page 1 of 1

Work Order # 71313 24110855

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501

Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073

Account #:
Contact: Claudette
Name of Sampler:
Quote Number C15480 v5
Project Name/Number:

Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box
Date Submitted: 19-Nov-24
Purchase Order #: BL6977

Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Unpreserved	Gallon HNO3	VOC Vials	Unpreserved	Glass Jar	Other	Analysis Required
	71313001	MW-6B	GW	18-Nov-24	1505		1					Ra226 & Ra228
	71313002	MW-7A	GW	18-Nov-24	835		1					Ra226 & Ra228
	71313003	MW-7B	GW	18-Nov-24	1009		3					Ra226 & Ra228 Please use as MS/MSD
	71313004	MW-8B	GW	18-Nov-24	1355		1					Ra226 & Ra228
	71313005	MW-105	GW	18-Nov-24	1225		1					Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples. Please use sample 71313003 as MS/MSD.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
G. Ziegler	20-Nov-24	1700			11-22-24 1015	

Page 12 of 12

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Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 71313

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS UP
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: NIV Sept 2024
Address:		Lakewood, CO 80228	Sampled By: Ethan Gress
Phone:			
Email:	CJohnston@GREnergy.com		

Sample Information					Sample Containers									Field Readings				Analysis Required
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Gal Nitric									
001	MW-6B	18Nov24	1505	GW					X									
002	MW-7A	18Nov24	0835	GW					X3									
003	MW-7B	18Nov24	1009	GW					X3									
004	MW-8B	18Nov24	1355	GW					X									
005	MW-105	18Nov24	1225	GW					X									Radium 226 and 228 Combined

Comments: Upgradient/Side-gradient Wells

Relinquished By			Sample Condition		Received By	
	Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1		18Nov24 1830	Log In / Walk In #2	9.3 °C/TM 806 ROI Y/N		19Nov24 0802
2						

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Table 1: Proposed 2024 Stanton Station Plant Facilities Sampling Schedule

Location	Well ID		2024				
			Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-7A	1	Field Parameters (Field pH)				
	MW-7B	1					
	MW-8B	1					
	MW-105	1	Field Parameters (Field pH)				
Bottom Ash Landfill	MW-9N	1					
	MW-102	1					
	MW-103	1					
Property Boundary	MW-PB1	1					
Wells Installed in May 2022	MW-210	1					
	MW-211	1					
	MW-212	1					
	MW-213	1					
	MW-214	1					
Piezometers [1]	PZ-BA-A	1					
	PZ-BA-B	1					
Sumps [2]	BAI-Sump-S	1					
Surface Water [3]	Missouri-River	1					
	Rail-Drainage	1					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R	1					
	MW-104	1					
Bottom Ash Impoundment	MW-201	1				Subset of App IV detected in Q1, Iron, Aluminum, Manganese (Dissolved and Total for Each Metal)	
	MW-202	1					
	MW-203	1					
Closed Landfill	MW-10	1			App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)
	MW-204	1	Sulfate + Field parameters				
	MW-205	1	Sulfate + Field parameters				
Additional Internal Locations	MW-4	1			App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-PB2	1					
Wells Installed in February 2023	MW-215	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)			
	MW-216	1					
	MW-217	1					
	MW-218	1					
	MW-219	1					
	MW-220	1					
	MW-221	1					
	MW-222	1					
	MW-300	1					
	MW-301	1					
	MW-PB3	1					
Total # of Sample Locations			4	35	40	6	40

Notes:
App III - Appendix III Detection Monitoring List, Table 2
App IV - Appendix IV Assessment Monitoring List, Table 3
Additional List - Table 4
Required field parameters are listed in Table 2 and Table 3
Suggested locations for collection of QA/QC samples are listed in Table 5.
1. The piezometers do not have dedicated pumps and will need to be sampled by other methods.
2. The sump should be sampled using surface water collection methods via the sump riser.
3. Surface water samples to be collected if safely accessible and free water is present.

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February 2024 GL21509219.000

Table 2. Parameter and Analysis Summary - Appendix III Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	EPA 9040C	0.1 units	–	–	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	–	–	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	–	–	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	–	–	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	–	–	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	–	–	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/11	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	SM 4500 F E/11	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	ASTM D516-16	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	USGS I-1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total and dissolved)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:
1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent methods.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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Account #: 5109 **Client:** Great River Energy

Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

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Account #: 5109 **Client:** Great River Energy

Table 4: Additional List Parameter and Analysis Summary

Parameter [1]	Method Reference [2]	Reporting Limit	Preparation Method Reference [2]	Sample Container [3]	Required Preservation [4]	Maximum Holding Time from Sampling [5]
General Chemistry						
Total Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Bicarbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Carbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Metals (Total and Dissolved)						
Iron	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Magnesium	EPA 6010D	0.2 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Potassium	EPA 6010D	3.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Sodium	EPA 6010D	1.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Aluminum	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Manganese	EPA 6010D	0.05 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months

Notes:

1. All listed parameters are tested in the laboratory. Listed parameters are to be collected in conjunction with other CCR parameter lists (Table 2 and Table 3).

2. Or equivalent method.
3. Containers and volumes will be specified by the analytical laboratory.
4. In addition to the required preservation for each sample container, sufficient ice should be placed with the sample containers in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when samples arrive, measurement of the temperature of samples immediately upon receipt is necessary to confirm that the 4° C temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible following collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid, without the use of qualifiers.

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Table 5: 2024 Proposed Quality Assurance/Quality Control Sample Collection Locations

Location	Well ID	Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B		Field Blank			
	MW-7A					
	MW-7B		Duplicate			MS/MSD
	MW-8B					
	MW-105			Duplicate		
Bottom Ash Landfill	MW-9N					Duplicate
	MW-102		MS/MSD			
	MW-103			Field Blank		
Property Boundary	MW-PB1					
Wells Installed in May 2022	MW-210					Duplicate
	MW-211			MS/MSD		
	MW-212					Field Blank
	MW-213			Duplicate		
	MW-214		Field Blank			
Piezometers [1]	PZ-BA-A					
	PZ-BA-B					Field Blank
Sumps [2]	BAI-Sump-S					
Surface Water [3]	Missouri-River					
	Rail-Drainage					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R			Duplicate		
	MW-104					
Bottom Ash Impoundment	MW-201			Field Blank		MS/MSD
	MW-202		Duplicate		Field Blank	
	MW-203					Duplicate
Closed Landfill	MW-10					
	MW-204					
	MW-205					
Additional Internal Locations	MW-4					
	MW-PB2					
Wells Installed in February 2023	MW-215			Field Blank		
	MW-216		Field Blank			
	MW-217					Duplicate
	MW-218			MS/MSD		
	MW-219					
	MW-220					Field Blank
	MW-221		Duplicate			
	MW-222					
	MW-300					
	MW-301			Duplicate		
	MW-PB3					
Total # of Sample Locations		4	35	40	6	40
Total # of QC Samples		0	7	9	1	9

Notes:
Locations to collect samples are **suggestions only** to help with the distribution of QA/QC samples across the site and between facilities while meeting QA/QC objectives for the sampling programs.
Notes for QA/QC
Duplicates = 10-15% of primary collected sample
Field Blanks = 1 per day; based on number of primary collected samples, assuming 2 to 4 total per event
Equipment Blanks - only needed for non-dedicated equipement, none required.
MS/MSD = 1 per 20 primary collected samples, assuming 1 or 2 total per event.

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov ~~June~~ 2024
Sample ID: 31Dec24GB
Sampling Personal: Ethan Groess

Weather Conditions: Temp: 45 °F Wind: NW @5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	18.39	ft
Depth to Top of Pump:		ft
Water Level After Sample:	20.25	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	3	Sec.
Recover:	57	Sec.
PSI:	—	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample? YES / NO
Duplicate Sample ID: —

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
18Nov24	1440	Start of Well Purge									
	1445	11.50	1641	7.61	3.86	156.7	0.24	19.35	~~200~~ 100.0	0.5	Clear
	1450	11.17	1648	7.61	1.93	150.6	0.00	19.67	100.0	0.5	Clear
	1455	11.08	1641	7.62	1.51	144.5	0.00	19.84	100.0	0.5	Clear
	1500	11.01	1643	7.62	1.50	143.2	0.00	20.00	100.0	0.5	Clear
	1505	11.17	1646	7.62	1.28	137.0	0.00	20.17	100.0	0.5	Clear

Well Stabilized? YES NO Total Volume Purged: 2.5 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18Nov24	1505	11.17	1646	7.62			0.00				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: NRV ~~June~~ 2024 CB rc 31Dec24
Sample ID: 7A
Sampling Personal: Ethan Cress

Weather Conditions: Temp: 30 °F Wind: NW @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	11.48	ft
Depth to Top of Pump:		ft
Water Level After Sample:	13.90	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 2	Sec.
Recover: 58	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
											clear, slightly turbid, turbid
18Nov24	0810	Start of Well Purge									
	0815	9.96	17135	7.21	1.67	180.0	0.08	12.24	~~100~~100.0	0.5	Clear
	0820	8.54	17158	7.23	1.56	175.3	0.00	12.41	100.0	0.5	Clear
	0825	8.24	17166	7.24	1.68	177.4	0.00	12.53	100.0	0.5	Clear
	0830	8.28	17157	7.26	2.16	182.7	0.00	12.65	100.0	0.5	Clear
	0835	8.14	17160	7.26	2.41	185.7	0.09		100.0	0.5	Clear

Well Stabilized? YES NO Total Volume Purged: 2.5 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18Nov24	0835	8.14	17160	7.26			0.09				

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: NEV ~~June~~-2024 (A) rc 30Dec24
Sample ID: FB/MS/MSD
Sampling Personal: Ethan Gross

Weather Conditions: Temp: 30 °F Wind: NW @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	11.00	ft
Depth to Top of Pump:		ft
Water Level After Sample:	10.95	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 4	Sec.
Recover: 58	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
											clear, slightly turbid, turbid
18Nov24	0944	Start of Well Purge									
	0949	8.27	1818	7.68	0.13	-104.3	0.00	11.19	200.0	1.0	Clear
	0954	8.15	1710	7.69	0.02	-122.9	0.00	11.03	200.0	1.0	Clear
	0959	8.12	1692	7.68	0.00	-129.7	0.00	11.03	200.0	1.0	Clear
	~~09~~1004	8.15	1674	7.68	0.00	-136.1	0.00	11.23	200.0	1.0	Clear
	1009	8.11	1663	7.68	0.00	-138.2	0.00		200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18Nov24	1009	8.11	1663	7.68			0.00				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov ~~June~~ 2024 (A) cc 30Dec24
Sample ID: 8B
Sampling Personal: Ethan Gress

Weather Conditions: Temp: 40 °F Wind: NW @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	41.68	ft
Depth to Top of Pump:		ft
Water Level After Sample:	41.76	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 5	Sec.
Recover: 5	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
	1315	Start of Well Purge									clear, slightly turbid, turbid
18Nov24	1320	10.60	1765	7.35	0.27	-2.0	1.19	41.69	200.0	1.0	Clear
	1325	10.62	1754	7.33	0.19	-28.2	1.41	41.71	200.0	1.0	Clear
	1330	10.58	1772	7.32	0.22	-23.8	1.72	41.73	200.0	1.0	Clear
	1335	10.62	1721	7.33	0.19	-17.9	2.30	41.70	200.0	1.0	Clear
	1340	10.64	1645	7.31	0.17	-11.2	0.51	41.69	200.0	1.0	Clear
	1345	10.64	1560	7.32	0.18	-3.2	0.32	41.71	200.0	1.0	Clear
	1350	10.60	1540	7.33	0.19	2.8	0.17	41.72	200.0	1.0	Clear
	1355	10.61	1541	7.31	0.20	5.3	1.07	41.70	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 8.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18Nov24	1355	10.61	1541	7.31			1.07				Clear

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: NU ~~June 2024~~ Dec 30Dec24
Sample ID: 105
Sampling Personal: Ethan Gress

Weather Conditions: Temp: 40 °F Wind: NW @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	14.45	ft
Depth to Top of Pump:		ft
Water Level After Sample:	14.56	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 3	Sec.
Recover 57	Sec.
PSI:	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES (NO)
Duplicate Sample ID:

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
	1200	Start of Well Purge									clear, slightly turbid, turbid
18Nov24	1205	10.07	1873	7.77	0.47	63.9	0.69	14.52	200.0	1.0	Clear
	1210	10.43	1858	7.77	0.21	62.3	0.19	14.54	200.0	1.0	Clear
	1215	10.50	1864	7.77	0.15	58.8	0.89	14.63	200.0	1.0	Clear
	1220	10.54	1860	7.77	0.12	61.9	0.92	14.52	200.0	1.0	Clear
	1225	10.62	1864	7.77	0.11	63.2	0.72	14.53	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18Nov24	1225	10.62	1864	7.77	~~Qual~~	~~63.2~~	0.72				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy
Workorder: SS BAL Nov 2024 (71293) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

Amended reports to correct event on field data sheets. CC 30Dec24

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71293001 **Date Collected:** 11/18/2024 13:38 **Matrix:** Groundwater
Sample ID: MW-9N **Date Received:** 11/18/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**4102**	umhos/cm	1	1		11/18/2024 13:38	
Method: 150.2							
pH - Field	**7.16**	units	0.01	1		11/18/2024 13:38	
Method: 170.1							
Temperature - Field C	**11.96**	degrees C		1		11/18/2024 13:38	
Method: ASTM D516-16							
Sulfate	**1400**	mg/L	50	10		11/20/2024 14:37	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**2.85**	mg/L	0.1	1	11/19/2024 16:31	11/20/2024 11:16	
Calcium	**83.9**	mg/L	5	5	11/19/2024 16:31	11/21/2024 10:53	
Lithium	**0.0516**	mg/L	0.02	1	11/19/2024 16:31	11/20/2024 09:49	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/19/2024 16:31	11/26/2024 16:57	
Arsenic	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:57	
Barium	**0.0604**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:57	
Beryllium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/27/2024 11:19	
Cadmium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 16:57	
Chromium	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:57	
Cobalt	**0.0028**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:57	
Lead	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 16:57	
Molybdenum	**0.0503**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 16:57	
Selenium	**0.0143**	mg/L	0.005	5	11/19/2024 16:31	11/26/2024 16:57	
Thallium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 16:57	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71293001 **Date Collected:** 11/18/2024 13:38 **Matrix:** Groundwater
Sample ID: MW-9N **Date Received:** 11/18/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.6**	units	0.1	1		11/19/2024 16:15	*
Method: SM4500-Cl-E 2011							
Chloride	**25.7**	mg/L	2.0	1		11/26/2024 09:44	
Method: SM4500-F-C-2011							
Fluoride	**0.76**	mg/L	0.1	1		11/19/2024 16:15	
Method: USGS I-1750-85							
Total Dissolved Solids	**3070**	mg/L	10	1		11/19/2024 15:38	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71293002 **Date Collected:** 11/18/2024 13:38 **Matrix:** Groundwater
Sample ID: DUP BAL **Date Received:** 11/18/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: ASTM D516-16							
Sulfate	**1430**	mg/L	25	5		11/20/2024 14:46	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**2.79**	mg/L	0.1	1	11/19/2024 16:31	11/20/2024 11:19	
Calcium	**82.4**	mg/L	5	5	11/19/2024 16:31	11/21/2024 10:56	
Lithium	**0.0493**	mg/L	0.02	1	11/19/2024 16:31	11/20/2024 09:50	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/19/2024 16:31	11/26/2024 17:01	
Arsenic	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 17:01	
Barium	**0.0595**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 17:01	
Beryllium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/27/2024 11:22	
Cadmium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 17:01	
Chromium	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 17:01	
Cobalt	**0.0028**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 17:01	
Lead	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 17:01	
Molybdenum	**0.0497**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 17:01	
Selenium	**0.0135**	mg/L	0.005	5	11/19/2024 16:31	11/26/2024 17:01	
Thallium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 17:01	
Method: SM4500 H+ B-2011							
pH	**7.6**	units	0.1	1		11/19/2024 16:27	*
Method: SM4500-Cl-E 2011							
Chloride	**25.7**	mg/L	2.0	1		11/26/2024 09:45	
Method: SM4500-F-C-2011							
Fluoride	**0.77**	mg/L	0.1	1		11/19/2024 16:27	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71293002 **Date Collected:** 11/18/2024 13:38 **Matrix:** Groundwater
Sample ID: DUP BAL **Date Received:** 11/18/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: USGS I-1750-85							
Total Dissolved Solids	**3080**	mg/L	10	1		11/19/2024 15:38	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71293003 **Date Collected:** 11/18/2024 15:00 **Matrix:** Groundwater
Sample ID: MW-102 **Date Received:** 11/18/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1970**	umhos/cm	1	1		11/18/2024 15:00	
Method: 150.2							
pH - Field	**7.63**	units	0.01	1		11/18/2024 15:00	
Method: 170.1							
Temperature - Field C	**10.91**	degrees C		1		11/18/2024 15:00	
Method: ASTM D516-16							
Sulfate	**565**	mg/L	25	5		11/20/2024 14:47	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**0.42**	mg/L	0.1	1	11/19/2024 16:31	11/20/2024 11:20	
Calcium	**60.5**	mg/L	1	1	11/19/2024 16:31	11/21/2024 10:57	
Lithium	**0.0551**	mg/L	0.02	1	11/19/2024 16:31	11/20/2024 09:51	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/19/2024 16:31	11/26/2024 18:21	
Arsenic	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:21	
Barium	**0.0250**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:21	
Beryllium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/27/2024 11:24	
Cadmium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 18:21	
Chromium	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:21	
Cobalt	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:21	
Lead	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 18:21	
Molybdenum	**0.0172**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:21	
Selenium	<0.005	mg/L	0.005	5	11/19/2024 16:31	11/26/2024 18:21	
Thallium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 18:21	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71293003 **Date Collected:** 11/18/2024 15:00 **Matrix:** Groundwater
Sample ID: MW-102 **Date Received:** 11/18/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**8.0**	units	0.1	1		11/19/2024 18:37	*
Method: SM4500-Cl-E 2011							
Chloride	**15.2**	mg/L	2.0	1		11/26/2024 09:52	
Method: SM4500-F-C-2011							
Fluoride	**0.48**	mg/L	0.1	1		11/19/2024 18:37	
Method: USGS I-1750-85							
Total Dissolved Solids	**1360**	mg/L	10	1		11/19/2024 15:38	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71293004 **Date Collected:** 11/18/2024 10:35 **Matrix:** Groundwater
Sample ID: MW-103 **Date Received:** 11/18/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2781**	umhos/cm	1	1		11/18/2024 10:35	
Method: 150.2							
pH - Field	**8.8**	units	0.01	1		11/18/2024 10:35	
Method: 170.1							
Temperature - Field C	**9.5**	degrees C		1		11/18/2024 10:35	
Method: ASTM D516-16							
Sulfate	**847**	mg/L	50	10		11/20/2024 14:48	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**1.40**	mg/L	0.1	1	11/19/2024 16:31	11/20/2024 11:20	
Calcium	**33.0**	mg/L	1	1	11/19/2024 16:31	11/21/2024 10:58	
Lithium	**0.0268**	mg/L	0.02	1	11/19/2024 16:31	11/20/2024 09:51	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/19/2024 16:31	11/26/2024 18:26	
Arsenic	**0.0142**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:26	
Barium	**0.0520**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:26	
Beryllium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/27/2024 11:27	
Cadmium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 18:26	
Chromium	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:26	
Cobalt	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:26	
Lead	**0.0012**	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 18:26	
Molybdenum	**0.0438**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:26	
Selenium	**0.0131**	mg/L	0.005	5	11/19/2024 16:31	11/26/2024 18:26	
Thallium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 18:26	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71293004 **Date Collected:** 11/18/2024 10:35 **Matrix:** Groundwater
Sample ID: MW-103 **Date Received:** 11/18/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**8.7**	units	0.1	1		11/19/2024 18:48	*
Method: SM4500-Cl-E 2011							
Chloride	**17.1**	mg/L	2.0	1		11/26/2024 09:53	
Method: SM4500-F-C-2011							
Fluoride	**0.48**	mg/L	0.1	1		11/19/2024 18:48	
Method: USGS I-1750-85							
Total Dissolved Solids	**1950**	mg/L	10	1		11/19/2024 15:38	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 71293

Sulfate — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			100	106.0		85	115		
LFB			100	105.0		85	115		
LFB			100	99.7		85	115		
LFB			100	109.0		85	115		
LFB			100	102.0		85	115		
LFB			100	96.4		85	115		
LFB			100	104.0		85	115		
LFB			100	95.7		85	115		
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MS/MSD	70896004		1000	100.4	95.9	85	115	1.6	20
MS/MSD	71087001		2000	99.0	97.8	85	115	0.7	20
MS/MSD	71089005		500	93.5	91.7	85	115	1.0	20
MS/MSD	71089015		1000	103.2	99.7	85	115	1.2	20
MS/MSD	71089025		100	92.8	97.4	85	115	4.8	20
MS/MSD	71292003		500	94.8	95.5	85	115	0.5	20
MS/MSD	71294007		100	109.1	103.1	85	115	5.7	20

Chloride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	95.1		90	110		
LFB			30	92.6		90	110		
LFB			30	94.9		90	110		
LFB			30	95.0		90	110		

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Account #: 5109 **Client:** Great River Energy

Chloride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	94.4		90	110		
LFB			30	92.3		90	110		
LFB			30	94.1		90	110		
LFB			30	93.3		90	110		
LFB			30	94.2		90	110		
LFB			30	93.9		90	110		
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MS/MSD	71292003		30	97.4	97.0	80	120	0.5	20
MS/MSD	71545001		30	103.2	102.2	80	120	0.0	20
MS/MSD	71688001		30	100.0	99.5	80	120	0.4	20
MS/MSD	71890007		30	104.3	106.8	80	120	0.9	20
MS/MSD	72123002		30	94.7	94.7	80	120	0.0	20

Aluminum Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	101.0		85	115		
LFB-OE			0.4	92.5		85	115		
MB		<0.1							
MB		<0.1							
MS/MSD	71292003		0.4	102.0	101.0	70	130	0.6	20
PDS/PDSD	71294002		10	94.9	99.4	75	125	3.3	20

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Aluminum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	92.5		85	115		
LFB-OE			0.4	101.0		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	71292001		0.4	109.0	109.0	75	125	0.4	20
MS/MSD	71292003		0.4	102.0	100.0	75	125	1.8	20
SPK/SPKD	71688001		2	100.0	104.0	75	125	4.0	20
SPK/SPKD	71690001		0.4	112.0	113.0	75	125	1.4	20
SPK/SPKD	71694001		0.4	95.8	97.5	75	125	1.4	20

Boron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	95.8		85	115		
MB		<0.1							
PDS/PDSD	70864001		2	98.4	94.6	75	125	2.4	20
MS/MSD	71292003		0.4	99.6	97.3	70	130	1.1	20

Calcium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	104.0		85	115		
MB		<1							
PDS/PDSD	71089017		100	94.1	93.2	75	125	0.4	20
DUP	71292003							2.4	20
PDS/PDSD	71292004		100	94.9	98.3	75	125	1.9	20
DUP	71293004							2.7	20
PDS/PDSD	71294005		100	93.6	95.7	75	125	1.1	20
PDS/PDSD	71485007		100	97.4	97.2	75	125	0.1	20
PDS/PDSD	71544001		100	101.0	101.0	75	125	0.5	20

Iron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
LFB-OE			0.4	105.0		85	115		
MB		<0.1							

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Iron				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.1							
MS/MSD	71292003		0.4	87.1	89.2	70	130	0.8	20
PDS/PDSD	71294002		10	103.0	104.0	75	125	0.6	20

Iron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	105.0		85	115		
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	71292001		0.4	101.0	102.0	75	125	0.6	20
MS/MSD	71292003		0.4	91.8	84.1	75	125	2.9	20
SPK/SPKD	71688001		2	93.8	94.0	75	125	0.2	20
SPK/SPKD	71690001		0.4	74.7	81.3	75	125	1.9	20
SPK/SPKD	71694001		0.4	86.0	85.5	75	125	0.6	20

Lithium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
MB		<0.04							
MS/MSD	71292003		0.4	100.0	101.0	70	130	0.4	20

Magnesium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	104.0		85	115		
MB		<1							
PDS/PDSD	71089017		100	98.4	97.5	75	125	0.6	20
DUP	71292003							1.9	20
PDS/PDSD	71292004		100	95.6	98.7	75	125	1.8	20
DUP	71293004							2.4	20
PDS/PDSD	71294005		100	98.9	100.0	75	125	1.1	20
PDS/PDSD	71485007		100	101.0	101.0	75	125	0.3	20
PDS/PDSD	71544001		100	102.0	102.0	75	125	0.4	20

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Manganese — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	106.0		85	115		
LFB-OE			0.4	103.0		85	115		
MB		<0.05							
MB		<0.05							
MS/MSD	71292003		0.4	91.2	92.6	70	130	1.4	20
PDS/PDSD	71294002		10	108.0	108.0	75	125	0.1	20

Manganese, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	103.0		85	115		
LFB-OE			0.4	106.0		85	115		
MB		<0.05							
MB		<0.05							
SPK/SPKD	71292001		0.4	100.0	101.0	75	125	0.8	20
MS/MSD	71292003		0.4	93.0	90.3	75	125	2.5	20
SPK/SPKD	71688001		2	90.0	89.8	75	125	0.1	20
SPK/SPKD	71690001		0.4	90.3	94.3	75	125	3.1	20
SPK/SPKD	71694001		0.4	83.0	82.5	75	125	0.4	20

Potassium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	103.0		85	115		
MB		<1							
PDS/PDSD	71089017		100	102.0	101.0	75	125	0.9	20
DUP	71292003							2.5	20
PDS/PDSD	71292004		100	101.0	102.0	75	125	1.1	20
DUP	71293004							2.3	20
PDS/PDSD	71294005		100	100.0	102.0	75	125	1.3	20
PDS/PDSD	71485007		100	102.0	101.0	75	125	0.9	20
PDS/PDSD	71544001		100	102.0	101.0	75	125	0.7	20

Sodium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	102.0		85	115		

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Sodium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<1							
PDS/PDSD	71089017		100	101.0	99.7	75	125	1.5	20
DUP	71292003							1.4	20
PDS/PDSD	71292004		100	87.1	88.3	75	125	0.4	20
DUP	71293004							2.2	20
PDS/PDSD	71294005		100	79.4	83.4	75	125	1.1	20
PDS/PDSD	71485007		100	74.1	73.9	75	125	0.0	20
PDS/PDSD	71544001		100	91.7	92.1	75	125	0.2	20

Antimony				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
MB		<0.001							
SPK	71261001		0.1	104.0		75	125		
MS/MSD	71292003		0.4	102.0	102.0	75	125	0.0	20
SPK	71292003		0.1	104.0		75	125		
SPK	71294002		0.1	99.3		75	125		
SPK/SPKD	71350001		0.2	103.0	103.0	75	125	0.2	20

Arsenic				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
MB		<0.002							
SPK	71261001		0.1	103.0		75	125		
MS/MSD	71292003		0.4	103.0	101.0	75	125	2.0	20
SPK	71292003		0.1	103.0		75	125		
SPK	71294002		0.1	102.0		75	125		
SPK/SPKD	71350001		0.2	110.0	110.0	75	125	0.2	20

Barium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.8		80	120		
MB		<0.002							
SPK	71261001		0.1	96.8		75	125		

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Barium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	71292003		0.4	97.4	98.2	75	125	0.7	20
SPK	71292003		0.1	97.2		75	125		
SPK	71294002		0.1	94.2		75	125		
SPK/SPKD	71350001		0.2	104.0	103.0	75	125	0.9	20

Beryllium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
MB		<0.0005							
MS/MSD	71292003		0.4	117.0	110.0	75	125	6.0	20
SPK	71292003		0.1	112.0		75	125		
SPK	71294002		0.1	110.0		75	125		

Cadmium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
MB		<0.0005							
SPK	71261001		0.1	96.9		75	125		
MS/MSD	71292003		0.4	104.0	104.0	75	125	0.2	20
SPK	71292003		0.1	102.0		75	125		
SPK	71294002		0.1	94.7		75	125		
SPK/SPKD	71350001		0.2	96.9	95.9	75	125	1.0	20

Chromium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
SPK	71261001		0.1	100.0		75	125		
MS/MSD	71292003		0.4	99.5	97.6	75	125	2.0	20
SPK	71292003		0.1	97.8		75	125		
SPK	71294002		0.1	96.0		75	125		
SPK/SPKD	71350001		0.2	103.0	102.0	75	125	1.3	20

Cobalt				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		

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Cobalt				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.002							
SPK	71261001		0.1	101.0		75	125		
MS/MSD	71292003		0.4	100.0	99.6	75	125	0.8	20
SPK	71292003		0.1	100.0		75	125		
SPK	71294002		0.1	98.3		75	125		
SPK/SPKD	71350001		0.2	102.0	102.0	75	125	0.4	20

Lead				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
MB		<0.0005							
SPK	71261001		0.1	93.2		75	125		
MS/MSD	71292003		0.4	96.7	94.8	75	125	2.1	20
SPK	71292003		0.1	95.1		75	125		
SPK	71294002		0.1	88.7		75	125		
SPK/SPKD	71350001		0.2	91.1	90.0	75	125	1.2	20

Molybdenum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
MB		<0.002							
SPK	71261001		0.1	106.0		75	125		
MS/MSD	71292003		0.4	101.0	102.0	75	125	0.7	20
SPK	71292003		0.1	104.0		75	125		
SPK	71294002		0.1	104.0		75	125		
SPK	71350001		0.2	108.0	107.0	75	125	0.6	20

Selenium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
MB		<0.005							
SPK	71261001		0.1	99.2		75	125		
MS/MSD	71292003		0.4	105.0	103.0	75	125	1.4	20
SPK	71292003		0.1	103.0		75	125		

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Selenium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK	71294002		0.1	95.4		75	125		
SPK/SPKD	71350001		0.2	99.8	100.0	75	125	0.1	20

Thallium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.9		80	120		
MB		<0.0005							
SPK	71261001		0.1	91.5		75	125		
MS/MSD	71292003		0.4	93.7	88.6	75	125	5.8	20
SPK	71292003		0.1	91.8		75	125		
SPK	71294002		0.1	86.3		75	125		
SPK/SPKD	71350001		0.2	88.0	86.4	75	125	1.8	20

Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	106.0		85	115		
LFB			0.002	106.0		85	115		
LFB			0.002	107.0		85	115		
LRB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MS/MSD	71294004		0.002	97.5	98.0	70	130	0.0	20
MS/MSD	71485004		0.002	100.0	100.0	70	130	0.0	20
MS/MSD	71688001		0.002	77.5	78.0	70	130	0.0	20
MS/MSD	71693001		0.002	97.0	97.0	70	130	0.0	20

Alkalinity, Total				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			501	92.2		80	120		
LFB			80.9	95.3		90	110		
LFB			80.9	92.0		90	110		
LFB			80.9	94.5		90	110		
MB		<20.5							
MB		<20.5							

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Account #: 5109 **Client:** Great River Energy

Alkalinity, Total Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<20.5							
MS/MSD	71292003		410	81.1	80.6	80	120	0.2	20
MS/MSD	71293003		410	96.1	93.8	80	120	1.0	20

pH Units: units

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	99.3		98.33	101.67		
CRM-PH			6	99.0		98.33	101.67		
CRM-PH			6	99.5		98.33	101.67		
CRM-PH			6	99.2		98.33	101.67		
DUP	70736002							0.2	20
DUP	71292003							1.3	20
DUP	71294005							0.3	20

Fluoride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			3.06	98.0		83.99	111.11		
LFB-F			0.5	94.0		90	110		
LFB-F			0.5	100.0		90	110		
LFB-F			0.5	102.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MS/MSD	71292003		0.5	100.0	108.0	80	120	3.5	20
MS/MSD	71294001		0.5	104.0	102.0	80	120	0.9	20

Total Dissolved Solids Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	98.0		90.35	110.33		
MB		<10							
DUP	71292003							2.0	20
DUP	71294006							1.5	20

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Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 71293

Chain of Custody Record

Report To:	Great River Energy	CC:	Golder Associates
Attn:	Cassie Johnston		
Address:			44 Union Blvd, Suite 300
			Lakewood, CO 80228
Phone:			
Email:	CJohnston@GREnergy.com		

Project Name: SS BAL
Event: Nov ~~Sept~~ 2024
Sampled By: Jeremy Plug

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric					Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-9N	18 Nov 24	1338	GW	X	X	X							11.96	4102	7.16	0.48	
002	DUP BAL	18 Nov 24	1338	GW	X	X	X							NA	NA	NA	NA	
003	MW-102	18 Nov 24	1500	GW	X	X	X							10.91	1970	7.63	1.40	App III, AppIV, Additional List (total and dissolved for all metals) (See Attachments)
004	MW-103	18 Nov 24	1035	GW	X	X	X							9.50	2781	8.80	1.04	

Comments:

	Relinquished By		Sample Condition		Received By	
	Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1		18 Nov 24 1750	Log In ~~Walk In #3~~	4.8 °C/TM BOS ROI Y/N		19 nov 24 0800
2						

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February 2024 GREAT RIVER ENERGY - STANTON STATION GL21509219.000
DRAFT - SUBJECT TO CHANGE

Table 1: Proposed 2024 Stanton Station Plant Facilities Sampling Schedule

Location	Well ID		2024				
			Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-7A	1	Field Parameters (Field pH)				
	MW-7B	1					
	MW-8B	1					
	MW-105	1	Field Parameters (Field pH)				
Bottom Ash Landfill	MW-9N	1					
	MW-102	1					
	MW-103	1					
Property Boundary	MW-PB1	1					
Wells Installed in May 2022	MW-210	1					
	MW-211	1					
	MW-212	1					
	MW-213	1					
	MW-214	1					
Piezometers [1]	PZ-BA-A	1					
	PZ-BA-B	1					
Sumps [2]	BAI-Sump-S	1					
Surface Water [3]	Missouri-River	1					
	Rail-Drainage	1					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R	1					
	MW-104	1					
Bottom Ash Impoundment	MW-201	1				Subset of App IV detected in Q1, Iron, Aluminum, Manganese (Dissolved and Total for Each Metal)	
	MW-202	1					
	MW-203	1					
Closed Landfill	MW-10	1			App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)
	MW-204	1	Sulfate + Field parameters				
	MW-205	1	Sulfate + Field parameters				
Additional Internal Locations	MW-4	1					
	MW-PB2	1					
Wells Installed in February 2023	MW-215	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-216	1					
	MW-217	1					
	MW-218	1					
	MW-219	1					
	MW-220	1					
	MW-221	1					
	MW-222	1					
	MW-300	1					
	MW-301	1					
	MW-PB3	1					
Total # of Sample Locations			4	35	40	6	40

Notes:
App III - Appendix III Detection Monitoring List, Table 2
App IV - Appendix IV Assessment Monitoring List, Table 3
Additional List - Table 4
Required field parameters are listed in Table 2 and Table 3
Suggested locations for collection of QA/QC samples are listed in Table 5.
1. The piezometers do not have dedicated pumps and will need to be sampled by other methods.
2. The sump should be sampled using surface water collection methods via the sump riser.
3. Surface water samples to be collected if safely accessible and free water is present.

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Table 2. Parameter and Analysis Summary - Appendix III Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/11	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	SM 4500 F E/11	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	ASTM D516-16	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	USGS I-1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total and dissolved)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:
1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent methods.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

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Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

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Table 4: Additional List Parameter and Analysis Summary

Parameter [1]	Method Reference [2]	Reporting Limit	Preparation Method Reference [2]	Sample Container [3]	Required Preservation [4]	Maximum Holding Time from Sampling [5]
General Chemistry						
Total Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Bicarbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Carbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Metals (Total and Dissolved)						
Iron	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Magnesium	EPA 6010D	0.2 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Potassium	EPA 6010D	3.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Sodium	EPA 6010D	1.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Aluminum	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Manganese	EPA 6010D	0.05 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months

Notes:

1. All listed parameters are tested in the laboratory. Listed parameters are to be collected in conjunction with other CCR parameter lists (Table 2 and Table 3).

2. Or equivalent method.
3. Containers and volumes will be specified by the analytical laboratory.
4. In addition to the required preservation for each sample container, sufficient ice should be placed with the sample containers in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when samples arrive, measurement of the temperature of samples immediately upon receipt is necessary to confirm that the 4° C temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible following collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid, without the use of qualifiers.

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Table 5: 2024 Proposed Quality Assurance/Quality Control Sample Collection Locations

Location	Well ID	Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B		Field Blank			
	MW-7A					
	MW-7B		Duplicate			MS/MSD
	MW-8B					
	MW-105			Duplicate		
Bottom Ash Landfill	MW-9N					Duplicate
	MW-102		MS/MSD			
	MW-103			Field Blank		
Property Boundary	MW-PB1					
Wells Installed in May 2022	MW-210					Duplicate
	MW-211			MS/MSD		
	MW-212					Field Blank
	MW-213			Duplicate		
	MW-214		Field Blank			
Piezometers [1]	PZ-BA-A					
	PZ-BA-B					Field Blank
Sumps [2]	BAI-Sump-S					
Surface Water [3]	Missouri-River					
	Rail-Drainage					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R			Duplicate		
	MW-104					
Bottom Ash Impoundment	MW-201			Field Blank		MS/MSD
	MW-202		Duplicate		Field Blank	
	MW-203					Duplicate
Closed Landfill	MW-10					
	MW-204					
	MW-205					
Additional Internal Locations	MW-4					
	MW-PB2					
Wells Installed in February 2023	MW-215			Field Blank		
	MW-216		Field Blank			
	MW-217					Duplicate
	MW-218			MS/MSD		
	MW-219					
	MW-220					Field Blank
	MW-221		Duplicate			
	MW-222					
	MW-300					
	MW-301			Duplicate		
	MW-PB3					
Total # of Sample Locations		4	35	40	6	40
Total # of QC Samples		0	7	9	1	9

Notes:
Locations to collect samples are **suggestions only** to help with the distribution of QA/QC samples across the site and between facilities while meeting QA/QC objectives for the sampling programs.
Notes for QA/QC
Duplicates = 10-15% of primary collected sample
Field Blanks = 1 per day; based on number of primary collected samples, assuming 2 to 4 total per event
Equipment Blanks - only needed for non-dedicated equipement, none required.
MS/MSD = 1 per 20 primary collected samples, assuming 1 or 2 total per event.

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Account #: 5109 **Client:** Great River Energy

MVTL
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Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Nov ~~June~~ 2024
Sample ID:	9N
Sampling Personal:	L, M

Weather Conditions: Temp: 40 °F Wind: S @ 5-10 Precip: Sunny / ~~Partly Cloudy~~ / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	14.22	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	14.55	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	3	Sec.
Recover:	57	Sec.
PSI:	—	

Bottle List:		
1 Liter Raw	1 Gal Nitric	x2
500mL Nitric		
500mL Nitric (filtered)		

Duplicate Sample?
(YES) / NO
Duplicate Sample ID:
Dup BAL

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
18Nov24	1313	Start of Well Purge									clear, slightly turbid, turbid
	1318	11.89	4100	7.14	0.55	64.5	8.25	14.52	200.0	1.0	Clear
	1323	12.04	4078	7.15	0.38	81.5	4.86	14.54	200.0	1.0	Clear
	1328	12.09	4102	7.16	0.33	80.9	2.69	14.56	200.0	1.0	Clear
	1333	11.93	4103	7.16	0.29	72.7	0.94	14.52	200.0	1.0	Clear
	1338	11.96	4102	7.16	0.29	69.3	0.48	14.56	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18Nov24	1338	11.96	4102	7.16			0.48				Clear

Comments:

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Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov ~~June~~ 2024
Sample ID: 102
Sampling Personal: JJH

Weather Conditions: Temp: 40 °F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	18.19	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	18.90	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	2	Sec.
Recover:	58	Sec.
PSI:	—	

Bottle List:
1 Liter Raw 1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample? YES / NO
Duplicate Sample ID: —

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
18 Nov 24	1435	Start of Well Purge									clear, slightly turbid, turbid
	1440	11.27	1974	7.57	0.59	96.2	1.11	18.48	200.0	1.0	Clear
	1445	11.25	1967	7.57	0.43	88.4	1.81	18.59	200.0	1.0	Clear
	1450	11.02	1971	7.61	0.26	80.5	1.70	18.72	~~200.0~~ 200.0	1.0	Clear
	1455	10.94	1971	7.62	0.22	75.5	1.16	18.79	200.0	1.0	Clear
	1500	10.91	1970	7.63	0.19	72.2	1.40	18.85	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18 Nov 24	1500	10.91	1970	7.63			1.40				Clear

Comments:

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 515-382-5486 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Nov ~~June~~ 2024
Sample ID:	103
Sampling Personal:	JM

Weather Conditions: Temp: 30 °F Wind: S @ 5-10 Precip: Sunny / ~~Partly Cloudy~~ / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	20.09	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	20.13	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 2	Sec.
Recover: 58	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
	1010	Start of Well Purge									clear, slightly turbid, turbid
18Nov24	1015	9.41	2640	8.76	0.62	-4.8	5.60	20.13	200.0	1.0	Clear
	1020	9.44	2838	8.77	0.55	-4.3	3.08	20.13	200.0	1.0	Clear
	1025	9.43	2838	8.76	0.57	-4.0	2.24	20.11	200.0	1.0	Clear
	1030	9.49	2815	8.78	0.54	-0.9	1.78	20.12	200.0	1.0	Clear
	1035	9.50	2781	8.80	0.49	-2.6	1.04	20.12	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18Nov24	1035	9.50	2781	8.80			1.04				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: 30Dec24 GRE Stanton Station
Event: November ~~June~~ 2024
Sample ID:
Sampling Personal:

Weather Conditions: Temp: °F Wind: @ Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:		ft
Depth to Top of Pump:		ft
Water Level After Sample:		ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge:	Sec.
Recover:	Sec.
PSI:	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
		Start of Well Purge									

Well Stabilized? YES NO Total Volume Purged: _____ Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: ~~30Dec24~~ **GRE Stanton Station**
Event: November ~~June 2024~~
Sample ID:
Sampling Personal:

Weather Conditions: Temp: °F Wind: @ Precip: **Sunny / Partly Cloudy / Cloudy**

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:		ft
Depth to Top of Pump:		ft
Water Level After Sample:		ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge:	Sec.
Recover:	Sec.
PSI:	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
		Start of Well Purge									

Well Stabilized? YES NO Total Volume Purged: _____ Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.

Comments:

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Account #: 5109 **Client:** Great River Energy
Workorder: SS BAL Nov 2024 (71315) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID:	71315001	**Date Collected:**	11/18/2024 13:38	**Matrix:**	Groundwater
Sample ID:	MW-9N	**Date Received:**	11/18/2024 17:50	**Collector:**	MVTL Field Service

Temp @ Receipt (C): 11.6 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:11	
Radium 228	See Attached			1		12/30/2024 13:11	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71315002 **Date Collected:** 11/18/2024 13:38 **Matrix:** Groundwater
Sample ID: DUP BAL **Date Received:** 11/18/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 11.6 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:11	
Radium 228	See Attached			1		12/30/2024 13:11	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71315003 **Date Collected:** 11/18/2024 15:00 **Matrix:** Groundwater
Sample ID: MW-102 **Date Received:** 11/18/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 11.6 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:11	
Radium 228	See Attached			1		12/30/2024 13:11	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71315004 **Date Collected:** 11/18/2024 10:35 **Matrix:** Groundwater
Sample ID: MW-103 **Date Received:** 11/18/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 11.6 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:11	
Radium 228	See Attached			1		12/30/2024 13:11	

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Account #: 5109 **Client:** Great River Energy

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ANALYTICAL SUMMARY REPORT

December 23, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24110857 Quote ID: C15480
Project Name: 71315

Energy Laboratories, Inc. Casper WY received the following 4 samples for Minnesota Valley Testing Laboratories on 11/22/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24110857-001	71315001, MW-9N	11/18/24 13:38	11/22/24	Groundwater	Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total
C24110857-002	71315002, DUP-BAL	11/18/24 13:38	11/22/24	Groundwater	Same As Above
C24110857-003	71315003, MW-102	11/18/24 15:00	11/22/24	Groundwater	Same As Above
C24110857-004	71315004, MW-103	11/18/24 10:35	11/22/24	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy, Casper, WY 82601-9601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

Energy Laboratories, Inc. verifies the reported results for the analysis has been technically reviewed and approved for release.

If you have any questions regarding these test results, please contact your Project Manager.

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Account #: 5109 **Client:** Great River Energy

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71315
Lab ID: C24110857-001
Client Sample ID: 71315001, MW-9N

Report Date: 12/23/24
Collection Date: 11/18/24 13:38
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.09	pCi/L	U			E903.0	12/16/24 09:59 / apt
Radium 226 precision (±)	0.1	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 226 MDC	0.2	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 228	1	pCi/L				RA-05	12/11/24 16:05 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	12/11/24 16:05 / trs
Radium 228 MDC	1	pCi/L				RA-05	12/11/24 16:05 / trs
Radium 226 + Radium 228	1.1	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 MDC	1	pCi/L				A7500-RA	12/18/24 14:50 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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Account #: 5109 **Client:** Great River Energy

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71315
Lab ID: C24110857-002
Client Sample ID: 71315002, DUP-BAL

Report Date: 12/23/24
Collection Date: 11/18/24 13:38
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	12/16/24 09:59 / apt
Radium 226 precision (±)	0.1	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 226 MDC	0.2	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 228	0.9	pCi/L	U			RA-05	12/11/24 16:05 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	12/11/24 16:05 / trs
Radium 228 MDC	1.0	pCi/L				RA-05	12/11/24 16:05 / trs
Radium 226 + Radium 228	0.6	pCi/L	U			A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 MDC	1.0	pCi/L				A7500-RA	12/18/24 14:50 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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Account #: 5109 **Client:** Great River Energy

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71315
Lab ID: C24110857-003
Client Sample ID: 71315003, MW-102

Report Date: 12/23/24
Collection Date: 11/18/24 15:00
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.01	pCi/L	U			E903.0	12/16/24 09:59 / apt
Radium 226 precision (±)	0.1	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 226 MDC	0.2	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 228	1.3	pCi/L				RA-05	12/11/24 16:05 / trs
Radium 228 precision (±)	0.8	pCi/L				RA-05	12/11/24 16:05 / trs
Radium 228 MDC	1.1	pCi/L				RA-05	12/11/24 16:05 / trs
Radium 226 + Radium 228	1.4	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	12/18/24 14:50 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 4 of 11

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71315
Lab ID: C24110857-004
Client Sample ID: 71315004, MW-103

Report Date: 12/23/24
Collection Date: 11/18/24 10:35
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 226 precision (±)	0.1	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 226 MDC	0.2	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 228	1.1	pCi/L				RA-05	12/11/24 16:41 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	12/11/24 16:41 / trs
Radium 228 MDC	1.0	pCi/L				RA-05	12/11/24 16:41 / trs
Radium 226 + Radium 228	1.3	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 MDC	1.0	pCi/L				A7500-RA	12/18/24 14:50 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C24110857 **Report Date:** 12/18/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11530
Lab ID: LCS-RA226-11530	3	Laboratory Control Sample				Run: TENNELEC-4_241203G				12/16/24 09:59
Radium 226		10	pCi/L		101	70	130			
Radium 226 precision (±)		1.6	pCi/L							
Radium 226 MDC		0.15	pCi/L							
Lab ID: MB-RA226-11530	3	Method Blank				Run: TENNELEC-4_241203G				12/16/24 09:59
Radium 226		0.01	pCi/L							U
Radium 226 precision (±)		0.08	pCi/L							
Radium 226 MDC		0.1	pCi/L							
Lab ID: C24110855-003AMS	3	Sample Matrix Spike				Run: TENNELEC-4_241203G				12/16/24 09:59
Radium 226		8.8	pCi/L		87	70	130			
Radium 226 precision (±)		1.4	pCi/L							
Radium 226 MDC		0.14	pCi/L							
Lab ID: C24110855-003AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_241203G				12/16/24 09:59
Radium 226		9.4	pCi/L		93	70	130	6.4	30	
Radium 226 precision (±)		1.5	pCi/L							
Radium 226 MDC		0.18	pCi/L							

- The RER result is 0.28.

Qualifiers:

RL - Analyte Reporting Limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected

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QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C24110857 **Report Date:** 12/18/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7540
Lab ID: LCS-228-RA228-7540	3	Laboratory Control Sample				Run: TENNELEC-4_241203F				12/11/24 16:05
Radium 228		9.8	pCi/L		99	70	130			
Radium 228 precision (±)		2.6	pCi/L							
Radium 228 MDC		1.1	pCi/L							
Lab ID: MB-228-RA228-7540	3	Method Blank				Run: TENNELEC-4_241203F				12/11/24 16:05
Radium 228		0.9	pCi/L							U
Radium 228 precision (±)		0.7	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C24110855-003AMS	3	Sample Matrix Spike				Run: TENNELEC-4_241203F				12/11/24 16:05
Radium 228		6.3	pCi/L		57	70	130			S
Radium 228 precision (±)		1.8	pCi/L							
Radium 228 MDC		0.99	pCi/L							
Lab ID: C24110855-003AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_241203F				12/11/24 16:05
Radium 228		4.0	pCi/L		34	70	130	44	30	SR
Radium 228 precision (±)		1.2	pCi/L							
Radium 228 MDC		0.97	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than or equal to the limit of 3, the RER result is 1.04.

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
U - Not detected
ND - Not detected at the Reporting Limit (RL)
S - Spike recovery outside of advisory limits

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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24110857

Login completed by: Dakota R. Sawyer
Reviewed by: lquezada
Reviewed Date: 11/22/2024
Date Received: 11/22/2024
Received by: CCS
Carrier name: UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	11.0°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Trip Blanks and/or Blind Duplicate samples are assigned the earliest collection time for the associated requested analysis in order to evaluate the holding time unless specifically indicated.

Contact and Corrective Action Comments:

The temperature blank temperature in shipping container 1 was 10.1°C, shipping container 3 was 10.0°C, shipping container 5 was 11.0°C, and shipping container 6 was 10.7°C. The temperature of the sample(s) in shipping container 2

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Work Order Receipt Checklist - Continued

Minnesota Valley Testing Laboratories C24110857

was 9.4°C and shipping container 4 was 9.4°C. DRS 11/22/24

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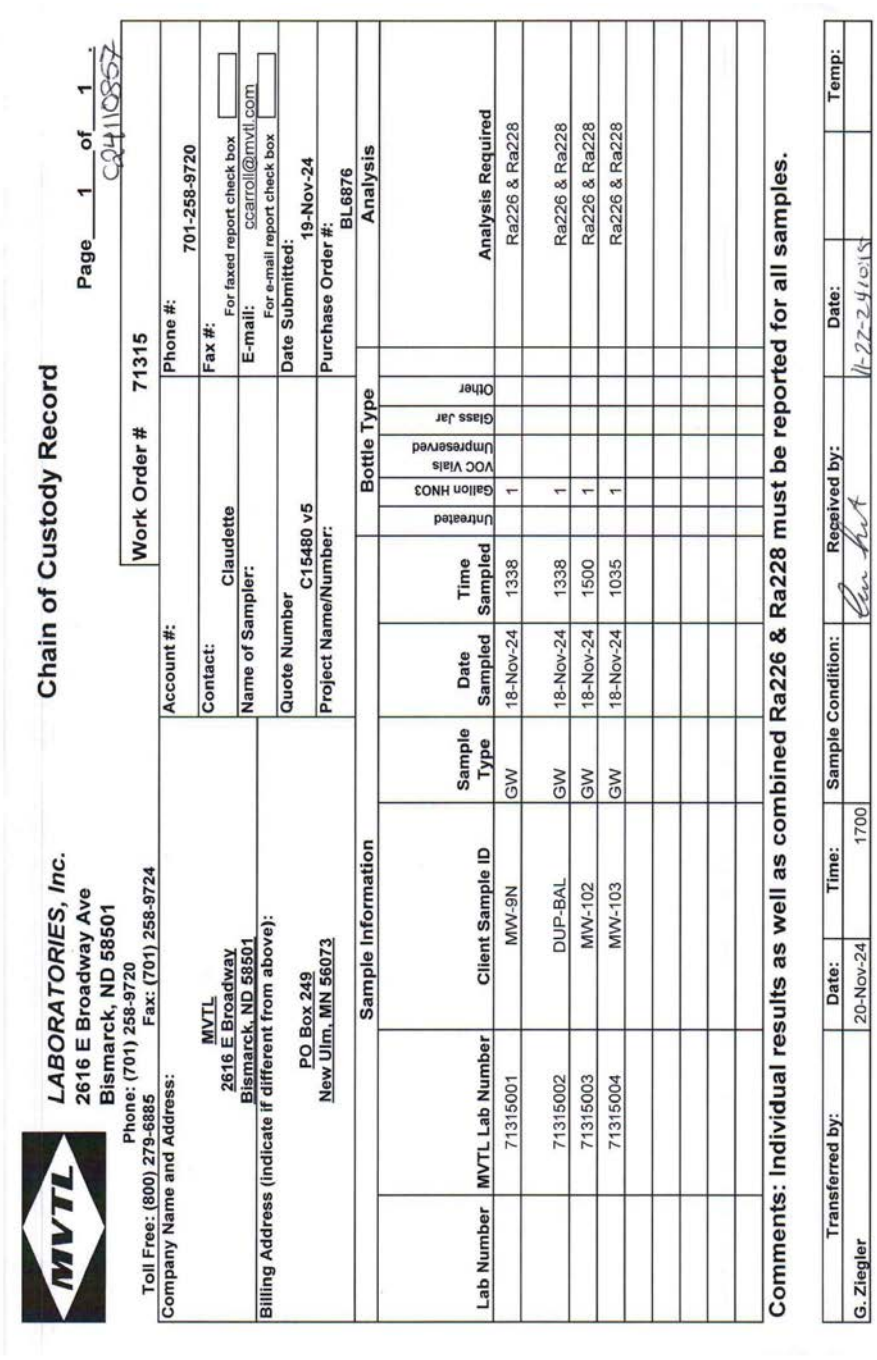
	Agency	Number
Billings, MT	Alaska	17-023
	California	3087
	Colorado	MT00005
	Department of Defense (DoD)/ISO17025	ADE-2588
	Florida (Primary NELAP)	E87668
	Idaho	MT00005
	Louisiana	05079
	Montana	CERT0044
	Nebraska	NE-OS-13-04
	Nevada	NV-C24-00250
	North Dakota	R-007
	National Radon Proficiency	109383-RMP
	Oregon	4184
	South Dakota	ARSD 74:04:07
	Texas	TX-C24-00302
	US EPA Region VIII	Reciprocal
	USDA Soil Permit	P330-20-00170
	Washington	C1039
Casper, WY	Alaska	20-006
	California	3021
	Colorado	WY00002
	Florida (Primary NELAP)	E87641
	Idaho	WY00002
	Louisiana	05083
	Montana	CERT0002
	Nebraska	NE-OS-08-04
	Nevada	NV-C24-00245
	North Dakota	R-125
	Oregon	WY200001
	South Dakota	WY00002
	Texas	T104704181-23-21
	US EPA Region VIII	WY00002
	USNRC License	49-26846-01
	Washington	C1012
Gillette, WY	US EPA Region VIII	WY00006
Helena, MT	Colorado	MT00945
	Montana	CERT0079
	Nevada	NV-C24-00119
	US EPA Region VIII	Reciprocal
	USDA Soil Permit	P330-20-00090

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Chain of Custody Record

Page 1 of 1

C24110857

Work Order # 71315

Company Name and Address: MVTL, 2616 E Broadway, Bismarck, ND 58501

Billing Address (indicate if different from above): PO Box 249, New Ulm, MN 56073

Account #:
Contact: Claudette
Name of Sampler:
Quote Number C15480 v5
Project Name/Number:

Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box
Date Submitted: 19-Nov-24
Purchase Order #: BL6876

Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Unpreserved	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis Required
	71315001	MW-9N	GW	18-Nov-24	1338		1				Ra226 & Ra228
	71315002	DUP-BAL	GW	18-Nov-24	1338		1				Ra226 & Ra228
	71315003	MW-102	GW	18-Nov-24	1500		1				Ra226 & Ra228
	71315004	MW-103	GW	18-Nov-24	1035		1				Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
G. Ziegler	20-Nov-24	1700		Ben Hut	11-22-24 0815	

Page 11 of 11

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Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 71315

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS BAL
Attn:	Cassie Johnston	44 Union Blvd, Suite 300 Lakewood, CO 80228	Event: NRV Sept 2024
Address:			Sampled By: Jeremy Mayer
Phone:			
Email:	CJohnston@GREnergy.com		

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Gal Nitric	Analysis Required
001	MW-9N	18 Nov 24	1338	GW					X	Radium 226 and 228 Combined
002	DUP BAL	18 Nov 24	1338	GW					X	
003	MW-102	18 Nov 24	1500	GW					X	
004	MW-103	18 Nov 24	1035	GW					X	

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1	18 Nov 24 1750	Log In Walk In #2	11.6 °C/TM BG ROI Y/N		19 Nov 24 0820
2					

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Table 1: Proposed 2024 Stanton Station Plant Facilities Sampling Schedule

Location	Well ID		2024				
			Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-7A	1	Field Parameters (Field pH)				
	MW-7B	1					
	MW-8B	1					
	MW-105	1	Field Parameters (Field pH)				
Bottom Ash Landfill	MW-9N	1					
	MW-102	1					
	MW-103	1					
Property Boundary	MW-PB1	1					
Wells Installed in May 2022	MW-210	1					
	MW-211	1					
	MW-212	1					
	MW-213	1					
	MW-214	1					
Piezometers [1]	PZ-BA-A	1					
	PZ-BA-B	1					
Sumps [2]	BAI-Sump-S	1					
Surface Water [3]	Missouri-River	1					
	Rail-Drainage	1					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R	1					
	MW-104	1					
Bottom Ash Impoundment	MW-201	1				Subset of App IV detected in Q1, Iron, Aluminum, Manganese (Dissolved and Total for Each Metal)	
	MW-202	1					
	MW-203	1					
Closed Landfill	MW-10	1			App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)
	MW-204	1	Sulfate + Field parameters				
	MW-205	1	Sulfate + Field parameters				
Additional Internal Locations	MW-4	1					
	MW-PB2	1					
Wells Installed in February 2023	MW-215	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-216	1					
	MW-217	1					
	MW-218	1					
	MW-219	1					
	MW-220	1					
	MW-221	1					
	MW-222	1					
	MW-300	1					
	MW-301	1					
	MW-PB3	1					
Total # of Sample Locations			4	35	40	6	40

Notes:
App III - Appendix III Detection Monitoring List, Table 2
App IV - Appendix IV Assessment Monitoring List, Table 3
Additional List - Table 4
Required field parameters are listed in Table 2 and Table 3
Suggested locations for collection of QA/QC samples are listed in Table 5.
1. The piezometers do not have dedicated pumps and will need to be sampled by other methods.
2. The sump should be sampled using surface water collection methods via the sump riser.
3. Surface water samples to be collected if safely accessible and free water is present.

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Table 2. Parameter and Analysis Summary - Appendix III Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	EPA 9040C	0.1 units	–	–	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	–	–	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	–	–	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	–	–	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	–	–	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	–	–	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/11	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	SM 4500 F E/11	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	ASTM D516-16	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	USGS I-1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total and dissolved)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:
1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent methods.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

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Account #: 5109 **Client:** Great River Energy

Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

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Account #: 5109 **Client:** Great River Energy

Table 4: Additional List Parameter and Analysis Summary

Parameter [1]	Method Reference [2]	Reporting Limit	Preparation Method Reference [2]	Sample Container [3]	Required Preservation [4]	Maximum Holding Time from Sampling [5]
General Chemistry						
Total Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Bicarbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Carbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Metals (Total and Dissolved)						
Iron	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Magnesium	EPA 6010D	0.2 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Potassium	EPA 6010D	3.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Sodium	EPA 6010D	1.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Aluminum	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Manganese	EPA 6010D	0.05 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months

Notes:

1. All listed parameters are tested in the laboratory. Listed parameters are to be collected in conjunction with other CCR parameter lists (Table 2 and Table 3).

2. Or equivalent method.
3. Containers and volumes will be specified by the analytical laboratory.
4. In addition to the required preservation for each sample container, sufficient ice should be placed with the sample containers in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when samples arrive, measurement of the temperature of samples immediately upon receipt is necessary to confirm that the 4° C temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible following collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid, without the use of qualifiers.

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February 2024 GL21509219.000

Table 5: 2024 Proposed Quality Assurance/Quality Control Sample Collection Locations

Location	Well ID	Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B		Field Blank			
	MW-7A					
	MW-7B		Duplicate			MS/MSD
	MW-8B					
	MW-105			Duplicate		
Bottom Ash Landfill	MW-9N					Duplicate
	MW-102		MS/MSD			
	MW-103			Field Blank		
Property Boundary	MW-PB1					
Wells Installed in May 2022	MW-210					Duplicate
	MW-211			MS/MSD		
	MW-212					Field Blank
	MW-213			Duplicate		
	MW-214		Field Blank			
Piezometers [1]	PZ-BA-A					
	PZ-BA-B					Field Blank
Sumps [2]	BAI-Sump-S					
Surface Water [3]	Missouri-River					
	Rail-Drainage					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R			Duplicate		
	MW-104					
Bottom Ash Impoundment	MW-201			Field Blank		MS/MSD
	MW-202		Duplicate		Field Blank	
	MW-203					Duplicate
Closed Landfill	MW-10					
	MW-204					
	MW-205					
Additional Internal Locations	MW-4					
	MW-PB2					
Wells Installed in February 2023	MW-215			Field Blank		
	MW-216		Field Blank			
	MW-217					Duplicate
	MW-218			MS/MSD		
	MW-219					
	MW-220					Field Blank
	MW-221		Duplicate			
	MW-222					
	MW-300					
	MW-301			Duplicate		
	MW-PB3					
Total # of Sample Locations		4	35	40	6	40
Total # of QC Samples		0	7	9	1	9

Notes:
Locations to collect samples are **suggestions only** to help with the distribution of QA/QC samples across the site and between facilities while meeting QA/QC objectives for the sampling programs.
Notes for QA/QC
Duplicates = 10-15% of primary collected sample
Field Blanks = 1 per day; based on number of primary collected samples, assuming 2 to 4 total per event
Equipment Blanks - only needed for non-dedicated equipement, none required.
MS/MSD = 1 per 20 primary collected samples, assuming 1 or 2 total per event.

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Nov ~~June~~ 2024
Sample ID:	9N
Sampling Personal:	L, M

Weather Conditions: Temp: 40 °F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	14.22	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	14.35	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 3	Sec.
Recover: 57	Sec.
PSI: —	

Bottle List:		
1 Liter Raw	1 Gal Nitric	X2
500mL Nitric		
500mL Nitric (filtered)		

Duplicate Sample?
YES / NO
Duplicate Sample ID:
Dup BAL

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
18Nov24	1313	Start of Well Purge									clear, slightly turbid, turbid
	1318	11.89	4100	7.14	0.55	64.5	8.25	14.52	200.0	1.0	Clear
	1323	12.04	4078	7.15	0.38	81.5	4.86	14.54	200.0	1.0	Clear
	1328	12.09	4102	7.16	0.33	80.9	2.69	14.56	200.0	1.0	Clear
	1333	11.93	4103	7.16	0.29	72.7	0.94	14.52	200.0	1.0	Clear
	1338	11.96	4102	7.16	0.29	69.3	0.48	14.56	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18Nov24	1338	11.96	4102	7.16			0.48				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov ~~June~~ 2024
Sample ID: 102
Sampling Personal: JJ MH

Weather Conditions: Temp: 40 °F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	18.19	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	18.90	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 2	Sec.
Recover: 5	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
											clear, slightly turbid, turbid
18 Nov 24	1435	Start of Well Purge									
	1440	11.27	1974	7.57	0.59	96.2	1.11	18.48	200.0	1.0	Clear
	1445	11.25	1967	7.57	0.43	88.4	1.81	18.59	200.0	1.0	Clear
	1450	11.02	1971	7.61	0.26	80.5	1.70	18.72	~~200.0~~ 200.0	1.0	Clear
	1455	10.94	1971	7.62	0.22	75.5	1.16	18.79	200.0	1.0	Clear
	1500	10.91	1970	7.63	0.19	72.2	1.40	18.85	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18 Nov 24	1500	10.91	1970	7.63			1.40				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov ~~June~~ 2024
Sample ID: 103
Sampling Personal: J.M.

Weather Conditions: Temp: 30 °F Wind: S @ 5-10 Precip: Sunny / ~~Partly~~ Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	20.09	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	20.13	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:
Purge: 2 Sec.
Recover: 58 Sec.
PSI: —

Bottle List:
1 Liter Raw
1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
	1010	Start of Well Purge									clear, slightly turbid, turbid
18 Nov 24	1015	9.41	2840	8.76	0.62	-4.8	5.60	20.13	200.0	1.0	Clear
	1020	9.44	2838	8.77	0.55	-4.3	3.08	20.13	200.0	1.0	Clear
	1025	9.43	2838	8.76	0.57	-4.0	2.24	20.11	200.0	1.0	Clear
	1030	9.49	2815	8.78	0.54	-0.9	1.78	20.12	200.0	1.0	Clear
	1035	9.50	2781	8.80	0.49	-2.6	1.04	20.12	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18 Nov 24	1035	9.50	2781	8.80			1.04				Clear

Comments:

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Field Datasheet

Groundwater Assessment

Company:	**GRE Stanton Station**
Event:	Nov ~~June~~ 2024
Sample ID:	PB1
Sampling Personal:	JTM

Weather Conditions: Temp: °F Wind: @ Precip: **Sunny / Partly Cloudy / Cloudy**

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	24.60	ft
Depth to Top of Pump:	25.25	ft
Water Level After Sample:		ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	~~YES~~	NO

Control Settings:		
Purge:	—	Sec.
Recover:	—	Sec.
PSI:	—	

Bottle List:
1 Liter Raw — 1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample?
YES / NO
Duplicate Sample ID:

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	**Time**	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
		Start of Well Purge									clear, slightly turbid, turbid

Well Stabilized? **YES** **NO** Total Volume Purged: _____ Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
20 Nov 24	1010	—	—	—							

Comments: insufficient volume NO SAMPLE

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Account #: 5109 **Client:** Great River Energy
Workorder: SS 2024 Wells Nov 2024 (71294) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

Amended reports to correct event on field data sheets. CC 30Dec24

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71294001 **Date Collected:** 11/18/2024 09:25 **Matrix:** Groundwater
Sample ID: MW-210 **Date Received:** 11/18/2024 18:31 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1596**	umhos/cm	1	1		11/18/2024 09:25	
Method: 150.2							
pH - Field	**7.78**	units	0.01	1		11/18/2024 09:25	
Method: 170.1							
Temperature - Field C	**10.18**	degrees C		1		11/18/2024 09:25	
Method: ASTM D516-16							
Sulfate	**406**	mg/L	10	2		11/20/2024 14:59	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**0.70**	mg/L	0.1	1	11/19/2024 16:31	11/20/2024 11:21	
Calcium	**69.3**	mg/L	1	1	11/19/2024 16:31	11/21/2024 11:00	
Lithium	**0.0387**	mg/L	0.02	1	11/19/2024 16:31	11/20/2024 09:52	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/19/2024 16:31	11/26/2024 18:30	
Arsenic	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:30	
Barium	**0.0383**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:30	
Beryllium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/27/2024 11:30	
Cadmium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 18:30	
Chromium	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:30	
Cobalt	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:30	
Lead	**0.0005**	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 18:30	
Molybdenum	**0.0126**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:30	
Selenium	<0.005	mg/L	0.005	5	11/19/2024 16:31	11/26/2024 18:30	
Thallium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 18:30	

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 515-382-5486 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71294001 **Date Collected:** 11/18/2024 09:25 **Matrix:** Groundwater
Sample ID: MW-210 **Date Received:** 11/18/2024 18:31 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**8.0**	units	0.1	1		11/19/2024 19:02	*
Method: SM4500-Cl-E 2011							
Chloride	**12.1**	mg/L	2.0	1		11/26/2024 09:55	
Method: SM4500-F-C-2011							
Fluoride	**0.62**	mg/L	0.1	1		11/19/2024 19:02	
Method: USGS I-1750-85							
Total Dissolved Solids	**1120**	mg/L	10	1		11/19/2024 15:38	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71294002 **Date Collected:** 11/18/2024 12:30 **Matrix:** Groundwater
Sample ID: Dup-2022 **Date Received:** 11/18/2024 18:31 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: ASTM D516-16							
Sulfate	**407**	mg/L	25	5		11/20/2024 15:11	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**1.14**	mg/L	0.1	1	11/19/2024 16:31	11/20/2024 11:22	
Calcium	**92.0**	mg/L	1	1	11/19/2024 16:31	11/21/2024 11:01	
Lithium	**0.0393**	mg/L	0.02	1	11/19/2024 16:31	11/20/2024 09:54	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/19/2024 16:31	11/26/2024 18:34	
Arsenic	**0.0045**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:34	
Barium	**0.0980**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:34	*
Beryllium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/27/2024 11:49	
Cadmium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 18:34	
Chromium	**0.0069**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:34	
Cobalt	**0.0034**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:34	
Lead	**0.0029**	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 18:34	
Molybdenum	**0.0180**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:34	
Selenium	<0.005	mg/L	0.005	5	11/19/2024 16:31	11/26/2024 18:34	
Thallium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 18:34	
Method: SM4500 H+ B-2011							
pH	**8.0**	units	0.1	1		11/19/2024 19:13	*
Method: SM4500-Cl-E 2011							
Chloride	**11.9**	mg/L	2.0	1		11/26/2024 09:56	
Method: SM4500-F-C-2011							
Fluoride	**0.89**	mg/L	0.1	1		11/19/2024 19:13	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71294002 **Date Collected:** 11/18/2024 12:30 **Matrix:** Groundwater
Sample ID: Dup-2022 **Date Received:** 11/18/2024 18:31 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: USGS I-1750-85							
Total Dissolved Solids	**1040**	mg/L	10	1		11/19/2024 15:38	

Task Comments

3660109 - METb/3162

Post digestion spike recovery was low for sodium; the post digestion spike duplicate recovery and RPD were acceptable.

Analysis Results Comments

Barium

Matrix spike and/or matrix spike duplicate recovery was high; the associated laboratory fortified blank recovery was acceptable.

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71294003 **Date Collected:** 11/18/2024 08:25 **Matrix:** Groundwater
Sample ID: MW-211 **Date Received:** 11/18/2024 18:31 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2549**	umhos/cm	1	1		11/18/2024 08:25	
Method: 150.2							
pH - Field	**7.97**	units	0.01	1		11/18/2024 08:25	
Method: 170.1							
Temperature - Field C	**9.24**	degrees C		1		11/18/2024 08:25	
Method: ASTM D516-16							
Sulfate	**916**	mg/L	50	10		11/20/2024 14:51	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**1.60**	mg/L	0.1	1	11/19/2024 16:31	11/20/2024 11:24	
Calcium	**60.8**	mg/L	1	1	11/19/2024 16:31	11/21/2024 11:02	
Lithium	**0.0253**	mg/L	0.02	1	11/19/2024 16:31	11/20/2024 09:56	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/19/2024 16:31	11/26/2024 18:56	
Arsenic	**0.0130**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:56	
Barium	**0.1211**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:56	
Beryllium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/27/2024 12:03	
Cadmium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 18:56	
Chromium	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:56	
Cobalt	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:56	
Lead	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 18:56	
Molybdenum	**0.0260**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 18:56	
Selenium	<0.005	mg/L	0.005	5	11/19/2024 16:31	11/26/2024 18:56	
Thallium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 18:56	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71294003 **Date Collected:** 11/18/2024 08:25 **Matrix:** Groundwater
Sample ID: MW-211 **Date Received:** 11/18/2024 18:31 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**8.1**	units	0.1	1		11/19/2024 19:24	*
Method: SM4500-Cl-E 2011							
Chloride	**17.4**	mg/L	2.0	1		11/26/2024 09:57	
Method: SM4500-F-C-2011							
Fluoride	**0.59**	mg/L	0.1	1		11/19/2024 19:24	
Method: USGS I-1750-85							
Total Dissolved Solids	**1810**	mg/L	10	1		11/19/2024 15:38	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71294004 **Date Collected:** 11/18/2024 11:45 **Matrix:** Groundwater
Sample ID: MW-212 **Date Received:** 11/18/2024 18:31 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1933**	umhos/cm	1	1		11/18/2024 11:45	
Method: 150.2							
pH - Field	**8.28**	units	0.01	1		11/18/2024 11:45	
Method: 170.1							
Temperature - Field C	**9.95**	degrees C		1		11/18/2024 11:45	
Method: ASTM D516-16							
Sulfate	**517**	mg/L	25	5		11/20/2024 15:12	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**0.79**	mg/L	0.1	1	11/19/2024 16:31	11/20/2024 11:25	
Calcium	**37.8**	mg/L	1	1	11/19/2024 16:31	11/21/2024 11:03	
Lithium	**0.0234**	mg/L	0.02	1	11/19/2024 16:31	11/20/2024 09:56	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/19/2024 16:31	11/26/2024 19:01	
Arsenic	**0.0036**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 19:01	
Barium	**0.0901**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 19:01	
Beryllium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/27/2024 12:05	
Cadmium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 19:01	
Chromium	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 19:01	
Cobalt	**0.0033**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 19:01	
Lead	**0.0024**	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 19:01	
Molybdenum	**0.0448**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 19:01	
Selenium	<0.005	mg/L	0.005	5	11/19/2024 16:31	11/26/2024 19:01	
Thallium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 19:01	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71294004 **Date Collected:** 11/18/2024 11:45 **Matrix:** Groundwater
Sample ID: MW-212 **Date Received:** 11/18/2024 18:31 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**8.3**	units	0.1	1		11/19/2024 19:35	*
Method: SM4500-Cl-E 2011							
Chloride	**15.2**	mg/L	2.0	1		11/26/2024 09:58	
Method: SM4500-F-C-2011							
Fluoride	**0.46**	mg/L	0.1	1		11/19/2024 19:35	
Method: USGS I-1750-85							
Total Dissolved Solids	**1340**	mg/L	10	1		11/19/2024 15:38	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71294005 **Date Collected:** 11/18/2024 12:30 **Matrix:** Groundwater
Sample ID: MW-213 **Date Received:** 11/18/2024 18:31 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1497**	umhos/cm	1	1		11/18/2024 12:30	
Method: 150.2							
pH - Field	**7.75**	units	0.01	1		11/18/2024 12:30	
Method: 170.1							
Temperature - Field C	**10.47**	degrees C		1		11/18/2024 12:30	
Method: ASTM D516-16							
Sulfate	**352**	mg/L	10	2		11/20/2024 14:53	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**1.14**	mg/L	0.1	1	11/19/2024 16:31	11/20/2024 11:25	
Calcium	**92.0**	mg/L	1	1	11/19/2024 16:31	11/21/2024 11:04	
Lithium	**0.0403**	mg/L	0.02	1	11/19/2024 16:31	11/20/2024 09:57	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/19/2024 16:31	11/26/2024 19:05	
Arsenic	**0.0047**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 19:05	
Barium	**0.1012**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 19:05	
Beryllium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/27/2024 12:08	
Cadmium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 19:05	
Chromium	**0.0077**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 19:05	
Cobalt	**0.0035**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 19:05	
Lead	**0.0030**	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 19:05	
Molybdenum	**0.0179**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 19:05	
Selenium	<0.005	mg/L	0.005	5	11/19/2024 16:31	11/26/2024 19:05	
Thallium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 19:05	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71294005 **Date Collected:** 11/18/2024 12:30 **Matrix:** Groundwater
Sample ID: MW-213 **Date Received:** 11/18/2024 18:31 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**8.0**	units	0.1	1		11/19/2024 19:46	*
Method: SM4500-Cl-E 2011							
Chloride	**11.8**	mg/L	2.0	1		11/26/2024 09:59	
Method: SM4500-F-C-2011							
Fluoride	**0.88**	mg/L	0.1	1		11/19/2024 19:46	
Method: USGS I-1750-85							
Total Dissolved Solids	**1050**	mg/L	10	1		11/19/2024 15:38	

Analysis Results Comments

Beryllium, Dissolved

Matrix spike and/or matrix spike duplicate recovery was high; the associated laboratory fortified blank recovery was acceptable.

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71294006 **Date Collected:** 11/18/2024 16:43 **Matrix:** Groundwater
Sample ID: MW-214 **Date Received:** 11/18/2024 18:31 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2010**	umhos/cm	1	1		11/18/2024 16:43	
Method: 150.2							
pH - Field	**7.6**	units	0.01	1		11/18/2024 16:43	
Method: 170.1							
Temperature - Field C	**11.04**	degrees C		1		11/18/2024 16:43	
Method: ASTM D516-16							
Sulfate	**515**	mg/L	25	5		11/20/2024 15:02	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**0.44**	mg/L	0.1	1	11/19/2024 16:31	11/20/2024 11:26	
Calcium	**41.8**	mg/L	1	1	11/19/2024 16:31	11/21/2024 11:07	
Lithium	**0.0612**	mg/L	0.02	1	11/19/2024 16:31	11/20/2024 09:57	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/19/2024 16:31	11/26/2024 19:10	
Arsenic	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 19:10	
Barium	**0.0253**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 19:10	
Beryllium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/27/2024 12:11	
Cadmium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 19:10	
Chromium	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 19:10	
Cobalt	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 19:10	
Lead	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 19:10	
Molybdenum	**0.0171**	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 19:10	
Selenium	<0.005	mg/L	0.005	5	11/19/2024 16:31	11/26/2024 19:10	
Thallium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 19:10	

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www.MVTL.com

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Analytical Results

Lab ID: 71294006 **Date Collected:** 11/18/2024 16:43 **Matrix:** Groundwater
Sample ID: MW-214 **Date Received:** 11/18/2024 18:31 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**8.0**	units	0.1	1		11/19/2024 19:56	*
Method: SM4500-Cl-E 2011							
Chloride	**19.2**	mg/L	2.0	1		11/26/2024 10:01	
Method: SM4500-F-C-2011							
Fluoride	**0.55**	mg/L	0.1	1		11/19/2024 19:56	
Method: USGS I-1750-85							
Total Dissolved Solids	**1330**	mg/L	10	1		11/19/2024 15:38	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71294007 **Date Collected:** 11/18/2024 16:25 **Matrix:** Groundwater
Sample ID: FB 2022 **Date Received:** 11/18/2024 18:31 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: ASTM D516-16							
Sulfate	<5	mg/L	5	1		11/20/2024 15:19	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	<0.1	mg/L	0.1	1	11/19/2024 16:31	11/20/2024 11:27	
Calcium	<1	mg/L	1	1	11/19/2024 16:31	11/21/2024 11:08	
Lithium	<0.02	mg/L	0.02	1	11/19/2024 16:31	11/20/2024 09:58	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/19/2024 16:31	11/26/2024 19:14	
Arsenic	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 19:14	
Barium	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 19:14	
Beryllium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/27/2024 12:13	
Cadmium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 19:14	
Chromium	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 19:14	
Cobalt	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 19:14	
Lead	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 19:14	
Molybdenum	<0.002	mg/L	0.002	5	11/19/2024 16:31	11/26/2024 19:14	
Selenium	<0.005	mg/L	0.005	5	11/19/2024 16:31	11/26/2024 19:14	
Thallium	<0.0005	mg/L	0.0005	5	11/19/2024 16:31	11/26/2024 19:14	
Method: SM4500 H+ B-2011							
pH	**6.2**	units	0.1	1		11/19/2024 20:08	*
Method: SM4500-Cl-E 2011							
Chloride	<2.0	mg/L	2.0	1		11/26/2024 10:02	
Method: SM4500-F-C-2011							
Fluoride	<0.1	mg/L	0.1	1		11/19/2024 20:08	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71294007 **Date Collected:** 11/18/2024 16:25 **Matrix:** Groundwater
Sample ID: FB 2022 **Date Received:** 11/18/2024 18:31 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.0 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: USGS I-1750-85							
Total Dissolved Solids	<10	mg/L	10	1		11/19/2024 15:38	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 71294

Sulfate — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			100	102.0		85	115		
LFB			100	109.0		85	115		
LFB			100	96.4		85	115		
LFB			100	104.0		85	115		
LFB			100	95.7		85	115		
LFB			100	106.0		85	115		
LFB			100	105.0		85	115		
LFB			100	99.7		85	115		
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MS/MSD	70896004		1000	100.4	95.9	85	115	1.6	20
MS/MSD	71087001		2000	99.0	97.8	85	115	0.7	20
MS/MSD	71089005		500	93.5	91.7	85	115	1.0	20
MS/MSD	71089015		1000	103.2	99.7	85	115	1.2	20
MS/MSD	71089025		100	92.8	97.4	85	115	4.8	20
MS/MSD	71292003		500	94.8	95.5	85	115	0.5	20
MS/MSD	71294007		100	109.1	103.1	85	115	5.7	20

Chloride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	92.3		90	110		
LFB			30	93.3		90	110		
LFB			30	93.9		90	110		
LFB			30	94.1		90	110		

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Chloride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	94.2		90	110		
LFB			30	95.1		90	110		
LFB			30	95.0		90	110		
LFB			30	92.6		90	110		
LFB			30	94.4		90	110		
LFB			30	94.9		90	110		
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MS/MSD	71292003		30	97.4	97.0	80	120	0.5	20
MS/MSD	71545001		30	103.2	102.2	80	120	0.0	20
MS/MSD	71688001		30	100.0	99.5	80	120	0.4	20
MS/MSD	71890007		30	104.3	106.8	80	120	0.9	20
MS/MSD	72123002		30	94.7	94.7	80	120	0.0	20

Aluminum Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	101.0		85	115		
LFB-OE			0.4	92.5		85	115		
MB		<0.1							
MB		<0.1							
MS/MSD	71292003		0.4	102.0	101.0	70	130	0.6	20
PDS/PDSD	71294002		10	94.9	99.4	75	125	3.3	20

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Aluminum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	92.5		85	115		
LFB-OE			0.4	101.0		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	71292001		0.4	109.0	109.0	75	125	0.4	20
MS/MSD	71292003		0.4	102.0	100.0	75	125	1.8	20
SPK/SPKD	71688001		2	100.0	104.0	75	125	4.0	20
SPK/SPKD	71690001		0.4	112.0	113.0	75	125	1.4	20
SPK/SPKD	71694001		0.4	95.8	97.5	75	125	1.4	20

Boron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	95.8		85	115		
LFB-OE			0.4	100.0		85	115		
MB		<0.1							
MB		<0.1							
PDS/PDSD	70864001		2	98.4	94.6	75	125	2.4	20
MS/MSD	71292003		0.4	99.6	97.3	70	130	1.1	20
MS/MSD	71294002		0.4	99.2	102.0	70	130	0.7	20

Boron, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	95.8		85	115		
LFB-OE			0.4	100.0		85	115		
MB		<0.1							
MB		<0.1							
MS/MSD	71292003		0.4	102.0	96.5	70	130	2.5	20
SPK/SPKD	71292004		0.4	85.6	89.4	75	125	2.2	20
SPK/SPKD	71294006		0.4	89.8	89.6	75	125	0.1	20

Calcium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	104.0		85	115		
LFB-MI			100	107.0		85	115		

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Calcium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<1							
MB		<1							
PDS/PDSD	71089017		100	94.1	93.2	75	125	0.4	20
PDS/PDSD	71292004		100	94.9	98.3	75	125	1.9	20
DUP	71293004								
PDS/PDSD	71294005		100	93.6	95.7	75	125	1.1	20
PDS/PDSD	71485007		100	97.4	97.2	75	125	0.1	20
PDS/PDSD	71544001		100	101.0	101.0	75	125	0.5	20
PDS/PDSD	73065004		100	98.6	99.9	75	125	0.9	20
PDS/PDSD	73065007		100	97.1	97.2	75	125	0.1	20
PDS/PDSD	73210009		100	103.0	104.0	75	125	0.2	20
PDS/PDSD	73530005		100	97.8	95.3	75	125	1.0	20
PDS/PDSD	73530009		100	93.4	94.1	75	125	0.3	20

Calcium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	104.0		85	115		
LFB-MI			100	107.0		85	115		
MB		<1							
MB		<1							
SPK/SPKD	71292004		100	99.1	98.2	75	125	0.5	20
DUP	71293004							1.5	20
PDS/PDSD	71294002		100	94.7	92.2	75	125	1.4	20
SPK/SPKD	71294005		100	99.3	99.2	75	125	0.1	20

Iron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	105.0		85	115		
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
MB		<0.1							
MS/MSD	71292003		0.4	87.1	89.2	70	130	0.8	20
PDS/PDSD	71294002		10	103.0	104.0	75	125	0.6	20

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Iron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
LFB-OE			0.4	105.0		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	71292001		0.4	101.0	102.0	75	125	0.6	20
MS/MSD	71292003		0.4	91.8	84.1	75	125	2.9	20
SPK/SPKD	71688001		2	93.8	94.0	75	125	0.2	20
SPK/SPKD	71690001		0.4	74.7	81.3	75	125	1.9	20
SPK/SPKD	71694001		0.4	86.0	85.5	75	125	0.6	20

Lithium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
LFB-OE			0.4	111.0		85	115		
MB		<0.04							
MB		<0.04							
MS/MSD	71292003		0.4	100.0	101.0	70	130	0.4	20
MS/MSD	71294002		0.4	103.0	102.0	70	130	1.0	20

Lithium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
LFB-OE			0.4	111.0		85	115		
MB		<0.04							
MB		<0.04							
MS/MSD	71292003		0.4	90.2	90.6	70	130	0.4	20
SPK/SPKD	71292004		0.4	90.4	89.4	75	125	1.0	20
SPK/SPKD	71294006		0.4	88.1	87.4	75	125	0.7	20

Magnesium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	104.0		85	115		
LFB-MI			100	107.0		85	115		
MB		<1							

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Account #: 5109 **Client:** Great River Energy

Magnesium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<1							
PDS/PDSD	71089017		100	98.4	97.5	75	125	0.6	20
PDS/PDSD	71292004		100	95.6	98.7	75	125	1.8	20
PDS/PDSD	71294005		100	98.9	100.0	75	125	1.1	20
PDS/PDSD	71485007		100	101.0	101.0	75	125	0.3	20
PDS/PDSD	71544001		100	102.0	102.0	75	125	0.4	20
PDS/PDSD	73065004		100	101.0	102.0	75	125	1.0	20
PDS/PDSD	73065007		100	101.0	101.0	75	125	0.1	20
PDS/PDSD	73210009		100	105.0	105.0	75	125	0.1	20
PDS/PDSD	73530005		100	103.0	102.0	75	125	0.7	20
PDS/PDSD	73530009		100	99.9	101.0	75	125	0.4	20

Magnesium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	104.0		85	115		
LFB-MI			100	107.0		85	115		
MB		<1							
MB		<1							
SPK/SPKD	71292004		100	100.0	99.5	75	125	0.6	20
DUP	71293004							0.9	20
PDS/PDSD	71294002		100	99.1	98.0	75	125	0.9	20
SPK/SPKD	71294005		100	103.0	103.0	75	125	0.1	20

Manganese				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	103.0		85	115		
LFB-OE			0.4	106.0		85	115		
MB		<0.05							
MB		<0.05							
MS/MSD	71292003		0.4	91.2	92.6	70	130	1.4	20
MS/MSD	71294002		0.4	87.3	93.1	70	130	3.3	20
PDS/PDSD	71294002		10	111.0	111.0	75	125	0.1	20

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Manganese, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	103.0		85	115		
LFB-OE			0.4	106.0		85	115		
MB		<0.05							
MB		<0.05							
SPK/SPKD	71292001		0.4	100.0	101.0	75	125	0.8	20
MS/MSD	71292003		0.4	93.0	90.3	75	125	2.5	20
SPK/SPKD	71688001		2	90.0	89.8	75	125	0.1	20
SPK/SPKD	71690001		0.4	90.3	94.3	75	125	3.1	20
SPK/SPKD	71694001		0.4	83.0	82.5	75	125	0.4	20

Potassium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	106.0		85	115		
LFB-MI			100	103.0		85	115		
MB		<1							
MB		<1							
PDS/PDSD	71089017		100	102.0	101.0	75	125	0.9	20
PDS/PDSD	71292004		100	101.0	102.0	75	125	1.1	20
PDS/PDSD	71294005		100	100.0	102.0	75	125	1.3	20
PDS/PDSD	71485007		100	102.0	101.0	75	125	0.9	20
PDS/PDSD	71544001		100	102.0	101.0	75	125	0.7	20
PDS/PDSD	73065004		100	101.0	103.0	75	125	2.3	20
PDS/PDSD	73065007		100	102.0	103.0	75	125	1.1	20
PDS/PDSD	73210009		100	105.0	104.0	75	125	0.1	20
PDS/PDSD	73530005		100	108.0	107.0	75	125	0.7	20
PDS/PDSD	73530009		100	104.0	105.0	75	125	1.3	20

Potassium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	103.0		85	115		
LFB-MI			100	106.0		85	115		
MB		<1							
MB		<1							

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Account #: 5109 **Client:** Great River Energy

Potassium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	71292004		100	105.0	104.0	75	125	1.1	20
DUP	71293004							4.9	20
PDS/PDSD	71294002		100	98.9	98.0	75	125	0.8	20
SPK/SPKD	71294005		100	103.0	103.0	75	125	0.2	20

Sodium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	102.0		85	115		
LFB-MI			100	108.0		85	115		
MB		<1							
MB		<1							
PDS/PDSD	71089017		100	101.0	99.7	75	125	1.5	20
PDS/PDSD	71292004		100	87.1	88.3	75	125	0.4	20
PDS/PDSD	71294005		100	79.4	83.4	75	125	1.1	20
PDS/PDSD	71485007		100	74.1	73.9	75	125	0.0	20
PDS/PDSD	71544001		100	91.7	92.1	75	125	0.2	20
PDS/PDSD	73065004		100	89.2	88.9	75	125	0.1	20
PDS/PDSD	73065007		100	92.5	93.2	75	125	0.3	20
PDS/PDSD	73210009		100	83.3	80.8	75	125	0.6	20
PDS/PDSD	73530005		100	92.6	91.3	75	125	0.5	20
PDS/PDSD	73530009		100	88.4	75.0	75	125	4.3	20

Sodium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	102.0		85	115		
LFB-MI			100	108.0		85	115		
MB		<1							
MB		<1							
SPK/SPKD	71292004		100	89.5	86.9	75	125	0.9	20
DUP	71293004							0.6	20
PDS/PDSD	71294002		100	72.2	78.2	75	125	1.6	20
SPK/SPKD	71294005		100	84.6	80.7	75	125	1.0	20

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Account #: 5109 **Client:** Great River Energy

Antimony Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	98.5		80	120		
LFB-MS			0.1	99.1		80	120		
MB		<0.001							
MB		<0.001							
MB		<0.001							
SPK	71261001		0.1	104.0		75	125		
MS/MSD	71292003		0.4	102.0	102.0	75	125	0.0	20
MS/MSD	71292003		0.4	99.7	95.2	75	125	4.6	20
SPK	71292003		0.1	104.0		75	125		
MS/MSD	71294002		0.4	99.8	101.0	75	125	1.0	20
SPK	71294002		0.1	99.3		75	125		
SPK/SPKD	71350001		0.2	103.0	103.0	75	125	0.2	20

Antimony, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.1		80	120		
LFB-MS			0.1	98.5		80	120		
LFB-MS			0.1	100.0		80	120		
MB		<0.001							
MB		<0.001							
MB		<0.001							
SPK	71261001		0.1	104.0		75	125		
MS/MSD	71292003		0.4	102.0	102.0	75	125	0.0	20
MS/MSD	71292003		0.4	99.7	95.2	75	125	4.6	20
SPK	71292003		0.1	104.0		75	125		
MS/MSD	71294002		0.4	99.8	101.0	75	125	1.0	20
SPK	71294002		0.1	99.3		75	125		
SPK/SPKD	71294005		0.1	110.0	114.0	75	125	3.5	20
SPK/SPKD	71294007		0.1	105.0	109.0	75	125	3.9	20
SPK/SPKD	71350001		0.2	103.0	103.0	75	125	0.2	20

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Account #: 5109 **Client:** Great River Energy

Arsenic Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.3		80	120		
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	99.4		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
SPK	71261001		0.1	103.0		75	125		
MS/MSD	71292003		0.4	103.0	101.0	75	125	2.0	20
MS/MSD	71292003		0.4	101.0	95.6	75	125	5.4	20
SPK	71292003		0.1	103.0		75	125		
MS/MSD	71294002		0.4	103.0	103.0	75	125	0.7	20
SPK	71294002		0.1	102.0		75	125		
SPK/SPKD	71350001		0.2	110.0	110.0	75	125	0.2	20

Arsenic, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	96.3		80	120		
LFB-MS			0.1	99.4		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
SPK	71261001		0.1	103.0		75	125		
MS/MSD	71292003		0.4	103.0	101.0	75	125	2.0	20
MS/MSD	71292003		0.4	101.0	95.6	75	125	5.4	20
SPK	71292003		0.1	103.0		75	125		
MS/MSD	71294002		0.4	104.0	104.0	75	125	0.7	20
SPK	71294002		0.1	102.0		75	125		
SPK/SPKD	71294005		0.1	109.0	117.0	75	125	7.3	20
SPK/SPKD	71294007		0.1	102.0	105.0	75	125	2.7	20
SPK/SPKD	71350001		0.2	110.0	110.0	75	125	0.2	20

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Account #: 5109 **Client:** Great River Energy

Barium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.4		80	120		
LFB-MS			0.1	98.5		80	120		
LFB-MS			0.1	99.8		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
SPK	71261001		0.1	96.8		75	125		
MS/MSD	71292003		0.4	97.4	98.2	75	125	0.7	20
MS/MSD	71292003		0.4	98.4	95.7	75	125	2.7	20
SPK	71292003		0.1	97.2		75	125		
MS/MSD	71294002		0.4	106.0	104.0	75	125	1.2	20
SPK	71294002		0.1	94.2		75	125		
SPK/SPKD	71350001		0.2	104.0	103.0	75	125	0.9	20

Barium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.4		80	120		
LFB-MS			0.1	99.8		80	120		
LFB-MS			0.1	98.5		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
SPK	71261001		0.1	96.8		75	125		
MS/MSD	71292003		0.4	98.4	95.7	75	125	2.7	20
MS/MSD	71292003		0.4	97.4	98.2	75	125	0.7	20
SPK	71292003		0.1	97.2		75	125		
MS/MSD	71294002		0.4	130.0	129.0	75	125	1.2	20
SPK	71294002		0.1	94.2		75	125		
SPK/SPKD	71294005		0.1	102.0	105.0	75	125	2.2	20
SPK/SPKD	71294007		0.1	103.0	104.0	75	125	1.0	20
SPK/SPKD	71350001		0.2	104.0	103.0	75	125	0.9	20

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Account #: 5109 **Client:** Great River Energy

Beryllium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.2		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	71292003		0.4	119.0	115.0	75	125	3.6	20
MS/MSD	71292003		0.4	117.0	110.0	75	125	6.0	20
SPK	71292003		0.1	112.0		75	125		
MS/MSD	71294002		0.4	112.0	113.0	75	125	0.2	20
SPK	71294002		0.1	110.0		75	125		

Beryllium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.2		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	71292003		0.4	119.0	115.0	75	125	3.6	20
MS/MSD	71292003		0.4	117.0	110.0	75	125	6.0	20
SPK	71292003		0.1	112.0		75	125		
MS/MSD	71294002		0.4	112.0	113.0	75	125	0.2	20
SPK	71294002		0.1	110.0		75	125		
SPK/SPKD	71294005		0.1	145.0	147.0	75	125	2.0	20
SPK/SPKD	71294007		0.1	130.0	123.0	75	125	5.1	20

Cadmium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	99.1		80	120		
LFB-MS			0.1	100.0		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
SPK	71261001		0.1	96.9		75	125		

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Account #: 5109 **Client:** Great River Energy

Cadmium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	71292003		0.4	102.0	96.0	75	125	5.8	20
MS/MSD	71292003		0.4	104.0	104.0	75	125	0.2	20
SPK	71292003		0.1	102.0		75	125		
MS/MSD	71294002		0.4	99.5	101.0	75	125	1.3	20
SPK	71294002		0.1	94.7		75	125		
SPK/SPKD	71350001		0.2	96.9	95.9	75	125	1.0	20

Cadmium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.1		80	120		
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	100.0		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
SPK	71261001		0.1	96.9		75	125		
MS/MSD	71292003		0.4	104.0	104.0	75	125	0.2	20
MS/MSD	71292003		0.4	102.0	96.0	75	125	5.8	20
SPK	71292003		0.1	102.0		75	125		
MS/MSD	71294002		0.4	99.5	101.0	75	125	1.3	20
SPK	71294002		0.1	94.7		75	125		
SPK/SPKD	71294005		0.1	98.2	101.0	75	125	2.5	20
SPK/SPKD	71294007		0.1	97.7	99.4	75	125	1.7	20
SPK/SPKD	71350001		0.2	96.9	95.9	75	125	1.0	20

Chromium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
LFB-MS			0.1	99.1		80	120		
LFB-MS			0.1	99.3		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							

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Account #: 5109 **Client:** Great River Energy

Chromium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK	71261001		0.1	100.0		75	125		
MS/MSD	71292003		0.4	96.7	91.4	75	125	5.6	20
MS/MSD	71292003		0.4	99.5	97.6	75	125	2.0	20
SPK	71292003		0.1	97.8		75	125		
MS/MSD	71294002		0.4	95.1	96.9	75	125	2.1	20
SPK	71294002		0.1	96.0		75	125		
SPK/SPKD	71350001		0.2	103.0	102.0	75	125	1.3	20

Chromium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.1		80	120		
LFB-MS			0.1	99.3		80	120		
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
SPK	71261001		0.1	100.0		75	125		
MS/MSD	71292003		0.4	96.7	91.4	75	125	5.6	20
MS/MSD	71292003		0.4	99.5	97.6	75	125	2.0	20
SPK	71292003		0.1	97.8		75	125		
MS/MSD	71294002		0.4	96.8	98.7	75	125	2.1	20
SPK	71294002		0.1	96.0		75	125		
SPK/SPKD	71294005		0.1	110.0	117.0	75	125	6.3	20
SPK/SPKD	71294007		0.1	106.0	106.0	75	125	0.1	20
SPK/SPKD	71350001		0.2	103.0	102.0	75	125	1.3	20

Cobalt — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	98.6		80	120		
MB		<0.002							
MB		<0.002							

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Account #: 5109 **Client:** Great River Energy

Cobalt — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.002							
SPK	71261001		0.1	101.0		75	125		
MS/MSD	71292003		0.4	100.0	99.6	75	125	0.8	20
MS/MSD	71292003		0.4	98.5	92.6	75	125	6.3	20
SPK	71292003		0.1	100.0		75	125		
MS/MSD	71294002		0.4	96.7	98.3	75	125	1.5	20
SPK	71294002		0.1	98.3		75	125		
SPK/SPKD	71350001		0.2	102.0	102.0	75	125	0.4	20

Cobalt, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
LFB-MS			0.1	98.6		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
SPK	71261001		0.1	101.0		75	125		
MS/MSD	71292003		0.4	100.0	99.6	75	125	0.8	20
MS/MSD	71292003		0.4	98.5	92.6	75	125	6.3	20
SPK	71292003		0.1	100.0		75	125		
MS/MSD	71294002		0.4	97.5	99.1	75	125	1.5	20
SPK	71294002		0.1	98.3		75	125		
SPK/SPKD	71294005		0.1	108.0	117.0	75	125	8.4	20
SPK/SPKD	71294007		0.1	105.0	104.0	75	125	0.9	20
SPK/SPKD	71350001		0.2	102.0	102.0	75	125	0.4	20

Lead — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.3		80	120		
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	95.6		80	120		
MB		<0.0005							

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Account #: 5109 **Client:** Great River Energy

Lead — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.0005							
MB		<0.0005							
SPK	71261001		0.1	93.2		75	125		
MS/MSD	71292003		0.4	96.7	94.8	75	125	2.1	20
MS/MSD	71292003		0.4	93.1	89.8	75	125	3.6	20
SPK	71292003		0.1	95.1		75	125		
MS/MSD	71294002		0.4	93.8	92.8	75	125	1.1	20
SPK	71294002		0.1	88.7		75	125		
SPK/SPKD	71350001		0.2	91.1	90.0	75	125	1.2	20

Lead, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.6		80	120		
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	97.3		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
SPK	71261001		0.1	93.2		75	125		
MS/MSD	71292003		0.4	93.1	89.8	75	125	3.6	20
MS/MSD	71292003		0.4	96.7	94.8	75	125	2.1	20
SPK	71292003		0.1	95.1		75	125		
MS/MSD	71294002		0.4	94.5	93.5	75	125	1.1	20
SPK	71294002		0.1	88.7		75	125		
SPK/SPKD	71294005		0.1	105.0	108.0	75	125	2.4	20
SPK/SPKD	71294007		0.1	102.0	105.0	75	125	2.3	20
SPK/SPKD	71350001		0.2	91.1	90.0	75	125	1.2	20

Molybdenum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
LFB-MS			0.1	105.0		80	120		
LFB-MS			0.1	102.0		80	120		

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Account #: 5109 **Client:** Great River Energy

Molybdenum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.002							
MB		<0.002							
MB		<0.002							
SPK	71261001		0.1	106.0		75	125		
MS/MSD	71292003		0.4	101.0	102.0	75	125	0.7	20
MS/MSD	71292003		0.4	95.3	90.4	75	125	5.3	20
SPK	71292003		0.1	104.0		75	125		
MS/MSD	71294002		0.4	98.3	99.6	75	125	1.5	20
SPK	71294002		0.1	104.0		75	125		
SPK/SPKD	71350001		0.2	108.0	107.0	75	125	0.6	20

Molybdenum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
LFB-MS			0.1	103.0		80	120		
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
MB		<0.002							
MB		<0.002							
SPK	71261001		0.1	106.0		75	125		
MS/MSD	71292003		0.4	101.0	102.0	75	125	0.7	20
MS/MSD	71292003		0.4	95.3	90.4	75	125	5.3	20
SPK	71292003		0.1	104.0		75	125		
MS/MSD	71294002		0.4	103.0	104.0	75	125	1.5	20
SPK	71294002		0.1	104.0		75	125		
SPK/SPKD	71294005		0.1	104.0	110.0	75	125	4.9	20
SPK/SPKD	71294007		0.1	98.0	98.9	75	125	0.9	20
SPK/SPKD	71350001		0.2	108.0	107.0	75	125	0.6	20

Selenium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	95.0		80	120		
LFB-MS			0.1	97.0		80	120		

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Account #: 5109 **Client:** Great River Energy

Selenium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
MB		<0.005							
MB		<0.005							
MB		<0.005							
SPK	71261001		0.1	99.2		75	125		
MS/MSD	71292003		0.4	99.4	93.1	75	125	6.8	20
MS/MSD	71292003		0.4	105.0	103.0	75	125	1.4	20
SPK	71292003		0.1	103.0		75	125		
MS/MSD	71294002		0.4	102.0	101.0	75	125	0.7	20
SPK	71294002		0.1	95.4		75	125		
SPK/SPKD	71350001		0.2	99.8	100.0	75	125	0.1	20

Selenium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.0		80	120		
LFB-MS			0.1	95.0		80	120		
LFB-MS			0.1	100.0		80	120		
MB		<0.005							
MB		<0.005							
MB		<0.005							
SPK	71261001		0.1	99.2		75	125		
MS/MSD	71292003		0.4	99.4	93.1	75	125	6.8	20
MS/MSD	71292003		0.4	105.0	103.0	75	125	1.4	20
SPK	71292003		0.1	103.0		75	125		
MS/MSD	71294002		0.4	102.0	101.0	75	125	0.7	20
SPK	71294002		0.1	95.4		75	125		
SPK/SPKD	71294005		0.1	105.0	111.0	75	125	5.7	20
SPK/SPKD	71294007		0.1	104.0	106.0	75	125	1.6	20
SPK/SPKD	71350001		0.2	99.8	100.0	75	125	0.1	20

Thallium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.9		80	120		

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Account #: 5109 **Client:** Great River Energy

Thallium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	94.2		80	120		
LFB-MS			0.1	96.2		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
SPK	71261001		0.1	91.5		75	125		
MS/MSD	71292003		0.4	92.8	89.8	75	125	3.3	20
MS/MSD	71292003		0.4	93.7	88.6	75	125	5.8	20
SPK	71292003		0.1	91.8		75	125		
MS/MSD	71294002		0.4	92.7	91.2	75	125	1.6	20
SPK	71294002		0.1	86.3		75	125		
SPK/SPKD	71350001		0.2	88.0	86.4	75	125	1.8	20

Thallium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	94.2		80	120		
LFB-MS			0.1	96.2		80	120		
LFB-MS			0.1	99.9		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
SPK	71261001		0.1	91.5		75	125		
MS/MSD	71292003		0.4	92.8	89.8	75	125	3.3	20
MS/MSD	71292003		0.4	93.7	88.6	75	125	5.8	20
SPK	71292003		0.1	91.8		75	125		
MS/MSD	71294002		0.4	92.7	91.2	75	125	1.6	20
SPK	71294002		0.1	86.3		75	125		
SPK/SPKD	71294005		0.1	103.0	107.0	75	125	3.4	20
SPK/SPKD	71294007		0.1	111.0	113.0	75	125	2.1	20
SPK/SPKD	71350001		0.2	88.0	86.4	75	125	1.8	20

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Account #: 5109 **Client:** Great River Energy

Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	101.0		85	115		
LFB			0.002	107.0		85	115		
LFB			0.002	106.0		85	115		
LFB			0.002	106.0		85	115		
LRB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MS/MSD	71294004		0.002	97.5	98.0	70	130	0.0	20
MS/MSD	71485004		0.002	100.0	100.0	70	130	0.0	20
MS/MSD	71688001		0.002	77.5	78.0	70	130	0.0	20
MS/MSD	71693001		0.002	97.0	97.0	70	130	0.0	20

Mercury, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	101.0		85	115		
MB		<0.0002							
MS/MSD	71294007		0.002	95.8	94.1	70	130	0.0	20

Alkalinity, Total				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			501	92.2		80	120		
LFB			80.9	95.3		90	110		
LFB			80.9	94.5		90	110		
LFB			80.9	92.0		90	110		
MB		<20.5							
MB		<20.5							
MB		<20.5							
MS/MSD	71292003		410	81.1	80.6	80	120	0.2	20
MS/MSD	71293003		410	96.1	93.8	80	120	1.0	20

pH				Units: units					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	99.5		98.33	101.67		

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pH — Units: units

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	99.3		98.33	101.67		
CRM-PH			6	99.0		98.33	101.67		
CRM-PH			6	99.2		98.33	101.67		
DUP	70736002							0.2	20
DUP	71292003							1.3	20
DUP	71294005							0.3	20

Fluoride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			3.06	98.0		83.99	111.11		
LFB-F			0.5	102.0		90	110		
LFB-F			0.5	100.0		90	110		
LFB-F			0.5	94.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MS/MSD	71292003		0.5	100.0	108.0	80	120	3.5	20
MS/MSD	71294001		0.5	104.0	102.0	80	120	0.9	20

Total Dissolved Solids — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	98.0		90.35	110.33		
MB		<10							
DUP	71292003							2.0	20
DUP	71294006							1.5	20

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 71294

Sulfate — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			100	106.0		85	115		
LFB			100	105.0		85	115		
LFB			100	95.7		85	115		
LFB			100	104.0		85	115		
LFB			100	96.4		85	115		
LFB			100	102.0		85	115		
LFB			100	109.0		85	115		
LFB			100	99.7		85	115		
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MS/MSD	70896004		1000	100.4	95.9	85	115	1.6	20
MS/MSD	71087001		2000	99.0	97.8	85	115	0.7	20
MS/MSD	71089005		500	93.5	91.7	85	115	1.0	20
MS/MSD	71089015		1000	103.2	99.7	85	115	1.2	20
MS/MSD	71089025		100	92.8	97.4	85	115	4.8	20
MS/MSD	71292003		500	94.8	95.5	85	115	0.5	20
MS/MSD	71294007		100	109.1	103.1	85	115	5.7	20

Chloride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	94.9		90	110		
LFB			30	95.0		90	110		
LFB			30	94.4		90	110		
LFB			30	95.1		90	110		

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Chloride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	94.2		90	110		
LFB			30	93.9		90	110		
LFB			30	93.3		90	110		
LFB			30	92.6		90	110		
LFB			30	92.3		90	110		
LFB			30	94.1		90	110		
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MS/MSD	71292003		30	97.4	97.0	80	120	0.5	20
MS/MSD	71545001		30	103.2	102.2	80	120	0.0	20
MS/MSD	71688001		30	100.0	99.5	80	120	0.4	20
MS/MSD	71890007		30	104.3	106.8	80	120	0.9	20
MS/MSD	72123002		30	94.7	94.7	80	120	0.0	20

Aluminum Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	101.0		85	115		
LFB-OE			0.4	92.5		85	115		
MB		<0.1							
MB		<0.1							
MS/MSD	71292003		0.4	102.0	101.0	70	130	0.6	20
PDS/PDSD	71294002		10	94.9	99.4	75	125	3.3	20

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Aluminum, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	92.5		85	115		
LFB-OE			0.4	101.0		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	71292001		0.4	109.0	109.0	75	125	0.4	20
MS/MSD	71292003		0.4	102.0	100.0	75	125	1.8	20
SPK/SPKD	71688001		2	100.0	104.0	75	125	4.0	20
SPK/SPKD	71690001		0.4	112.0	113.0	75	125	1.4	20
SPK/SPKD	71694001		0.4	95.8	97.5	75	125	1.4	20

Boron				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	95.8		85	115		
MB		<0.1							
PDS/PDSD	70864001		2	98.4	94.6	75	125	2.4	20
MS/MSD	71292003		0.4	99.6	97.3	70	130	1.1	20
MS/MSD	71294002		0.4	99.2	102.0	70	130	0.7	20

Calcium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	104.0		85	115		
MB		<1							
PDS/PDSD	71089017		100	94.1	93.2	75	125	0.4	20
PDS/PDSD	71292004		100	94.9	98.3	75	125	1.9	20
DUP	71293004							2.7	20
PDS/PDSD	71294005		100	93.6	95.7	75	125	1.1	20
PDS/PDSD	71485007		100	97.4	97.2	75	125	0.1	20
PDS/PDSD	71544001		100	101.0	101.0	75	125	0.5	20

Iron				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	105.0		85	115		
LFB-OE			0.4	107.0		85	115		
MB		<0.1							

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Iron				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.1							
MS/MSD	71292003		0.4	87.1	89.2	70	130	0.8	20
PDS/PDSD	71294002		10	103.0	104.0	75	125	0.6	20

Iron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	105.0		85	115		
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	71292001		0.4	101.0	102.0	75	125	0.6	20
MS/MSD	71292003		0.4	91.8	84.1	75	125	2.9	20
SPK/SPKD	71688001		2	93.8	94.0	75	125	0.2	20
SPK/SPKD	71690001		0.4	74.7	81.3	75	125	1.9	20
SPK/SPKD	71694001		0.4	86.0	85.5	75	125	0.6	20

Lithium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	109.0		85	115		
MB		<0.04							
MS/MSD	71292003		0.4	100.0	101.0	70	130	0.4	20
MS/MSD	71294002		0.4	103.0	102.0	70	130	1.0	20

Magnesium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	104.0		85	115		
MB		<1							
PDS/PDSD	71089017		100	98.4	97.5	75	125	0.6	20
PDS/PDSD	71292004		100	95.6	98.7	75	125	1.8	20
DUP	71293004							2.4	20
PDS/PDSD	71294005		100	98.9	100.0	75	125	1.1	20
PDS/PDSD	71485007		100	101.0	101.0	75	125	0.3	20
PDS/PDSD	71544001		100	102.0	102.0	75	125	0.4	20

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Manganese				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	106.0		85	115		
LFB-OE			0.4	103.0		85	115		
MB		<0.05							
MB		<0.05							
MS/MSD	71292003		0.4	91.2	92.6	70	130	1.4	20
MS/MSD	71294002		0.4	87.3	93.1	70	130	3.3	20
PDS/PDSD	71294002		10	108.0	108.0	75	125	0.1	20

Manganese, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	106.0		85	115		
LFB-OE			0.4	103.0		85	115		
MB		<0.05							
MB		<0.05							
SPK/SPKD	71292001		0.4	100.0	101.0	75	125	0.8	20
MS/MSD	71292003		0.4	93.0	90.3	75	125	2.5	20
SPK/SPKD	71688001		2	90.0	89.8	75	125	0.1	20
SPK/SPKD	71690001		0.4	90.3	94.3	75	125	3.1	20
SPK/SPKD	71694001		0.4	83.0	82.5	75	125	0.4	20

Potassium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	103.0		85	115		
MB		<1							
PDS/PDSD	71089017		100	102.0	101.0	75	125	0.9	20
PDS/PDSD	71292004		100	101.0	102.0	75	125	1.1	20
DUP	71293004							2.3	20
PDS/PDSD	71294005		100	100.0	102.0	75	125	1.3	20
PDS/PDSD	71485007		100	102.0	101.0	75	125	0.9	20
PDS/PDSD	71544001		100	102.0	101.0	75	125	0.7	20

Sodium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	102.0		85	115		

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Sodium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<1							
PDS/PDSD	71089017		100	101.0	99.7	75	125	1.5	20
PDS/PDSD	71292004		100	87.1	88.3	75	125	0.4	20
DUP	71293004							2.2	20
PDS/PDSD	71294005		100	79.4	83.4	75	125	1.1	20
PDS/PDSD	71485007		100	74.1	73.9	75	125	0.0	20
PDS/PDSD	71544001		100	91.7	92.1	75	125	0.2	20

Antimony				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
MB		<0.001							
SPK	71261001		0.1	104.0		75	125		
MS/MSD	71292003		0.4	102.0	102.0	75	125	0.0	20
SPK	71292003		0.1	104.0		75	125		
MS/MSD	71294002		0.4	99.8	101.0	75	125	1.0	20
SPK	71294002		0.1	99.3		75	125		
SPK/SPKD	71350001		0.2	103.0	103.0	75	125	0.2	20

Arsenic				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
MB		<0.002							
SPK	71261001		0.1	103.0		75	125		
MS/MSD	71292003		0.4	103.0	101.0	75	125	2.0	20
SPK	71292003		0.1	103.0		75	125		
MS/MSD	71294002		0.4	103.0	103.0	75	125	0.7	20
SPK	71294002		0.1	102.0		75	125		
SPK/SPKD	71350001		0.2	110.0	110.0	75	125	0.2	20

Barium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.8		80	120		
MB		<0.002							

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Barium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK	71261001		0.1	96.8		75	125		
MS/MSD	71292003		0.4	97.4	98.2	75	125	0.7	20
SPK	71292003		0.1	97.2		75	125		
MS/MSD	71294002		0.4	106.0	104.0	75	125	1.2	20
SPK	71294002		0.1	94.2		75	125		
SPK/SPKD	71350001		0.2	104.0	103.0	75	125	0.9	20

Beryllium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
MB		<0.0005							
MS/MSD	71292003		0.4	117.0	110.0	75	125	6.0	20
SPK	71292003		0.1	112.0		75	125		
MS/MSD	71294002		0.4	112.0	113.0	75	125	0.2	20
SPK	71294002		0.1	110.0		75	125		

Cadmium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
MB		<0.0005							
SPK	71261001		0.1	96.9		75	125		
MS/MSD	71292003		0.4	104.0	104.0	75	125	0.2	20
SPK	71292003		0.1	102.0		75	125		
MS/MSD	71294002		0.4	99.5	101.0	75	125	1.3	20
SPK	71294002		0.1	94.7		75	125		
SPK/SPKD	71350001		0.2	96.9	95.9	75	125	1.0	20

Chromium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
MB		<0.002							
SPK	71261001		0.1	100.0		75	125		
MS/MSD	71292003		0.4	99.5	97.6	75	125	2.0	20
SPK	71292003		0.1	97.8		75	125		

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Chromium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	71294002		0.4	95.1	96.9	75	125	2.1	20
SPK	71294002		0.1	96.0		75	125		
SPK/SPKD	71350001		0.2	103.0	102.0	75	125	1.3	20

Cobalt				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
MB		<0.002							
SPK	71261001		0.1	101.0		75	125		
MS/MSD	71292003		0.4	100.0	99.6	75	125	0.8	20
SPK	71292003		0.1	100.0		75	125		
MS/MSD	71294002		0.4	96.7	98.3	75	125	1.5	20
SPK	71294002		0.1	98.3		75	125		
SPK/SPKD	71350001		0.2	102.0	102.0	75	125	0.4	20

Lead				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
MB		<0.0005							
SPK	71261001		0.1	93.2		75	125		
MS/MSD	71292003		0.4	96.7	94.8	75	125	2.1	20
SPK	71292003		0.1	95.1		75	125		
MS/MSD	71294002		0.4	93.8	92.8	75	125	1.1	20
SPK	71294002		0.1	88.7		75	125		
SPK/SPKD	71350001		0.2	91.1	90.0	75	125	1.2	20

Molybdenum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
MB		<0.002							
SPK	71261001		0.1	106.0		75	125		
MS/MSD	71292003		0.4	101.0	102.0	75	125	0.7	20
SPK	71292003		0.1	104.0		75	125		
MS/MSD	71294002		0.4	98.3	99.6	75	125	1.5	20

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Molybdenum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK	71294002		0.1	104.0		75	125		
SPK/SPKD	71350001		0.2	108.0	107.0	75	125	0.6	20

Selenium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
MB		<0.005							
SPK	71261001		0.1	99.2		75	125		
MS/MSD	71292003		0.4	105.0	103.0	75	125	1.4	20
SPK	71292003		0.1	103.0		75	125		
MS/MSD	71294002		0.4	102.0	101.0	75	125	0.7	20
SPK	71294002		0.1	95.4		75	125		
SPK/SPKD	71350001		0.2	99.8	100.0	75	125	0.1	20

Thallium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.9		80	120		
MB		<0.0005							
SPK	71261001		0.1	91.5		75	125		
MS/MSD	71292003		0.4	93.7	88.6	75	125	5.8	20
SPK	71292003		0.1	91.8		75	125		
MS/MSD	71294002		0.4	92.7	91.2	75	125	1.6	20
SPK	71294002		0.1	86.3		75	125		
SPK/SPKD	71350001		0.2	88.0	86.4	75	125	1.8	20

Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	106.0		85	115		
LFB			0.002	106.0		85	115		
LFB			0.002	107.0		85	115		
LRB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MS/MSD	71294004		0.002	97.5	98.0	70	130	0.0	20

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Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	71485004		0.002	100.0	100.0	70	130	0.0	20
MS/MSD	71688001		0.002	77.5	78.0	70	130	0.0	20
MS/MSD	71693001		0.002	97.0	97.0	70	130	0.0	20

Alkalinity, Total				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			501	92.2		80	120		
LFB			80.9	94.5		90	110		
LFB			80.9	95.3		90	110		
LFB			80.9	92.0		90	110		
MB		<20.5							
MB		<20.5							
MB		<20.5							
MS/MSD	71292003		410	81.1	80.6	80	120	0.2	20
MS/MSD	71293003		410	96.1	93.8	80	120	1.0	20

pH				Units: units					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
DUP	70736002							0.2	20
DUP	71292003							1.3	20
DUP	71294005							0.3	20

pH				Units: units					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	99.2		98.33	101.67		
CRM-PH			6	99.0		98.33	101.67		
CRM-PH			6	99.5		98.33	101.67		
CRM-PH			6	99.3		98.33	101.67		

Fluoride				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			3.06	98.0		83.99	111.11		
LFB-F			0.5	94.0		90	110		
LFB-F			0.5	100.0		90	110		
LFB-F			0.5	102.0		90	110		
MB-F		<0.1							

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Fluoride				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB-F		<0.1							
MB-F		<0.1							
MS/MSD	71292003		0.5	100.0	108.0	80	120	3.5	20
MS/MSD	71294001		0.5	104.0	102.0	80	120	0.9	20

Total Dissolved Solids				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	98.0		90.35	110.33		
MB		<10							
DUP	71292003							2.0	20
DUP	71294006							1.5	20

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Great River Energy
WO: 71294

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS 2022 Wells
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: Nov Sept 2024
Address:		Lakewood, CO 80228	Sampled By: Jeremy Meyer + Ethan Gress
Phone:			
Email:	CJohnston@GREnergy.com		

Sample Information					Sample Containers									Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric					Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-210	18 Nov 24	0925	GW	X	X	X							10.18	1596	7.78	35.69	App III, AppIV, Additional List (total and dissolved for all metals) (See Attachments)
002	Dup-2022	18 Nov 24	1230	GW	X	X	X							NA	NA	NA	NA	
003	MW-211	18 Nov 24	0825	GW	X	X	X							9.24	2549	7.97	5.13	
004	MW-212	18 Nov 24	1145	GW	X	X	X							9.95	1938	8.28	20.40	
005	MW-213	18 Nov 24	1230	GW	X	X	X							10.47	1497	7.75	293.89	
006	MW-214	18 Nov 24	1643	GW	X	X	X							11.04	2010	7.60	2.38	
007	FB 2022	18 Nov 24	1625	GW	X	X	X							NA	NA	NA	NA	

Comments:

Relinquished By			Sample Condition		Received By	
	Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1		18/16/24 1831	Log In Walk In #2	3.0 °C/TM 805 ROI Y/N		19 NOV 24 0800
2						

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Table 1: Proposed 2024 Stanton Station Plant Facilities Sampling Schedule

Location	Well ID		2024				
			Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-7A	1	Field Parameters (Field pH)				
	MW-7B	1					
	MW-8B	1					
	MW-105	1	Field Parameters (Field pH)				
Bottom Ash Landfill	MW-9N	1					
	MW-102	1					
	MW-103	1					
Property Boundary	MW-PB1	1					
Wells Installed in May 2022	MW-210	1					
	MW-211	1					
	MW-212	1					
	MW-213	1					
	MW-214	1					
Piezometers [1]	PZ-BA-A	1					
	PZ-BA-B	1					
Sumps [2]	BAI-Sump-S	1					
Surface Water [3]	Missouri-River	1					
	Rail-Drainage	1					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R	1					
	MW-104	1					
Bottom Ash Impoundment	MW-201	1				Subset of App IV detected in Q1, Iron, Aluminum, Manganese (Dissolved and Total for Each Metal)	
	MW-202	1					
	MW-203	1					
Closed Landfill	MW-10	1			App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)
	MW-204	1	Sulfate + Field parameters				
	MW-205	1	Sulfate + Field parameters				
Additional Internal Locations	MW-4	1					
	MW-PB2	1					
Wells Installed in February 2023	MW-215	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-216	1					
	MW-217	1					
	MW-218	1					
	MW-219	1					
	MW-220	1					
	MW-221	1					
	MW-222	1					
	MW-300	1					
	MW-301	1					
	MW-PB3	1					
Total # of Sample Locations			4	35	40	6	40

Notes:
App III - Appendix III Detection Monitoring List, Table 2
App IV - Appendix IV Assessment Monitoring List, Table 3
Additional List - Table 4
Required field parameters are listed in Table 2 and Table 3
Suggested locations for collection of QA/QC samples are listed in Table 5.
1. The piezometers do not have dedicated pumps and will need to be sampled by other methods.
2. The sump should be sampled using surface water collection methods via the sump riser.
3. Surface water samples to be collected if safely accessible and free water is present.

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Table 2. Parameter and Analysis Summary - Appendix III Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/11	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	SM 4500 F E/11	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	ASTM D516-16	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	USGS I-1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total and dissolved)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:
1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent methods.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

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February 2024 GL21509219.000

Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

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Table 4: Additional List Parameter and Analysis Summary

Parameter [1]	Method Reference [2]	Reporting Limit	Preparation Method Reference [2]	Sample Container [3]	Required Preservation [4]	Maximum Holding Time from Sampling [5]
General Chemistry						
Total Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Bicarbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Carbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Metals (Total and Dissolved)						
Iron	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Magnesium	EPA 6010D	0.2 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Potassium	EPA 6010D	3.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Sodium	EPA 6010D	1.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Aluminum	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Manganese	EPA 6010D	0.05 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months

Notes:

1. All listed parameters are tested in the laboratory. Listed parameters are to be collected in conjunction with other CCR parameter lists (Table 2 and Table 3).

2. Or equivalent method.
3. Containers and volumes will be specified by the analytical laboratory.
4. In addition to the required preservation for each sample container, sufficient ice should be placed with the sample containers in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when samples arrive, measurement of the temperature of samples immediately upon receipt is necessary to confirm that the 4° C temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible following collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid, without the use of qualifiers.

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February 2024 GL21509219.000

Table 5: 2024 Proposed Quality Assurance/Quality Control Sample Collection Locations

Location	Well ID	Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B		Field Blank			
	MW-7A					
	MW-7B		Duplicate			MS/MSD
	MW-8B					
	MW-105			Duplicate		
Bottom Ash Landfill	MW-9N					Duplicate
	MW-102		MS/MSD			
	MW-103			Field Blank		
Property Boundary	MW-PB1					
Wells Installed in May 2022	MW-210					Duplicate
	MW-211			MS/MSD		
	MW-212					Field Blank
	MW-213			Duplicate		
	MW-214		Field Blank			
Piezometers [1]	PZ-BA-A					
	PZ-BA-B					Field Blank
Sumps [2]	BAI-Sump-S					
Surface Water [3]	Missouri-River					
	Rail-Drainage					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R			Duplicate		
	MW-104					
Bottom Ash Impoundment	MW-201			Field Blank		MS/MSD
	MW-202		Duplicate		Field Blank	
	MW-203					Duplicate
Closed Landfill	MW-10					
	MW-204					
	MW-205					
Additional Internal Locations	MW-4					
	MW-PB2					
Wells Installed in February 2023	MW-215			Field Blank		
	MW-216		Field Blank			
	MW-217					Duplicate
	MW-218			MS/MSD		
	MW-219					
	MW-220					Field Blank
	MW-221		Duplicate			
	MW-222					
	MW-300					
	MW-301			Duplicate		
	MW-PB3					
Total # of Sample Locations		4	35	40	6	40
Total # of QC Samples		0	7	9	1	9

Notes:
Locations to collect samples are **suggestions only** to help with the distribution of QA/QC samples across the site and between facilities while meeting QA/QC objectives for the sampling programs.
Notes for QA/QC
Duplicates = 10-15% of primary collected sample
Field Blanks = 1 per day; based on number of primary collected samples, assuming 2 to 4 total per event
Equipment Blanks - only needed for non-dedicated equipement, none required.
MS/MSD = 1 per 20 primary collected samples, assuming 1 or 2 total per event.

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 515-382-5486 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	~~June~~ Nov 2024
Sample ID:	210
Sampling Personal:	JM

Weather Conditions: Temp: 30 °F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	14.09	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	14.16	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 7	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
18Nov24	0900	Start of Well Purge									clear, slightly turbid, turbid
	0905	9.69	1654	7.79	2.24	-75.4	130.06	14.15	200.0	1.0	Slightly Turbid
	0910	10.10	1596	7.77	0.22	-131.9	98.11	14.15	200.0	1.0	Clear
	0915	10.15	1594	7.77	0.21	-135.0	72.18	14.15	200.0	1.0	Clear
	0920	10.21	1595	7.78	0.17	-138.4	52.47	14.16	200.0	1.0	Clear
	0925	10.18	1596	7.78	0.15	-142.0	35.69	14.16	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18Nov24	0925	10.18	1596	7.78			35.69				Clear

Comments:

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov ~~June~~ 2024
Sample ID: 211
Sampling Personal: JTH

Weather Conditions: Temp: 30 °F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	19.46	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	19.62	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
18 Nov 24	0800	Start of Well Purge									
	0805	9.64	2561	7.93	0.66	-17.8	5.16	19.56	200.0	1.0	Clear
	0810	9.43	2556	7.96	0.68	-32.8	5.19	19.62	200.0	1.0	Clear
	0815	9.18	2565	7.96	0.32	-48.2	4.53	19.62	200.0	1.0	Clear
	0820	9.22	2546	7.97	0.29	-49.3	5.06	19.62	200.0	1.0	clear
	0825	9.24	2549	7.97	0.27	-46.3	5.13	19.62	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18 Nov 24	0825	9.24	2549	7.97			5.13				Clear

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Nov ~~June~~ 2024
Sample ID:	212
Sampling Personal:	JJ Hy

Weather Conditions: Temp: 30 °F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	20.35	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	20.43	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	—	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
18 Nov 24	1120	Start of Well Purge									clear, slightly turbid, turbid
	1125	9.78	1894	8.20	0.23	4.5	182.74	20.45	200.0	1.0	Slightly Turbid
	1130	9.88	1921	8.24	0.15	-21.3	76.53	20.44	200.0	1.0	Clear
	1135	9.93	1926	8.26	0.12	-40.0	42.07	20.42	200.0	1.0	Clear
	1140	9.91	1930	8.27	0.11	-41.1	37.52	20.41	200.0	1.0	Clear
	1145	9.95	1933	8.28	0.13	-43.8	28.80	20.40	200.0	1.0	

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18 Nov 24	1145	9.95	1933	8.28			20.40	~~20~~			clear

Comments:	

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Nov ~~June~~ 2024
Sample ID:	213
Sampling Personal:	JM

Weather Conditions: Temp: 40 °F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	17.40	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	17.45	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
Dup 2022

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
											clear, slightly turbid, turbid
18 Nov 24	1205	Start of Well Purge			1.30	-105.5					
	1210	10.30	1495	7.71	~~105.5~~	~~376.05~~	376.05	17.42	200.0	1.0	Slightly Turbid (ST)
	1215	10.40	1495	7.77	0.19	-135.4	408.43	17.44	200.0	1.0	ST
	1220	10.44	1495	7.77	0.20	-136.8	433.62	17.45	200.0	1.0	ST
	1225	10.46	1492	7.77	0.14	-141.9	389.64	17.45	200.0	1.0	ST
	1230	10.47	1497	7.75	0.12	-145.8	293.89	17.45	200.0	1.0	ST

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18 Nov 24	1230	10.47	1497	7.75			293.89				ST

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: ~~30 Dec 24~~ GRE Stanton Station
Event: November ~~June 2024~~
Sample ID: 214
Sampling Personal: Ethan Gress

Weather Conditions: Temp: 45 °F Wind: NW @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	7.93	ft
Depth to Top of Pump:		ft
Water Level After Sample:	8.35	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	3	Sec.
Recover:	57	Sec.
PSI:	—	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
	1618	Start of Well Purge									clear, slightly turbid, turbid
18 Nov 24	1623	11.23	2005	7.60	0.48	116.8	2.01	8.46	200.0	1.0	Clear
	1628	11.23	1992	7.59	0.29	105.3	4.10	8.44	200.0	1.0	Clear
	1633	11.09	2000*	7.60	0.25	101.2	2.98	8.51	200.0	1.0	Clear
	1638	11.03	2009	7.60	0.25	101.4	3.28	8.34	200.0	1.0	Clear
	1643	11.04	2010	7.60	0.24	100.8	2.38	8.30	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18 Nov 24	1643	11.04	2010	7.60			2.38				Clear

Comments: FB 2022 was collected here at 1625 *Spec. Cond. at 1633 was 2005

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy
Workorder: SS 2022 Wells Nov 2024 (71317) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71317001 **Date Collected:** 11/18/2024 09:25 **Matrix:** Groundwater
Sample ID: MW-210 **Date Received:** 11/18/2024 18:31 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.3 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:08	
Radium 228	See Attached			1		12/30/2024 13:08	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71317002 **Date Collected:** 11/18/2024 12:30 **Matrix:** Groundwater
Sample ID: DUP-2022 **Date Received:** 11/18/2024 18:31 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.3 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:08	
Radium 228	See Attached			1		12/30/2024 13:08	

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71317003 **Date Collected:** 11/18/2024 08:25 **Matrix:** Groundwater
Sample ID: MW-211 **Date Received:** 11/18/2024 18:31 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.3 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:08	
Radium 228	See Attached			1		12/30/2024 13:08	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71317004 **Date Collected:** 11/18/2024 11:45 **Matrix:** Groundwater
Sample ID: MW-212 **Date Received:** 11/18/2024 18:31 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.3 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:08	
Radium 228	See Attached			1		12/30/2024 13:08	

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 515-382-5486 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71317005 **Date Collected:** 11/18/2024 12:30 **Matrix:** Groundwater
Sample ID: MW-213 **Date Received:** 11/18/2024 18:31 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.3 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:08	
Radium 228	See Attached			1		12/30/2024 13:08	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71317006 **Date Collected:** 11/18/2024 16:43 **Matrix:** Groundwater
Sample ID: MW-214 **Date Received:** 11/18/2024 18:31 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.3 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:08	
Radium 228	See Attached			1		12/30/2024 13:08	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71317007 **Date Collected:** 11/18/2024 16:25 **Matrix:** Groundwater
Sample ID: FB - 2022 **Date Received:** 11/18/2024 18:31 **Collector:** MVTL Field Service

Temp @ Receipt (C): 9.3 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:08	
Radium 228	See Attached			1		12/30/2024 13:08	

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ANALYTICAL SUMMARY REPORT

December 23, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24110853 Quote ID: C15480
Project Name: 71317

Energy Laboratories, Inc. Casper WY received the following 7 samples for Minnesota Valley Testing Laboratories on 11/22/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24110853-001	71317001, MW-210	11/18/24 9:25	11/22/24	Groundwater	Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total
C24110853-002	71317002, Dup-2022	11/18/24 12:30	11/22/24	Groundwater	Same As Above
C24110853-003	71317003, MW-211	11/18/24 8:25	11/22/24	Groundwater	Same As Above
C24110853-004	71317004, MW-212	11/18/24 11:45	11/22/24	Groundwater	Same As Above
C24110853-005	71317005, MW-213	11/18/24 12:30	11/22/24	Groundwater	Same As Above
C24110853-006	71317006, MW-214	11/18/24 16:43	11/22/24	Groundwater	Same As Above
C24110853-007	71317007, FB-2022 Wells	11/18/24 16:25	11/22/24	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy, Casper, WY 82601-9601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

Energy Laboratories, Inc. verifies the reported results for the analysis has been technically reviewed and approved for release.

If you have any questions regarding these test results, please contact your Project Manager.

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71317
Lab ID: C24110853-001
Client Sample ID: 71317001, MW-210

Report Date: 12/23/24
Collection Date: 11/18/24 09:25
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	12/10/24 15:09 / trs
Radium 226 precision (±)	0.1	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 226 MDC	0.2	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 228	0.7	pCi/L	U			RA-05	12/05/24 13:05 / trs
Radium 228 precision (±)	0.5	pCi/L				RA-05	12/05/24 13:05 / trs
Radium 228 MDC	0.8	pCi/L				RA-05	12/05/24 13:05 / trs
Radium 226 + Radium 228	0.5	pCi/L	U			A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 precision (±)	0.5	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 MDC	0.8	pCi/L				A7500-RA	12/12/24 13:28 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71317
Lab ID: C24110853-002
Client Sample ID: 71317002, Dup-2022

Report Date: 12/23/24
Collection Date: 11/18/24 12:30
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.2	pCi/L	U			E903.0	12/10/24 15:09 / trs
Radium 226 precision (±)	0.2	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 226 MDC	0.2	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 228	0.7	pCi/L	U			RA-05	12/05/24 13:05 / trs
Radium 228 precision (±)	0.5	pCi/L				RA-05	12/05/24 13:05 / trs
Radium 228 MDC	0.8	pCi/L				RA-05	12/05/24 13:05 / trs
Radium 226 + Radium 228	0.5	pCi/L	U			A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 precision (±)	0.5	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 MDC	0.8	pCi/L				A7500-RA	12/12/24 13:28 / dmf

Report Definitions:
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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71317
Lab ID: C24110853-003
Client Sample ID: 71317003, MW-211

Report Date: 12/23/24
Collection Date: 11/18/24 08:25
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	12/10/24 15:09 / trs
Radium 226 precision (±)	0.1	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 226 MDC	0.2	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 228	0.6	pCi/L	U			RA-05	12/05/24 13:05 / trs
Radium 228 precision (±)	0.5	pCi/L				RA-05	12/05/24 13:05 / trs
Radium 228 MDC	0.8	pCi/L				RA-05	12/05/24 13:05 / trs
Radium 226 + Radium 228	0.5	pCi/L	U			A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 precision (±)	0.5	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 MDC	0.8	pCi/L				A7500-RA	12/12/24 13:28 / dmf

Report Definitions:
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QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71317
Lab ID: C24110853-004
Client Sample ID: 71317004, MW-212

Report Date: 12/23/24
Collection Date: 11/18/24 11:45
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	12/10/24 15:09 / trs
Radium 226 precision (±)	0.2	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 226 MDC	0.3	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 228	0.6	pCi/L	U			RA-05	12/05/24 13:05 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	12/05/24 13:05 / trs
Radium 228 MDC	1.0	pCi/L				RA-05	12/05/24 13:05 / trs
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	12/12/24 13:28 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
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Page 5 of 14

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71317
Lab ID: C24110853-005
Client Sample ID: 71317005, MW-213

Report Date: 12/23/24
Collection Date: 11/18/24 12:30
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 226 precision (±)	0.2	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 226 MDC	0.2	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 228	0.7	pCi/L	U			RA-05	12/05/24 13:05 / trs
Radium 228 precision (±)	0.5	pCi/L				RA-05	12/05/24 13:05 / trs
Radium 228 MDC	0.8	pCi/L				RA-05	12/05/24 13:05 / trs
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 precision (±)	0.5	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 MDC	0.8	pCi/L				A7500-RA	12/12/24 13:28 / dmf

Report Definitions:
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QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71317
Lab ID: C24110853-006
Client Sample ID: 71317006, MW-214

Report Date: 12/23/24
Collection Date: 11/18/24 16:43
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	-0.06	pCi/L	U			E903.0	12/10/24 15:09 / trs
Radium 226 precision (±)	0.1	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 226 MDC	0.3	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 228	0.9	pCi/L				RA-05	12/05/24 13:05 / trs
Radium 228 precision (±)	0.5	pCi/L				RA-05	12/05/24 13:05 / trs
Radium 228 MDC	0.8	pCi/L				RA-05	12/05/24 13:05 / trs
Radium 226 + Radium 228	1	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 precision (±)	0.5	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 MDC	0.8	pCi/L				A7500-RA	12/12/24 13:28 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71317
Lab ID: C24110853-007
Client Sample ID: 71317007, FB-2022 Wells

Report Date: 12/23/24
Collection Date: 11/18/24 16:25
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	-0.03	pCi/L	U			E903.0	12/10/24 15:09 / trs
Radium 226 precision (±)	0.1	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 226 MDC	0.3	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 228	0.8	pCi/L				RA-05	12/05/24 13:05 / trs
Radium 228 precision (±)	0.5	pCi/L				RA-05	12/05/24 13:05 / trs
Radium 228 MDC	0.8	pCi/L				RA-05	12/05/24 13:05 / trs
Radium 226 + Radium 228	0.9	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 precision (±)	0.5	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 MDC	0.8	pCi/L				A7500-RA	12/12/24 13:28 / dmf

Report Definitions:
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QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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Account #: 5109 **Client:** Great River Energy

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QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C24110853 **Report Date:** 12/16/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11528
Lab ID: LCS-RA226-11528	3	Laboratory Control Sample				Run: TENNELEC-4_241202B			12/10/24 13:00	
Radium 226		10	pCi/L		102	70	130			
Radium 226 precision (±)		1.7	pCi/L							
Radium 226 MDC		0.20	pCi/L							
Lab ID: MB-RA226-11528	3	Method Blank				Run: TENNELEC-4_241202B			12/10/24 13:00	
Radium 226		-0.09	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C24110848-001HDUP	3	Sample Duplicate				Run: TENNELEC-4_241202B			12/10/24 13:00	
Radium 226		0.13	pCi/L					98	30	UR
Radium 226 precision (±)		0.15	pCi/L							
Radium 226 MDC		0.22	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than or equal to the limit of 3, the RER result is 0.41.

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected

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QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C24110853 **Report Date:** 12/16/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7539
Lab ID: LCS-228-RA226-11528	3	Laboratory Control Sample				Run: TENNELEC-4_241202A			12/05/24 11:32	
Radium 228		7.0	pCi/L		71	70	130			
Radium 228 precision (±)		1.8	pCi/L							
Radium 228 MDC		0.71	pCi/L							
Lab ID: MB-RA226-11528	3	Method Blank				Run: TENNELEC-4_241202A			12/05/24 11:32	
Radium 228		0.6	pCi/L							U
Radium 228 precision (±)		0.4	pCi/L							
Radium 228 MDC		0.6	pCi/L							
Lab ID: C24110848-001HDUP	3	Sample Duplicate				Run: TENNELEC-4_241202A			12/05/24 11:32	
Radium 228		2.8	pCi/L					130	30	R
Radium 228 precision (±)		0.85	pCi/L							
Radium 228 MDC		0.65	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than or equal to the limit of 3, the RER result is 2.27.

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected

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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24110853

Login completed by: Dakota R. Sawyer
Reviewed by: lquezada
Reviewed Date: 11/22/2024
Date Received: 11/22/2024
Received by: CCS
Carrier name: UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	11.0°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Trip Blanks and/or Blind Duplicate samples are assigned the earliest collection time for the associated requested analysis in order to evaluate the holding time unless specifically indicated.

Contact and Corrective Action Comments:

The temperature blank temperature in shipping container 1 was 10.1°C, shipping container 3 was 10.0°C, shipping container 5 was 11.0°C, and shipping container 6 was 10.7°C. The temperature of the sample(s) in shipping container 2

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Work Order Receipt Checklist - Continued

Minnesota Valley Testing Laboratories C24110853

was 9.4°C and shipping container 4 was 9.4°C. DRS 11/22/24

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Laboratory Certifications and Accreditations

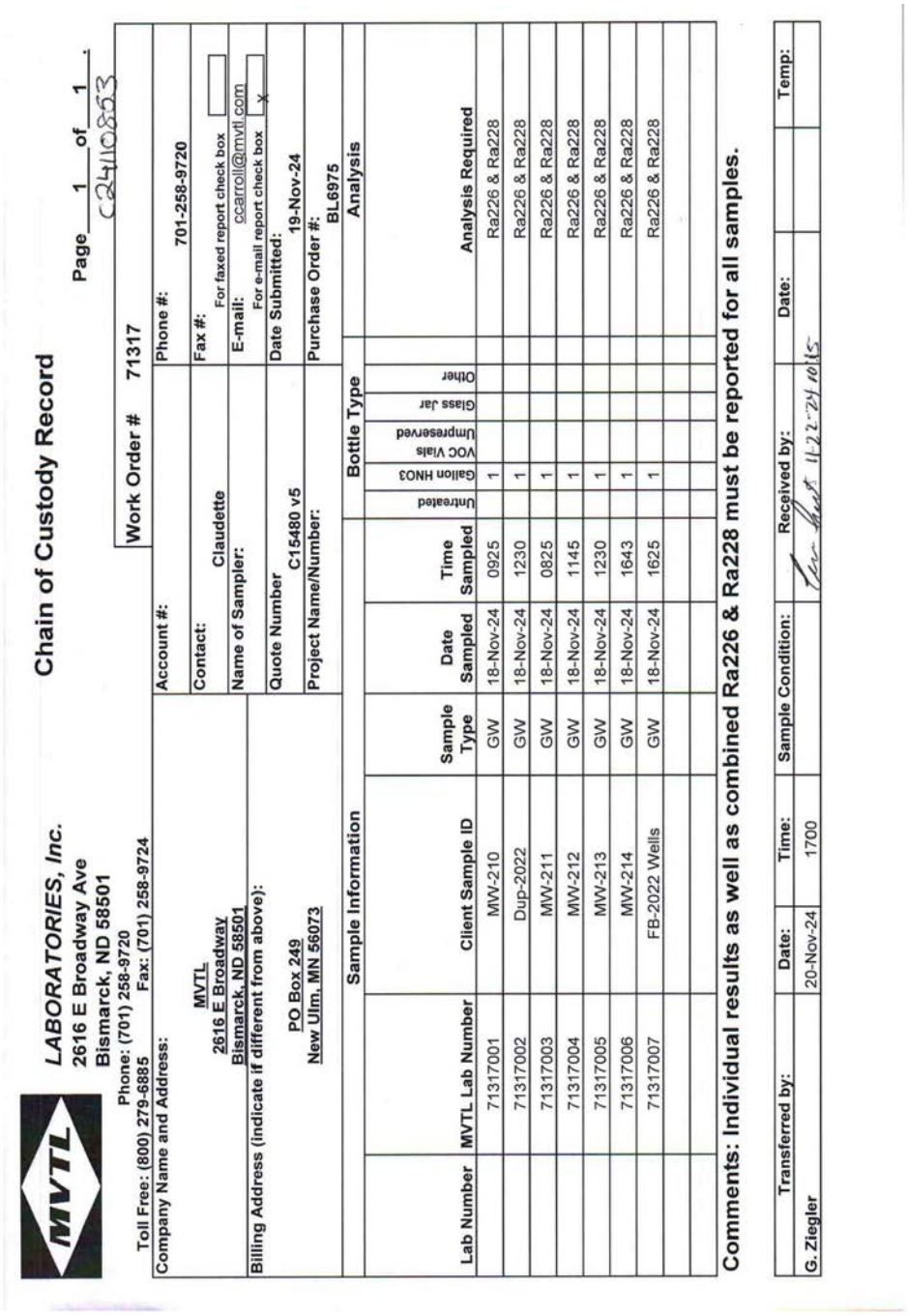
Current certificates are available at www.energylab.com website:

	Agency	Number
Billings, MT	Alaska	17-023
	California	3087
	Colorado	MT00005
	Department of Defense (DoD)/ISO17025	ADE-2588
	Florida (Primary NELAP)	E87668
	Idaho	MT00005
	Louisiana	05079
	Montana	CERT0044
	Nebraska	NE-OS-13-04
	Nevada	NV-C24-00250
	North Dakota	R-007
	National Radon Proficiency	109383-RMP
	Oregon	4184
	South Dakota	ARSD 74:04:07
	Texas	TX-C24-00302
	US EPA Region VIII	Reciprocal
	USDA Soil Permit	P330-20-00170
	Washington	C1039
Casper, WY	Alaska	20-006
	California	3021
	Colorado	WY00002
	Florida (Primary NELAP)	E87641
	Idaho	WY00002
	Louisiana	05083
	Montana	CERT0002
	Nebraska	NE-OS-08-04
	Nevada	NV-C24-00245
	North Dakota	R-125
	Oregon	WY200001
	South Dakota	WY00002
	Texas	T104704181-23-21
	US EPA Region VIII	WY00002
	USNRC License	49-26846-01
	Washington	C1012
Gillette, WY	US EPA Region VIII	WY00006
Helena, MT	Colorado	MT00945
	Montana	CERT0079
	Nevada	NV-C24-00119
	US EPA Region VIII	Reciprocal
	USDA Soil Permit	P330-20-00090

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Chain of Custody Record

Page 1 of 1

C24110853

Work Order # 71317

Company Name and Address: MVTL, 2616 E Broadway, Bismarck, ND 58501
Billing Address (indicate if different from above): PO Box 249, New Ulm, MN 56073

Account #:
Contact: Claudette
Name of Sampler:
Quote Number C15480 v5
Project Name/Number:

Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box x
Date Submitted: 19-Nov-24
Purchase Order #: BL6975

Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Unpreserved	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis Required
	71317001	MW-210	GW	18-Nov-24	0925	1					Ra226 & Ra228
	71317002	Dup-2022	GW	18-Nov-24	1230		1				Ra226 & Ra228
	71317003	MW-211	GW	18-Nov-24	0825		1				Ra226 & Ra228
	71317004	MW-212	GW	18-Nov-24	1145		1				Ra226 & Ra228
	71317005	MW-213	GW	18-Nov-24	1230		1				Ra226 & Ra228
	71317006	MW-214	GW	18-Nov-24	1643		1				Ra226 & Ra228
	71317007	FB-2022 Wells	GW	18-Nov-24	1625		1				Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:		Temp:
G. Ziegler	20-Nov-24	1700		Tom Hunt 11-22-24 1015			

Page 14 of 14

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Great River Energy
WO: 71317

Chain of Custody Record

Report To:	Great River Energy	CC:	Golder Associates
Attn:	Cassie Johnston		44 Union Blvd, Suite 300
Address:			Lakewood, CO 80228
Phone:			
Email:	CJohnston@GREnergy.com		

Project Name: SS 2022 Wells
Event: ~~Sept~~ Nov 2024
Sampled By: Jeremy Meyer + Ethan Gress

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Gal Nitric	Field Readings	Analysis Required
001	MW-210	18 Nov 24	0925	GW					X		Radium 226 and 228 Combined
002	Dup-2022	18 Nov 24	1230	GW					X		
003	MW-211	18 Nov 24	0825	GW					X		
004	MW-212	18 Nov 24	1145	GW					X		
005	MW-213	18 Nov 24	1230	GW					X		
006	MW-214	18 Nov 24	1643	GW					X		
007	FB 2022	18 Nov 24	1625	GW					X		

Comments:

Relinquished By			Sample Condition		Received By	
	Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1		18 Nov 24 1831	Log In Walk In #2	9.3 °C/TM 805 4 ROI Y/N		19 Nov 24 0820
2						

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Table 1: Proposed 2024 Stanton Station Plant Facilities Sampling Schedule

Location	Well ID		2024				
			Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-7A	1	Field Parameters (Field pH)				
	MW-7B	1					
	MW-8B	1					
	MW-105	1	Field Parameters (Field pH)				
Bottom Ash Landfill	MW-9N	1					
	MW-102	1					
	MW-103	1					
Property Boundary	MW-PB1	1					
Wells Installed in May 2022	MW-210	1					
	MW-211	1					
	MW-212	1					
	MW-213	1					
	MW-214	1					
Piezometers [1]	PZ-BA-A	1					
	PZ-BA-B	1					
Sumps [2]	BAI-Sump-S	1					
Surface Water [3]	Missouri-River	1					
	Rail-Drainage	1					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R	1					
	MW-104	1					
Bottom Ash Impoundment	MW-201	1				Subset of App IV detected in Q1, Iron, Aluminum, Manganese (Dissolved and Total for Each Metal)	
	MW-202	1					
	MW-203	1					
Closed Landfill	MW-10	1			App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)
	MW-204	1	Sulfate + Field parameters				
	MW-205	1	Sulfate + Field parameters				
Additional Internal Locations	MW-4	1			App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-PB2	1					
Wells Installed in February 2023	MW-215	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)			
	MW-216	1					
	MW-217	1					
	MW-218	1					
	MW-219	1					
	MW-220	1					
	MW-221	1					
	MW-222	1					
	MW-300	1					
	MW-301	1					
	MW-PB3	1					
Total # of Sample Locations			4	35	40	6	40

Notes:
App III - Appendix III Detection Monitoring List, Table 2
App IV - Appendix IV Assessment Monitoring List, Table 3
Additional List - Table 4
Required field parameters are listed in Table 2 and Table 3
Suggested locations for collection of QA/QC samples are listed in Table 5.
1. The piezometers do not have dedicated pumps and will need to be sampled by other methods.
2. The sump should be sampled using surface water collection methods via the sump riser.
3. Surface water samples to be collected if safely accessible and free water is present.

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February 2024 GL21509219.000

Table 2. Parameter and Analysis Summary - Appendix III Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	EPA 9040C	0.1 units	–	–	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	–	–	Immediately or within 15 minutes
Temperature*	SM 2550 B	–	–	–	Immediately or within 15 minutes
Turbidity*	SM 2130 B	–	–	–	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	–	–	–	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	–	–	–	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/11	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	SM 4500 F E/11	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	ASTM D516-16	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	USGS I-1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total and dissolved)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:
1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent methods.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

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Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

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Table 4: Additional List Parameter and Analysis Summary

Parameter [1]	Method Reference [2]	Reporting Limit	Preparation Method Reference [2]	Sample Container [3]	Required Preservation [4]	Maximum Holding Time from Sampling [5]
General Chemistry						
Total Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Bicarbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Carbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Metals (Total and Dissolved)						
Iron	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Magnesium	EPA 6010D	0.2 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Potassium	EPA 6010D	3.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Sodium	EPA 6010D	1.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Aluminum	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Manganese	EPA 6010D	0.05 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months

Notes:

1. All listed parameters are tested in the laboratory. Listed parameters are to be collected in conjunction with other CCR parameter lists (Table 2 and Table 3).

2. Or equivalent method.
3. Containers and volumes will be specified by the analytical laboratory.
4. In addition to the required preservation for each sample container, sufficient ice should be placed with the sample containers in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when samples arrive, measurement of the temperature of samples immediately upon receipt is necessary to confirm that the 4° C temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible following collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid, without the use of qualifiers.

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Account #: 5109 **Client:** Great River Energy

Table 5: 2024 Proposed Quality Assurance/Quality Control Sample Collection Locations

Location	Well ID	Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B		Field Blank			
	MW-7A					
	MW-7B		Duplicate			MS/MSD
	MW-8B					
	MW-105			Duplicate		
Bottom Ash Landfill	MW-9N					Duplicate
	MW-102		MS/MSD			
	MW-103			Field Blank		
Property Boundary	MW-PB1					
Wells Installed in May 2022	MW-210					Duplicate
	MW-211			MS/MSD		
	MW-212					Field Blank
	MW-213			Duplicate		
	MW-214		Field Blank			
Piezometers [1]	PZ-BA-A					
	PZ-BA-B					Field Blank
Sumps [2]	BAI-Sump-S					
Surface Water [3]	Missouri-River					
	Rail-Drainage					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R			Duplicate		
	MW-104					
Bottom Ash Impoundment	MW-201			Field Blank		MS/MSD
	MW-202		Duplicate		Field Blank	
	MW-203					Duplicate
Closed Landfill	MW-10					
	MW-204					
	MW-205					
Additional Internal Locations	MW-4					
	MW-PB2					
Wells Installed in February 2023	MW-215			Field Blank		
	MW-216		Field Blank			
	MW-217					Duplicate
	MW-218			MS/MSD		
	MW-219					
	MW-220					Field Blank
	MW-221		Duplicate			
	MW-222					
	MW-300					
	MW-301			Duplicate		
	MW-PB3					
Total # of Sample Locations		4	35	40	6	40
Total # of QC Samples		0	7	9	1	9

Notes:
Locations to collect samples are **suggestions only** to help with the distribution of QA/QC samples across the site and between facilities while meeting QA/QC objectives for the sampling programs.
Notes for QA/QC
Duplicates = 10-15% of primary collected sample
Field Blanks = 1 per day; based on number of primary collected samples, assuming 2 to 4 total per event
Equipment Blanks - only needed for non-dedicated equipement, none required.
MS/MSD = 1 per 20 primary collected samples, assuming 1 or 2 total per event.

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Nov ~~June~~ 2024
Sample ID:	210
Sampling Personal:	JM

Weather Conditions: Temp: 30 °F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	14.09	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	14.16	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 7	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
											clear, slightly turbid, turbid
18Nov24	0900	Start of Well Purge									
	0905	9.69	1654	7.79	2.24	-75.4	130.06	14.15	200.0	1.0	Slightly Turbid
	0910	10.10	1596	7.77	0.22	-131.9	98.11	14.15	200.0	1.0	Clear
	0915	10.15	1594	7.77	0.21	-135.0	72.18	14.15	200.0	1.0	Clear
	0920	10.21	1595	7.78	0.17	-138.4	52.47	14.16	200.0	1.0	Clear
	0925	10.18	1596	7.78	0.15	-142.0	35.69	14.16	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18Nov24	0925	10.18	1596	7.78			35.69				Clear

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov ~~June~~ 2024
Sample ID: 211
Sampling Personal: JJH

Weather Conditions: Temp: 30 °F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	19.46	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	19.62	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
											clear, slightly turbid, turbid
18 Nov 24	0800	Start of Well Purge									
	0805	9.64	2561	7.93	0.66	-17.8	5.16	19.56	200.0	1.0	Clear
	0810	9.43	2556	7.96	0.68	-32.8	5.19	19.62	200.0	1.0	Clear
	0815	9.18	2565	7.96	0.32	-48.2	4.53	19.62	200.0	1.0	Clear
	0820	9.22	2546	7.97	0.29	-49.3	5.06	19.62	200.0	1.0	clear
	0825	9.24	2549	7.97	0.27	-46.3	5.13	19.62	200.0	1.0	clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
18 Nov 24	0825	9.24	2549	7.97			5.13				clear

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov ~~June~~ 2024
Sample ID: 2/2
Sampling Personal: JJ Pb

Weather Conditions: Temp: 30 °F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	20.35	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	20.43	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 3	Sec.
Recover: 27	Sec.
PSI: —	

Bottle List:
1 Liter Raw 1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample? YES / (NO)
Duplicate Sample ID: —

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
18 Nov 24	1120	Start of Well Purge									
	1125	9.78	1894	8.20	0.23	4.5	182.74	20.45	200.0	1.0	Slightly Turbid
	1130	9.88	1921	8.24	0.15	-21.3	76.53	20.44	200.0	1.0	Clear
	1135	9.93	1926	8.26	0.12	-40.0	42.07	20.42	200.0	1.0	Clear
	1140	9.91	1930	8.27	0.11	-41.1	37.52	20.41	200.0	1.0	Clear
	1145	9.95	1933	8.28	0.13	-43.8	28.80	20.40	200.0	1.0	

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18 Nov 24	1145	9.95	1933	8.28			20.40	~~20~~			clear

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Nov ~~June~~ 2024
Sample ID:	213
Sampling Personal:	JM

Weather Conditions: Temp: 40 °F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	17.40	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	17.45	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
Dup 2022

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
18 Nov 24	1205	Start of Well Purge			1.30	-105.5					
	1210	10.30	1495	7.71	~~105.5~~	376.05	376.05	17.42	200.0	1.0	Slightly Turbid (ST)
	1215	10.40	1495	7.77	0.19	-135.4	488.43	17.44	200.0	1.0	ST
	1220	10.44	1495	7.77	0.20	-136.8	433.62	17.45	200.0	1.0	ST
	1225	10.46	1492	7.77	0.14	-141.9	389.64	17.45	200.0	1.0	ST
	1230	10.47	1497	7.75	0.12	-145.8	293.89	17.45	200.0	1.0	ST

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18 Nov 24	1230	10.47	1497	7.75			293.89				ST

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: NOV ~~June~~ 2024 Rec 30Dec24
Sample ID: 214
Sampling Personal: Ethan Gress

Weather Conditions: Temp: 45 °F Wind: NW @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	7.93	ft
Depth to Top of Pump:		ft
Water Level After Sample:	8.35	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 3	Sec.
Recover: 57	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
18Nov24	1618	Start of Well Purge									
	1623	11.23	2005	7.60	0.43	116.8	2.01	8.46	200.0	1.0	Clear
	1628	11.23	1992	7.59	0.29	105.3	4.10	8.44	200.0	1.0	Clear
	1633	11.09	~~2005~~ *	7.60	0.25	101.2	2.98	8.51	200.0	1.0	Clear
	1638	11.03	2009	7.60	0.25	101.4	3.28	8.34	200.0	1.0	Clear
	1643	11.04	2010	7.60	0.24	100.8	2.38	8.30	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
18Nov24	1643	11.04	2010	7.60			2.38				Clear

Comments: FB2022 was collected here at 1625 * Spec. Cond. at 1633 was 2005

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Account #: 5109 **Client:** Great River Energy
Workorder: SS Internal NOV 2024 (71690) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71690001 **Date Collected:** 11/20/2024 13:42 **Matrix:** Groundwater
Sample ID: MW- 1R **Date Received:** 11/20/2024 17:45 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1538**	umhos/cm	1	1		11/20/2024 13:42	
Method: 150.2							
pH - Field	**7.83**	units	0.01	1		11/20/2024 13:42	
Method: 170.1							
Temperature - Field C	**8.13**	degrees C		1		11/20/2024 13:42	
Method: ASTM D516-16							
Sulfate	**352**	mg/L	10	2		11/26/2024 11:54	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**1.16**	mg/L	0.1	1	11/21/2024 16:20	11/25/2024 15:51	
Calcium	**87.2**	mg/L	1	1	11/21/2024 16:20	11/26/2024 10:45	
Lithium	**0.0395**	mg/L	0.02	1	11/21/2024 16:20	11/25/2024 11:00	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/21/2024 16:20	12/04/2024 11:48	
Arsenic	**0.0058**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:48	
Barium	**0.0835**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:48	
Beryllium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/05/2024 12:42	
Cadmium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 11:48	
Chromium	**0.0024**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:48	
Cobalt	**0.0046**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:48	
Lead	**0.0005**	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 11:48	
Molybdenum	**0.0182**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:48	
Selenium	<0.005	mg/L	0.005	5	11/21/2024 16:20	12/04/2024 11:48	
Thallium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 11:48	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71690001 **Date Collected:** 11/20/2024 13:42 **Matrix:** Groundwater
Sample ID: MW- 1R **Date Received:** 11/20/2024 17:45 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**8.0**	units	0.1	1		11/21/2024 17:39	*
Method: SM4500-Cl-E 2011							
Chloride	**11.6**	mg/L	2.0	1		11/26/2024 10:57	
Method: SM4500-F-C-2011							
Fluoride	**0.77**	mg/L	0.1	1		11/22/2024 15:58	
Method: USGS I-1750-85							
Total Dissolved Solids	**1030**	mg/L	10	1		11/21/2024 15:24	

Task Comments

3602898 - METb/3094

Spike recovery was low for iron; the spike duplicate recovery and relative percent difference between the spikes was acceptable.

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71690002 **Date Collected:** 11/20/2024 14:41 **Matrix:** Groundwater
Sample ID: MW- 104 **Date Received:** 11/20/2024 17:45 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1804**	umhos/cm	1	1		11/20/2024 14:41	
Method: 150.2							
pH - Field	**7.33**	units	0.01	1		11/20/2024 14:41	
Method: 170.1							
Temperature - Field C	**8.92**	degrees C		1		11/20/2024 14:41	
Method: ASTM D516-16							
Sulfate	**409**	mg/L	25	5		11/26/2024 12:13	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**0.72**	mg/L	0.1	1	11/21/2024 16:20	11/25/2024 15:52	
Calcium	**71.9**	mg/L	1	1	11/21/2024 16:20	11/26/2024 10:46	
Lithium	**0.0259**	mg/L	0.02	1	11/21/2024 16:20	11/25/2024 11:00	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/21/2024 16:20	12/24/2024 09:50	
Arsenic	<0.002	mg/L	0.002	5	11/21/2024 16:20	12/24/2024 09:50	
Barium	**0.0520**	mg/L	0.002	5	11/21/2024 16:20	12/24/2024 09:50	
Beryllium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/24/2024 09:50	
Cadmium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/24/2024 09:50	
Chromium	<0.002	mg/L	0.002	5	11/21/2024 16:20	12/24/2024 09:50	
Cobalt	<0.002	mg/L	0.002	5	11/21/2024 16:20	12/24/2024 09:50	
Lead	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/24/2024 09:50	
Molybdenum	**0.0541**	mg/L	0.002	5	11/21/2024 16:20	12/24/2024 09:50	
Selenium	<0.005	mg/L	0.005	5	11/21/2024 16:20	12/24/2024 09:50	
Thallium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/24/2024 09:50	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71690002 **Date Collected:** 11/20/2024 14:41 **Matrix:** Groundwater
Sample ID: MW- 104 **Date Received:** 11/20/2024 17:45 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.7**	units	0.1	1		11/21/2024 17:50	*
Method: SM4500-Cl-E 2011							
Chloride	**13.0**	mg/L	2.0	1		11/26/2024 10:58	
Method: SM4500-F-C-2011							
Fluoride	**0.78**	mg/L	0.1	1		11/22/2024 16:08	
Method: USGS I-1750-85							
Total Dissolved Solids	**1200**	mg/L	10	1		11/21/2024 15:24	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 71690

Sulfate — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			100	102.0		85	115		
LFB			100	102.0		85	115		
LFB			100	96.3		85	115		
LFB			100	92.9		85	115		
LFB			100	102.0		85	115		
LFB			100	102.0		85	115		
LFB			100	106.0		85	115		
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MS/MSD	71485009		1000	78.8	78.0	85	115	0.6	20
MS/MSD	71688001		1000	89.4	89.8	85	115	0.0	20
MS/MSD	71694001		1000	90.4	95.5	85	115	2.4	20
MS/MSD	71875006		100	105.6	106.1	85	115	0.0	20
MS/MSD	71881002		100	99.1	102.3	85	115	2.8	20
MS/MSD	72123002		100	106.9	99.5	85	115	4.5	20

Chloride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	94.9		90	110		
LFB			30	94.2		90	110		
LFB			30	92.6		90	110		
LFB			30	95.1		90	110		
LFB			30	93.3		90	110		
LFB			30	92.3		90	110		
LFB			30	95.0		90	110		

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Chloride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	93.9		90	110		
LFB			30	94.1		90	110		
LFB			30	94.4		90	110		
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MS/MSD	71292003		30	97.4	97.0	80	120	0.5	20
MS/MSD	71545001		30	103.2	102.2	80	120	0.0	20
MS/MSD	71688001		30	100.0	99.5	80	120	0.4	20
MS/MSD	71890007		30	104.3	106.8	80	120	0.9	20
MS/MSD	72123002		30	94.7	94.7	80	120	0.0	20

Aluminum Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	103.0		85	115		
MB		<0.1							
PDS/PDSD	71485001		1	99.2	95.2	75	125	3.4	20
MS/MSD	71688001		0.4	124.0	123.0	70	130	0.4	20
PDS/PDSD	71693003		1	97.2	102.0	75	125	2.7	20
PDS/PDSD	71881001		4	96.2	95.7	75	125	0.5	20
PDS/PDSD	71881002		10	102.0	101.0	75	125	1.5	20
PDS/PDSD	72208001		10	97.7	98.8	75	125	1.0	20
PDS/PDSD	72208001		1	90.3	89.5	75	125	0.4	20

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Aluminum, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	103.0		85	115		
MB		<0.1							
SPK/SPKD	71292001		0.4	109.0	109.0	75	125	0.4	20
SPK/SPKD	71688001		2	100.0	104.0	75	125	4.0	20
SPK/SPKD	71690001		0.4	112.0	113.0	75	125	1.4	20
PDS/PDSD	71691002		10	99.9	101.0	75	125	0.7	20
SPK/SPKD	71694001		0.4	95.8	97.5	75	125	1.4	20

Boron Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
MS/MSD	71688001		0.4	106.0	90.8	70	130	3.0	20

Boron, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
SPK/SPKD	71688001		2	96.8	94.8	75	125	1.1	20
SPK/SPKD	71693001		2	98.0	100.0	75	125	1.2	20

Calcium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	106.0		85	115		
MB		<1							
DUP	71688001							4.0	20
PDS/PDSD	71688001		500	102.0	102.0	75	125	0.4	20
PDS/PDSD	71691002		100	100.0	99.9	75	125	0.4	20
PDS/PDSD	71875001		100	104.0	103.0	75	125	0.9	20
PDS/PDSD	72123002		100	90.5	91.4	75	125	0.4	20

Calcium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	106.0		85	115		
MB		<1							
SPK/SPKD	71688001		500	105.0	104.0	75	125	0.1	20

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Calcium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	71691002		100	100.0	101.0	75	125	0.3	20
SPK/SPKD	71693001		100	101.0	101.0	75	125	0.1	20

Iron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	112.0		85	115		
MB		<0.1							
PDS/PDSD	71485001		1	86.8	85.7	75	125	0.4	20
MS/MSD	71688001		0.4	91.4	92.0	70	130	0.4	20
PDS/PDSD	71693003		1	90.4	93.2	75	125	1.7	20
PDS/PDSD	71881001		4	85.1	85.3	75	125	0.1	20
PDS/PDSD	71881002		10	101.0	101.0	75	125	0.3	20
PDS/PDSD	72208001		1	90.9	86.6	75	125	1.9	20
PDS/PDSD	72208001		10	103.0	103.0	75	125	0.1	20

Iron, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	112.0		85	115		
MB		<0.1							
SPK/SPKD	71292001		0.4	101.0	102.0	75	125	0.6	20
SPK/SPKD	71688001		2	93.8	94.0	75	125	0.2	20
SPK/SPKD	71690001		0.4	74.7	81.3	75	125	1.9	20
PDS/PDSD	71691002		10	106.0	102.0	75	125	2.3	20
SPK/SPKD	71694001		0.4	86.0	85.5	75	125	0.6	20

Lithium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	117.0		85	115		
MB		<0.04							
MS/MSD	71688001		0.4	110.0	110.0	70	130	0.4	20

Lithium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	117.0		85	115		
MB		<0.04							
SPK/SPKD	71688001		0.4	98.3	97.3	75	125	1.0	20

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Lithium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	71693001		0.4	96.8	95.7	75	125	1.0	20

Magnesium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	105.0		85	115		
MB		<1							
DUP	71688001							4.4	20
PDS/PDSD	71688001		500	102.0	103.0	75	125	0.4	20
PDS/PDSD	71691002		100	101.0	101.0	75	125	0.4	20
PDS/PDSD	71875001		100	103.0	102.0	75	125	0.8	20
PDS/PDSD	72123002		100	93.3	93.7	75	125	0.2	20

Magnesium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	105.0		85	115		
MB		<1							
SPK/SPKD	71688001		500	106.0	106.0	75	125	0.0	20
PDS/PDSD	71691002		100	101.0	101.0	75	125	0.0	20
SPK/SPKD	71693001		100	105.0	106.0	75	125	0.3	20

Manganese Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
PDS/PDSD	71485001		1	85.7	85.7	75	125	0.0	20
MS/MSD	71688001		0.4	85.8	85.9	70	130	0.1	20
PDS/PDSD	71693003		1	84.2	92.8	75	125	2.3	20
PDS/PDSD	71881001		4	93.9	93.9	75	125	0.0	20
PDS/PDSD	71881002		10	99.9	103.0	75	125	3.3	20
PDS/PDSD	72208001		1	91.4	91.7	75	125	0.3	20
PDS/PDSD	72208001		10	98.1	99.2	75	125	1.1	20

Manganese, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
MB		<0.05							

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Account #: 5109 **Client:** Great River Energy

Manganese, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	71292001		0.4	100.0	101.0	75	125	0.8	20
SPK/SPKD	71688001		2	90.0	89.8	75	125	0.1	20
SPK/SPKD	71690001		0.4	90.3	94.3	75	125	3.1	20
PDS/PDSD	71691002		10	104.0	105.0	75	125	0.8	20
SPK/SPKD	71694001		0.4	83.0	82.5	75	125	0.4	20

Potassium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	105.0		85	115		
MB		<1							
DUP	71688001							5.9	20
PDS/PDSD	71688001		500	99.7	101.0	75	125	0.9	20
PDS/PDSD	71691002		100	99.9	99.5	75	125	0.4	20
PDS/PDSD	71875001		100	102.0	101.0	75	125	1.0	20
PDS/PDSD	72123002		100	99.9	100.0	75	125	0.5	20

Potassium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	105.0		85	115		
MB		<1							
SPK/SPKD	71688001		500	105.0	104.0	75	125	0.3	20
PDS/PDSD	71691002		100	102.0	101.0	75	125	0.8	20
SPK/SPKD	71693001		100	105.0	107.0	75	125	1.2	20

Sodium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	106.0		85	115		
MB		<1							
DUP	71688001							4.4	20
PDS/PDSD	71688001		500	86.2	88.4	75	125	1.0	20
PDS/PDSD	71691002		100	76.0	78.5	75	125	0.6	20
PDS/PDSD	71875001		100	104.0	103.0	75	125	1.1	20
PDS/PDSD	72123002		100	99.2	99.4	75	125	0.2	20

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Account #: 5109 **Client:** Great River Energy

Sodium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	106.0		85	115		
MB		<1							
SPK/SPKD	71688001		500	89.1	92.7	75	125	1.6	20
PDS/PDSD	71691002		100	82.4	82.8	75	125	0.1	20
SPK/SPKD	71693001		100	87.8	89.7	75	125	0.5	20

Antimony				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
MB		<0.001							
MS/MSD	71688001		0.4	103.0	103.0	75	125	0.2	20
SPK	71693003		0.1	111.0		75	125		

Antimony, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
MB		<0.001							
MS/MSD	71688001		0.4	103.0	103.0	75	125	0.2	20
SPK/SPKD	71688001		0.1	111.0	112.0	75	125	1.0	20
SPK	71693003		0.1	111.0		75	125		
SPK/SPKD	71694001		0.1	113.0	108.0	75	125	3.8	20

Arsenic				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
MB		<0.002							
MS/MSD	71688001		0.4	104.0	103.0	75	125	0.7	20
SPK	71693003		0.1	111.0		75	125		

Arsenic, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
MB		<0.002							
MS/MSD	71688001		0.4	104.0	103.0	75	125	0.7	20
SPK/SPKD	71688001		0.1	109.0	112.0	75	125	3.2	20
SPK	71693003		0.1	111.0		75	125		

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Arsenic, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	71694001		0.1	110.0	111.0	75	125	0.5	20

Barium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.9		80	120		
MB		<0.002							
MS/MSD	71688001		0.4	101.0	99.2	75	125	2.2	20
SPK	71693003		0.1	99.9		75	125		

Barium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.9		80	120		
MB		<0.002							
MS/MSD	71688001		0.4	101.0	99.2	75	125	2.2	20
SPK/SPKD	71688001		0.1	103.0	101.0	75	125	1.0	20
SPK	71693003		0.1	99.9		75	125		
SPK/SPKD	71694001		0.1	104.0	103.0	75	125	0.5	20

Beryllium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	103.0		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	71688001		0.4	104.0	105.0	75	125	1.2	20

Beryllium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
LFB-MS			0.1	100.0		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	71688001		0.4	104.0	105.0	75	125	1.2	20
SPK/SPKD	71688001		0.1	131.0	141.0	75	125	7.2	20
SPK/SPKD	71694001		0.1	131.0	134.0	75	125		

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Account #: 5109 **Client:** Great River Energy

Cadmium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.3		80	120		
MB		<0.0005							
MS/MSD	71688001		0.4	98.0	97.4	75	125	0.5	20
SPK	71693003		0.1	104.0		75	125		

Cadmium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.3		80	120		
MB		<0.0005							
MS/MSD	71688001		0.4	98.0	97.4	75	125	0.5	20
SPK/SPKD	71688001		0.1	96.3	98.5	75	125	2.3	20
SPK	71693003		0.1	104.0		75	125		
SPK/SPKD	71694001		0.1	95.6	92.8	75	125	3.0	20

Chromium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	109.0		80	120		
MB		<0.002							
MS/MSD	71688001		0.4	102.0	101.0	75	125	1.7	20
SPK	71693003		0.1	109.0		75	125		

Chromium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	109.0		80	120		
MB		<0.002							
MS/MSD	71688001		0.4	102.0	101.0	75	125	1.7	20
SPK/SPKD	71688001		0.1	108.0	113.0	75	125	4.4	20
SPK	71693003		0.1	109.0		75	125		
SPK/SPKD	71694001		0.1	108.0	108.0	75	125	0.6	20

Cobalt Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	107.0		80	120		
MB		<0.002							
MS/MSD	71688001		0.4	101.0	99.5	75	125	1.7	20
SPK	71693003		0.1	107.0		75	125		

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Cobalt, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	107.0		80	120		
MB		<0.002							
MS/MSD	71688001		0.4	101.0	99.5	75	125	1.7	20
SPK/SPKD	71688001		0.1	108.0	113.0	75	125	3.9	20
SPK	71693003		0.1	107.0		75	125		
SPK/SPKD	71694001		0.1	108.0	107.0	75	125	1.3	20

Lead				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.2		80	120		
MB		<0.0005							
MS/MSD	71688001		0.4	95.9	93.7	75	125	2.4	20
SPK	71693003		0.1	97.8		75	125		

Lead, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.2		80	120		
MB		<0.0005							
MS/MSD	71688001		0.4	95.9	93.7	75	125	2.4	20
SPK/SPKD	71688001		0.1	94.1	97.5	75	125	3.6	20
SPK	71693003		0.1	97.8		75	125		
SPK/SPKD	71694001		0.1	99.3	97.3	75	125	2.0	20

Molybdenum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	106.0		80	120		
MB		<0.002							
MS/MSD	71688001		0.4	95.8	93.8	75	125	1.6	20
SPK	71693003		0.1	115.0		75	125		

Molybdenum, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	106.0		80	120		
MB		<0.002							
MS/MSD	71688001		0.4	95.8	93.8	75	125	1.6	20
SPK/SPKD	71688001		0.1	91.1	95.6	75	125	1.7	20

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Molybdenum, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK	71693003		0.1	115.0		75	125		
SPK/SPKD	71694001		0.1	105.0	102.0	75	125	2.8	20

Selenium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	94.7		80	120		
MB		<0.005							
MS/MSD	71688001		0.4	98.8	101.0	75	125	2.0	20
SPK	71693003		0.1	101.0		75	125		

Selenium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	94.7		80	120		
MB		<0.005							
MS/MSD	71688001		0.4	98.8	101.0	75	125	2.0	20
SPK/SPKD	71688001		0.1	105.0	108.0	75	125	3.5	20
SPK	71693003		0.1	101.0		75	125		
SPK/SPKD	71694001		0.1	103.0	105.0	75	125	1.7	20

Thallium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.8		80	120		
MB		<0.0005							
MS/MSD	71688001		0.4	94.1	90.8	75	125	3.5	20
SPK	71693003		0.1	95.3		75	125		

Thallium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.8		80	120		
MB		<0.0005							
MS/MSD	71688001		0.4	94.1	90.8	75	125	3.5	20
SPK/SPKD	71688001		0.1	103.0	105.0	75	125	1.4	20
SPK	71693003		0.1	95.3		75	125		
SPK/SPKD	71694001		0.1	98.9	96.2	75	125	2.8	20

Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	103.0		85	115		

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Mercury — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	106.0		85	115		
LFB			0.002	106.0		85	115		
LFB			0.002	107.0		85	115		
LRB		<0.0002							
LRB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MS/MSD	71294004		0.002	97.5	98.0	70	130	0.0	20
MS/MSD	71485004		0.002	100.0	100.0	70	130	0.0	20
MS/MSD	71688001		0.002	77.5	78.0	70	130	0.0	20
MS/MSD	71693001		0.002	97.0	97.0	70	130	0.0	20

Mercury, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	102.0		85	115		
MB		<0.0002							
MS/MSD	71688001		0.002	82.0	82.0	70	130	0.0	20
MS/MSD	71691002		0.002	104.0	104.0	70	130	0.0	20
MS/MSD	71694001		0.002	100.0	102.0	70	130	0.0	20

Alkalinity, Total — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			501	91.8		80	120		
LFB			80.9	94.1		90	110		
LFB			80.9	94.4		90	110		
LFB			80.9	99.3		90	110		
LFB			80.9	92.0		90	110		
MB		<20.5							
MB		<20.5							
MB		<20.5							
MB		<20.5							
MS/MSD	71688001		410	90.4	89.1	80	120	0.9	20
MS/MSD	71875002		410	71.4	70.1	80	120	1.0	20

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Alkalinity, Total Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	71875005		410	83.3	85.3	80	120	0.9	20

pH Units: units

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	99.0		98.33	101.67		
CRM-PH			6	99.5		98.33	101.67		
CRM-PH			6	99.2		98.33	101.67		
DUP	71688001							0.7	20
DUP	71694001							0.1	20

Fluoride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			3.06	98.0		83.99	111.11		
LFB-F			0.5	94.0		90	110		
LFB-F			0.5	94.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MS/MSD-F	71688001		0.5	92.0	96.0	80	120	1.6	20

Total Dissolved Solids Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	97.0		90.35	110.33		
MB		<10							
DUP	71688001							0.9	20
DUP	71694001							3.6	20

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Member ACIL

Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 71690

Chain of Custody Record

Report To:	Great River Energy	CC:	Golder Associates
Attn:	Cassie Johnston		44 Union Blvd, Suite 300
Address:			Lakewood, CO 80228
Phone:			
Email:	CJohnston@GREnergy.com		

Project Name: SS Internal
Event: Nov Sept 2024
Sampled By:

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric				Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-1R	20 Nov 24	1342	GW	X	X	X						8.13	1538	7.83	8.81	App III, AppIV, Additional List (total and dissolved for all metals) (See Attachments)
002	MW-104	20 Nov 24	1441	GW	X	X	X						8.92	1804	7.73	0.00	

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1	20 Nov 24 1745	Log In Walk In #2	4.2°C/TM 805 ROI Y/N		21 Nov 24 0800
2					

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Table 1: Proposed 2024 Stanton Station Plant Facilities Sampling Schedule

Location	Well ID		2024				
			Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-7A	1	Field Parameters (Field pH)				
	MW-7B	1					
	MW-8B	1					
	MW-105	1	Field Parameters (Field pH)				
Bottom Ash Landfill	MW-9N	1					
	MW-102	1					
	MW-103	1					
Property Boundary	MW-PB1	1					
Wells Installed in May 2022	MW-210	1					
	MW-211	1					
	MW-212	1					
	MW-213	1					
	MW-214	1					
Piezometers [1]	PZ-BA-A	1					
	PZ-BA-B	1					
Sumps [2]	BAI-Sump-S	1					
Surface Water [3]	Missouri-River	1					
	Rail-Drainage	1					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R	1					
	MW-104	1					
Bottom Ash Impoundment	MW-201	1				Subset of App IV detected in Q1, Iron, Aluminum, Manganese (Dissolved and Total for Each Metal)	
	MW-202	1					
	MW-203	1					
Closed Landfill	MW-10	1			App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)
	MW-204	1	Sulfate + Field parameters				
	MW-205	1	Sulfate + Field parameters				
Additional Internal Locations	MW-4	1			App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-PB2	1					
Wells Installed in February 2023	MW-215	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)			
	MW-216	1					
	MW-217	1					
	MW-218	1					
	MW-219	1					
	MW-220	1					
	MW-221	1					
	MW-222	1					
	MW-300	1					
	MW-301	1					
	MW-PB3	1					
Total # of Sample Locations			4	35	40	6	40

Notes:
App III - Appendix III Detection Monitoring List, Table 2
App IV - Appendix IV Assessment Monitoring List, Table 3
Additional List - Table 4
Required field parameters are listed in Table 2 and Table 3
Suggested locations for collection of QA/QC samples are listed in Table 5.
1. The piezometers do not have dedicated pumps and will need to be sampled by other methods.
2. The sump should be sampled using surface water collection methods via the sump riser.
3. Surface water samples to be collected if safely accessible and free water is present.

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Table 2. Parameter and Analysis Summary - Appendix III Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/11	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	SM 4500 F E/11	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	ASTM D516-16	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	USGS I-1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total and dissolved)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:
1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent methods.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

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Account #: 5109 **Client:** Great River Energy

Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

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Table 4: Additional List Parameter and Analysis Summary

Parameter [1]	Method Reference [2]	Reporting Limit	Preparation Method Reference [2]	Sample Container [3]	Required Preservation [4]	Maximum Holding Time from Sampling [5]
General Chemistry						
Total Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Bicarbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Carbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Metals (Total and Dissolved)						
Iron	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Magnesium	EPA 6010D	0.2 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Potassium	EPA 6010D	3.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Sodium	EPA 6010D	1.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Aluminum	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Manganese	EPA 6010D	0.05 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months

Notes:

1. All listed parameters are tested in the laboratory. Listed parameters are to be collected in conjunction with other CCR parameter lists (Table 2 and Table 3).

2. Or equivalent method.
3. Containers and volumes will be specified by the analytical laboratory.
4. In addition to the required preservation for each sample container, sufficient ice should be placed with the sample containers in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when samples arrive, measurement of the temperature of samples immediately upon receipt is necessary to confirm that the 4° C temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible following collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid, without the use of qualifiers.

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Table 5: 2024 Proposed Quality Assurance/Quality Control Sample Collection Locations

Location	Well ID	Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B		Field Blank			
	MW-7A					
	MW-7B		Duplicate			MS/MSD
	MW-8B					
	MW-105			Duplicate		
Bottom Ash Landfill	MW-9N					Duplicate
	MW-102		MS/MSD			
	MW-103			Field Blank		
Property Boundary	MW-PB1					
Wells Installed in May 2022	MW-210					Duplicate
	MW-211			MS/MSD		
	MW-212					Field Blank
	MW-213			Duplicate		
	MW-214		Field Blank			
Piezometers [1]	PZ-BA-A					
	PZ-BA-B					Field Blank
Sumps [2]	BAI-Sump-S					
Surface Water [3]	Missouri-River					
	Rail-Drainage					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R			Duplicate		
	MW-104					
Bottom Ash Impoundment	MW-201			Field Blank		MS/MSD
	MW-202		Duplicate		Field Blank	
	MW-203					Duplicate
Closed Landfill	MW-10					
	MW-204					
	MW-205					
Additional Internal Locations	MW-4					
	MW-PB2					
Wells Installed in February 2023	MW-215			Field Blank		
	MW-216		Field Blank			
	MW-217					Duplicate
	MW-218			MS/MSD		
	MW-219					
	MW-220					Field Blank
	MW-221		Duplicate			
	MW-222					
	MW-300					
	MW-301			Duplicate		
	MW-PB3					
Total # of Sample Locations		4	35	40	6	40
Total # of QC Samples		0	7	9	1	9

Notes:
Locations to collect samples are **suggestions only** to help with the distribution of QA/QC samples across the site and between facilities while meeting QA/QC objectives for the sampling programs.
Notes for QA/QC
Duplicates = 10-15% of primary collected sample
Field Blanks = 1 per day; based on number of primary collected samples, assuming 2 to 4 total per event
Equipment Blanks - only needed for non-dedicated equipement, none required.
MS/MSD = 1 per 20 primary collected samples, assuming 1 or 2 total per event.

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Account #: 5109 **Client:** Great River Energy

Field Datasheet

Groundwater Assessment

2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Company:	GRE Stanton Station
Event:	~~June 2024~~
Sample ID:	IR
Sampling Personal:	

Weather Conditions: Temp: 20°F Wind: W @ 10-15 Precip: Sunny / Partly Cloudy / (Cloudy)

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	17.68	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	17.70	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	2	Sec.
Recover:	28	Sec.
PSI:	—	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
20 Nov 24	1317	Start of Well Purge									
	1322	8.41	1538	7.80	0.92	-126.1	9.68	17.70	200.0	1.0	Clear
	1327	8.32	1537	7.82	0.42	-139.2	9.28	17.70	200.0	1.0	Clear
	1332	8.24	1538	7.82	0.30	-145.5	7.56	17.70	200.0	1.0	Clear
	1337	8.13	1527	7.83	0.26	-148.2	10.27	17.70	200.0	1.0	Clear
	1342	8.13	1538	7.83	0.19	-152.6	8.81	17.70	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
20 Nov 24	1342	8.13	1538	7.83			8.81				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

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2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov ~~June~~ 2024
Sample ID: 104
Sampling Personal: JTR

Weather Conditions: Temp: 20 °F Wind: W @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	22.75	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	22.88	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	—	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / ~~NO~~
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
	~~1416~~	Start of Well Purge									
20 Nov 24	1421	9.16	1803	7.31	0.45	54.6	0.26	22.78	200.0	1.0	Clear
	1426	9.05	1807	7.32	0.28	47.0	0.21	22.80	200.0	1.0	Clear
	1431	8.96	1809	7.31	0.23	45.5	0.15	22.82	200.0	1.0	Clear
	1436	8.94	1806	7.32	0.19	41.9	0.01	22.84	200.0	1.0	Clear
	1441	8.92	1804	7.33	0.18	37.2	0.00	22.86	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
20Nov24	1441	8.92	1804	7.33			0.00				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS Internal Nov 2024 (71695) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71695001 **Date Collected:** 11/20/2024 13:42 **Matrix:** Groundwater
Sample ID: MW-1R **Date Received:** 11/20/2024 17:45 **Collector:** MVTL Field Service

Temp @ Receipt (C): 5.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 15:40	
Radium 228	See Attached			1		12/30/2024 15:40	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71695002 **Date Collected:** 11/20/2024 14:41 **Matrix:** Groundwater
Sample ID: MW-104 **Date Received:** 11/20/2024 17:45 **Collector:** MVTL Field Service

Temp @ Receipt (C): 5.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 15:54	
Radium 228	See Attached			1		12/30/2024 15:54	

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ANALYTICAL SUMMARY REPORT

December 26, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24110885 Quote ID: C15480
Project Name: 71695

Energy Laboratories, Inc. Casper WY received the following 2 samples for Minnesota Valley Testing Laboratories on 11/25/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24110885-001	71695001, MW-1R	11/20/24 13:42	11/25/24	Groundwater	Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total
C24110885-002	71695002, MW-104	11/20/24 14:41	11/25/24	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy, Casper, WY 82601-9601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

Energy Laboratories, Inc. verifies the reported results for the analysis has been technically reviewed and approved for release.

If you have any questions regarding these test results, please contact your Project Manager.

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71695
Lab ID: C24110885-001
Client Sample ID: 71695001, MW-1R

Report Date: 12/26/24
Collection Date: 11/20/24 13:42
DateReceived: 11/25/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.09	pCi/L	U			E903.0	12/18/24 11:57 / apt
Radium 226 precision (±)	0.08	pCi/L				E903.0	12/18/24 11:57 / apt
Radium 226 MDC	0.1	pCi/L				E903.0	12/18/24 11:57 / apt
Radium 228	0.8	pCi/L	U			RA-05	12/11/24 12:40 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	12/11/24 12:40 / trs
Radium 228 MDC	1	pCi/L				RA-05	12/11/24 12:40 / trs
Radium 226 + Radium 228	0.6	pCi/L	U			A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 MDC	1.0	pCi/L				A7500-RA	12/18/24 14:50 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71695
Lab ID: C24110885-002
Client Sample ID: 71695002, MW-104

Report Date: 12/26/24
Collection Date: 11/20/24 14:41
DateReceived: 11/25/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L				E903.0	12/18/24 11:57 / apt
Radium 226 precision (±)	0.09	pCi/L				E903.0	12/18/24 11:57 / apt
Radium 226 MDC	0.1	pCi/L				E903.0	12/18/24 11:57 / apt
Radium 228	0.8	pCi/L				RA-05	12/11/24 14:10 / trs
Radium 228 precision (±)	0.5	pCi/L				RA-05	12/11/24 14:10 / trs
Radium 228 MDC	0.8	pCi/L				RA-05	12/11/24 14:10 / trs
Radium 226 + Radium 228	0.9	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 precision (±)	0.5	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 MDC	0.8	pCi/L				A7500-RA	12/18/24 14:50 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C24110885 **Report Date:** 12/18/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11532
Lab ID: LCS-RA226-11532	3	Laboratory Control Sample				Run: TENNELEC-4_241204D			12/18/24 10:39	
Radium 226		10	pCi/L		100	70	130			
Radium 226 precision (±)		1.6	pCi/L							
Radium 226 MDC		0.12	pCi/L							
Lab ID: MB-RA226-11532	3	Method Blank				Run: TENNELEC-4_241204D			12/18/24 10:39	
Radium 226		0.001	pCi/L							U
Radium 226 precision (±)		0.08	pCi/L							
Radium 226 MDC		0.1	pCi/L							
Lab ID: C24110882-001AMS	3	Sample Matrix Spike				Run: TENNELEC-4_241204D			12/18/24 10:39	
Radium 226		9.2	pCi/L		91	70	130			
Radium 226 precision (±)		1.5	pCi/L							
Radium 226 MDC		0.14	pCi/L							
Lab ID: C24110882-001AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_241204D			12/18/24 10:39	
Radium 226		9.6	pCi/L		95	70	130	4.5	30	
Radium 226 precision (±)		1.5	pCi/L							
Radium 226 MDC		0.14	pCi/L							

- The RER result is 0.20.

Qualifiers:

RL - Analyte Reporting Limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected

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QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C24110885 **Report Date:** 12/18/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05									Batch: RA228-7542	
Lab ID: LCS-228-RA226-11532	3	Laboratory Control Sample				Run: TENNELEC-4_241204C			12/11/24 12:40	
Radium 228		10	pCi/L		105	70	130			
Radium 228 precision (±)		2.7	pCi/L							
Radium 228 MDC		1.0	pCi/L							
Lab ID: MB-RA226-11532	3	Method Blank				Run: TENNELEC-4_241204C			12/11/24 12:40	
Radium 228		0.4	pCi/L							U
Radium 228 precision (±)		0.7	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C24110882-001AMS4	3	Sample Matrix Spike				Run: TENNELEC-4_241204C			12/11/24 12:40	
Radium 228		9.7	pCi/L		87	70	130			
Radium 228 precision (±)		2.6	pCi/L							
Radium 228 MDC		1.0	pCi/L							
Lab ID: C24110882-001AMSD4	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_241204C			12/11/24 12:40	
Radium 228		11	pCi/L		95	70	130	8.2	30	
Radium 228 precision (±)		2.7	pCi/L							
Radium 228 MDC		1.0	pCi/L							

- The RER result is 0.22.

Qualifiers:

RL - Analyte Reporting Limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected

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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24110885

Login completed by: Cristen C. Smith
Reviewed by: dsawyer
Reviewed Date: 11/26/2024
Date Received: 11/25/2024
Received by: AJS
Carrier name: UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	4.4°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Trip Blanks and/or Blind Duplicate samples are assigned the earliest collection time for the associated requested analysis in order to evaluate the holding time unless specifically indicated.

Contact and Corrective Action Comments:

The temperature blank temperature in shipping container 1 was 2.2°C, shipping container 2 was 4.2°C, shipping container 3 was 2.0°C, shipping container 4 was 4.4°C and shipping container 5 was 2.6°C. CCS 11/25/24

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Work Order Receipt Checklist - Continued

Minnesota Valley Testing Laboratories C24110885

The sample identification indicated on the container is 51859003, MW-104 and on the chain of custody it is 71695002, MW-104. Proceeded with the sample identification as indicated on the chain of custody per email from Tera Olson on 11/26/24. CCS 11/26/24

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	Colorado	MT00005
	Department of Defense (DoD)/ISO17025	ADE-2588
	Florida (Primary NELAP)	E87668
	Idaho	MT00005
	Louisiana	05079
	Montana	CERT0044
	Nebraska	NE-OS-13-04
	Nevada	NV-C24-00250
	North Dakota	R-007
	National Radon Proficiency	109383-RMP
	Oregon	4184
	South Dakota	ARSD 74:04:07
	Texas	TX-C24-00302
	US EPA Region VIII	Reciprocal
	USDA Soil Permit	P330-20-00170
	Washington	C1039
Casper, WY	Alaska	20-006
	California	3021
	Colorado	WY00002
	Florida (Primary NELAP)	E87641
	Idaho	WY00002
	Louisiana	05083
	Montana	CERT0002
	Nebraska	NE-OS-08-04
	Nevada	NV-C24-00245
	North Dakota	R-125
	Oregon	WY200001
	South Dakota	WY00002
	Texas	T104704181-23-21
	US EPA Region VIII	WY00002
	USNRC License	49-26846-01
	Washington	C1012
Gillette, WY	US EPA Region VIII	WY00006
Helena, MT	Colorado	MT00945
	Montana	CERT0079
	Nevada	NV-C24-00119
	US EPA Region VIII	Reciprocal
	USDA Soil Permit	P330-20-00090

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Chain of Custody Record

Page 1 of 1

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Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Work Order # 71695 C24110885

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501

Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073

Account #:
Contact: Claudette
Name of Sampler:
Quote Number C15480 v5
Project Name/Number:

Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box X
Date Submitted: 21-Nov-24
Purchase Order #: BL6979

Lab Number	Sample Information: MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Untreated	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis Required
	71695001	MW-1R	GW	20-Nov-24	1342		1				Ra226 & Ra228
	71695002	MW-104	GW	20-Nov-24	1441		1				Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
G. Ziegler	21-Nov-24	1700		Aaron Smith	11.25.24 1028	

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Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
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(701) 258-9720

Great River Energy
WO: 71695

Chain of Custody Record

Report To:	Great River Energy	CC:	Golder Associates
Attn:	Cassie Johnston		
Address:			44 Union Blvd, Suite 300
			Lakewood, CO 80228
Phone:			
Email:	CJohnston@GREnergy.com		

Project Name: SS Internal
Event: Nov Sept 2024
Sampled By:

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric	Field Readings	Analysis Required
001	MW-1R	20Nov24	1342	GW					X		Radium 226 and 228 Combined
002	MW-104	20Nov24	1441	GW					X		

Comments:

Relinquished By			Sample Condition		Received By	
	Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1		20Nov24 1745	Log In Walk-In #2	5.1 °C/TM 805 ROI Y/N		21Nov24 0800
2						

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2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 515-382-5486 ~ Fax 515-382-3885
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Account #: 5109 **Client:** Great River Energy

Table 1: Proposed 2024 Stanton Station Plant Facilities Sampling Schedule

Location	Well ID		2024				
			Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-7A	1	Field Parameters (Field pH)				
	MW-7B	1					
	MW-8B	1					
	MW-105	1	Field Parameters (Field pH)				
Bottom Ash Landfill	MW-9N	1					
	MW-102	1					
	MW-103	1					
Property Boundary	MW-PB1	1					
Wells Installed in May 2022	MW-210	1					
	MW-211	1					
	MW-212	1					
	MW-213	1					
	MW-214	1					
Piezometers [1]	PZ-BA-A	1					
	PZ-BA-B	1					
Sumps [2]	BAI-Sump-S	1					
Surface Water [3]	Missouri-River	1					
	Rail-Drainage	1					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R	1					
	MW-104	1					
Bottom Ash Impoundment	MW-201	1				Subset of App IV detected in Q1, Iron, Aluminum, Manganese (Dissolved and Total for Each Metal)	
	MW-202	1					
	MW-203	1					
Closed Landfill	MW-10	1			App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)
	MW-204	1	Sulfate + Field parameters				
	MW-205	1	Sulfate + Field parameters				
Additional Internal Locations	MW-4	1			App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-PB2	1					
Wells Installed in February 2023	MW-215	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)			
	MW-216	1					
	MW-217	1					
	MW-218	1					
	MW-219	1					
	MW-220	1					
	MW-221	1					
	MW-222	1					
	MW-300	1					
	MW-301	1					
	MW-PB3	1					
Total # of Sample Locations			4	35	40	6	40

Notes:
App III - Appendix III Detection Monitoring List, Table 2
App IV - Appendix IV Assessment Monitoring List, Table 3
Additional List - Table 4
Required field parameters are listed in Table 2 and Table 3
Suggested locations for collection of QA/QC samples are listed in Table 5.
1. The piezometers do not have dedicated pumps and will need to be sampled by other methods.
2. The sump should be sampled using surface water collection methods via the sump riser.
3. Surface water samples to be collected if safely accessible and free water is present.

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Table 2. Parameter and Analysis Summary - Appendix III Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	EPA 9040C	0.1 units	–	–	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	–	–	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	–	–	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	–	–	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	–	–	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	–	–	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/11	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	SM 4500 F E/11	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	ASTM D516-16	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	USGS I-1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total and dissolved)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:
1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent methods.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

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Account #: 5109 **Client:** Great River Energy

February 2024 GL21509219.000

Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

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Account #: 5109 **Client:** Great River Energy

Table 4: Additional List Parameter and Analysis Summary

Parameter [1]	Method Reference [2]	Reporting Limit	Preparation Method Reference [2]	Sample Container [3]	Required Preservation [4]	Maximum Holding Time from Sampling [5]
General Chemistry						
Total Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Bicarbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Carbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Metals (Total and Dissolved)						
Iron	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Magnesium	EPA 6010D	0.2 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Potassium	EPA 6010D	3.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Sodium	EPA 6010D	1.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Aluminum	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Manganese	EPA 6010D	0.05 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months

Notes:

1. All listed parameters are tested in the laboratory. Listed parameters are to be collected in conjunction with other CCR parameter lists (Table 2 and Table 3).

2. Or equivalent method.
3. Containers and volumes will be specified by the analytical laboratory.
4. In addition to the required preservation for each sample container, sufficient ice should be placed with the sample containers in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when samples arrive, measurement of the temperature of samples immediately upon receipt is necessary to confirm that the 4° C temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible following collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid, without the use of qualifiers.

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February 2024 GL21509219.000

Table 5: 2024 Proposed Quality Assurance/Quality Control Sample Collection Locations

Location	Well ID	Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B		Field Blank			
	MW-7A					
	MW-7B		Duplicate			MS/MSD
	MW-8B					
	MW-105			Duplicate		
Bottom Ash Landfill	MW-9N					Duplicate
	MW-102		MS/MSD			
	MW-103			Field Blank		
Property Boundary	MW-PB1					
Wells Installed in May 2022	MW-210					Duplicate
	MW-211			MS/MSD		
	MW-212					Field Blank
	MW-213			Duplicate		
	MW-214		Field Blank			
Piezometers [1]	PZ-BA-A					
	PZ-BA-B					Field Blank
Sumps [2]	BAI-Sump-S					
Surface Water [3]	Missouri-River					
	Rail-Drainage					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R			Duplicate		
	MW-104					
Bottom Ash Impoundment	MW-201			Field Blank		MS/MSD
	MW-202		Duplicate		Field Blank	
	MW-203					Duplicate
Closed Landfill	MW-10					
	MW-204					
	MW-205					
Additional Internal Locations	MW-4					
	MW-PB2					
Wells Installed in February 2023	MW-215			Field Blank		
	MW-216		Field Blank			
	MW-217					Duplicate
	MW-218			MS/MSD		
	MW-219					
	MW-220					Field Blank
	MW-221		Duplicate			
	MW-222					
	MW-300					
	MW-301			Duplicate		
	MW-PB3					
Total # of Sample Locations		4	35	40	6	40
Total # of QC Samples		0	7	9	1	9

Notes:
Locations to collect samples are **suggestions only** to help with the distribution of QA/QC samples across the site and between facilities while meeting QA/QC objectives for the sampling programs.
Notes for QA/QC
Duplicates = 10-15% of primary collected sample
Field Blanks = 1 per day; based on number of primary collected samples, assuming 2 to 4 total per event
Equipment Blanks - only needed for non-dedicated equipement, none required.
MS/MSD = 1 per 20 primary collected samples, assuming 1 or 2 total per event.

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Nov ~~June 2024~~
Sample ID:	IR
Sampling Personal:	JM

Weather Conditions: Temp: 20 °F Wind: W @ 10-15 Precip: Sunny / Partly Cloudy / (Cloudy)

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	17.68	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	17.70	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
20 Nov 24	1317	Start of Well Purge									
	1322	8.41	1538	7.80	0.92	-126.1	9.68	17.70	200.0	1.0	Clear
	1327	8.32	1537	7.82	0.42	-139.2	9.28	17.70	200.0	1.0	Clear
	1332	8.24	1536	7.82	0.30	-145.5	7.56	17.70	200.0	1.0	Clear
	1337	8.13	1527	7.83	0.26	-148.2	10.27	17.70	200.0	1.0	Clear
	1342	8.13	1538	7.83	0.19	-152.6	8.81	17.70	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
20 Nov 24	1342	8.13	1538	7.83			8.81				Clear

Comments:	

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov ~~June~~ 2024
Sample ID: 104
Sampling Personal: JTR

Weather Conditions: Temp: 20 °F Wind: W @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	22.75	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	22.88	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 3	Sec.
Recover: 27	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / ~~NO~~
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
20 Nov 24	~~Start~~ 1416	Start of Well Purge									
	1421	9.16	1803	7.31	0.45	54.6	0.26	22.78	200.0	1.0	Clear
	1426	9.05	1807	7.32	0.28	47.0	0.21	22.80	200.0	1.0	Clear
	1431	8.96	1809	7.31	0.23	45.5	0.15	22.82	200.0	1.0	Clear
	1436	8.94	1806	7.32	0.19	41.9	0.01	22.84	200.0	1.0	Clear
	1441	8.92	1804	7.33	0.18	37.2	0.00	22.86	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
20 Nov 24	1441	8.92	1804	7.33			0.00				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy
Workorder: SS BAI NOV 2024 (71688) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

C. Carroll

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

Amended reports to correct event on field data sheets. CC 30Dec24

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71688001 **Date Collected:** 11/20/2024 13:42 **Matrix:** Groundwater
Sample ID: MW- 201 **Date Received:** 11/20/2024 18:18 **Collector:** MVTL Field Service

Temp @ Receipt (C): 1.4 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2960**	umhos/cm	1	1		11/20/2024 13:42	
Method: 150.2							
pH - Field	**7.55**	units	0.01	1		11/20/2024 13:42	
Method: 170.1							
Temperature - Field C	**9.16**	degrees C		1		11/20/2024 13:42	
Method: ASTM D516-16							
Sulfate	**1190**	mg/L	50	10		11/26/2024 11:46	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**1.67**	mg/L	0.1	1	11/21/2024 16:20	11/25/2024 15:42	
Calcium	**96.7**	mg/L	5	5	11/21/2024 16:20	11/26/2024 10:32	
Lithium	<0.02	mg/L	0.02	1	11/21/2024 16:20	11/25/2024 10:54	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/21/2024 16:20	12/04/2024 10:50	
Arsenic	<0.002	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 10:50	
Barium	**0.0175**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 10:50	
Beryllium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/05/2024 12:06	
Cadmium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 10:50	
Chromium	<0.002	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 10:50	
Cobalt	**0.0022**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 10:50	
Lead	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 10:50	
Molybdenum	**0.2013**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 10:50	
Selenium	<0.005	mg/L	0.005	5	11/21/2024 16:20	12/04/2024 10:50	
Thallium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 10:50	

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71688001 **Date Collected:** 11/20/2024 13:42 **Matrix:** Groundwater
Sample ID: MW- 201 **Date Received:** 11/20/2024 18:18 **Collector:** MVTL Field Service

Temp @ Receipt (C): 1.4 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.6**	units	0.1	1		11/21/2024 16:16	*
Method: SM4500-Cl-E 2011							
Chloride	**18.1**	mg/L	2.0	1		11/26/2024 10:49	
Method: SM4500-F-C-2011							
Fluoride	**0.82**	mg/L	0.1	1		11/22/2024 14:35	
Method: USGS I-1750-85							
Total Dissolved Solids	**2230**	mg/L	10	1		11/21/2024 15:24	

Analysis Results Comments

Beryllium, Dissolved

Matrix spike and/or matrix spike duplicate recovery was high; the associated laboratory fortified blank recovery was acceptable.

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71688002 **Date Collected:** 11/20/2024 10:55 **Matrix:** Groundwater
Sample ID: MW- 202 **Date Received:** 11/20/2024 18:18 **Collector:** MVTL Field Service

Temp @ Receipt (C): 1.4 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2034**	umhos/cm	1	1		11/20/2024 10:55	
Method: 150.2							
pH - Field	**7.28**	units	0.01	1		11/20/2024 10:55	
Method: 170.1							
Temperature - Field C	**8.91**	degrees C		1		11/20/2024 10:55	
Method: ASTM D516-16							
Sulfate	**654**	mg/L	25	5		11/26/2024 11:47	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**2.10**	mg/L	0.1	1	11/21/2024 16:20	11/25/2024 15:45	
Calcium	**202**	mg/L	1	1	11/21/2024 16:20	11/26/2024 10:36	
Lithium	**0.0258**	mg/L	0.02	1	11/21/2024 16:20	11/25/2024 10:56	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/21/2024 16:20	12/04/2024 11:08	
Arsenic	<0.002	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:08	
Barium	**0.0721**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:08	
Beryllium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/05/2024 12:20	
Cadmium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 11:08	
Chromium	**0.0052**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:08	
Cobalt	**0.0039**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:08	
Lead	**0.0017**	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 11:08	
Molybdenum	**0.0037**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:08	
Selenium	**0.0067**	mg/L	0.005	5	11/21/2024 16:20	12/04/2024 11:08	
Thallium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 11:08	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71688002 **Date Collected:** 11/20/2024 10:55 **Matrix:** Groundwater
Sample ID: MW- 202 **Date Received:** 11/20/2024 18:18 **Collector:** MVTL Field Service

Temp @ Receipt (C): 1.4 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.5**	units	0.1	1		11/21/2024 16:26	*
Method: SM4500-Cl-E 2011							
Chloride	**12.5**	mg/L	2.0	1		11/26/2024 10:50	
Method: SM4500-F-C-2011							
Fluoride	**0.13**	mg/L	0.1	1		11/22/2024 14:45	
Method: USGS I-1750-85							
Total Dissolved Solids	**1530**	mg/L	10	1		11/21/2024 15:24	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71688003 **Date Collected:** 11/20/2024 12:10 **Matrix:** Groundwater
Sample ID: MW- 203 **Date Received:** 11/20/2024 18:18 **Collector:** MVTL Field Service

Temp @ Receipt (C): 1.4 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2242**	umhos/cm	1	1		11/20/2024 12:10	
Method: 150.2							
pH - Field	**9.55**	units	0.01	1		11/20/2024 12:10	
Method: 170.1							
Temperature - Field C	**10.67**	degrees C		1		11/20/2024 12:10	
Method: ASTM D516-16							
Sulfate	**507**	mg/L	25	5		11/26/2024 11:59	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**1.84**	mg/L	0.1	1	11/21/2024 16:20	11/25/2024 15:45	
Calcium	**17.9**	mg/L	1	1	11/21/2024 16:20	11/26/2024 10:37	
Lithium	<0.02	mg/L	0.02	1	11/21/2024 16:20	11/25/2024 10:57	
Method: EPA 6020B							
Antimony	**0.0016**	mg/L	0.001	5	11/21/2024 16:20	12/04/2024 11:13	
Arsenic	**0.0338**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:13	
Barium	**0.0449**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:13	
Beryllium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/05/2024 12:24	
Cadmium	**0.0008**	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 11:13	
Chromium	**0.0041**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:13	
Cobalt	**0.0047**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:13	
Lead	**0.0077**	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 11:13	
Molybdenum	**0.0703**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:13	
Selenium	**0.0087**	mg/L	0.005	5	11/21/2024 16:20	12/04/2024 11:13	
Thallium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 11:13	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71688003 **Date Collected:** 11/20/2024 12:10 **Matrix:** Groundwater
Sample ID: MW- 203 **Date Received:** 11/20/2024 18:18 **Collector:** MVTL Field Service

Temp @ Receipt (C): 1.4 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**9.4**	units	0.1	1		11/21/2024 16:38	*
Method: SM4500-Cl-E 2011							
Chloride	**14.8**	mg/L	2.0	1		11/26/2024 10:51	
Method: SM4500-F-C-2011							
Fluoride	**0.88**	mg/L	0.1	1		11/22/2024 14:56	
Method: USGS I-1750-85							
Total Dissolved Solids	**1660**	mg/L	10	1		11/21/2024 15:24	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71688004 **Date Collected:** 11/20/2024 12:10 **Matrix:** Groundwater
Sample ID: DUP BAI **Date Received:** 11/20/2024 18:18 **Collector:** MVTL Field Service

Temp @ Receipt (C): 1.4 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: ASTM D516-16							
Sulfate	**520**	mg/L	25	5		11/26/2024 11:49	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**1.76**	mg/L	0.1	1	11/21/2024 16:20	11/25/2024 15:46	
Calcium	**19.2**	mg/L	1	1	11/21/2024 16:20	11/26/2024 10:38	
Lithium	<0.02	mg/L	0.02	1	11/21/2024 16:20	11/25/2024 10:57	
Method: EPA 6020B							
Antimony	**0.0013**	mg/L	0.001	5	11/21/2024 16:20	12/04/2024 11:18	
Arsenic	**0.0307**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:18	
Barium	**0.0467**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:18	
Beryllium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/05/2024 12:27	
Cadmium	**0.0007**	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 11:18	
Chromium	**0.0042**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:18	
Cobalt	**0.0044**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:18	
Lead	**0.0078**	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 11:18	
Molybdenum	**0.0672**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:18	
Selenium	**0.0066**	mg/L	0.005	5	11/21/2024 16:20	12/04/2024 11:18	
Thallium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 11:18	
Method: SM4500 H+ B-2011							
pH	**9.3**	units	0.1	1		11/21/2024 16:52	*
Method: SM4500-Cl-E 2011							
Chloride	**15.7**	mg/L	2.0	1		11/26/2024 10:52	
Method: SM4500-F-C-2011							
Fluoride	**0.87**	mg/L	0.1	1		11/22/2024 15:10	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71688004 **Date Collected:** 11/20/2024 12:10 **Matrix:** Groundwater
Sample ID: DUP BAI **Date Received:** 11/20/2024 18:18 **Collector:** MVTL Field Service

Temp @ Receipt (C): 1.4 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: USGS I-1750-85							
Total Dissolved Solids	**1640**	mg/L	10	1		11/21/2024 15:24	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 71688

Sulfate — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			100	92.9		85	115		
LFB			100	102.0		85	115		
LFB			100	96.3		85	115		
LFB			100	102.0		85	115		
LFB			100	102.0		85	115		
LFB			100	106.0		85	115		
LFB			100	102.0		85	115		
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MSD	71485009		1000	78.8	78.0	85	115	0.6	20
MSD	71688001		1000	89.4	89.8	85	115	0.0	20
MSD	71694001		1000	90.4	95.5	85	115	2.4	20
MSD	71875006		100	105.6	106.1	85	115	0.0	20
MSD	71881002		100	99.1	102.3	85	115	2.8	20
MSD	72123002		100	106.9	99.5	85	115	4.5	20

Chloride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	92.3		90	110		
LFB			30	93.9		90	110		
LFB			30	95.1		90	110		
LFB			30	92.6		90	110		
LFB			30	93.3		90	110		
LFB			30	94.4		90	110		
LFB			30	94.2		90	110		

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Account #: 5109 **Client:** Great River Energy

Chloride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	94.1		90	110		
LFB			30	94.9		90	110		
LFB			30	95.0		90	110		
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MSD	71292003		30	97.4	97.0	80	120	0.5	20
MSD	71545001		30	103.2	102.2	80	120	0.0	20
MSD	71688001		30	100.0	99.5	80	120	0.4	20
MSD	71890007		30	104.3	106.8	80	120	0.9	20
MSD	72123002		30	94.7	94.7	80	120	0.0	20

Aluminum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	103.0		85	115		
LFB-OE			0.4	105.0		85	115		
MB		<0.1							
MB		<0.1							
PDSD	71485001		1	99.2	95.2	75	125	3.4	20
MSD	71688001		0.4	124.0	123.0	70	130	0.4	20
PDSD	71693003		1	97.2	102.0	75	125	2.7	20
PDSD	71881001		4	96.2	95.7	75	125	0.5	20
PDSD	71881002		10	102.0	101.0	75	125	1.5	20
PDSD	72208001		1	90.3	89.5	75	125	0.4	20

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Account #: 5109 **Client:** Great River Energy

Aluminum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDSD	72208001		10	97.7	98.8	75	125	1.0	20

Aluminum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	105.0		85	115		
LFB-OE			0.4	103.0		85	115		
MB		<0.1							
MB		<0.1							
SPKD	71292001		0.4	109.0	109.0	75	125	0.4	20
SPKD	71688001		2	100.0	104.0	75	125	4.0	20
SPKD	71690001		0.4	112.0	113.0	75	125	1.4	20
PDSD	71691002		10	99.9	101.0	75	125	0.7	20
SPKD	71694001		0.4	95.8	97.5	75	125	1.4	20

Boron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
MB		<0.1							
MSD	71688001		0.4	106.0	90.8	70	130	3.0	20
MSD	71693003		0.4	105.0	100.0	70	130	1.3	20

Boron, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
MB		<0.1							
SPKD	71688001		2	96.8	94.8	75	125	1.1	20
SPKD	71693001		2	98.0	100.0	75	125	1.2	20

Calcium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	108.0		85	115		
LFB-MI			100	106.0		85	115		

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Account #: 5109 **Client:** Great River Energy

Calcium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<1							
MB		<1							
DUP	71688001							4.0	20
PDSD	71688001		500	102.0	102.0	75	125	0.4	20
PDSD	71691002		100	100.0	99.9	75	125	0.4	20
DUP	71694001							1.6	20
PDSD	71875001		100	104.0	103.0	75	125	0.9	20
PDSD	72123002		100	90.5	91.4	75	125	0.4	20

Calcium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	108.0		85	115		
LFB-MI			100	106.0		85	115		
MB		<1							
MB		<1							
SPKD	71688001		500	105.0	104.0	75	125	0.1	20
PDSD	71691002		100	100.0	101.0	75	125	0.3	20
SPKD	71693001		100	101.0	101.0	75	125	0.1	20

Iron Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	112.0		85	115		
LFB-OE			0.4	110.0		85	115		
MB		<0.1							
MB		<0.1							
PDSD	71485001		1	86.8	85.7	75	125	0.4	20
MSD	71688001		0.4	91.4	92.0	70	130	0.4	20
MSD	71693003		0.4	101.0	96.4	70	130	1.9	20
PDSD	71693003		1	90.4	93.2	75	125	1.7	20
PDSD	71881001		4	85.1	85.3	75	125	0.1	20
PDSD	71881002		10	101.0	101.0	75	125	0.3	20
PDSD	72208001		1	90.9	86.6	75	125	1.9	20
PDSD	72208001		10	103.0	103.0	75	125	0.1	20

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Account #: 5109 **Client:** Great River Energy

Iron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	112.0		85	115		
LFB-OE			0.4	110.0		85	115		
MB		<0.1							
MB		<0.1							
SPKD	71292001		0.4	101.0	102.0	75	125	0.6	20
SPKD	71688001		2	93.8	94.0	75	125	0.2	20
SPKD	71690001		0.4	74.7	81.3	75	125	1.9	20
PDSD	71691002		10	106.0	102.0	75	125	2.3	20
SPKD	71694001		0.4	86.0	85.5	75	125	0.6	20

Lithium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	117.0		85	115		
LFB-OE			0.4	116.0		85	115		
MB		<0.04							
MB		<0.04							
MSD	71688001		0.4	110.0	110.0	70	130	0.4	20
MSD	71693003		0.4	101.0	108.0	70	130	6.6	20

Lithium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	117.0		85	115		
LFB-OE			0.4	116.0		85	115		
MB		<0.04							
MB		<0.04							
SPKD	71688001		0.4	98.3	97.3	75	125	1.0	20
SPKD	71693001		0.4	96.8	95.7	75	125	1.0	20

Magnesium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	107.0		85	115		
LFB-MI			100	105.0		85	115		
MB		<1							
MB		<1							

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Account #: 5109 **Client:** Great River Energy

Magnesium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
DUP	71688001							4.4	20
PDSD	71688001		500	102.0	103.0	75	125	0.4	20
PDSD	71691002		100	101.0	101.0	75	125	0.4	20
DUP	71694001							1.0	20
PDSD	71875001		100	103.0	102.0	75	125	0.8	20
PDSD	72123002		100	93.3	93.7	75	125	0.2	20

Magnesium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	107.0		85	115		
LFB-MI			100	105.0		85	115		
MB		<1							
MB		<1							
SPKD	71688001		500	106.0	106.0	75	125	0.0	20
PDSD	71691002		100	101.0	101.0	75	125	0.0	20
SPKD	71693001		100	105.0	106.0	75	125	0.3	20

Manganese — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
MB		<0.05							
PDSD	71485001		1	85.7	85.7	75	125	0.0	20
MSD	71688001		0.4	85.8	85.9	70	130	0.1	20
MSD	71693003		0.4	92.7	83.4	70	130	1.1	20
PDSD	71693003		1	84.2	92.8	75	125	2.3	20
PDSD	71881001		4	93.9	93.9	75	125	0.0	20
PDSD	71881002		10	99.9	103.0	75	125	3.3	20
PDSD	72208001		1	91.4	91.7	75	125	0.3	20
PDSD	72208001		10	98.1	99.2	75	125	1.1	20

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Manganese, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
MB		<0.05							
SPKD	71292001		0.4	100.0	101.0	75	125	0.8	20
SPKD	71688001		2	90.0	89.8	75	125	0.1	20
SPKD	71690001		0.4	90.3	94.3	75	125	3.1	20
PDSD	71691002		10	104.0	105.0	75	125	0.8	20
SPKD	71694001		0.4	83.0	82.5	75	125	0.4	20

Potassium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	105.0		85	115		
LFB-MI			100	106.0		85	115		
MB		<1							
MB		<1							
DUP	71688001							5.9	20
PDSD	71688001		500	99.7	101.0	75	125	0.9	20
PDSD	71691002		100	99.9	99.5	75	125	0.4	20
DUP	71694001							0.9	20
PDSD	71875001		100	102.0	101.0	75	125	1.0	20
PDSD	72123002		100	99.9	100.0	75	125	0.5	20

Potassium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	106.0		85	115		
LFB-MI			100	105.0		85	115		
MB		<1							
MB		<1							
SPKD	71688001		500	105.0	104.0	75	125	0.3	20
PDSD	71691002		100	102.0	101.0	75	125	0.8	20
SPKD	71693001		100	105.0	107.0	75	125	1.2	20

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Sodium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	106.0		85	115		
LFB-MI			100	108.0		85	115		
MB		<1							
MB		<1							
DUP	71688001							4.4	20
PDSD	71688001		500	86.2	88.4	75	125	1.0	20
PDSD	71691002		100	76.0	78.5	75	125	0.6	20
DUP	71694001							0.1	20
PDSD	71875001		100	104.0	103.0	75	125	1.1	20
PDSD	72123002		100	99.2	99.4	75	125	0.2	20

Sodium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	106.0		85	115		
LFB-MI			100	108.0		85	115		
MB		<1							
MB		<1							
SPKD	71688001		500	89.1	92.7	75	125	1.6	20
PDSD	71691002		100	82.4	82.8	75	125	0.1	20
SPKD	71693001		100	87.8	89.7	75	125	0.5	20

Antimony — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	100.0		80	120		
MB		<0.001							
MB		<0.001							
MSD	71688001		0.4	103.0	103.0	75	125	0.2	20
MSD	71693003		0.4	105.0	103.0	75	125	1.4	20
SPK	71693003		0.1	111.0		75	125		

Antimony, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		

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Account #: 5109 **Client:** Great River Energy

Antimony, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
MB		<0.001							
MB		<0.001							
MSD	71688001		0.4	103.0	103.0	75	125	0.2	20
SPKD	71688001		0.1	111.0	112.0	75	125	1.0	20
MSD	71693003		0.4	105.0	103.0	75	125	1.4	20
SPK	71693003		0.1	111.0		75	125		
SPKD	71694001		0.1	113.0	108.0	75	125	3.8	20

Arsenic — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.002							
MB		<0.002							
MSD	71688001		0.4	104.0	103.0	75	125	0.7	20
MSD	71693003		0.4	104.0	104.0	75	125	0.0	20
SPK	71693003		0.1	111.0		75	125		

Arsenic, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.002							
MB		<0.002							
MSD	71688001		0.4	104.0	103.0	75	125	0.7	20
SPKD	71688001		0.1	109.0	112.0	75	125	3.2	20
MSD	71693003		0.4	104.0	104.0	75	125	0.0	20
SPK	71693003		0.1	111.0		75	125		
SPKD	71694001		0.1	110.0	111.0	75	125	0.5	20

Barium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		

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Barium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.9		80	120		
MB		<0.002							
MB		<0.002							
MSD	71688001		0.4	101.0	99.2	75	125	2.2	20
MSD	71693003		0.4	101.0	100.0	75	125	0.2	20
SPK	71693003		0.1	99.9		75	125		

Barium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	99.9		80	120		
MB		<0.002							
MB		<0.002							
MSD	71688001		0.4	101.0	99.2	75	125	2.2	20
SPKD	71688001		0.1	103.0	101.0	75	125	1.0	20
MSD	71693003		0.4	101.0	100.0	75	125	0.2	20
SPK	71693003		0.1	99.9		75	125		
SPKD	71694001		0.1	104.0	103.0	75	125	0.5	20

Beryllium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	107.0		80	120		
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	103.0		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
MSD	71688001		0.4	104.0	105.0	75	125	1.2	20
MSD	71693003		0.4	108.0	108.0	75	125	0.5	20

Beryllium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	107.0		80	120		
LFB-MS			0.1	100.0		80	120		

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Beryllium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
MSD	71688001		0.4	104.0	105.0	75	125	1.2	20
SPKD	71688001		0.1	131.0	141.0	75	125	7.2	20
MSD	71693003		0.4	108.0	108.0	75	125	0.5	20
SPKD	71694001		0.1	131.0	134.0	75	125		

Cadmium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.3		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.0005							
MB		<0.0005							
MSD	71688001		0.4	98.0	97.4	75	125	0.5	20
MSD	71693003		0.4	101.0	100.0	75	125	0.3	20
SPK	71693003		0.1	104.0		75	125		

Cadmium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.3		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.0005							
MB		<0.0005							
MSD	71688001		0.4	98.0	97.4	75	125	0.5	20
SPKD	71688001		0.1	96.3	98.5	75	125	2.3	20
MSD	71693003		0.4	101.0	100.0	75	125	0.3	20
SPK	71693003		0.1	104.0		75	125		
SPKD	71694001		0.1	95.6	92.8	75	125	3.0	20

Chromium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	106.0		80	120		

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Account #: 5109 **Client:** Great River Energy

Chromium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	109.0		80	120		
MB		<0.002							
MB		<0.002							
MSD	71688001		0.4	102.0	101.0	75	125	1.7	20
MSD	71693003		0.4	99.0	99.6	75	125	0.5	20
SPK	71693003		0.1	109.0		75	125		

Chromium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	109.0		80	120		
LFB-MS			0.1	106.0		80	120		
MB		<0.002							
MB		<0.002							
MSD	71688001		0.4	102.0	101.0	75	125	1.7	20
SPKD	71688001		0.1	108.0	113.0	75	125	4.4	20
MSD	71693003		0.4	99.0	99.6	75	125	0.5	20
SPK	71693003		0.1	109.0		75	125		
SPKD	71694001		0.1	108.0	108.0	75	125	0.6	20

Cobalt — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
LFB-MS			0.1	107.0		80	120		
MB		<0.002							
MB		<0.002							
MSD	71688001		0.4	101.0	99.5	75	125	1.7	20
MSD	71693003		0.4	98.8	97.2	75	125	1.5	20
SPK	71693003		0.1	107.0		75	125		

Cobalt, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
LFB-MS			0.1	107.0		80	120		
MB		<0.002							

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Cobalt, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.002							
MSD	71688001		0.4	101.0	99.5	75	125	1.7	20
SPKD	71688001		0.1	108.0	113.0	75	125	3.9	20
MSD	71693003		0.4	98.8	97.2	75	125	1.5	20
SPK	71693003		0.1	107.0		75	125		
SPKD	71694001		0.1	108.0	107.0	75	125	1.3	20

Lead — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.6		80	120		
LFB-MS			0.1	99.2		80	120		
MB		<0.0005							
MB		<0.0005							
MSD	71688001		0.4	95.9	93.7	75	125	2.4	20
MSD	71693003		0.4	93.8	94.3	75	125	0.5	20
SPK	71693003		0.1	97.8		75	125		

Lead, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.6		80	120		
LFB-MS			0.1	99.2		80	120		
MB		<0.0005							
MB		<0.0005							
MSD	71688001		0.4	95.9	93.7	75	125	2.4	20
SPKD	71688001		0.1	94.1	97.5	75	125	3.6	20
MSD	71693003		0.4	93.8	94.3	75	125	0.5	20
SPK	71693003		0.1	97.8		75	125		
SPKD	71694001		0.1	99.3	97.3	75	125	2.0	20

Molybdenum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	106.0		80	120		
LFB-MS			0.1	111.0		80	120		
MB		<0.002							

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Molybdenum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.002							
MSD	71688001		0.4	95.8	93.8	75	125	1.6	20
MSD	71693003		0.4	103.0	102.0	75	125	1.0	20
SPK	71693003		0.1	115.0		75	125		

Molybdenum, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	106.0		80	120		
LFB-MS			0.1	111.0		80	120		
MB		<0.002							
MB		<0.002							
MSD	71688001		0.4	95.8	93.8	75	125	1.6	20
SPKD	71688001		0.1	91.1	95.6	75	125	1.7	20
MSD	71693003		0.4	103.0	102.0	75	125	1.0	20
SPK	71693003		0.1	115.0		75	125		
SPKD	71694001		0.1	105.0	102.0	75	125	2.8	20

Selenium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.6		80	120		
LFB-MS			0.1	94.7		80	120		
MB		<0.005							
MB		<0.005							
MSD	71688001		0.4	98.8	101.0	75	125	2.0	20
MSD	71693003		0.4	101.0	97.9	75	125	2.8	20
SPK	71693003		0.1	101.0		75	125		

Selenium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.6		80	120		
LFB-MS			0.1	94.7		80	120		
MB		<0.005							
MB		<0.005							
MSD	71688001		0.4	98.8	101.0	75	125	2.0	20

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Selenium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPKD	71688001		0.1	105.0	108.0	75	125	3.5	20
MSD	71693003		0.4	101.0	97.9	75	125	2.8	20
SPK	71693003		0.1	101.0		75	125		
SPKD	71694001		0.1	103.0	105.0	75	125	1.7	20

Thallium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.8		80	120		
LFB-MS			0.1	97.8		80	120		
MB		<0.0005							
MB		<0.0005							
MSD	71688001		0.4	94.1	90.8	75	125	3.5	20
MSD	71693003		0.4	90.2	92.7	75	125	2.7	20
SPK	71693003		0.1	95.3		75	125		

Thallium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.8		80	120		
LFB-MS			0.1	97.8		80	120		
MB		<0.0005							
MB		<0.0005							
MSD	71688001		0.4	94.1	90.8	75	125	3.5	20
SPKD	71688001		0.1	103.0	105.0	75	125	1.4	20
MSD	71693003		0.4	90.2	92.7	75	125	2.7	20
SPK	71693003		0.1	95.3		75	125		
SPKD	71694001		0.1	98.9	96.2	75	125	2.8	20

Mercury — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	106.0		85	115		
LFB			0.002	107.0		85	115		
LFB			0.002	106.0		85	115		
LFB			0.002	103.0		85	115		
LRB		<0.0002							

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Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LRB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MSD	71294004		0.002	97.5	98.0	70	130	0.0	20
MSD	71485004		0.002	100.0	100.0	70	130	0.0	20
MSD	71688001		0.002	77.5	78.0	70	130	0.0	20
MSD	71693001		0.002	97.0	97.0	70	130	0.0	20

Mercury, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	102.0		85	115		
MB		<0.0002							
MSD	71688001		0.002	82.0	82.0	70	130	0.0	20
MSD	71691002		0.002	104.0	104.0	70	130	0.0	20
MSD	71694001		0.002	100.0	102.0	70	130	0.0	20

Alkalinity, Total				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			501	91.8		80	120		
LFB			80.9	94.4		90	110		
LFB			80.9	99.3		90	110		
LFB			80.9	94.1		90	110		
LFB			80.9	92.0		90	110		
MB		<20.5							
MB		<20.5							
MB		<20.5							
MB		<20.5							
MSD	71688001		410	90.4	89.1	80	120	0.9	20
MSD	71875002		410	71.4	70.1	80	120	1.0	20
MSD	71875005		410	83.3	85.3	80	120	0.9	20

pH				Units: units					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	99.0		98.33	101.67		

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pH Units: units

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	99.2		98.33	101.67		
CRM-PH			6	99.5		98.33	101.67		
DUP	71688001							0.7	20
DUP	71694001							0.1	20

Fluoride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			3.06	98.0		83.99	111.11		
LFB-F			0.5	94.0		90	110		
LFB-F			0.5	94.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MSD-F	71688001		0.5	92.0	96.0	80	120	1.6	20

Total Dissolved Solids Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	97.0		90.35	110.33		
MB		<10							
DUP	71688001							0.9	20
DUP	71694001							3.6	20

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Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 71688

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS BAI
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: Nov ~~Sept~~ 2024
Address:		Lakewood, CO 80228	Sampled By: Ethem Gress
Phone:			
Email:	CJohnston@GREnergy.com		

Sample Information					Sample Containers									Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric					Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-201/MS/MSD	20Nov24	1342	GW	3	3	3							9.16	2960	7.55	1.02	App III, AppIV, Additional List (total and dissolved for all metals) (See Attachments)
002	MW-202	20Nov24	1055	GW	X	X	X							8.91	2034	7.28	135.21	
003	MW-203	20Nov24	~~1055~~ 1210	GW	X	X	X							10.67	2242	9.55	14.49	
004	DUP BAI	20Nov24	1210	GW	X	X	X							NA	NA	NA	NA	

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1	20Nov24 1818	Log In Walk In #2	1.4 °C/TM 805 ROI (Y)/N		21Nov24 0805
2					

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Table 1: Proposed 2024 Stanton Station Plant Facilities Sampling Schedule

Location	Well ID		2024				
			Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-7A	1	Field Parameters (Field pH)				
	MW-7B	1					
	MW-8B	1					
	MW-105	1	Field Parameters (Field pH)				
Bottom Ash Landfill	MW-9N	1					
	MW-102	1					
	MW-103	1					
Property Boundary	MW-PB1	1					
Wells Installed in May 2022	MW-210	1					
	MW-211	1					
	MW-212	1					
	MW-213	1					
	MW-214	1					
Piezometers [1]	PZ-BA-A	1					
	PZ-BA-B	1					
Sumps [2]	BAI-Sump-S	1					
Surface Water [3]	Missouri-River	1					
	Rail-Drainage	1					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R	1					
	MW-104	1					
Bottom Ash Impoundment	MW-201	1				Subset of App IV detected in Q1, Iron, Aluminum, Manganese (Dissolved and Total for Each Metal)	
	MW-202	1					
	MW-203	1					
Closed Landfill	MW-10	1			App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)
	MW-204	1	Sulfate + Field parameters				
	MW-205	1	Sulfate + Field parameters				
Additional Internal Locations	MW-4	1					
	MW-PB2	1					
Wells Installed in February 2023	MW-215	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-216	1					
	MW-217	1					
	MW-218	1					
	MW-219	1					
	MW-220	1					
	MW-221	1					
	MW-222	1					
	MW-300	1					
	MW-301	1					
	MW-PB3	1					
Total # of Sample Locations			4	35	40	6	40

Notes:
App III - Appendix III Detection Monitoring List, Table 2
App IV - Appendix IV Assessment Monitoring List, Table 3
Additional List - Table 4
Required field parameters are listed in Table 2 and Table 3
Suggested locations for collection of QA/QC samples are listed in Table 5.
1. The piezometers do not have dedicated pumps and will need to be sampled by other methods.
2. The sump should be sampled using surface water collection methods via the sump riser.
3. Surface water samples to be collected if safely accessible and free water is present.

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Account #: 5109 **Client:** Great River Energy

Table 2. Parameter and Analysis Summary - Appendix III Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/11	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	SM 4500 F E/11	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	ASTM D516-16	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	USGS I-1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total and dissolved)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:
1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent methods.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

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Account #: 5109 **Client:** Great River Energy

Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

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Account #: 5109 **Client:** Great River Energy

Table 4: Additional List Parameter and Analysis Summary

Parameter [1]	Method Reference [2]	Reporting Limit	Preparation Method Reference [2]	Sample Container [3]	Required Preservation [4]	Maximum Holding Time from Sampling [5]
General Chemistry						
Total Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Bicarbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Carbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Metals (Total and Dissolved)						
Iron	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Magnesium	EPA 6010D	0.2 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Potassium	EPA 6010D	3.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Sodium	EPA 6010D	1.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Aluminum	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Manganese	EPA 6010D	0.05 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months

Notes:

1. All listed parameters are tested in the laboratory. Listed parameters are to be collected in conjunction with other CCR parameter lists (Table 2 and Table 3).

2. Or equivalent method.
3. Containers and volumes will be specified by the analytical laboratory.
4. In addition to the required preservation for each sample container, sufficient ice should be placed with the sample containers in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when samples arrive, measurement of the temperature of samples immediately upon receipt is necessary to confirm that the 4° C temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible following collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid, without the use of qualifiers.

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Table 5: 2024 Proposed Quality Assurance/Quality Control Sample Collection Locations

Location	Well ID	Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B		Field Blank			
	MW-7A					
	MW-7B		Duplicate			MS/MSD
	MW-8B					
	MW-105			Duplicate		
Bottom Ash Landfill	MW-9N					Duplicate
	MW-102		MS/MSD			
	MW-103			Field Blank		
Property Boundary	MW-PB1					
Wells Installed in May 2022	MW-210					Duplicate
	MW-211			MS/MSD		
	MW-212					Field Blank
	MW-213			Duplicate		
	MW-214		Field Blank			
Piezometers [1]	PZ-BA-A					
	PZ-BA-B					Field Blank
Sumps [2]	BAI-Sump-S					
Surface Water [3]	Missouri-River					
	Rail-Drainage					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R			Duplicate		
	MW-104					
Bottom Ash Impoundment	MW-201			Field Blank		MS/MSD
	MW-202		Duplicate		Field Blank	
	MW-203					Duplicate
Closed Landfill	MW-10					
	MW-204					
	MW-205					
Additional Internal Locations	MW-4					
	MW-PB2					
Wells Installed in February 2023	MW-215			Field Blank		
	MW-216		Field Blank			
	MW-217					Duplicate
	MW-218			MS/MSD		
	MW-219					
	MW-220					Field Blank
	MW-221		Duplicate			
	MW-222					
	MW-300					
	MW-301			Duplicate		
	MW-PB3					
Total # of Sample Locations		4	35	40	6	40
Total # of QC Samples		0	7	9	1	9

Notes:
Locations to collect samples are **suggestions only** to help with the distribution of QA/QC samples across the site and between facilities while meeting QA/QC objectives for the sampling programs.
Notes for QA/QC
Duplicates = 10-15% of primary collected sample
Field Blanks = 1 per day; based on number of primary collected samples, assuming 2 to 4 total per event
Equipment Blanks - only needed for non-dedicated equipement, none required.
MS/MSD = 1 per 20 primary collected samples, assuming 1 or 2 total per event.

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: ~~WP~~ GRE Stanton Station
Event: ~~November~~ June 2024
Sample ID: 201/MS/MSD
Sampling Personal: Ethan Corey

Weather Conditions: Temp: 20 °F Wind: NW @ 30-35 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	11.11	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	11.84	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	3	Sec.
Recover:	57	Sec.
PSI:	—	

Bottle List:
1 Liter Raw 1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample? (YES) / NO
Duplicate Sample ID: MS/MSD

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
	1317	Start of Well Purge									
	1322	8.15	2957	7.57	0.71	138.5	2.20	11.52	200.0	1.0	Clear
20Nov24	1327	9.30	2962	7.54	0.36	108.3	0.88	11.57	200.0	1.0	Clear
	1332	9.20	2955	7.54	0.25	94.0	0.75	11.50	200.0	1.0	Clear
	1337	8.92	2942	7.55	0.22	87.3	0.88	11.62	200.0	1.0	Clear
	1342	9.16	2960	7.55	0.24	91.0	1.02		200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
20Nov24	1342	9.16	2960	7.55			1.02				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: November June 2024
Sample ID: 202
Sampling Personal: Ethan Gress

Weather Conditions: Temp: 20 °F Wind: NW @ 30-35 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	12.85	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	12.96	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 3	Sec.
Recover: 57	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
20Nov24	1030	Start of Well Purge									
	1035	9.77	2088	7.27	2.43	182.1	228.70	12.87	200.0	1.0	Clear ST
	1040	8.57	2058	7.28	2.10	185.1	252.50	12.38	200.0	1.0	Clear ST
	1045	9.17	2038	7.28	1.90	181.4	190.41	12.35	200.0	1.0	Clear ST
	1050	9.20	2037	7.28	1.68	156.3	155.06	12.49	200.0	1.0	Clear ST
	1055	8.91	2034	7.28	1.51	156.1	135.21	12.60	200.0	1.0	Clear ST

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
20Nov24	1055	8.91	2034	7.28			135.21				Clear ST

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: ~~MVTL~~ Duke Energy GRE Stanton Station
Event: November ~~June~~ 2024
Sample ID: 203
Sampling Personal: Ethan Cress

Weather Conditions: Temp: 20 °F Wind: N/W @ 30-35 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	9,17	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	11,94	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 3	Sec.
Recover: ~~57~~	Sec.
PSI:	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
Dup BAH

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
	1145	Start of Well Purge									
20Nov24	1150	10.08	2387	9.34	2.13	92.3	53.40	9.65	200.0	1.0	~~Cl~~ ST
	1155	10.58	2302	9.47	0.23	32.1	43.05	10.04	200.0	1.0	Clear
	~~HS~~ 1200	10.55	2251	9.55	0.22	18.8	2269	10.33	200.0	1.0	Clear
	1205	10.51	2240	9.55	0.22	12.9	16.23	10.61	200.0	1.0	Clear
	1210	10.67	2242	9.55	0.19	10.5	14.49	10.93	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
20Nov24	1210	10.67	2242	9.55			14.49				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy
Workorder: SS BAI Nov 2024 (71704) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71704001 **Date Collected:** 11/20/2024 13:42 **Matrix:** Groundwater
Sample ID: MW- 201 **Date Received:** 11/20/2024 18:18 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 15:40	
Radium 228	See Attached			1		12/30/2024 15:40	

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 515-382-5486 ~ Fax 515-382-3885
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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71704002 **Date Collected:** 11/20/2024 10:55 **Matrix:** Groundwater
Sample ID: MW- 202 **Date Received:** 11/20/2024 18:18 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 15:40	
Radium 228	See Attached			1		12/30/2024 15:40	

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71704003 **Date Collected:** 11/20/2024 12:10 **Matrix:** Groundwater
Sample ID: MW- 203 **Date Received:** 11/20/2024 18:18 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 15:40	
Radium 228	See Attached			1		12/30/2024 15:40	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71704004 **Date Collected:** 11/20/2024 12:10 **Matrix:** Groundwater
Sample ID: DUP BAI **Date Received:** 11/20/2024 18:18 **Collector:** MVTL Field Service

Temp @ Receipt (C): 2.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 15:40	
Radium 228	See Attached			1		12/30/2024 15:40	

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ANALYTICAL SUMMARY REPORT

December 26, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24110882 Quote ID: C15480
Project Name: 71704

Energy Laboratories, Inc. Casper WY received the following 4 samples for Minnesota Valley Testing Laboratories on 11/25/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24110882-001	71704001, MW-201	11/20/24 13:42	11/25/24	Groundwater	Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total
C24110882-002	71704002, MW-202	11/20/24 10:55	11/25/24	Groundwater	Same As Above
C24110882-003	71704003, MW-203	11/20/24 12:10	11/25/24	Groundwater	Same As Above
C24110882-004	71704004, DUP BAI	11/20/24 12:10	11/25/24	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy, Casper, WY 82601-9601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

Energy Laboratories, Inc. verifies the reported results for the analysis has been technically reviewed and approved for release.

If you have any questions regarding these test results, please contact your Project Manager.

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71704
Lab ID: C24110882-001
Client Sample ID: 71704001, MW-201

Report Date: 12/26/24
Collection Date: 11/20/24 13:42
DateReceived: 11/25/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.07	pCi/L	U			E903.0	12/18/24 10:39 / apt
Radium 226 precision (±)	0.09	pCi/L				E903.0	12/18/24 10:39 / apt
Radium 226 MDC	0.1	pCi/L				E903.0	12/18/24 10:39 / apt
Radium 228	1.1	pCi/L				RA-05	12/11/24 12:40 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	12/11/24 12:40 / trs
Radium 228 MDC	1	pCi/L				RA-05	12/11/24 12:40 / trs
Radium 226 + Radium 228	1.2	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 MDC	1	pCi/L				A7500-RA	12/18/24 14:50 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71704
Lab ID: C24110882-002
Client Sample ID: 71704002, MW-202

Report Date: 12/26/24
Collection Date: 11/20/24 10:55
DateReceived: 11/25/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	12/18/24 10:39 / apt
Radium 226 precision (±)	0.1	pCi/L				E903.0	12/18/24 10:39 / apt
Radium 226 MDC	0.2	pCi/L				E903.0	12/18/24 10:39 / apt
Radium 228	0.7	pCi/L	U			RA-05	12/11/24 12:40 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	12/11/24 12:40 / trs
Radium 228 MDC	1	pCi/L				RA-05	12/11/24 12:40 / trs
Radium 226 + Radium 228	0.6	pCi/L	U			A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 MDC	1.0	pCi/L				A7500-RA	12/18/24 14:50 / dmf

Report Definitions:
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QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71704
Lab ID: C24110882-003
Client Sample ID: 71704003, MW-203

Report Date: 12/26/24
Collection Date: 11/20/24 12:10
DateReceived: 11/25/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.5	pCi/L				E903.0	12/18/24 10:39 / apt
Radium 226 precision (±)	0.2	pCi/L				E903.0	12/18/24 10:39 / apt
Radium 226 MDC	0.2	pCi/L				E903.0	12/18/24 10:39 / apt
Radium 228	1.2	pCi/L				RA-05	12/11/24 14:10 / trs
Radium 228 precision (±)	0.8	pCi/L				RA-05	12/11/24 14:10 / trs
Radium 228 MDC	1.1	pCi/L				RA-05	12/11/24 14:10 / trs
Radium 226 + Radium 228	1.6	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	12/18/24 14:50 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71704
Lab ID: C24110882-004
Client Sample ID: 71704004, DUP BAI

Report Date: 12/26/24
Collection Date: 11/20/24 12:10
DateReceived: 11/25/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.4	pCi/L				E903.0	12/18/24 10:39 / apt
Radium 226 precision (±)	0.2	pCi/L				E903.0	12/18/24 10:39 / apt
Radium 226 MDC	0.2	pCi/L				E903.0	12/18/24 10:39 / apt
Radium 228	1.5	pCi/L				RA-05	12/11/24 14:10 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	12/11/24 14:10 / trs
Radium 228 MDC	0.9	pCi/L				RA-05	12/11/24 14:10 / trs
Radium 226 + Radium 228	1.9	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 MDC	0.9	pCi/L				A7500-RA	12/18/24 14:50 / dmf

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QCL - Quality Control Limit
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Account #: 5109 **Client:** Great River Energy

QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C24110882 **Report Date:** 12/18/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11532
Lab ID: LCS-RA226-11532	3	Laboratory Control Sample				Run: TENNELEC-4_241204D				12/18/24 10:39
Radium 226		10	pCi/L		100	70	130			
Radium 226 precision (±)		1.6	pCi/L							
Radium 226 MDC		0.12	pCi/L							
Lab ID: MB-RA226-11532	3	Method Blank				Run: TENNELEC-4_241204D				12/18/24 10:39
Radium 226		0.001	pCi/L							U
Radium 226 precision (±)		0.08	pCi/L							
Radium 226 MDC		0.1	pCi/L							
Lab ID: C24110882-001AMS	3	Sample Matrix Spike				Run: TENNELEC-4_241204D				12/18/24 10:39
Radium 226		9.2	pCi/L		91	70	130			
Radium 226 precision (±)		1.5	pCi/L							
Radium 226 MDC		0.14	pCi/L							
Lab ID: C24110882-001AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_241204D				12/18/24 10:39
Radium 226		9.6	pCi/L		95	70	130	4.5	30	
Radium 226 precision (±)		1.5	pCi/L							
Radium 226 MDC		0.14	pCi/L							

- The RER result is 0.20.

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C24110882 **Report Date:** 12/18/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7542
Lab ID: LCS-228-RA226-11532	3	Laboratory Control Sample				Run: TENNELEC-4_241204C				12/11/24 12:40
Radium 228		10	pCi/L		105	70	130			
Radium 228 precision (±)		2.7	pCi/L							
Radium 228 MDC		1.0	pCi/L							
Lab ID: MB-RA226-11532	3	Method Blank				Run: TENNELEC-4_241204C				12/11/24 12:40
Radium 228		0.4	pCi/L							U
Radium 228 precision (±)		0.7	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C24110882-001AMS4	3	Sample Matrix Spike				Run: TENNELEC-4_241204C				12/11/24 12:40
Radium 228		9.7	pCi/L		87	70	130			
Radium 228 precision (±)		2.6	pCi/L							
Radium 228 MDC		1.0	pCi/L							
Lab ID: C24110882-001AMSD4	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_241204C				12/11/24 12:40
Radium 228		11	pCi/L		95	70	130	8.2	30	
Radium 228 precision (±)		2.7	pCi/L							
Radium 228 MDC		1.0	pCi/L							

- The RER result is 0.22.

Qualifiers:

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U - Not detected

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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24110882

Login completed by: Cristen C. Smith
Reviewed by: dsawyer
Reviewed Date: 11/26/2024
Date Received: 11/25/2024
Received by: AJS
Carrier name: UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	4.4°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Trip Blanks and/or Blind Duplicate samples are assigned the earliest collection time for the associated requested analysis in order to evaluate the holding time unless specifically indicated.

Contact and Corrective Action Comments:

The temperature blank temperature in shipping container 1 was 2.2°C, shipping container 2 was 4.2°C, shipping container 3 was 2.0°C, shipping container 4 was 4.4°C and shipping container 5 was 2.6°C. CCS 11/25/24

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Laboratory Certifications and Accreditations

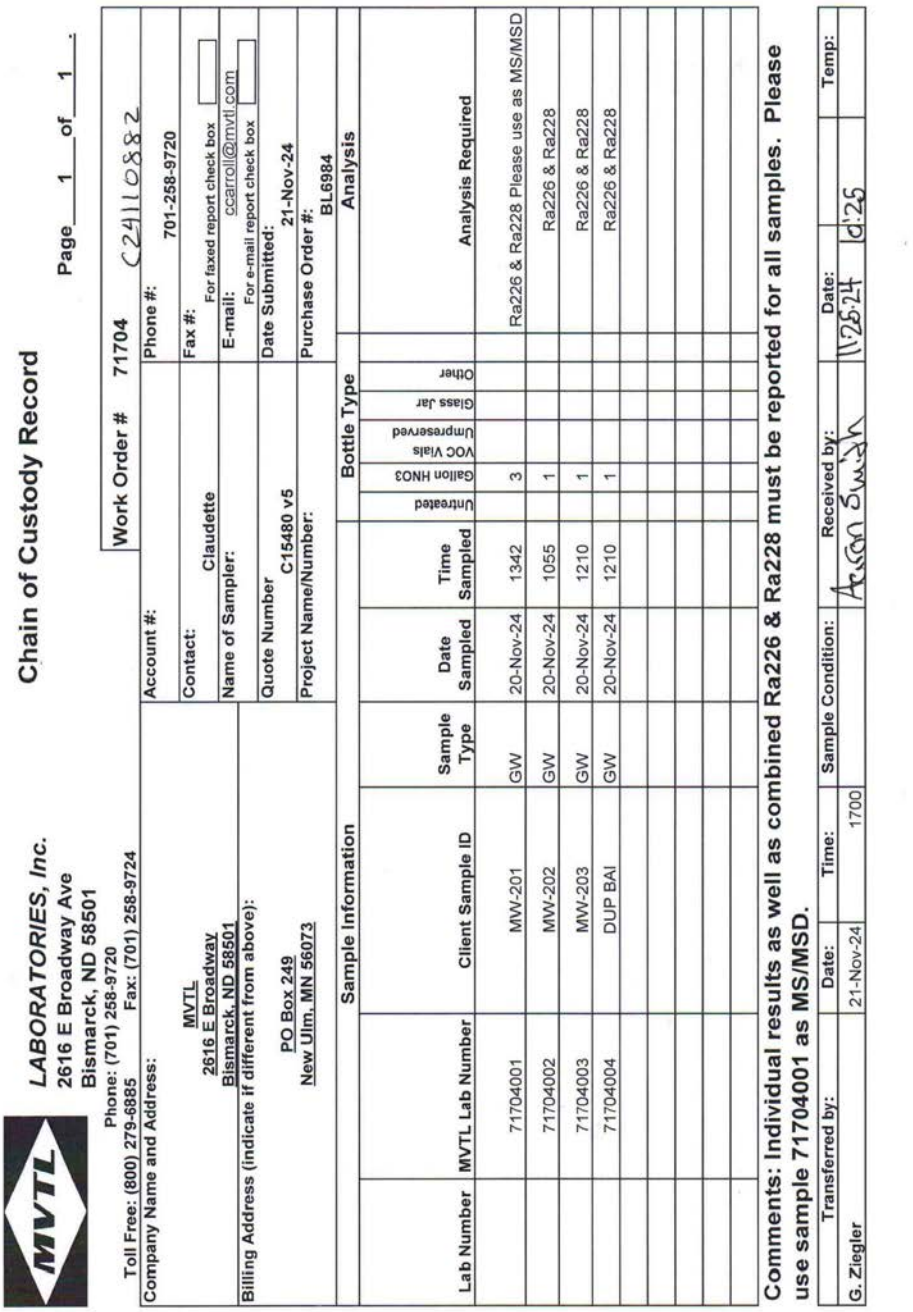
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Billings, MT	Alaska	17-023
	California	3087
	Colorado	MT00005
	Department of Defense (DoD)/ISO17025	ADE-2588
	Florida (Primary NELAP)	E87668
	Idaho	MT00005
	Louisiana	05079
	Montana	CERT0044
	Nebraska	NE-OS-13-04
	Nevada	NV-C24-00250
	North Dakota	R-007
	National Radon Proficiency	109383-RMP
	Oregon	4184
	South Dakota	ARSD 74:04:07
	Texas	TX-C24-00302
	US EPA Region VIII	Reciprocal
	USDA Soil Permit	P330-20-00170
	Washington	C1039
Casper, WY	Alaska	20-006
	California	3021
	Colorado	WY00002
	Florida (Primary NELAP)	E87641
	Idaho	WY00002
	Louisiana	05083
	Montana	CERT0002
	Nebraska	NE-OS-08-04
	Nevada	NV-C24-00245
	North Dakota	R-125
	Oregon	WY200001
	South Dakota	WY00002
	Texas	T104704181-23-21
	US EPA Region VIII	WY00002
	USNRC License	49-26846-01
	Washington	C1012
Gillette, WY	US EPA Region VIII	WY00006
Helena, MT	Colorado	MT00945
	Montana	CERT0079
	Nevada	NV-C24-00119
	US EPA Region VIII	Reciprocal
	USDA Soil Permit	P330-20-00090

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Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

Page 1 of 1

Work Order # 71704 C24110882

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501

Account #:
Contact: Claudette
Name of Sampler:

Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box

Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073

Quote Number C15480 v5
Project Name/Number:

Date Submitted: 21-Nov-24
Purchase Order #: BL6984

Lab Number	Sample Information: MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Untreated	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis: Analysis Required
	71704001	MW-201	GW	20-Nov-24	1342	3					Ra226 & Ra228 Please use as MS/MSD
	71704002	MW-202	GW	20-Nov-24	1055	1					Ra226 & Ra228
	71704003	MW-203	GW	20-Nov-24	1210	1					Ra226 & Ra228
	71704004	DUP BAI	GW	20-Nov-24	1210	1					Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples. Please use sample 71704001 as MS/MSD.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
G. Ziegler	21-Nov-24	1700		Aaron Swan	11/25/24	d:25

Page 10 of 10

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Member ACIL

Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 71704

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: ACIE 21Nov24 SS BAI
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: Nov ~~Sept~~ 2024
Address:		Lakewood, CO 80228	Sampled By: Ethan Gress
Phone:			
Email:	CJohnston@GREnergy.com		

Sample Information					Sample Containers									Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric									Analysis Required
001	MW-201/MS/MSD	20Nov24	1342	GW					3									Radium 226 and 228 Combined
002	MW-202	20Nov24	1055	GW					X									
003	MW-203	20Nov24	1210	GW					X									
004	DUP BAI	20Nov24	1210	GW					X									

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1	20Nov24 1818	Log In Walk In #2	2.7 °C/TM 805 ROI Y/N		21Nov24 0815
2					

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Table 1: Proposed 2024 Stanton Station Plant Facilities Sampling Schedule

Location	Well ID		2024				
			Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-7A	1	Field Parameters (Field pH)				
	MW-7B	1					
	MW-8B	1					
	MW-105	1	Field Parameters (Field pH)				
Bottom Ash Landfill	MW-9N	1					
	MW-102	1					
	MW-103	1					
Property Boundary	MW-PB1	1					
Wells Installed in May 2022	MW-210	1					
	MW-211	1					
	MW-212	1					
	MW-213	1					
	MW-214	1					
Piezometers [1]	PZ-BA-A	1					
	PZ-BA-B	1					
Sumps [2]	BAI-Sump-S	1					
Surface Water [3]	Missouri-River	1					
	Rail-Drainage	1					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R	1					
	MW-104	1					
Bottom Ash Impoundment	MW-201	1				Subset of App IV detected in Q1, Iron, Aluminum, Manganese (Dissolved and Total for Each Metal)	
	MW-202	1					
	MW-203	1					
Closed Landfill	MW-10	1			App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)
	MW-204	1	Sulfate + Field parameters				
	MW-205	1	Sulfate + Field parameters				
Additional Internal Locations	MW-4	1					
	MW-PB2	1					
Wells Installed in February 2023	MW-215	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-216	1					
	MW-217	1					
	MW-218	1					
	MW-219	1					
	MW-220	1					
	MW-221	1					
	MW-222	1					
	MW-300	1					
	MW-301	1					
	MW-PB3	1					
Total # of Sample Locations			4	35	40	6	40

Notes:
App III - Appendix III Detection Monitoring List, Table 2
App IV - Appendix IV Assessment Monitoring List, Table 3
Additional List - Table 4
Required field parameters are listed in Table 2 and Table 3
Suggested locations for collection of QA/QC samples are listed in Table 5.
1. The piezometers do not have dedicated pumps and will need to be sampled by other methods.
2. The sump should be sampled using surface water collection methods via the sump riser.
3. Surface water samples to be collected if safely accessible and free water is present.

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February 2024 GL21509219.000

Table 2. Parameter and Analysis Summary - Appendix III Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	EPA 9040C	0.1 units	–	–	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	–	–	Immediately or within 15 minutes
Temperature*	SM 2550 B	–	–	–	Immediately or within 15 minutes
Turbidity*	SM 2130 B	–	–	–	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	–	–	–	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	–	–	–	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/11	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	SM 4500 F E/11	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	ASTM D516-16	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	USGS I-1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total and dissolved)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:
1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent methods.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

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Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

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Table 4: Additional List Parameter and Analysis Summary

Parameter [1]	Method Reference [2]	Reporting Limit	Preparation Method Reference [2]	Sample Container [3]	Required Preservation [4]	Maximum Holding Time from Sampling [5]
General Chemistry						
Total Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Bicarbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Carbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Metals (Total and Dissolved)						
Iron	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Magnesium	EPA 6010D	0.2 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Potassium	EPA 6010D	3.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Sodium	EPA 6010D	1.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Aluminum	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Manganese	EPA 6010D	0.05 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months

Notes:

1. All listed parameters are tested in the laboratory. Listed parameters are to be collected in conjunction with other CCR parameter lists (Table 2 and Table 3).

2. Or equivalent method.
3. Containers and volumes will be specified by the analytical laboratory.
4. In addition to the required preservation for each sample container, sufficient ice should be placed with the sample containers in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when samples arrive, measurement of the temperature of samples immediately upon receipt is necessary to confirm that the 4° C temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible following collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid, without the use of qualifiers.

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February 2024 GL21509219.000

Table 5: 2024 Proposed Quality Assurance/Quality Control Sample Collection Locations

Location	Well ID	Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B		Field Blank			
	MW-7A					
	MW-7B		Duplicate			MS/MSD
	MW-8B					
	MW-105			Duplicate		
Bottom Ash Landfill	MW-9N					Duplicate
	MW-102		MS/MSD			
	MW-103			Field Blank		
Property Boundary	MW-PB1					
Wells Installed in May 2022	MW-210					Duplicate
	MW-211			MS/MSD		
	MW-212					Field Blank
	MW-213			Duplicate		
	MW-214		Field Blank			
Piezometers [1]	PZ-BA-A					
	PZ-BA-B					Field Blank
Sumps [2]	BAI-Sump-S					
Surface Water [3]	Missouri-River					
	Rail-Drainage					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R			Duplicate		
	MW-104					
Bottom Ash Impoundment	MW-201			Field Blank		MS/MSD
	MW-202		Duplicate		Field Blank	
	MW-203					Duplicate
Closed Landfill	MW-10					
	MW-204					
	MW-205					
Additional Internal Locations	MW-4					
	MW-PB2					
Wells Installed in February 2023	MW-215			Field Blank		
	MW-216		Field Blank			
	MW-217					Duplicate
	MW-218			MS/MSD		
	MW-219					
	MW-220					Field Blank
	MW-221		Duplicate			
	MW-222					
	MW-300					
	MW-301			Duplicate		
	MW-PB3					
Total # of Sample Locations		4	35	40	6	40
Total # of QC Samples		0	7	9	1	9

Notes:
Locations to collect samples are **suggestions only** to help with the distribution of QA/QC samples across the site and between facilities while meeting QA/QC objectives for the sampling programs.
Notes for QA/QC
Duplicates = 10-15% of primary collected sample
Field Blanks = 1 per day; based on number of primary collected samples, assuming 2 to 4 total per event
Equipment Blanks - only needed for non-dedicated equipement, none required.
MS/MSD = 1 per 20 primary collected samples, assuming 1 or 2 total per event.

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Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: ~~Nov~~ Dec 24 GRE Stanton Station
Event: ~~November~~ June 2024
Sample ID: 201/MS/MSD
Sampling Personal: Ethan Gotsch

Weather Conditions: Temp: 20 °F Wind: NW @ 30-35 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	11.11	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	11.84	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	3	Sec.
Recover:	57	Sec.
PSI:	—	

Bottle List:
1 Liter Raw
1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample? (YES) / NO
Duplicate Sample ID: MS/MSD

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
	1317	Start of Well Purge									
	1322	8.15	2957	7.54	0.71	138.5	2.20	11.52	200.0	1.0	Clear
20 Nov 24	1327	9.30	2962	7.54	0.36	108.3	0.88	11.57	200.0	1.0	Clear
	1332	9.20	2955	7.54	0.25	94.0	0.75	11.50	200.0	1.0	Clear
	1337	8.92	2942	7.55	0.22	87.3	0.88	11.62	200.0	1.0	Clear
	1342	9.16	2960	7.55	0.24	91.0	1.02		200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
20 Nov 24	1342	9.16	2960	7.55			1.02				Clear

Comments:

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Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: November ~~June~~ 2024
Sample ID: 202
Sampling Personal: Ethan Gress

Weather Conditions: Temp: 20 °F Wind: NW @ 30-35 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	12.85	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	12.96	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 3	Sec.
Recover: 57	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
20Nov24	1030	Start of Well Purge									
	1035	9.77	2088	7.27	2.43	182.1	228.90	12.87	200.0	1.0	Clear ST
	1040	8.57	2058	7.28	2.10	185.1	252.50	12.38	200.0	1.0	Clear ST
	1045	9.17	2038	7.28	1.90	181.4	190.41	12.35	200.0	1.0	Clear ST
	1050	9.20	2037	7.28	1.68	156.3	155.06	12.49	200.0	1.0	Clear ST
	1055	8.91	2034	7.28	1.51	156.1	135.21	12.60	200.0	1.0	Clear ST

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
20Nov24	1055	8.91	2034	7.28			135.21				Clear ST

Comments:

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: ~~Xcel~~ 30 Dec 24 GRE Stanton Station
Event: November ~~June~~ 2024
Sample ID: 203
Sampling Personal: Ethan Gress

Weather Conditions: Temp: 20 °F Wind: N/W @ 30-35 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	9,17	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	11,94	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 3	Sec.
Recover: ~~5~~ 7	Sec.
PSI:	

Bottle List:
1 Liter Raw 1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample? YES / NO
Duplicate Sample ID: Dup BAH

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
	1145	Start of Well Purge									
20Nov24	1150	10.08	2387	9.34	2.13	92.3	53.40	9.65	200.0	1.0	~~Cl~~ ST
	1155	10.58	2302	9.47	0.23	32.1	43.05	10.04	200.0	1.0	Clear
	~~1200~~	10.55	2251	9.55	0.22	18.8	2269	10.33	200.0	1.0	Clear
	1205	10.51	2240	9.55	0.22	12.9	16.23	10.61	200.0	1.0	Clear
	1210	10.67	2242	9.55	0.19	10.5	14.49	10.93	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
20Nov24	1210	10.67	2242	9.55			14.49				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS 2023 Wells Nov 2024 (71485) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71485001 **Date Collected:** 11/19/2024 10:47 **Matrix:** Groundwater
Sample ID: MW- 215 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2324**	umhos/cm	1	1		11/19/2024 10:47	
Method: 150.2							
pH - Field	**7.7**	units	0.01	1		11/19/2024 10:47	
Method: 170.1							
Temperature - Field C	**9.57**	degrees C		1		11/19/2024 10:47	
Method: ASTM D516-16							
Sulfate	**776**	mg/L	25	5		11/26/2024 11:15	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**0.91**	mg/L	0.1	1	11/20/2024 15:00	11/25/2024 15:23	
Calcium	**87.6**	mg/L	1	1	11/20/2024 15:00	11/21/2024 11:14	
Lithium	**0.0446**	mg/L	0.02	1	11/20/2024 15:00	11/25/2024 10:40	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/20/2024 15:00	12/03/2024 09:01	
Arsenic	**0.0022**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:20	
Barium	**0.0369**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:20	
Beryllium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 14:20	
Cadmium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 14:20	
Chromium	<0.002	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:20	
Cobalt	<0.002	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:20	
Lead	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 14:20	
Molybdenum	**0.0165**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:20	
Selenium	<0.005	mg/L	0.005	5	11/20/2024 15:00	12/02/2024 14:20	
Thallium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 14:20	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71485001 **Date Collected:** 11/19/2024 10:47 **Matrix:** Groundwater
Sample ID: MW- 215 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.8**	units	0.1	1		11/20/2024 14:46	*
Method: SM4500-Cl-E 2011							
Chloride	**17.9**	mg/L	2.0	1		11/26/2024 10:15	
Method: SM4500-F-C-2011							
Fluoride	**0.46**	mg/L	0.1	1		11/20/2024 14:46	
Method: USGS I-1750-85							
Total Dissolved Solids	**1640**	mg/L	10	1		11/25/2024 15:38	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71485002 **Date Collected:** 11/19/2024 11:38 **Matrix:** Groundwater
Sample ID: MW- 216 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2023**	umhos/cm	1	1		11/19/2024 11:38	
Method: 150.2							
pH - Field	**7.72**	units	0.01	1		11/19/2024 11:38	
Method: 170.1							
Temperature - Field C	**9.7**	degrees C		1		11/19/2024 11:38	
Method: ASTM D516-16							
Sulfate	**673**	mg/L	25	5		11/26/2024 11:16	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**0.80**	mg/L	0.1	1	11/20/2024 15:00	11/25/2024 15:25	
Calcium	**83.6**	mg/L	1	1	11/20/2024 15:00	11/21/2024 11:15	
Lithium	**0.0504**	mg/L	0.02	1	11/20/2024 15:00	11/25/2024 10:42	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/20/2024 15:00	12/03/2024 09:15	
Arsenic	**0.0028**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:42	
Barium	**0.0474**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:42	
Beryllium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 14:42	
Cadmium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 14:42	
Chromium	<0.002	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:42	
Cobalt	<0.002	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:42	
Lead	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 14:42	
Molybdenum	**0.0124**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:42	
Selenium	<0.005	mg/L	0.005	5	11/20/2024 15:00	12/02/2024 14:42	
Thallium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 14:42	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71485002 **Date Collected:** 11/19/2024 11:38 **Matrix:** Groundwater
Sample ID: MW- 216 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		11/20/2024 14:57	*
Method: SM4500-Cl-E 2011							
Chloride	**15.7**	mg/L	2.0	1		11/26/2024 10:16	
Method: SM4500-F-C-2011							
Fluoride	**0.52**	mg/L	0.1	1		11/20/2024 14:57	
Method: USGS I-1750-85							
Total Dissolved Solids	**1460**	mg/L	10	1		11/25/2024 15:38	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71485003 **Date Collected:** 11/19/2024 14:40 **Matrix:** Groundwater
Sample ID: MW- 217 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2306**	umhos/cm	1	1		11/19/2024 14:40	
Method: 150.2							
pH - Field	**7.71**	units	0.01	1		11/19/2024 14:40	
Method: 170.1							
Temperature - Field C	**9.13**	degrees C		1		11/19/2024 14:40	
Method: ASTM D516-16							
Sulfate	**832**	mg/L	25	5		11/26/2024 11:17	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**0.94**	mg/L	0.1	1	11/20/2024 15:00	11/25/2024 15:26	
Calcium	**102**	mg/L	1	1	11/20/2024 15:00	11/21/2024 11:17	
Lithium	**0.0492**	mg/L	0.02	1	11/20/2024 15:00	11/25/2024 10:43	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/20/2024 15:00	12/03/2024 09:19	
Arsenic	**0.0029**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:46	
Barium	**0.0424**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:46	
Beryllium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 14:46	
Cadmium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 14:46	
Chromium	<0.002	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:46	
Cobalt	<0.002	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:46	
Lead	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 14:46	
Molybdenum	**0.0157**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:46	
Selenium	<0.005	mg/L	0.005	5	11/20/2024 15:00	12/02/2024 14:46	
Thallium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 14:46	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71485003 **Date Collected:** 11/19/2024 14:40 **Matrix:** Groundwater
Sample ID: MW- 217 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		11/20/2024 15:09	*
Method: SM4500-Cl-E 2011							
Chloride	**17.9**	mg/L	2.0	1		11/26/2024 10:17	
Method: SM4500-F-C-2011							
Fluoride	**0.63**	mg/L	0.1	1		11/20/2024 15:09	
Method: USGS I-1750-85							
Total Dissolved Solids	**1660**	mg/L	10	1		11/25/2024 15:38	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71485004 **Date Collected:** 11/19/2024 14:40 **Matrix:** Groundwater
Sample ID: DUP-2023 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: ASTM D516-16							
Sulfate	**814**	mg/L	25	5		11/26/2024 11:18	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**0.91**	mg/L	0.1	1	11/20/2024 15:00	11/25/2024 15:27	
Calcium	**99.6**	mg/L	1	1	11/20/2024 15:00	11/21/2024 11:18	
Lithium	**0.0488**	mg/L	0.02	1	11/20/2024 15:00	11/25/2024 10:43	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/20/2024 15:00	12/03/2024 09:22	
Arsenic	**0.0030**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:51	
Barium	**0.0419**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:51	
Beryllium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 14:51	
Cadmium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 14:51	
Chromium	<0.002	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:51	
Cobalt	<0.002	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:51	
Lead	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 14:51	
Molybdenum	**0.0155**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:51	
Selenium	<0.005	mg/L	0.005	5	11/20/2024 15:00	12/02/2024 14:51	
Thallium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 14:51	
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		11/20/2024 15:20	*
Method: SM4500-Cl-E 2011							
Chloride	**17.9**	mg/L	2.0	1		11/26/2024 10:18	
Method: SM4500-F-C-2011							
Fluoride	**0.63**	mg/L	0.1	1		11/20/2024 15:20	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71485004 **Date Collected:** 11/19/2024 14:40 **Matrix:** Groundwater
Sample ID: DUP-2023 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: USGS I-1750-85							
Total Dissolved Solids	**1690**	mg/L	10	1		11/25/2024 15:38	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71485005 **Date Collected:** 11/19/2024 13:45 **Matrix:** Groundwater
Sample ID: MW- 218 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2018**	umhos/cm	1	1		11/19/2024 13:45	
Method: 150.2							
pH - Field	**7.73**	units	0.01	1		11/19/2024 13:45	
Method: 170.1							
Temperature - Field C	**9.75**	degrees C		1		11/19/2024 13:45	
Method: ASTM D516-16							
Sulfate	**644**	mg/L	25	5		11/26/2024 11:19	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**0.86**	mg/L	0.1	1	11/20/2024 15:00	11/25/2024 15:27	
Calcium	**88.6**	mg/L	1	1	11/20/2024 15:00	11/21/2024 11:19	
Lithium	**0.0476**	mg/L	0.02	1	11/20/2024 15:00	11/25/2024 10:44	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/20/2024 15:00	12/03/2024 09:26	
Arsenic	<0.002	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:55	
Barium	**0.0385**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:55	
Beryllium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 14:55	
Cadmium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 14:55	
Chromium	<0.002	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:55	
Cobalt	<0.002	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:55	
Lead	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 14:55	
Molybdenum	**0.0125**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 14:55	
Selenium	<0.005	mg/L	0.005	5	11/20/2024 15:00	12/02/2024 14:55	
Thallium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 14:55	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71485005 **Date Collected:** 11/19/2024 13:45 **Matrix:** Groundwater
Sample ID: MW- 218 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		11/20/2024 17:09	*
Method: SM4500-Cl-E 2011							
Chloride	**15.8**	mg/L	2.0	1		11/26/2024 10:19	
Method: SM4500-F-C-2011							
Fluoride	**0.60**	mg/L	0.1	1		11/20/2024 17:09	
Method: USGS I-1750-85							
Total Dissolved Solids	**1480**	mg/L	10	1		11/25/2024 15:38	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71485006 **Date Collected:** 11/19/2024 09:11 **Matrix:** Groundwater
Sample ID: MW- 219 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**4006**	umhos/cm	1	1		11/19/2024 09:11	
Method: 150.2							
pH - Field	**7.31**	units	0.01	1		11/19/2024 09:11	
Method: 170.1							
Temperature - Field C	**10.48**	degrees C		1		11/19/2024 09:11	
Method: ASTM D516-16							
Sulfate	**1690**	mg/L	50	10		11/26/2024 11:20	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**1.53**	mg/L	0.1	1	11/20/2024 15:00	11/25/2024 15:28	
Calcium	**307**	mg/L	5	5	11/20/2024 15:00	11/21/2024 11:20	
Lithium	**0.0375**	mg/L	0.02	1	11/20/2024 15:00	11/25/2024 10:45	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/20/2024 15:00	12/03/2024 09:30	
Arsenic	**0.0244**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 15:00	
Barium	**0.2286**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 15:00	
Beryllium	**0.0007**	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 15:00	
Cadmium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 15:00	
Chromium	**0.0154**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 15:00	
Cobalt	**0.0105**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 15:00	
Lead	**0.0086**	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 15:00	
Molybdenum	**0.0208**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 15:00	
Selenium	<0.005	mg/L	0.005	5	11/20/2024 15:00	12/02/2024 15:00	
Thallium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 15:00	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71485006 **Date Collected:** 11/19/2024 09:11 **Matrix:** Groundwater
Sample ID: MW- 219 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.6**	units	0.1	1		11/20/2024 17:20	*
Method: SM4500-Cl-E 2011							
Chloride	**18.7**	mg/L	2.0	1		11/26/2024 10:21	
Method: SM4500-F-C-2011							
Fluoride	**0.24**	mg/L	0.1	1		11/20/2024 17:20	
Method: USGS I-1750-85							
Total Dissolved Solids	**3310**	mg/L	10	1		11/25/2024 15:38	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71485007 **Date Collected:** 11/19/2024 12:41 **Matrix:** Groundwater
Sample ID: MW- 220 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1941**	umhos/cm	1	1		11/19/2024 12:41	
Method: 150.2							
pH - Field	**7.73**	units	0.01	1		11/19/2024 12:41	
Method: 170.1							
Temperature - Field C	**7.31**	degrees C		1		11/19/2024 12:41	
Method: ASTM D516-16							
Sulfate	**623**	mg/L	25	5		11/26/2024 11:21	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**0.84**	mg/L	0.1	1	11/20/2024 15:00	11/25/2024 15:29	
Calcium	**85.2**	mg/L	1	1	11/20/2024 15:00	11/21/2024 11:21	
Lithium	**0.0503**	mg/L	0.02	1	11/20/2024 15:00	11/25/2024 10:45	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/20/2024 15:00	12/03/2024 09:33	
Arsenic	**0.0031**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 15:05	
Barium	**0.0658**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 15:05	
Beryllium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 15:05	
Cadmium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 15:05	
Chromium	**0.0042**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 15:05	
Cobalt	<0.002	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 15:05	
Lead	**0.0009**	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 15:05	
Molybdenum	**0.0120**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 15:05	
Selenium	<0.005	mg/L	0.005	5	11/20/2024 15:00	12/02/2024 15:05	
Thallium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 15:05	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71485007 **Date Collected:** 11/19/2024 12:41 **Matrix:** Groundwater
Sample ID: MW- 220 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		11/20/2024 17:31	*
Method: SM4500-Cl-E 2011							
Chloride	**15.6**	mg/L	2.0	1		11/26/2024 10:22	
Method: SM4500-F-C-2011							
Fluoride	**0.56**	mg/L	0.1	1		11/20/2024 17:31	
Method: USGS I-1750-85							
Total Dissolved Solids	**1480**	mg/L	10	1		11/25/2024 15:38	

Task Comments

3594717 - METb/3092

Post digestion spike and post digestion spike duplicate recovery for sodium was low; the associated laboratory control sample recovery was acceptable.

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71485008 **Date Collected:** 11/19/2024 09:55 **Matrix:** Groundwater
Sample ID: MW- 221 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2122**	umhos/cm	1	1		11/19/2024 09:55	
Method: 150.2							
pH - Field	**7.68**	units	0.01	1		11/19/2024 09:55	
Method: 170.1							
Temperature - Field C	**8.8**	degrees C		1		11/19/2024 09:55	
Method: ASTM D516-16							
Sulfate	**655**	mg/L	25	5		11/26/2024 11:22	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**0.79**	mg/L	0.1	1	11/20/2024 15:00	11/25/2024 15:30	
Calcium	**67.8**	mg/L	1	1	11/20/2024 15:00	11/21/2024 11:24	
Lithium	**0.0414**	mg/L	0.02	1	11/20/2024 15:00	11/25/2024 10:46	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/20/2024 15:00	12/03/2024 09:55	
Arsenic	**0.0091**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 15:44	
Barium	**0.0363**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 15:44	
Beryllium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 15:44	
Cadmium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 15:44	
Chromium	<0.002	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 15:44	
Cobalt	<0.002	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 15:44	
Lead	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 15:44	
Molybdenum	**0.0270**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 15:44	
Selenium	<0.005	mg/L	0.005	5	11/20/2024 15:00	12/02/2024 15:44	
Thallium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 15:44	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71485008 **Date Collected:** 11/19/2024 09:55 **Matrix:** Groundwater
Sample ID: MW- 221 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.9**	units	0.1	1		11/20/2024 17:42	*
Method: SM4500-Cl-E 2011							
Chloride	**17.8**	mg/L	2.0	1		11/26/2024 10:28	
Method: SM4500-F-C-2011							
Fluoride	**0.45**	mg/L	0.1	1		11/20/2024 17:42	
Method: USGS I-1750-85							
Total Dissolved Solids	**1500**	mg/L	10	1		11/25/2024 15:38	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71485009 **Date Collected:** 11/19/2024 15:50 **Matrix:** Groundwater
Sample ID: MW- 222 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2554**	umhos/cm	1	1		11/19/2024 13:50	
Method: 150.2							
pH - Field	**8.03**	units	0.01	1		11/19/2024 13:50	
Method: 170.1							
Temperature - Field C	**6.53**	degrees C		1		11/19/2024 13:50	
Method: ASTM D516-16							
Sulfate	**794**	mg/L	50	10		11/26/2024 11:39	*
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**2.06**	mg/L	0.1	1	11/20/2024 15:00	11/25/2024 15:32	
Calcium	**43.9**	mg/L	1	1	11/20/2024 15:00	11/21/2024 11:25	
Lithium	<0.02	mg/L	0.02	1	11/20/2024 15:00	11/25/2024 10:48	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/20/2024 15:00	12/03/2024 09:37	
Arsenic	**0.0137**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 16:04	
Barium	**0.0901**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 16:04	
Beryllium	**0.0011**	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 16:04	
Cadmium	**0.0006**	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 16:04	
Chromium	**0.0083**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 16:04	
Cobalt	**0.0096**	mg/L	0.002	5	11/20/2024 15:00	12/02/2024 16:04	
Lead	**0.0049**	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 16:04	
Molybdenum	**0.4458**	mg/L	0.004	10	11/20/2024 15:00	12/02/2024 16:18	
Selenium	**0.0080**	mg/L	0.005	5	11/20/2024 15:00	12/02/2024 16:04	
Thallium	<0.0005	mg/L	0.0005	5	11/20/2024 15:00	12/02/2024 16:04	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71485009 **Date Collected:** 11/19/2024 15:50 **Matrix:** Groundwater
Sample ID: MW- 222 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 3.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**8.0**	units	0.1	1		11/20/2024 17:54	*
Method: SM4500-Cl-E 2011							
Chloride	**30.4**	mg/L	10.0	5		11/26/2024 10:29	
Method: SM4500-F-C-2011							
Fluoride	**1.27**	mg/L	0.1	1		11/20/2024 17:54	
Method: USGS I-1750-85							
Total Dissolved Solids	**2000**	mg/L	10	1		11/25/2024 15:38	

Analysis Results Comments

Sulfate

Matrix spike and/or matrix spike duplicate recovery was low; the associated laboratory control sample recovery was acceptable.

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

QC Results Summary — WO #: 71485

Sulfate — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			100	102.0		85	115		
LFB			100	102.0		85	115		
LFB			100	96.3		85	115		
LFB			100	92.9		85	115		
LFB			100	102.0		85	115		
LFB			100	102.0		85	115		
LFB			100	106.0		85	115		
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MS/MSD	71485009		1000	78.8	78.0	85	115	0.6	20
MS/MSD	71688001		1000	89.4	89.8	85	115	0.0	20
MS/MSD	71694001		1000	90.4	95.5	85	115	2.4	20
MS/MSD	71875006		100	105.6	106.1	85	115	0.0	20
MS/MSD	71881002		100	99.1	102.3	85	115	2.8	20
MS/MSD	72123002		100	106.9	99.5	85	115	4.5	20

Chloride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	95.0		90	110		
LFB			30	94.2		90	110		
LFB			30	94.1		90	110		
LFB			30	93.9		90	110		
LFB			30	93.3		90	110		
LFB			30	92.6		90	110		
LFB			30	92.3		90	110		

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Chloride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	94.9		90	110		
LFB			30	94.4		90	110		
LFB			30	95.1		90	110		
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MS/MSD	71292003		30	97.4	97.0	80	120	0.5	20
MS/MSD	71545001		30	103.2	102.2	80	120	0.0	20
MS/MSD	71688001		30	100.0	99.5	80	120	0.4	20
MS/MSD	71890007		30	104.3	106.8	80	120	0.9	20
MS/MSD	72123002		30	94.7	94.7	80	120	0.0	20

Aluminum Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	104.0		85	115		
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
MB		<0.1							
PDS/PDSD	71485001		1	99.2	95.2	75	125	3.4	20
MS/MSD	71485008		0.4	111.0	111.0	70	130	0.4	20
PDS/PDSD	71693003		1	97.2	102.0	75	125	2.7	20
PDS/PDSD	71881001		4	96.2	95.7	75	125	0.5	20
PDS/PDSD	71881002		10	102.0	101.0	75	125	1.5	20
PDS/PDSD	72208001		1	90.3	89.5	75	125	0.4	20

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Aluminum Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	72208001		10	97.7	98.8	75	125	1.0	20

Aluminum, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
LFB-OE			0.4	104.0		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	71292001		0.4	109.0	109.0	75	125	0.4	20
SPK/SPKD	71688001		2	100.0	104.0	75	125	4.0	20
SPK/SPKD	71690001		0.4	112.0	113.0	75	125	1.4	20
PDS/PDSD	71691002		10	99.9	101.0	75	125	0.7	20
SPK/SPKD	71694001		0.4	95.8	97.5	75	125	1.4	20

Boron Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
LFB-OE			0.4	108.0		85	115		
MB		<0.1							
MB		<0.1							
MS/MSD	71485001		0.4	98.8	97.8	70	130	0.3	20
MS/MSD	71485008		0.4	103.0	96.7	70	130	2.0	20

Boron, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	71688001		2	96.8	94.8	75	125	1.1	20
SPK/SPKD	71693001		2	98.0	100.0	75	125	1.2	20

Calcium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	107.0		85	115		
LFB-MI			100	108.0		85	115		

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Account #: 5109 **Client:** Great River Energy

Calcium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<1							
MB		<1							
PDS/PDSD	71089017		100	94.1	93.2	75	125	0.4	20
PDS/PDSD	71292004		100	94.9	98.3	75	125	1.9	20
PDS/PDSD	71294005		100	93.6	95.7	75	125	1.1	20
DUP	71476001							4.6	20
DUP	71485002							1.4	20
PDS/PDSD	71485007		100	97.4	97.2	75	125	0.1	20
DUP	71544001							0.1	20
PDS/PDSD	71544001		100	101.0	101.0	75	125	0.5	20

Calcium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	108.0		85	115		
LFB-MI			100	107.0		85	115		
MB		<1							
MB		<1							
SPK/SPKD	71485007		100	95.0	94.4	75	125	0.3	20

Iron				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	110.0		85	115		
LFB-OE			0.4	109.0		85	115		
MB		<0.1							
MB		<0.1							
PDS/PDSD	71485001		1	86.8	85.7	75	125	0.4	20
MS/MSD	71485008		0.4	88.7	79.6	70	130	1.4	20
PDS/PDSD	71693003		1	90.4	93.2	75	125	1.7	20
PDS/PDSD	71881001		4	85.1	85.3	75	125	0.1	20
PDS/PDSD	71881002		10	101.0	101.0	75	125	0.3	20
PDS/PDSD	72208001		1	90.9	86.6	75	125	1.9	20
PDS/PDSD	72208001		10	103.0	103.0	75	125	0.1	20

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Iron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	110.0		85	115		
LFB-OE			0.4	109.0		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	71292001		0.4	101.0	102.0	75	125	0.6	20
SPK/SPKD	71688001		2	93.8	94.0	75	125	0.2	20
SPK/SPKD	71690001		0.4	74.7	81.3	75	125	1.9	20
PDS/PDSD	71691002		10	106.0	102.0	75	125	2.3	20
SPK/SPKD	71694001		0.4	86.0	85.5	75	125	0.6	20

Lithium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	117.0		85	115		
LFB-OE			0.4	117.0		85	115		
MB		<0.04							
MB		<0.04							
MS/MSD	71485001		0.4	107.0	106.0	70	130	1.5	20
MS/MSD	71485008		0.4	107.0	103.0	70	130	3.6	20

Lithium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	117.0		85	115		
LFB-OE			0.4	117.0		85	115		
MB		<0.04							
MB		<0.04							
SPK/SPKD	71688001		0.4	98.3	97.3	75	125	1.0	20
SPK/SPKD	71693001		0.4	96.8	95.7	75	125	1.0	20

Magnesium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	108.0		85	115		
LFB-MI			100	108.0		85	115		
MB		<1							
MB		<1							

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Magnesium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	71089017		100	98.4	97.5	75	125	0.6	20
PDS/PDSD	71292004		100	95.6	98.7	75	125	1.8	20
PDS/PDSD	71294005		100	98.9	100.0	75	125	1.1	20
DUP	71476001							5.0	20
DUP	71485002							0.9	20
PDS/PDSD	71485007		100	101.0	101.0	75	125	0.3	20
DUP	71544001							0.0	20
PDS/PDSD	71544001		100	102.0	102.0	75	125	0.4	20

Magnesium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	108.0		85	115		
LFB-MI			100	108.0		85	115		
MB		<1							
MB		<1							
SPK/SPKD	71485007		100	100.0	99.4	75	125	0.5	20

Manganese				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
LFB-OE			0.4	103.0		85	115		
MB		<0.05							
MB		<0.05							
MS/MSD	71485001		0.4	91.1	87.4	70	130	2.9	20
PDS/PDSD	71485001		1	85.7	85.7	75	125	0.0	20
MS/MSD	71485008		0.4	90.4	88.2	70	130	1.8	20
MS/MSD	71505005		0.4	96.4	88.4	70	130	4.1	20
PDS/PDSD	71693003		1	84.2	92.8	75	125	2.3	20
PDS/PDSD	71881001		4	93.9	93.9	75	125	0.0	20
PDS/PDSD	71881002		10	99.9	103.0	75	125	3.3	20
PDS/PDSD	72208001		10	98.1	99.2	75	125	1.1	20
PDS/PDSD	72208001		1	91.4	91.7	75	125	0.3	20

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Manganese, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
LFB-OE			0.4	103.0		85	115		
MB		<0.05							
MB		<0.05							
SPK/SPKD	71292001		0.4	100.0	101.0	75	125	0.8	20
SPK/SPKD	71688001		2	90.0	89.8	75	125	0.1	20
SPK/SPKD	71690001		0.4	90.3	94.3	75	125	3.1	20
PDS/PDSD	71691002		10	104.0	105.0	75	125	0.8	20
SPK/SPKD	71694001		0.4	83.0	82.5	75	125	0.4	20

Potassium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	107.0		85	115		
LFB-MI			100	107.0		85	115		
MB		<1							
MB		<1							
PDS/PDSD	71089017		100	102.0	101.0	75	125	0.9	20
PDS/PDSD	71292004		100	101.0	102.0	75	125	1.1	20
PDS/PDSD	71294005		100	100.0	102.0	75	125	1.3	20
DUP	71476001							2.0	20
DUP	71485002							2.6	20
PDS/PDSD	71485007		100	102.0	101.0	75	125	0.9	20
DUP	71544001							0.0	20
PDS/PDSD	71544001		100	102.0	101.0	75	125	0.7	20

Potassium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	107.0		85	115		
LFB-MI			100	107.0		85	115		
MB		<1							
MB		<1							
SPK/SPKD	71485007		100	101.0	101.0	75	125	0.4	20

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2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 515-382-5486 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Sodium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	108.0		85	115		
LFB-MI			100	108.0		85	115		
MB		<1							
MB		<1							
PDS/PDSD	71089017		100	101.0	99.7	75	125	1.5	20
PDS/PDSD	71292004		100	87.1	88.3	75	125	0.4	20
PDS/PDSD	71294005		100	79.4	83.4	75	125	1.1	20
DUP	71476001							1.5	20
DUP	71485002							0.7	20
PDS/PDSD	71485007		100	74.1	73.9	75	125	0.0	20
DUP	71544001							0.8	20
PDS/PDSD	71544001		100	91.7	92.1	75	125	0.2	20

Sodium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	108.0		85	115		
LFB-MI			100	108.0		85	115		
MB		<1							
MB		<1							
SPK/SPKD	71485007		500	99.8	101.0	75	125	0.5	20

Antimony				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
LFB-MS			0.1	103.0		80	120		
MB		<0.001							
MB		<0.001							
MS/MSD	71485001		0.4	107.0	102.0	75	125	4.6	20
SPK	71485001		0.1	104.0		75	125		
MS/MSD	71485008		0.4	104.0	102.0	75	125	2.7	20
MS/MSD	71505005		0.4	102.0	102.0	70	130	0.0	20

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Account #: 5109 **Client:** Great River Energy

Antimony, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
LFB-MS			0.1	103.0		80	120		
MB		<0.001							
MB		<0.001							
SPK/SPKD	71294005		0.1	110.0	114.0	75	125	3.5	20
SPK/SPKD	71294007		0.1	105.0	109.0	75	125	3.9	20
MS/MSD	71485001		0.4	107.0	102.0	75	125	4.6	20
SPK	71485001		0.1	104.0		75	125		
MS/MSD	71485008		0.4	104.0	102.0	75	125	2.7	20
MS/MSD	71505005		0.4	102.0	102.0	70	130	0.0	20

Arsenic — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	104.0		80	120		
LFB-MS			0.1	104.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	71485001		0.4	106.0	107.0	75	125	0.5	20
SPK	71485001		0.1	107.0		75	125		
MS/MSD	71485008		0.4	103.0	104.0	75	125	0.2	20
MS/MSD	71505005		0.4	106.0	107.0	70	130	0.7	20

Arsenic, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	104.0		80	120		
LFB-MS			0.1	104.0		80	120		
MB		<0.002							
MB		<0.002							
SPK/SPKD	71294005		0.1	109.0	117.0	75	125	7.3	20
SPK/SPKD	71294007		0.1	102.0	105.0	75	125	2.7	20
MS/MSD	71485001		0.4	106.0	107.0	75	125	0.5	20
SPK	71485001		0.1	107.0		75	125		
MS/MSD	71485008		0.4	103.0	104.0	75	125	0.2	20

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Account #: 5109 **Client:** Great River Energy

Arsenic, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	71505005		0.4	106.0	107.0	70	130	0.7	20

Barium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
LFB-MS			0.1	103.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	71485001		0.4	103.0	101.0	75	125	2.0	20
SPK	71485001		0.1	102.0		75	125		
MS/MSD	71485008		0.4	99.6	103.0	75	125	2.7	20
MS/MSD	71505005		0.4	105.0	103.0	70	130	0.9	20

Barium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	103.0		80	120		
LFB-MS			0.1	103.0		80	120		
MB		<0.002							
MB		<0.002							
SPK/SPKD	71294005		0.1	102.0	105.0	75	125	2.2	20
SPK/SPKD	71294007		0.1	103.0	104.0	75	125	1.0	20
MS/MSD	71485001		0.4	103.0	101.0	75	125	2.0	20
SPK	71485001		0.1	102.0		75	125		
MS/MSD	71485008		0.4	99.6	103.0	75	125	2.7	20
MS/MSD	71505005		0.4	105.0	103.0	70	130	0.9	20

Beryllium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	114.0		80	120		
LFB-MS			0.1	98.3		80	120		
LFB-MS			0.1	107.0		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							

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Account #: 5109 **Client:** Great River Energy

Beryllium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	71485001		0.4	113.0	114.0	75	125	0.4	20
SPK	71485001		0.1	113.0		75	125		
MS/MSD	71485008		0.4	113.0	113.0	75	125	0.0	20
MS/MSD	71505005		0.4	115.0	116.0	70	130	1.1	20

Beryllium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	114.0		80	120		
LFB-MS			0.1	107.0		80	120		
LFB-MS			0.1	98.3		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
SPK/SPKD	71294005		0.1	145.0	147.0	75	125	2.0	20
SPK/SPKD	71294007		0.1	130.0	123.0	75	125	5.1	20
MS/MSD	71485001		0.4	113.0	114.0	75	125	0.4	20
SPK	71485001		0.1	113.0		75	125		
MS/MSD	71485008		0.4	113.0	113.0	75	125	0.0	20
MS/MSD	71505005		0.4	115.0	116.0	70	130	1.1	20

Cadmium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	104.0		80	120		
LFB-MS			0.1	106.0		80	120		
LFB-MS			0.1	94.3		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
MS/MSD	71485001		0.4	103.0	105.0	75	125	1.0	20
SPK	71485001		0.1	101.0		75	125		
MS/MSD	71485008		0.4	102.0	102.0	75	125	0.0	20
MS/MSD	71505005		0.4	105.0	105.0	70	130	0.7	20

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Account #: 5109 **Client:** Great River Energy

Cadmium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	106.0		80	120		
LFB-MS			0.1	94.3		80	120		
LFB-MS			0.1	104.0		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
SPK/SPKD	71294005		0.1	98.2	101.0	75	125	2.5	20
SPK/SPKD	71294007		0.1	97.7	99.4	75	125	1.7	20
MS/MSD	71485001		0.4	103.0	105.0	75	125	1.0	20
SPK	71485001		0.1	101.0		75	125		
MS/MSD	71485008		0.4	102.0	102.0	75	125	0.0	20
MS/MSD	71505005		0.4	105.0	105.0	70	130	0.7	20

Chromium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	104.0		80	120		
LFB-MS			0.1	107.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	71485001		0.4	98.9	99.4	75	125	0.8	20
SPK	71485001		0.1	102.0		75	125		
MS/MSD	71485008		0.4	96.2	96.9	75	125	0.5	20
MS/MSD	71505005		0.4	99.2	99.5	70	130	0.2	20

Chromium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	107.0		80	120		
LFB-MS			0.1	104.0		80	120		
MB		<0.002							
MB		<0.002							
SPK/SPKD	71294005		0.1	110.0	117.0	75	125	6.3	20
SPK/SPKD	71294007		0.1	106.0	106.0	75	125	0.1	20
MS/MSD	71485001		0.4	98.9	99.4	75	125	0.8	20

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Account #: 5109 **Client:** Great River Energy

Chromium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK	71485001		0.1	102.0		75	125		
MS/MSD	71485008		0.4	96.2	96.9	75	125	0.5	20
MS/MSD	71505005		0.4	99.2	99.5	70	130	0.2	20

Cobalt — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	107.0		80	120		
LFB-MS			0.1	105.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	71485001		0.4	99.8	101.0	75	125	1.0	20
SPK	71485001		0.1	102.0		75	125		
MS/MSD	71485008		0.4	97.0	97.9	75	125	1.0	20
MS/MSD	71505005		0.4	100.0	101.0	70	130	1.0	20

Cobalt, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	107.0		80	120		
LFB-MS			0.1	105.0		80	120		
MB		<0.002							
MB		<0.002							
SPK/SPKD	71294005		0.1	108.0	117.0	75	125	8.4	20
SPK/SPKD	71294007		0.1	105.0	104.0	75	125	0.9	20
MS/MSD	71485001		0.4	99.8	101.0	75	125	1.0	20
SPK	71485001		0.1	102.0		75	125		
MS/MSD	71485008		0.4	97.0	97.9	75	125	1.0	20
MS/MSD	71505005		0.4	100.0	101.0	70	130	1.0	20

Lead — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	98.6		80	120		
LFB-MS			0.1	97.5		80	120		
MB		<0.0005							

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Lead				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.0005							
MB		<0.0005							
MS/MSD	71485001		0.4	94.7	93.8	75	125	1.1	20
SPK	71485001		0.1	94.1		75	125		
MS/MSD	71485008		0.4	93.3	93.2	75	125	0.0	20
MS/MSD	71505005		0.4	94.6	94.4	70	130	0.0	20

Lead, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.5		80	120		
LFB-MS			0.1	98.6		80	120		
LFB-MS			0.1	100.0		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
SPK/SPKD	71294005		0.1	105.0	108.0	75	125	2.4	20
SPK/SPKD	71294007		0.1	102.0	105.0	75	125	2.3	20
MS/MSD	71485001		0.4	94.7	93.8	75	125	1.1	20
SPK	71485001		0.1	94.1		75	125		
MS/MSD	71485008		0.4	93.3	93.2	75	125	0.0	20
MS/MSD	71505005		0.4	94.6	94.4	70	130	0.0	20

Molybdenum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	107.0		80	120		
LFB-MS			0.1	106.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	71485001		0.4	104.0	105.0	75	125	1.4	20
SPK	71485001		0.1	110.0		75	125		
MS/MSD	71485008		0.4	101.0	101.0	75	125	0.5	20
MS/MSD	71505005		0.4	101.0	102.0	70	130	0.9	20

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Molybdenum, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	106.0		80	120		
LFB-MS			0.1	107.0		80	120		
MB		<0.002							
MB		<0.002							
SPK/SPKD	71294005		0.1	104.0	110.0	75	125	4.9	20
SPK/SPKD	71294007		0.1	98.0	98.9	75	125	0.9	20
MS/MSD	71485001		0.4	104.0	105.0	75	125	1.4	20
SPK	71485001		0.1	110.0		75	125		
MS/MSD	71485008		0.4	101.0	101.0	75	125	0.5	20
MS/MSD	71505005		0.4	101.0	102.0	70	130	0.9	20

Selenium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
LFB-MS			0.1	105.0		80	120		
MB		<0.005							
MB		<0.005							
MS/MSD	71485001		0.4	105.0	106.0	75	125	1.4	20
SPK	71485001		0.1	103.0		75	125		
MS/MSD	71485008		0.4	104.0	103.0	75	125	1.2	20
MS/MSD	71505005		0.4	107.0	108.0	70	130	0.2	20

Selenium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
LFB-MS			0.1	102.0		80	120		
MB		<0.005							
MB		<0.005							
SPK/SPKD	71294005		0.1	105.0	111.0	75	125	5.7	20
SPK/SPKD	71294007		0.1	104.0	106.0	75	125	1.6	20
MS/MSD	71485001		0.4	105.0	106.0	75	125	1.4	20
SPK	71485001		0.1	103.0		75	125		
MS/MSD	71485008		0.4	104.0	103.0	75	125	1.2	20

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Selenium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	71505005		0.4	107.0	108.0	70	130	0.2	20

Thallium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.3		80	120		
LFB-MS			0.1	98.6		80	120		
LFB-MS			0.1	97.8		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
MS/MSD	71485001		0.4	92.4	92.0	75	125	0.5	20
SPK	71485001		0.1	91.6		75	125		
MS/MSD	71485008		0.4	90.7	89.5	75	125	1.4	20
MS/MSD	71505005		0.4	93.4	92.0	70	130	1.6	20

Thallium, Dissolved Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.3		80	120		
LFB-MS			0.1	98.6		80	120		
LFB-MS			0.1	97.8		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
SPK/SPKD	71294005		0.1	103.0	107.0	75	125	3.4	20
SPK/SPKD	71294007		0.1	111.0	113.0	75	125	2.1	20
MS/MSD	71485001		0.4	92.4	92.0	75	125	0.5	20
SPK	71485001		0.1	91.6		75	125		
MS/MSD	71485008		0.4	90.7	89.5	75	125	1.4	20
MS/MSD	71505005		0.4	93.4	92.0	70	130	1.6	20
SPK/SPKD	71694001		0.1	90.2	91.4	75	125	1.3	20

Mercury Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	103.0		85	115		

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Mercury — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	106.0		85	115		
LFB			0.002	107.0		85	115		
LFB			0.002	106.0		85	115		
LRB		<0.0002							
LRB		<0.0002							
MB		<0.0002							
MB		<0.0002							
MS/MSD	71294004		0.002	97.5	98.0	70	130	0.0	20
MS/MSD	71485004		0.002	100.0	100.0	70	130	0.0	20
MS/MSD	71688001		0.002	77.5	78.0	70	130	0.0	20
MS/MSD	71693001		0.002	97.0	97.0	70	130	0.0	20

Mercury, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	102.0		85	115		
MB		<0.0002							
MS/MSD	71688001		0.002	82.0	82.0	70	130	0.0	20
MS/MSD	71691002		0.002	104.0	104.0	70	130	0.0	20
MS/MSD	71694001		0.002	100.0	102.0	70	130	0.0	20

Alkalinity, Total — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			501	92.2		80	120		
CRM			501	91.8		80	120		
LFB			410	90.9		90	110		
LFB			410	91.7		90	110		
LFB			410	90.9		90	110		
LFB			410	91.1		90	110		
LFB			410	90.8		90	110		
MB		<20.5							
MB		<20.5							
MB		<20.5							
MB		<20.5							

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Alkalinity, Total				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<20.5							
MB		<20.5							
MS/MSD	71476001		410	85.2	85.1	80	120	0.0	20
MS/MSD	71677001		410	87.9	89.2	80	120	0.7	20
MS/MSD	71691003		410	87.5	86.2	80	120	0.6	20

pH				Units: units					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	99.0		98.33	101.67		
CRM-PH			6	99.0		98.33	101.67		
CRM-PH			6	99.5		98.33	101.67		
DUP	71477001							1.0	20

Fluoride				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			3.06	99.7		83.99	111.11		
LFB-F			0.5	96.0		90	110		
LFB-F			0.5	96.0		90	110		
LFB-F			0.5	94.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MS/MSD-F	71485001		0.5	102.0	112.0	80	120	5.0	20
MS/MSD-F	71485007		0.5	98.0	98.0	80	120	0.0	20

Total Dissolved Solids				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	97.0		90.35	110.33		
MB		<10							
DUP	71485002							1.4	20
DUP	71488002							5.8	20

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WO: 71485

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: 30 Dec 24 SS 2023 Wells
Attn:	Cassie Johnston		Event: Nov ~~Sept~~ 2024
Address:		44 Union Blvd, Suite 300 Lakewood, CO 80228	Sampled By: Jeremy Ply
Phone:			
Email:	CJohnston@GREnergy.com		

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric				Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-215	19 Nov 24	1047	GW	X	X	X						9.57	2324	7.70	9.77	App III, AppIV, Additional List (total and dissolved for all metals) (See Attachments)
002	MW-216	19 Nov 24	1138	GW	X	X	X						9.70	2023	7.72	21.01	
003	MW-217	19 Nov 24	1440	GW	X	X	X						9.13	2306	7.71	5.38	
004	DUP 2023	19 Nov 24	1440	GW	X	X	X						NA	NA	NA	NA	
005	MW-218	19 Nov 24	1345	GW	X	X	X						9.75	2018	7.73	1.87	
006	MW-219	19 Nov 24	0911	GW	X	X	X						10.48	4006	7.31	460.30	
007	MW-220	19 Nov 24	1241	GW	X	X	X						7.31	1941	7.73	88.30	
008	MW-221	19 Nov 24	0955	GW	X	X	X						8.80	2122	7.68	7.21	
009	MW-222	19 Nov 24	1550	GW	X	X	X						6.53	2554	8.03	34.59	

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1	19 Nov 24 1750	Log In Walk In #2	3.2 °C/TM 605 RO (Y)N		20 Nov 24 0805
2					

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Table 1: Proposed 2024 Stanton Station Plant Facilities Sampling Schedule

Location	Well ID		2024				
			Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-7A	1	Field Parameters (Field pH)				
	MW-7B	1					
	MW-8B	1					
	MW-105	1	Field Parameters (Field pH)				
Bottom Ash Landfill	MW-9N	1					
	MW-102	1					
	MW-103	1					
Property Boundary	MW-PB1	1					
Wells Installed in May 2022	MW-210	1					
	MW-211	1					
	MW-212	1					
	MW-213	1					
	MW-214	1					
Piezometers [1]	PZ-BA-A	1					
	PZ-BA-B	1					
Sumps [2]	BAI-Sump-S	1					
Surface Water [3]	Missouri-River	1					
	Rail-Drainage	1					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R	1					
	MW-104	1					
Bottom Ash Impoundment	MW-201	1				Subset of App IV detected in Q1, Iron, Aluminum, Manganese (Dissolved and Total for Each Metal)	
	MW-202	1					
	MW-203	1					
Closed Landfill	MW-10	1			App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)
	MW-204	1	Sulfate + Field parameters				
	MW-205	1	Sulfate + Field parameters				
Additional Internal Locations	MW-4	1			App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-PB2	1					
Wells Installed in February 2023	MW-215	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)			
	MW-216	1					
	MW-217	1					
	MW-218	1					
	MW-219	1					
	MW-220	1					
	MW-221	1					
	MW-222	1					
	MW-300	1					
	MW-301	1					
	MW-PB3	1					
Total # of Sample Locations			4	35	40	6	40

Notes:
App III - Appendix III Detection Monitoring List, Table 2
App IV - Appendix IV Assessment Monitoring List, Table 3
Additional List - Table 4
Required field parameters are listed in Table 2 and Table 3
Suggested locations for collection of QA/QC samples are listed in Table 5.
1. The piezometers do not have dedicated pumps and will need to be sampled by other methods.
2. The sump should be sampled using surface water collection methods via the sump riser.
3. Surface water samples to be collected if safely accessible and free water is present.

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Table 2. Parameter and Analysis Summary - Appendix III Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/11	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	SM 4500 F E/11	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	ASTM D516-16	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	USGS I-1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total and dissolved)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:
1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent methods.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

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February 2024 GL21509219.000

Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

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Table 4: Additional List Parameter and Analysis Summary

Parameter [1]	Method Reference [2]	Reporting Limit	Preparation Method Reference [2]	Sample Container [3]	Required Preservation [4]	Maximum Holding Time from Sampling [5]
General Chemistry						
Total Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Bicarbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Carbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Metals (Total and Dissolved)						
Iron	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Magnesium	EPA 6010D	0.2 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Potassium	EPA 6010D	3.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Sodium	EPA 6010D	1.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Aluminum	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Manganese	EPA 6010D	0.05 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months

Notes:

1. All listed parameters are tested in the laboratory. Listed parameters are to be collected in conjunction with other CCR parameter lists (Table 2 and Table 3).

2. Or equivalent method.
3. Containers and volumes will be specified by the analytical laboratory.
4. In addition to the required preservation for each sample container, sufficient ice should be placed with the sample containers in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when samples arrive, measurement of the temperature of samples immediately upon receipt is necessary to confirm that the 4° C temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible following collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid, without the use of qualifiers.

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Account #: 5109 **Client:** Great River Energy

Table 5: 2024 Proposed Quality Assurance/Quality Control Sample Collection Locations

Location	Well ID	Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B		Field Blank			
	MW-7A					
	MW-7B		Duplicate			MS/MSD
	MW-8B					
	MW-105			Duplicate		
Bottom Ash Landfill	MW-9N					Duplicate
	MW-102		MS/MSD			
	MW-103			Field Blank		
Property Boundary	MW-PB1					
Wells Installed in May 2022	MW-210					Duplicate
	MW-211			MS/MSD		
	MW-212					Field Blank
	MW-213			Duplicate		
	MW-214		Field Blank			
Piezometers [1]	PZ-BA-A					
	PZ-BA-B					Field Blank
Sumps [2]	BAI-Sump-S					
Surface Water [3]	Missouri-River					
	Rail-Drainage					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R			Duplicate		
	MW-104					
Bottom Ash Impoundment	MW-201			Field Blank		MS/MSD
	MW-202		Duplicate		Field Blank	
	MW-203					Duplicate
Closed Landfill	MW-10					
	MW-204					
	MW-205					
Additional Internal Locations	MW-4					
	MW-PB2					
Wells Installed in February 2023	MW-215			Field Blank		
	MW-216		Field Blank			
	MW-217					Duplicate
	MW-218			MS/MSD		
	MW-219					
	MW-220					Field Blank
	MW-221		Duplicate			
	MW-222					
	MW-300					
	MW-301			Duplicate		
	MW-PB3					
Total # of Sample Locations		4	35	40	6	40
Total # of QC Samples		0	7	9	1	9

Notes:
Locations to collect samples are **suggestions only** to help with the distribution of QA/QC samples across the site and between facilities while meeting QA/QC objectives for the sampling programs.
Notes for QA/QC
Duplicates = 10-15% of primary collected sample
Field Blanks = 1 per day; based on number of primary collected samples, assuming 2 to 4 total per event
Equipment Blanks - only needed for non-dedicated equipement, none required.
MS/MSD = 1 per 20 primary collected samples, assuming 1 or 2 total per event.

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 515-382-5486 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Nov ~~June~~ 2024
Sample ID:	215
Sampling Personal:	

Weather Conditions: Temp: 30 °F Wind: W @ 5-10 Precip: Sunny / Partly Cloudy / (Cloudy)

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	13.32	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	13.48	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	2	Sec.
Recover:	28	Sec.
PSI:	—	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
19 Nov 24	1022	Start of Well Purge									
	1027	9.71	2325	7.71	0.54	-116.3	17.08	13.48	200.0	1.0	Clear
	1032	9.72	2327	7.71	0.43	-120.2	35.90	13.48	200.0	1.0	Clear
	1037	9.67	2328	7.71	0.29	-125.5	13.93	13.48	200.0	1.0	Clear
	1042	9.70	2325	7.70	0.34	-124.7	8.59	13.48	200.0	1.0	Clear
	1047	9.57	2324	7.70	0.26	-128.5	9.77	13.48	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
19 Nov 24	1047	9.57	2324	7.70			9.77				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Nov ~~June~~ 2024
Sample ID:	216
Sampling Personal:	JTH

Weather Conditions: Temp: 30°F Wind: W @5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	13.93	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	14.20	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	2	Sec.
Recover:	26	Sec.
PSI:	✓	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
19Nov24	1113	Start of Well Purge									clear, slightly turbid, turbid
	1118	10.01	2064	7.73	1.09	-106.9	12.97	14.13	200.0	1.0	Clear
	1123	9.82	2051	7.73	0.62	-117.0	13.24	14.14	200.0	1.0	Clear
	1128	9.93	2041	7.73	0.53	-124.5	18.71	14.16	200.0	1.0	Clear
	1133	9.92	2041	7.72	0.43	-127.5	17.11	14.17	200.0	1.0	Clear
	1138	9.70	2023	7.72	0.37	-128.6	21.01	14.18	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
19 Nov 24	1138	9.70	2023	7.72			21.01				Clear

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov ~~June~~ 2024
Sample ID: 217
Sampling Personal: JTM

Weather Conditions: Temp: 30 °F Wind: W @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	11.63	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	11.69	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:		
1 Liter Raw	1 Gal Nitric	x2
500mL Nitric		
500mL Nitric (filtered)		

Duplicate Sample?
YES / NO
Duplicate Sample ID:
Dup 2023

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
	1415	Start of Well Purge									clear, slightly turbid, turbid
19 Nov 24	1420	9.12	2254	7.71	0.16	-126.4	12.73	11.65	200.0	1.0	Clear
	1425	9.09	2251	7.71	0.14	-127.2	11.72	11.68	200.0	1.0	Clear
	1430	9.04	2248	7.71	0.16	-128.4	8.43	11.69	200.0	1.0	Clear
	1435	9.14	2253	7.70	0.10	-131.3	5.69	11.70	200.0	1.0	Clear
	1440	9.13	2306	7.71	0.07	-133.4	5.38	11.68	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
19 Nov 24	1440	9.13	2306	7.71			5.38				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov ~~June~~ 2024
Sample ID: 218
Sampling Personal: JCK

Weather Conditions: Temp: 30 °F Wind: W @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	12.46	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	12.50	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 7	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
											clear, slightly turbid, turbid
19 Nov 24	1320	Start of Well Purge									
	1325	9.27	2060	7.76	0.54	-127.5	4.43	12.50	200.0	1.0	Clear
	1330	9.66	2048	7.74	0.41	-130.9	3.57	12.50	200.0	1.0	Clear
	1335	9.57	2027	7.73	0.32	-133.1	2.81	12.51	200.0	1.0	Clear
	1340	9.51	2049	7.73	0.34	-135.3	3.05	12.51	200.0	1.0	Clear
	1345	9.75	2018	7.73	0.26	-138.1	1.87	12.50	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
19 Nov 24	1345	9.75	2018	7.73			1.87				Clear

Comments:	

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Nov ~~June~~ 2024
Sample ID:	219
Sampling Personal:	

Weather Conditions: Temp: 30 °F Wind: W @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	15.32	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	16.20	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	—	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
19Nov24	0846	Start of Well Purge									
	0851	10.84	4264	7.77	0.10	-46.4	557.48	16.00	200.0	1.0	Slightly Turbid (ST)
	0856	10.55	4125	7.50	0.05	-55.3	484.73	16.06	200.0	1.0	ST
	0901	10.55	4057	7.40	0.04	-49.6	418.43	16.07	200.0	1.0	ST
	0906	10.46	4021	7.34	0.04	-43.9	374.36	16.09	200.0	1.0	ST
	0911	10.48	4006	7.31	0.03	-44.7	460.30	16.12	200.0	1.0	ST

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
19Nov24	0911	10.48	4006	7.31			460.30				ST

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	Nov June 2024
Sample ID:	220
Sampling Personal:	JJ Hr

Weather Conditions: Temp: 30 °F Wind: W @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	13.43	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	13.60	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
19 Nov 24	1206	Start of Well Purge									
	1211	7.45	1943	7.73	1.41	-44.4	173.62	13.60	200.0	1.0	Slightly Turbid (ST)
	1216	7.35	1915	7.72	0.84	-52.7	121.00	13.60	200.0	1.0	ST
	1221	7.23	1866	7.72	0.51	-77.5	77.23	13.61	200.0	1.0	Clear
	1226	7.23	1850	7.72	0.61	-91.8	121.60	13.59	200.0	1.0	ST
	1231	7.30	1972	7.73	0.54	-100.3	109.48	13.59	200.0	1.0	ST
	1236	7.33	1961	7.73	0.63	-104.37	97.85	13.60	200.0	1.0	Clear
	1241	7.31	1941	7.73	0.73	-110.1	88.30	13.59	2000.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 7.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
19 Nov 24	1241	7.31	1941	7.73			88.30				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	GRE Stanton Station
Event:	NW June 2024
Sample ID:	221
Sampling Personal:	JAM

Weather Conditions: Temp: 30 °F Wind: WS @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	16.00	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	16.05	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 3	Sec.
Recover: 27	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
19Nov24	0930	Start of Well Purge									
	0935	8.80	2126	7.69	0.38	-124.0	12.86	16.03	200.0	1.0	Clear
	0940	8.78	2126	7.68	0.26	-133.5	17.16	16.05	200.0	1.0	Clear
	0945	8.70	2126	7.68	0.22	-139.7	16.07	16.05	200.0	1.0	Clear
	0950	8.76	2124	7.68	0.19	-142.6	14.68	16.05	200.0	1.0	Clear
	0955	8.80	2122	7.68	0.20	-143.7	7.21	16.05	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
19Nov 24	0955	8.80	2122	7.68			7.21				Clear

Comments:

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 515-382-5486 ~ Fax 515-382-3885
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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov ~~June~~ 2024
Sample ID: 223
Sampling Personal: JH

Weather Conditions: Temp: 30°F Wind: W @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	32.37	ft
Depth to Top of Pump:	~~34.20~~	ft
Water Level After Sample:	Below Pump	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 3	Sec.
Recover: ~~27~~	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
19 Nov 24	~~0825~~	Start of Well Purge									
	0830	8.43	2550	7.84	1.15	83.5	29.91		200.0	1.0	Clear Tan
	0835	7.97	2483	7.74	0.68	58.2	33.20		200.0	1.0	Clear Tan
	0840	7.03	2499	7.77	3.82	102.2	36.58	Relaunch	200.0	1.0	Clear Tan
	~~0845~~		Purged	Dry					~~200.0~~	~~1.0~~	
	~~0850~~								~~200.0~~	~~1.0~~	

Well Stabilized? YES (NO) Total Volume Purged: 3.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
19 Nov 24	1550	6.53	2554	8.03			34.59				Clear Tan

Comments:

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Account #: 5109 **Client:** Great River Energy
Workorder: GRE SS 2023 Wells Nov 2024 (71486) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71486001 **Date Collected:** 11/19/2024 10:47 **Matrix:** Groundwater
Sample ID: MW- 215 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 6.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:04	
Radium 228	See Attached			1		12/30/2024 13:04	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71486002 **Date Collected:** 11/19/2024 11:38 **Matrix:** Groundwater
Sample ID: MW- 216 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 6.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:04	
Radium 228	See Attached			1		12/30/2024 13:04	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71486003 **Date Collected:** 11/19/2024 14:40 **Matrix:** Groundwater
Sample ID: MW- 217 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 6.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:04	
Radium 228	See Attached			1		12/30/2024 13:04	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71486004 **Date Collected:** 11/19/2024 14:40 **Matrix:** Groundwater
Sample ID: DUP - 2023 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 6.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:04	
Radium 228	See Attached			1		12/30/2024 13:04	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71486005 **Date Collected:** 11/19/2024 13:45 **Matrix:** Groundwater
Sample ID: MW- 218 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 6.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:04	
Radium 228	See Attached			1		12/30/2024 13:04	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71486006 **Date Collected:** 11/19/2024 09:11 **Matrix:** Groundwater
Sample ID: MW- 219 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 6.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:04	
Radium 228	See Attached			1		12/30/2024 13:04	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71486007 **Date Collected:** 11/19/2024 12:41 **Matrix:** Groundwater
Sample ID: MW- 220 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 6.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:04	
Radium 228	See Attached			1		12/30/2024 13:04	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71486008 **Date Collected:** 11/19/2024 09:55 **Matrix:** Groundwater
Sample ID: MW- 221 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 6.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:04	
Radium 228	See Attached			1		12/30/2024 13:04	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71486009 **Date Collected:** 11/19/2024 15:50 **Matrix:** Groundwater
Sample ID: MW- 222 **Date Received:** 11/19/2024 17:50 **Collector:** MVTL Field Service

Temp @ Receipt (C): 6.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/30/2024 13:04	
Radium 228	See Attached			1		12/30/2024 13:04	

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ANALYTICAL SUMMARY REPORT

December 23, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24110851 Quote ID: C15480
Project Name: 71486

Energy Laboratories, Inc. Casper WY received the following 9 samples for Minnesota Valley Testing Laboratories on 11/22/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24110851-001	71486001, MW-215	11/19/24 10:47	11/22/24	Groundwater	Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total
C24110851-002	71486002, MW-216	11/19/24 11:38	11/22/24	Groundwater	Same As Above
C24110851-003	71486003, MW-217	11/19/24 14:40	11/22/24	Groundwater	Same As Above
C24110851-004	71486004, DUP 2023	11/19/24 14:40	11/22/24	Groundwater	Same As Above
C24110851-005	71486005, MW-218	11/19/24 13:45	11/22/24	Groundwater	Same As Above
C24110851-006	71486006, MW-219	11/19/24 9:11	11/22/24	Groundwater	Same As Above
C24110851-007	71486007, MW-220	11/19/24 12:41	11/22/24	Groundwater	Same As Above
C24110851-008	71486008, MW-221	11/19/24 9:55	11/22/24	Groundwater	Same As Above
C24110851-009	71486009, MW-222	11/19/24 0:00	11/22/24	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy, Casper, WY 82601-9601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

Energy Laboratories, Inc. verifies the reported results for the analysis has been technically reviewed and approved for release.

If you have any questions regarding these test results, please contact your Project Manager.

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Account #: 5109 **Client:** Great River Energy

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71486
Lab ID: C24110851-001
Client Sample ID: 71486001, MW-215

Report Date: 12/23/24
Collection Date: 11/19/24 10:47
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L				E903.0	12/10/24 13:00 / trs
Radium 226 precision (±)	0.2	pCi/L				E903.0	12/10/24 13:00 / trs
Radium 226 MDC	0.3	pCi/L				E903.0	12/10/24 13:00 / trs
Radium 228	4.2	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 228 precision (±)	1.2	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 228 MDC	0.7	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 226 + Radium 228	4.5	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 MDC	0.7	pCi/L				A7500-RA	12/12/24 13:28 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 2 of 16

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Account #: 5109 **Client:** Great River Energy

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71486
Lab ID: C24110851-002
Client Sample ID: 71486002, MW-216

Report Date: 12/23/24
Collection Date: 11/19/24 11:38
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L				E903.0	12/10/24 13:00 / trs
Radium 226 precision (±)	0.2	pCi/L				E903.0	12/10/24 13:00 / trs
Radium 226 MDC	0.2	pCi/L				E903.0	12/10/24 13:00 / trs
Radium 228	0.8	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 228 precision (±)	0.4	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 228 MDC	0.7	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 226 + Radium 228	1.1	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 precision (±)	0.5	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 MDC	0.7	pCi/L				A7500-RA	12/12/24 13:28 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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Account #: 5109 **Client:** Great River Energy

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71486
Lab ID: C24110851-003
Client Sample ID: 71486003, MW-217

Report Date: 12/23/24
Collection Date: 11/19/24 14:40
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.3	pCi/L	U			E903.0	12/10/24 13:00 / trs
Radium 226 precision (±)	0.2	pCi/L				E903.0	12/10/24 13:00 / trs
Radium 226 MDC	0.3	pCi/L				E903.0	12/10/24 13:00 / trs
Radium 228	1.2	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 228 precision (±)	0.5	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 228 MDC	0.7	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 226 + Radium 228	1.4	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 MDC	0.7	pCi/L				A7500-RA	12/12/24 13:28 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 4 of 16

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71486
Lab ID: C24110851-004
Client Sample ID: 71486004, DUP 2023

Report Date: 12/23/24
Collection Date: 11/19/24 14:40
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	12/10/24 13:00 / trs
Radium 226 precision (±)	0.2	pCi/L				E903.0	12/10/24 13:00 / trs
Radium 226 MDC	0.3	pCi/L				E903.0	12/10/24 13:00 / trs
Radium 228	2.9	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 228 precision (±)	0.9	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 228 MDC	0.6	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 226 + Radium 228	3.1	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 MDC	0.7	pCi/L				A7500-RA	12/12/24 13:28 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 5 of 16

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71486
Lab ID: C24110851-005
Client Sample ID: 71486005, MW-218

Report Date: 12/23/24
Collection Date: 11/19/24 13:45
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.2	pCi/L	U			E903.0	12/10/24 13:00 / trs
Radium 226 precision (±)	0.2	pCi/L				E903.0	12/10/24 13:00 / trs
Radium 226 MDC	0.3	pCi/L				E903.0	12/10/24 13:00 / trs
Radium 228	2.3	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 228 precision (±)	0.8	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 228 MDC	0.7	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 226 + Radium 228	2.4	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 MDC	0.8	pCi/L				A7500-RA	12/12/24 13:28 / dmf

Report Definitions:
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QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71486
Lab ID: C24110851-006
Client Sample ID: 71486006, MW-219

Report Date: 12/23/24
Collection Date: 11/19/24 09:11
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.4	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 226 precision (±)	0.2	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 226 MDC	0.2	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 228	1	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 228 precision (±)	0.5	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 228 MDC	0.7	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 226 + Radium 228	1.4	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 precision (±)	0.5	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 MDC	0.7	pCi/L				A7500-RA	12/12/24 13:28 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71486
Lab ID: C24110851-007
Client Sample ID: 71486007, MW-220

Report Date: 12/23/24
Collection Date: 11/19/24 12:41
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.2	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 226 precision (±)	0.2	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 226 MDC	0.2	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 228	1.5	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 228 MDC	0.7	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 226 + Radium 228	1.8	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 MDC	0.8	pCi/L				A7500-RA	12/12/24 13:28 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71486
Lab ID: C24110851-008
Client Sample ID: 71486008, MW-221

Report Date: 12/23/24
Collection Date: 11/19/24 09:55
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.1	pCi/L	U			E903.0	12/10/24 15:09 / trs
Radium 226 precision (±)	0.1	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 226 MDC	0.2	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 228	0.8	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 228 precision (±)	0.5	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 228 MDC	0.7	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 226 + Radium 228	0.9	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 precision (±)	0.5	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 MDC	0.7	pCi/L				A7500-RA	12/12/24 13:28 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

Page 9 of 16

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71486
Lab ID: C24110851-009
Client Sample ID: 71486009, MW-222

Report Date: 12/23/24
Collection Date: 11/19/24
DateReceived: 11/22/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	1	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 226 precision (±)	0.2	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 226 MDC	0.2	pCi/L				E903.0	12/10/24 15:09 / trs
Radium 228	1.2	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 228 MDC	0.8	pCi/L				RA-05	12/05/24 11:32 / trs
Radium 226 + Radium 228	2.2	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	12/12/24 13:28 / dmf
Radium 226 + Radium 228 MDC	0.9	pCi/L				A7500-RA	12/12/24 13:28 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C24110851 **Report Date:** 12/13/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11528
Lab ID: LCS-RA226-11528	3	Laboratory Control Sample				Run: TENNELEC-4_241202B			12/10/24 13:00	
Radium 226		10	pCi/L		102	70	130			
Radium 226 precision (±)		1.7	pCi/L							
Radium 226 MDC		0.20	pCi/L							
Lab ID: MB-RA226-11528	3	Method Blank				Run: TENNELEC-4_241202B			12/10/24 13:00	
Radium 226		-0.09	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C24110848-001HDUP	3	Sample Duplicate				Run: TENNELEC-4_241202B			12/10/24 13:00	
Radium 226		0.13	pCi/L					98	30	UR
Radium 226 precision (±)		0.15	pCi/L							
Radium 226 MDC		0.22	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than or equal to the limit of 3, the RER result is 0.41.

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected

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QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C24110851 **Report Date:** 12/13/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7539
Lab ID: LCS-228-RA226-11528	3	Laboratory Control Sample				Run: TENNELEC-4_241202A			12/05/24 11:32	
Radium 228		7.0	pCi/L		71	70	130			
Radium 228 precision (±)		1.8	pCi/L							
Radium 228 MDC		0.71	pCi/L							
Lab ID: MB-RA226-11528	3	Method Blank				Run: TENNELEC-4_241202A			12/05/24 11:32	
Radium 228		0.6	pCi/L							U
Radium 228 precision (±)		0.4	pCi/L							
Radium 228 MDC		0.6	pCi/L							
Lab ID: C24110848-001HDUP	3	Sample Duplicate				Run: TENNELEC-4_241202A			12/05/24 11:32	
Radium 228		2.8	pCi/L					130	30	R
Radium 228 precision (±)		0.85	pCi/L							
Radium 228 MDC		0.65	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than or equal to the limit of 3, the RER result is 2.27.

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected

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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24110851

Login completed by: Dakota R. Sawyer
Reviewed by: lquezada
Reviewed Date: 11/22/2024
Date Received: 11/22/2024
Received by: CCS
Carrier name: UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	11.0°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Trip Blanks and/or Blind Duplicate samples are assigned the earliest collection time for the associated requested analysis in order to evaluate the holding time unless specifically indicated.

Contact and Corrective Action Comments:

The temperature blank temperature in shipping container 1 was 10.1°C, shipping container 3 was 10.0°C, shipping container 5 was 11.0°C, and shipping container 6 was 10.7°C. The temperature of the sample(s) in shipping container 2

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Work Order Receipt Checklist - Continued

Minnesota Valley Testing Laboratories C24110851

was 9.4°C and shipping container 4 was 9.4°C. DRS 11/22/24

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	California	3087
	Colorado	MT00005
	Department of Defense (DoD)/ISO17025	ADE-2588
	Florida (Primary NELAP)	E87668
	Idaho	MT00005
	Louisiana	05079
	Montana	CERT0044
	Nebraska	NE-OS-13-04
	Nevada	NV-C24-00250
	North Dakota	R-007
	National Radon Proficiency	109383-RMP
	Oregon	4184
	South Dakota	ARSD 74:04:07
	Texas	TX-C24-00302
	US EPA Region VIII	Reciprocal
	USDA Soil Permit	P330-20-00170
	Washington	C1039
Casper, WY	Alaska	20-006
	California	3021
	Colorado	WY00002
	Florida (Primary NELAP)	E87641
	Idaho	WY00002
	Louisiana	05083
	Montana	CERT0002
	Nebraska	NE-OS-08-04
	Nevada	NV-C24-00245
	North Dakota	R-125
	Oregon	WY200001
	South Dakota	WY00002
	Texas	T104704181-23-21
	US EPA Region VIII	WY00002
	USNRC License	49-26846-01
	Washington	C1012
Gillette, WY	US EPA Region VIII	WY00006
Helena, MT	Colorado	MT00945
	Montana	CERT0079
	Nevada	NV-C24-00119
	US EPA Region VIII	Reciprocal
	USDA Soil Permit	P330-20-00090

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Account #: 5109 **Client:** Great River Energy

MVTL LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

Page 1 of 1

Work Order # 71486

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501

Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073

Account #:
Contact: Claudette
Name of Sampler:
Quote Number C15480 v5
Project Name/Number:

Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box x
Date Submitted: 20-Nov-24
Purchase Order #: BL6978

Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Untreated	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis Required
	71486001	MW- 215	GW	19-Nov-24	1047		1				Ra226 & Ra228
	71486002	MW-216	GW	19-Nov-24	1138		1				Ra226 & Ra228
	71486003	MW-217	GW	19-Nov-24	1440		1				Ra226 & Ra228
	71486004	DUP 2023	GW	19-Nov-24	1440		1				Ra226 & Ra228
	71486005	MW-218	GW	19-Nov-24	1345		1				Ra226 & Ra228
	71486006	MW-219	GW	19-Nov-24	0911		1				Ra226 & Ra228
	71486007	MW-220	GW	19-Nov-24	1241		1				Ra226 & Ra228
	71486008	MW-221	GW	19-Nov-24	0955		1				Ra226 & Ra228
	71486009	MW-222	GW	19-Nov-24			1				Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
G. Ziegler	20-Nov-24	1700		Caroll	11-22-24 10:15	

Page 16 of 16

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Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 71486

Chain of Custody Record

Report To:	Great River Energy	CC:	Golder Associates
Attn:	Cassie Johnston		
Address:			44 Union Blvd, Suite 300
			Lakewood, CO 80228
Phone:			
Email:	CJohnston@GREnergy.com		

Project Name: 30 Dec 24 SS 2023 Wells
Event: Nov ~~Sept~~ 2024
Sampled By:

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Gal Nitric	Field Readings	Analysis Required
001	MW-215	19 Nov 24	1047	GW					X		Radium 226 and 228 Combined
002	MW-216	19 Nov 24	1138	GW					X		
003	MW-217	19 Nov 24	1440	GW					X		
004	DUP 2023	19 Nov 24	1440	GW					X		
005	MW-218	19 Nov 24	1345	GW					X		
006	MW-219	19 Nov 24	0911	GW					X		
007	MW-220	19 Nov 24	1241	GW					X		
008	MW-221	19 Nov 24	0955	GW					X		
009	MW-222	19 Nov 24		GW					X		
~~010~~											

Comments: DGZ 20Nov24

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1	19 Nov 24 1450	Log In Walk In #2	6.8 °C/TM 805 ROI Y/N		20 Nov 24 0830
2					

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Table 1: Proposed 2024 Stanton Station Plant Facilities Sampling Schedule

Location	Well ID		2024				
			Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-7A	1	Field Parameters (Field pH)				
	MW-7B	1					
	MW-8B	1					
	MW-105	1	Field Parameters (Field pH)				
Bottom Ash Landfill	MW-9N	1					
	MW-102	1					
	MW-103	1					
Property Boundary	MW-PB1	1					
Wells Installed in May 2022	MW-210	1					
	MW-211	1					
	MW-212	1					
	MW-213	1					
	MW-214	1					
Piezometers [1]	PZ-BA-A	1					
	PZ-BA-B	1					
Sumps [2]	BAI-Sump-S	1					
Surface Water [3]	Missouri-River	1					
	Rail-Drainage	1					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R	1					
	MW-104	1					
Bottom Ash Impoundment	MW-201	1				Subset of App IV detected in Q1, Iron, Aluminum, Manganese (Dissolved and Total for Each Metal)	
	MW-202	1					
	MW-203	1					
Closed Landfill	MW-10	1					
	MW-204	1	Sulfate + Field parameters		App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)
	MW-205	1	Sulfate + Field parameters				
Additional Internal Locations	MW-4	1					
	MW-PB2	1					
Wells Installed in February 2023	MW-215	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-216	1					
	MW-217	1					
	MW-218	1					
	MW-219	1					
	MW-220	1					
	MW-221	1					
	MW-222	1					
	MW-300	1					
	MW-301	1					
	MW-PB3	1					
Total # of Sample Locations			4	35	40	6	40

Notes:
App III - Appendix III Detection Monitoring List, Table 2
App IV - Appendix IV Assessment Monitoring List, Table 3
Additional List - Table 4
Required field parameters are listed in Table 2 and Table 3
Suggested locations for collection of QA/QC samples are listed in Table 5.
1. The piezometers do not have dedicated pumps and will need to be sampled by other methods.
2. The sump should be sampled using surface water collection methods via the sump riser.
3. Surface water samples to be collected if safely accessible and free water is present.

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Table 2. Parameter and Analysis Summary - Appendix III Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/11	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	SM 4500 F E/11	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	ASTM D516-16	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	USGS I-1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total and dissolved)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:
1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent methods.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

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Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

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Table 4: Additional List Parameter and Analysis Summary

Parameter [1]	Method Reference [2]	Reporting Limit	Preparation Method Reference [2]	Sample Container [3]	Required Preservation [4]	Maximum Holding Time from Sampling [5]
General Chemistry						
Total Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Bicarbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Carbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Metals (Total and Dissolved)						
Iron	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Magnesium	EPA 6010D	0.2 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Potassium	EPA 6010D	3.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Sodium	EPA 6010D	1.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Aluminum	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Manganese	EPA 6010D	0.05 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months

Notes:

1. All listed parameters are tested in the laboratory. Listed parameters are to be collected in conjunction with other CCR parameter lists (Table 2 and Table 3).

2. Or equivalent method.
3. Containers and volumes will be specified by the analytical laboratory.
4. In addition to the required preservation for each sample container, sufficient ice should be placed with the sample containers in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when samples arrive, measurement of the temperature of samples immediately upon receipt is necessary to confirm that the 4° C temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible following collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid, without the use of qualifiers.

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Table 5: 2024 Proposed Quality Assurance/Quality Control Sample Collection Locations

Location	Well ID	Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B		Field Blank			
	MW-7A					
	MW-7B		Duplicate			MS/MSD
	MW-8B					
	MW-105			Duplicate		
Bottom Ash Landfill	MW-9N					Duplicate
	MW-102		MS/MSD			
	MW-103			Field Blank		
Property Boundary	MW-PB1					
Wells Installed in May 2022	MW-210					Duplicate
	MW-211			MS/MSD		
	MW-212					Field Blank
	MW-213			Duplicate		
	MW-214		Field Blank			
Piezometers [1]	PZ-BA-A					
	PZ-BA-B					Field Blank
Sumps [2]	BAI-Sump-S					
Surface Water [3]	Missouri-River					
	Rail-Drainage					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R			Duplicate		
	MW-104					
Bottom Ash Impoundment	MW-201			Field Blank		MS/MSD
	MW-202		Duplicate		Field Blank	
	MW-203					Duplicate
Closed Landfill	MW-10					
	MW-204					
	MW-205					
Additional Internal Locations	MW-4					
	MW-PB2					
Wells Installed in February 2023	MW-215			Field Blank		
	MW-216		Field Blank			
	MW-217					Duplicate
	MW-218			MS/MSD		
	MW-219					
	MW-220					Field Blank
	MW-221		Duplicate			
	MW-222					
	MW-300					
	MW-301			Duplicate		
	MW-PB3					
Total # of Sample Locations		4	35	40	6	40
Total # of QC Samples		0	7	9	1	9

Notes:
Locations to collect samples are **suggestions only** to help with the distribution of QA/QC samples across the site and between facilities while meeting QA/QC objectives for the sampling programs.
Notes for QA/QC
Duplicates = 10-15% of primary collected sample
Field Blanks = 1 per day; based on number of primary collected samples, assuming 2 to 4 total per event
Equipment Blanks - only needed for non-dedicated equipement, none required.
MS/MSD = 1 per 20 primary collected samples, assuming 1 or 2 total per event.

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov ~~June~~ 2024
Sample ID: 215
Sampling Personal: JSG

Weather Conditions: Temp: 30 °F Wind: W @ 5-10 Precip: Sunny / Partly Cloudy / (Cloudy)

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	13.32	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	13.48	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:
Purge: 2 Sec.
Recover: 28 Sec.
PSI: —

Bottle List:
1 Liter Raw
1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
19 Nov 24	1022	Start of Well Purge									clear, slightly turbid, turbid
	1027	9.71	2325	7.71	0.54	-116.3	17.08	13.48	200.0	1.0	Clear
	1032	9.72	2327	7.71	0.43	-120.2	35.90	13.48	200.0	1.0	Clear
	1037	9.67	2328	7.71	0.29	-125.5	13.93	13.48	200.0	1.0	Clear
	1042	9.70	2325	7.70	0.34	-124.7	8.59	13.48	200.0	1.0	Clear
	1047	9.57	2324	7.70	0.26	-128.5	9.77	13.48	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
19 Nov 24	1047	9.57	2324	7.70			9.77				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

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Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov ~~June~~ 2024
Sample ID: 216
Sampling Personal: JTM

Weather Conditions: Temp: 30°F Wind: W @5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	13.93	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	14.20	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: ✓	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / ~~NO~~
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
19Nov24	1113	Start of Well Purge									
	1118	10.01	2064	7.73	1.09	-106.9	12.97	14.13	200.0	1.0	Clear
	1123	9.82	2051	7.73	0.62	-117.0	13.24	14.14	200.0	1.0	Clear
	1128	9.93	2041	7.73	0.53	-124.5	18.71	14.16	200.0	1.0	Clear
	1133	9.92	2041	7.72	0.43	-127.5	17.11	14.17	200.0	1.0	Clear
	1138	9.70	2023	7.72	0.37	-128.6	21.01	14.18	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
19 Nov 24	1138	9.70	2023	7.72			21.01				Clear

Comments:

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2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 515-382-5486 ~ Fax 515-382-3885
www.MVTL.com

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov ~~June~~ 2024
Sample ID: 217
Sampling Personal:

Weather Conditions: Temp: 30 °F Wind: W @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	11.63	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	11.69	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:
Purge: 2 Sec.
Recover: 28 Sec.
PSI: —

Bottle List:
1 Liter Raw 1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)
x2

Duplicate Sample? YES / NO
Duplicate Sample ID: Dup 2023

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
19 Nov 24	1415	Start of Well Purge									
	1420	9.12	2254	7.71	0.16	-126.4	12.73	11.65	200.0	1.0	Clear
	1425	9.09	2251	7.71	0.14	-127.2	11.72	11.68	200.0	1.0	Clear
	1430	9.04	2248	7.71	0.16	-128.4	8.43	11.69	200.0	1.0	Clear
	1435	9.14	2253	7.70	0.10	-131.3	5.69	11.70	200.0	1.0	Clear
	1440	9.13	2306	7.71	0.07	-133.4	5.38	11.68	200.0	1.0	Clear

Well Stabilized? YES NO

Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
19 Nov 24	1440	9.13	2306	7.71			5.38				Clear

Comments:

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov ~~June~~ 2024
Sample ID: 218
Sampling Personal: JMH

Weather Conditions: Temp: 30 °F Wind: W @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	12.96	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	12.50	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 7	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
19Nov24	1320	Start of Well Purge									
	1325	9.27	2060	7.76	0.54	-127.5	4.43	12.50	200.0	1.0	Clear
	1330	9.66	2048	7.74	0.41	-130.9	3.57	12.50	200.0	1.0	Clear
	1335	9.57	2027	7.73	0.32	-133.1	2.81	12.51	200.0	1.0	Clear
	1340	9.51	2049	7.73	0.34	-135.3	3.05	12.51	200.0	1.0	Clear
	1345	9.75	2018	7.73	0.26	-138.1	1.87	12.50	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
19Nov24	1345	9.75	2018	7.73			1.87				Clear

Comments:

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: ~~June~~ Nov 2024
Sample ID: 219
Sampling Personal: JM

Weather Conditions: Temp: 30 °F Wind: W @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	15.32	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	16.20	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:		
Purge:	3	Sec.
Recover:	27	Sec.
PSI:	—	

Bottle List:
1 Liter Raw
1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample? YES / (NO)
Duplicate Sample ID: —

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
											clear, slightly turbid, turbid
19Nov24	0846	Start of Well Purge									
	0851	10.84	4264	7.77	0.10	-46.4	557.48	16.00	200.0	1.0	Slightly Turbid (ST)
	0856	10.55	4125	7.50	0.05	-55.3	484.75	16.06	200.0	1.0	ST
	0901	10.55	4057	7.40	0.04	-49.6	418.43	16.07	200.0	1.0	ST
	0906	10.46	4021	7.34	0.04	-43.9	374.36	16.09	200.0	1.0	ST
	0911	10.48	4006	7.31	0.03	-44.7	460.30	16.12	200.0	1.0	ST

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
19Nov24	0911	10.48	4006	7.31			460.30				ST

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov June 2024
Sample ID: 220
Sampling Personal: JM

Weather Conditions: Temp: 30 °F Wind: W @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	13.43	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	13.60	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:
Purge: 2 Sec.
Recover: 28 Sec.
PSI: —

Bottle List:
1 Liter Raw
1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample?
YES / NO
Duplicate Sample ID: —

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
19 Nov 24	1206	Start of Well Purge									
	1211	7.45	1943	7.73	1.41	-44.4	173.62	13.60	200.0	1.0	Slightly Turbid (ST)
	1216	7.35	1915	7.72	0.84	-52.7	121.00	13.60	200.0	1.0	ST
	1221	7.23	1866	7.72	0.51	-77.5	77.23	13.61	200.0	1.0	Clear
	1226	7.23	1850	7.72	0.61	-91.8	121.60	13.59	200.0	1.0	ST
	1231	7.30	1977	7.73	0.54	-100.3	109.48	13.59	200.0	1.0	ST
	1236	7.33	1961	7.73	0.63	-104.37	97.85	13.60	200.0	1.0	Clear
	1241	7.31	1941	7.73	0.73	-110.1	88.30	13.59	2000.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 7.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
19 Nov 24	1241	7.31	1941	7.73			88.30				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: ~~June~~ Nov 2024
Sample ID: 221
Sampling Personal: JH

Weather Conditions: Temp: 30 °F Wind: WS @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	16.00	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	16.05	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 3	Sec.
Recover: 27	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
19Nov24	0930	Start of Well Purge									clear, slightly turbid, turbid
	0935	8.80	2126	7.69	0.38	-124.0	12.86	16.03	200.0	1.0	Clear
	0940	8.78	2126	7.68	0.26	-133.5	17.16	16.05	200.0	1.0	Clear
	0945	8.70	2126	7.68	0.22	-139.7	16.07	16.05	200.0	1.0	Clear
	0950	8.76	2124	7.68	0.19	-142.6	14.68	16.05	200.0	1.0	Clear
	0955	8.80	2122	7.68	0.20	-143.7	7.21	16.05	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
19Nov 24	0955	8.80	2122	7.68			7.21				Clear

Comments:

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet
Groundwater Assessment

Company: GRE Stanton Station
Event: Nov ~~June~~ 2024
Sample ID: 223
Sampling Personal: JTH

Weather Conditions: Temp: 30°F Wind: W @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	32.37	ft
Depth to Top of Pump:	~~Bail~~ 34.20	ft
Water Level After Sample:	Below Pump	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder
Sampling Method:	Bladder
Dedicated Equipment?	YES NO

Control Settings:	
Purge: 3	Sec.
Recover: 27	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
19 Nov 24	0825	Start of Well Purge									clear, slightly turbid, turbid
	0830	8.43	2550	7.84	1.15	83.5	29.91		200.0	1.0	Clear Tan
	0835	7.97	2483	7.74	0.68	58.2	33.20		200.0	1.0	Clear Tan
	0840	7.03	2499	7.77	3.82	102.2	36.58	Below Pump	200.0	1.0	Clear Tan
	~~0845~~		Purged	Dry					~~200.0~~	~~1.0~~	
	~~0850~~								~~200.0~~	~~1.0~~	

Well Stabilized? YES NO Total Volume Purged: 3.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
19 Nov 24	1550	6.53	2554	8.03			34.59				Clear Tan

Comments:

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Account #: 5109 **Client:** Great River Energy
Workorder: SS 2023 Wells Nov 2024 (71691) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71691001 **Date Collected:** 11/20/2024 12:52 **Matrix:** Groundwater
Sample ID: MW- 300 **Date Received:** 11/20/2024 17:45 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2825**	umhos/cm	1	1		11/20/2024 12:52	
Method: 150.2							
pH - Field	**7.38**	units	0.01	1		11/20/2024 12:52	
Method: 170.1							
Temperature - Field C	**10.43**	degrees C		1		11/20/2024 12:52	
Method: ASTM D516-16							
Sulfate	**817**	mg/L	50	10		11/26/2024 12:15	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**1.00**	mg/L	0.1	1	11/21/2024 16:20	11/25/2024 15:52	
Calcium	**134**	mg/L	1	1	11/21/2024 16:20	11/26/2024 10:47	
Lithium	**0.0451**	mg/L	0.02	1	11/21/2024 16:20	11/25/2024 11:02	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/21/2024 16:20	12/04/2024 11:52	
Arsenic	**0.0059**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:52	
Barium	**0.0860**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:52	
Beryllium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/05/2024 12:49	
Cadmium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 11:52	
Chromium	**0.0026**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:52	
Cobalt	**0.0045**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:52	
Lead	**0.0005**	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 11:52	
Molybdenum	**0.0179**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 11:52	
Selenium	<0.005	mg/L	0.005	5	11/21/2024 16:20	12/04/2024 11:52	
Thallium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 11:52	

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71691001 **Date Collected:** 11/20/2024 12:52 **Matrix:** Groundwater
Sample ID: MW- 300 **Date Received:** 11/20/2024 17:45 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.8**	units	0.1	1		11/21/2024 19:35	*
Method: SM4500-Cl-E 2011							
Chloride	**39.2**	mg/L	2.0	1		11/26/2024 11:04	
Method: SM4500-F-C-2011							
Fluoride	**0.72**	mg/L	0.1	1		11/21/2024 19:35	
Method: USGS I-1750-85							
Total Dissolved Solids	**1940**	mg/L	10	1		11/21/2024 15:24	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71691002 **Date Collected:** 11/20/2024 12:03 **Matrix:** Groundwater
Sample ID: MW- 301 **Date Received:** 11/20/2024 17:45 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**1254**	umhos/cm	1	1		11/20/2024 12:03	
Method: 150.2							
pH - Field	**7.84**	units	0.01	1		11/20/2024 12:03	
Method: 170.1							
Temperature - Field C	**9.2**	degrees C		1		11/20/2024 12:03	
Method: ASTM D516-16							
Sulfate	**176**	mg/L	10	2		11/26/2024 12:16	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**0.40**	mg/L	0.1	1	11/21/2024 16:20	11/25/2024 15:53	
Calcium	**29.8**	mg/L	1	1	11/21/2024 16:20	11/26/2024 10:49	
Lithium	**0.0780**	mg/L	0.02	1	11/21/2024 16:20	11/25/2024 11:03	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/21/2024 16:20	12/04/2024 12:29	
Arsenic	**0.0068**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 12:29	
Barium	**0.1610**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 12:29	
Beryllium	**0.0025**	mg/L	0.0005	5	11/21/2024 16:20	12/05/2024 13:29	
Cadmium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 12:29	
Chromium	**0.0168**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 12:29	
Cobalt	**0.0091**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 12:29	
Lead	**0.0179**	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 12:29	
Molybdenum	**0.0021**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 12:29	
Selenium	<0.005	mg/L	0.005	5	11/21/2024 16:20	12/04/2024 12:29	
Thallium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 12:29	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71691002 **Date Collected:** 11/20/2024 12:03 **Matrix:** Groundwater
Sample ID: MW- 301 **Date Received:** 11/20/2024 17:45 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**8.1**	units	0.1	1		11/21/2024 19:46	*
Method: SM4500-Cl-E 2011							
Chloride	**6.7**	mg/L	2.0	1		11/26/2024 11:06	
Method: SM4500-F-C-2011							
Fluoride	**0.37**	mg/L	0.1	1		11/21/2024 19:46	
Method: USGS I-1750-85							
Total Dissolved Solids	**1010**	mg/L	10	1		11/21/2024 15:24	

Sample Comments

Total and dissolved molybdenum results have been rechecked. Recheck results were similar to original results.

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71691003 **Date Collected:** 11/20/2024 10:45 **Matrix:** Groundwater
Sample ID: MW- PB3 **Date Received:** 11/20/2024 17:45 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	**2225**	umhos/cm	1	1		11/20/2024 10:45	
Method: 150.2							
pH - Field	**7.35**	units	0.01	1		11/20/2024 10:45	
Method: 170.1							
Temperature - Field C	**8.15**	degrees C		1		11/20/2024 10:45	
Method: ASTM D516-16							
Sulfate	**600**	mg/L	25	5		11/26/2024 12:17	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	**0.98**	mg/L	0.1	1	11/21/2024 16:20	11/25/2024 15:54	
Calcium	**116**	mg/L	1	1	11/21/2024 16:20	11/26/2024 10:52	
Lithium	**0.0365**	mg/L	0.02	1	11/21/2024 16:20	11/25/2024 11:03	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/21/2024 16:20	12/04/2024 12:47	
Arsenic	<0.002	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 12:47	
Barium	**0.0438**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 12:47	
Beryllium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/05/2024 13:43	
Cadmium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 12:47	
Chromium	<0.002	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 12:47	
Cobalt	**0.0029**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 12:47	
Lead	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 12:47	
Molybdenum	**0.0319**	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 12:47	
Selenium	<0.005	mg/L	0.005	5	11/21/2024 16:20	12/04/2024 12:47	
Thallium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 12:47	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71691003 **Date Collected:** 11/20/2024 10:45 **Matrix:** Groundwater
Sample ID: MW- PB3 **Date Received:** 11/20/2024 17:45 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: SM4500 H+ B-2011							
pH	**7.8**	units	0.1	1		11/21/2024 19:57	*
Method: SM4500-Cl-E 2011							
Chloride	**19.6**	mg/L	2.0	1		11/26/2024 11:07	
Method: SM4500-F-C-2011							
Fluoride	**0.68**	mg/L	0.1	1		11/21/2024 19:57	
Method: USGS I-1750-85							
Total Dissolved Solids	**1530**	mg/L	10	1		11/21/2024 15:24	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71691004 **Date Collected:** 11/20/2024 12:30 **Matrix:** Groundwater
Sample ID: FB- 2023 **Date Received:** 11/20/2024 17:45 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: ASTM D516-16							
Sulfate	<5	mg/L	5	1		11/26/2024 12:27	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	11/22/2024 08:00	11/22/2024 11:20	
Method: EPA 6010D							
Boron	<0.1	mg/L	0.1	1	11/21/2024 16:20	11/25/2024 15:56	
Calcium	<1	mg/L	1	1	11/21/2024 16:20	11/26/2024 10:53	
Lithium	<0.02	mg/L	0.02	1	11/21/2024 16:20	11/25/2024 11:05	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	11/21/2024 16:20	12/04/2024 12:52	
Arsenic	<0.002	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 12:52	
Barium	<0.002	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 12:52	
Beryllium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/05/2024 13:47	
Cadmium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 12:52	
Chromium	<0.002	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 12:52	
Cobalt	<0.002	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 12:52	
Lead	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 12:52	
Molybdenum	<0.002	mg/L	0.002	5	11/21/2024 16:20	12/04/2024 12:52	
Selenium	<0.005	mg/L	0.005	5	11/21/2024 16:20	12/04/2024 12:52	
Thallium	<0.0005	mg/L	0.0005	5	11/21/2024 16:20	12/04/2024 12:52	
Method: SM4500 H+ B-2011							
pH	**6.0**	units	0.1	1		11/21/2024 20:08	*
Method: SM4500-Cl-E 2011							
Chloride	<2.0	mg/L	2.0	1		11/26/2024 11:08	
Method: SM4500-F-C-2011							
Fluoride	<0.1	mg/L	0.1	1		11/21/2024 20:08	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71691004 **Date Collected:** 11/20/2024 12:30 **Matrix:** Groundwater
Sample ID: FB- 2023 **Date Received:** 11/20/2024 17:45 **Collector:** MVTL Field Service

Temp @ Receipt (C): 4.2 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: USGS I-1750-85							
Total Dissolved Solids	<10	mg/L	10	1		11/21/2024 15:24	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 5109 **Client:** Great River Energy

QC Results Summary WO #: 71691

Sulfate Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			100	106.0		85	115		
LFB			100	102.0		85	115		
LFB			100	102.0		85	115		
LFB			100	96.3		85	115		
LFB			100	92.9		85	115		
LFB			100	102.0		85	115		
LFB			100	102.0		85	115		
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MS/MSD	71485009		1000	78.8	78.0	85	115	0.6	20
MS/MSD	71688001		1000	89.4	89.8	85	115	0.0	20
MS/MSD	71694001		1000	90.4	95.5	85	115	2.4	20
MS/MSD	71875006		100	105.6	106.1	85	115	0.0	20
MS/MSD	71881002		100	99.1	102.3	85	115	2.8	20
MS/MSD	72123002		100	106.9	99.5	85	115	4.5	20

Chloride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	93.9		90	110		
LFB			30	94.9		90	110		
LFB			30	95.0		90	110		
LFB			30	94.4		90	110		
LFB			30	95.1		90	110		
LFB			30	94.1		90	110		
LFB			30	93.3		90	110		

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Account #: 5109 **Client:** Great River Energy

Chloride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	92.6		90	110		
LFB			30	94.2		90	110		
LFB			30	92.3		90	110		
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MS/MSD	71292003		30	97.4	97.0	80	120	0.5	20
MS/MSD	71545001		30	103.2	102.2	80	120	0.0	20
MS/MSD	71688001		30	100.0	99.5	80	120	0.4	20
MS/MSD	71890007		30	104.3	106.8	80	120	0.9	20
MS/MSD	72123002		30	94.7	94.7	80	120	0.0	20

Aluminum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	105.0		85	115		
LFB-OE			0.4	103.0		85	115		
MB		<0.1							
MB		<0.1							
PDS/PDSD	71485001		1	99.2	95.2	75	125	3.4	20
MS/MSD	71688001		0.4	124.0	123.0	70	130	0.4	20
MS/MSD	71691003		0.4	103.0	104.0	70	130	0.4	20
PDS/PDSD	71693003		1	97.2	102.0	75	125	2.7	20
PDS/PDSD	71881001		4	96.2	95.7	75	125	0.5	20
PDS/PDSD	71881002		10	102.0	101.0	75	125	1.5	20

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Account #: 5109 **Client:** Great River Energy

Aluminum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	72208001		1	90.3	89.5	75	125	0.4	20
PDS/PDSD	72208001		10	97.7	98.8	75	125	1.0	20

Aluminum, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	103.0		85	115		
LFB-OE			0.4	105.0		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	71292001		0.4	109.0	109.0	75	125	0.4	20
SPK/SPKD	71688001		2	100.0	104.0	75	125	4.0	20
SPK/SPKD	71690001		0.4	112.0	113.0	75	125	1.4	20
PDS/PDSD	71691002		10	99.9	101.0	75	125	0.7	20
SPK/SPKD	71694001		0.4	95.8	97.5	75	125	1.4	20

Boron				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
MB		<0.1							
MS/MSD	71688001		0.4	106.0	90.8	70	130	3.0	20
MS/MSD	71691003		0.4	106.0	108.0	70	130	0.6	20

Boron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
LFB-OE			0.4	107.0		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	71688001		2	96.8	94.8	75	125	1.1	20
MS/MSD	71691002		0.4	107.0	107.0	70	130	0.1	20
SPK/SPKD	71693001		2	98.0	100.0	75	125	1.2	20

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Account #: 5109 **Client:** Great River Energy

Calcium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	108.0		85	115		
LFB-MI			100	106.0		85	115		
MB		<1							
MB		<1							
PDS/PDSD	71688001		500	102.0	102.0	75	125	0.4	20
DUP	71691001							0.1	20
PDS/PDSD	71691002		100	100.0	99.9	75	125	0.4	20
DUP	71694001							1.6	20
PDS/PDSD	71875001		100	104.0	103.0	75	125	0.9	20
PDS/PDSD	72123002		100	90.5	91.4	75	125	0.4	20

Calcium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	106.0		85	115		
LFB-MI			100	108.0		85	115		
MB		<1							
MB		<1							
SPK/SPKD	71688001		500	105.0	104.0	75	125	0.1	20
PDS/PDSD	71691002		100	100.0	101.0	75	125	0.3	20
SPK/SPKD	71693001		100	101.0	101.0	75	125	0.1	20

Iron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	112.0		85	115		
LFB-OE			0.4	110.0		85	115		
MB		<0.1							
MB		<0.1							
PDS/PDSD	71485001		1	86.8	85.7	75	125	0.4	20
MS/MSD	71688001		0.4	91.4	92.0	70	130	0.4	20
MS/MSD	71691003		0.4	89.8	87.6	70	130	1.8	20
PDS/PDSD	71693003		1	90.4	93.2	75	125	1.7	20
PDS/PDSD	71881001		4	85.1	85.3	75	125	0.1	20
PDS/PDSD	71881002		10	101.0	101.0	75	125	0.3	20

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Account #: 5109 **Client:** Great River Energy

Iron				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	72208001		1	90.9	86.6	75	125	1.9	20
PDS/PDSD	72208001		10	103.0	103.0	75	125	0.1	20

Iron, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	112.0		85	115		
LFB-OE			0.4	110.0		85	115		
MB		<0.1							
MB		<0.1							
SPK/SPKD	71292001		0.4	101.0	102.0	75	125	0.6	20
SPK/SPKD	71688001		2	93.8	94.0	75	125	0.2	20
SPK/SPKD	71690001		0.4	74.7	81.3	75	125	1.9	20
PDS/PDSD	71691002		10	106.0	102.0	75	125	2.3	20
SPK/SPKD	71694001		0.4	86.0	85.5	75	125	0.6	20

Lithium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	117.0		85	115		
LFB-OE			0.4	116.0		85	115		
MB		<0.04							
MB		<0.04							
MS/MSD	71688001		0.4	110.0	110.0	70	130	0.4	20
MS/MSD	71691003		0.4	105.0	104.0	70	130	1.0	20

Lithium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	117.0		85	115		
LFB-OE			0.4	116.0		85	115		
MB		<0.04							
MB		<0.04							
SPK/SPKD	71688001		0.4	98.3	97.3	75	125	1.0	20
MS/MSD	71691002		0.4	108.0	107.0	70	130	0.8	20
SPK/SPKD	71693001		0.4	96.8	95.7	75	125	1.0	20

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Account #: 5109 **Client:** Great River Energy

Magnesium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	105.0		85	115		
LFB-MI			100	107.0		85	115		
MB		<1							
MB		<1							
PDS/PDSD	71688001		500	102.0	103.0	75	125	0.4	20
DUP	71691001							0.4	20
PDS/PDSD	71691002		100	101.0	101.0	75	125	0.4	20
DUP	71694001							1.0	20
PDS/PDSD	71875001		100	103.0	102.0	75	125	0.8	20
PDS/PDSD	72123002		100	93.3	93.7	75	125	0.2	20

Magnesium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	105.0		85	115		
LFB-MI			100	107.0		85	115		
MB		<1							
MB		<1							
SPK/SPKD	71688001		500	106.0	106.0	75	125	0.0	20
PDS/PDSD	71691002		100	101.0	101.0	75	125	0.0	20
SPK/SPKD	71693001		100	105.0	106.0	75	125	0.3	20

Manganese				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
MB		<0.05							
PDS/PDSD	71485001		1	85.7	85.7	75	125	0.0	20
MS/MSD	71688001		0.4	85.8	85.9	70	130	0.1	20
MS/MSD	71691003		0.4	86.8	87.6	70	130	0.3	20
PDS/PDSD	71693003		1	84.2	92.8	75	125	2.3	20
PDS/PDSD	71881001		4	93.9	93.9	75	125	0.0	20
PDS/PDSD	71881002		10	99.9	103.0	75	125	3.3	20

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Account #: 5109 **Client:** Great River Energy

Manganese				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	72208001		1	91.4	91.7	75	125	0.3	20
PDS/PDSD	72208001		10	98.1	99.2	75	125	1.1	20

Manganese, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	108.0		85	115		
LFB-OE			0.4	108.0		85	115		
MB		<0.05							
MB		<0.05							
SPK/SPKD	71292001		0.4	100.0	101.0	75	125	0.8	20
SPK/SPKD	71688001		2	90.0	89.8	75	125	0.1	20
SPK/SPKD	71690001		0.4	90.3	94.3	75	125	3.1	20
MS/MSD	71691002		0.4	95.9	98.7	70	130	2.3	20
PDS/PDSD	71691002		10	104.0	105.0	75	125	0.8	20
SPK/SPKD	71694001		0.4	83.0	82.5	75	125	0.4	20

Potassium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	105.0		85	115		
LFB-MI			100	106.0		85	115		
MB		<1							
MB		<1							
PDS/PDSD	71688001		500	99.7	101.0	75	125	0.9	20
DUP	71691001							0.8	20
PDS/PDSD	71691002		100	99.9	99.5	75	125	0.4	20
DUP	71694001							0.9	20
PDS/PDSD	71875001		100	102.0	101.0	75	125	1.0	20
PDS/PDSD	72123002		100	99.9	100.0	75	125	0.5	20

Potassium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	106.0		85	115		
LFB-MI			100	105.0		85	115		
MB		<1							

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Potassium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<1							
SPK/SPKD	71688001		500	105.0	104.0	75	125	0.3	20
PDS/PDSD	71691002		100	102.0	101.0	75	125	0.8	20
SPK/SPKD	71693001		100	105.0	107.0	75	125	1.2	20

Sodium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	106.0		85	115		
LFB-MI			100	108.0		85	115		
MB		<1							
MB		<1							
PDS/PDSD	71688001		500	86.2	88.4	75	125	1.0	20
DUP	71691001							0.5	20
PDS/PDSD	71691002		100	76.0	78.5	75	125	0.6	20
DUP	71694001							0.1	20
PDS/PDSD	71875001		100	104.0	103.0	75	125	1.1	20
PDS/PDSD	72123002		100	99.2	99.4	75	125	0.2	20

Sodium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	108.0		85	115		
LFB-MI			100	106.0		85	115		
MB		<1							
MB		<1							
SPK/SPKD	71688001		500	89.1	92.7	75	125	1.6	20
PDS/PDSD	71691002		100	82.4	82.8	75	125	0.1	20
SPK/SPKD	71693001		100	87.8	89.7	75	125	0.5	20

Antimony				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.001							
MB		<0.001							

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Account #: 5109 **Client:** Great River Energy

Antimony — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	71688001		0.4	103.0	103.0	75	125	0.2	20
MS/MSD	71691002		0.4	92.9	94.7	75	125	1.9	20
MS/MSD	71691003		0.4	103.0	100.0	75	125	2.2	20
SPK	71693003		0.1	111.0		75	125		

Antimony, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.001							
MB		<0.001							
MS/MSD	71688001		0.4	103.0	103.0	75	125	0.2	20
SPK/SPKD	71688001		0.1	111.0	112.0	75	125	1.0	20
MS/MSD	71691002		0.4	92.9	94.7	75	125	1.9	20
MS/MSD	71691003		0.4	103.0	100.0	75	125	2.2	20
SPK	71693003		0.1	111.0		75	125		
SPK/SPKD	71694001		0.1	113.0	108.0	75	125	3.8	20

Arsenic — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	71688001		0.4	104.0	103.0	75	125	0.7	20
MS/MSD	71691002		0.4	101.0	103.0	75	125	1.7	20
MS/MSD	71691003		0.4	103.0	101.0	75	125	2.0	20
SPK	71693003		0.1	111.0		75	125		

Arsenic, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.002							

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Arsenic, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.002							
MS/MSD	71688001		0.4	104.0	103.0	75	125	0.7	20
SPK/SPKD	71688001		0.1	109.0	112.0	75	125	3.2	20
MS/MSD	71691002		0.4	101.0	103.0	75	125	1.7	20
MS/MSD	71691003		0.4	103.0	101.0	75	125	2.0	20
SPK	71693003		0.1	111.0		75	125		
SPK/SPKD	71694001		0.1	110.0	111.0	75	125	0.5	20

Barium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.9		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	71688001		0.4	101.0	99.2	75	125	2.2	20
MS/MSD	71691002		0.4	104.0	104.0	75	125	0.4	20
MS/MSD	71691003		0.4	99.4	97.1	75	125	2.3	20
SPK	71693003		0.1	99.9		75	125		

Barium, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.9		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	71688001		0.4	101.0	99.2	75	125	2.2	20
SPK/SPKD	71688001		0.1	103.0	101.0	75	125	1.0	20
MS/MSD	71691002		0.4	104.0	104.0	75	125	0.4	20
MS/MSD	71691003		0.4	99.4	97.1	75	125	2.3	20
SPK	71693003		0.1	99.9		75	125		
SPK/SPKD	71694001		0.1	104.0	103.0	75	125	0.5	20

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Account #: 5109 **Client:** Great River Energy

Beryllium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	107.0		80	120		
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	103.0		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
MS/MSD	71688001		0.4	104.0	105.0	75	125	1.2	20
MS/MSD	71691002		0.4	111.0	112.0	75	125	1.3	20
MS/MSD	71691003		0.4	107.0	106.0	75	125	0.9	20

Beryllium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	107.0		80	120		
LFB-MS			0.1	103.0		80	120		
LFB-MS			0.1	100.0		80	120		
MB		<0.0005							
MB		<0.0005							
MB		<0.0005							
MS/MSD	71688001		0.4	104.0	105.0	75	125	1.2	20
SPK/SPKD	71688001		0.1	131.0	141.0	75	125	7.2	20
MS/MSD	71691002		0.4	111.0	112.0	75	125	1.3	20
MS/MSD	71691003		0.4	107.0	106.0	75	125	0.9	20
SPK/SPKD	71694001		0.1	131.0	134.0	75	125		

Cadmium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	97.3		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	71688001		0.4	98.0	97.4	75	125	0.5	20
MS/MSD	71691002		0.4	101.0	102.0	75	125	0.7	20
MS/MSD	71691003		0.4	98.1	95.9	75	125	2.1	20

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Cadmium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK	71693003		0.1	104.0		75	125		

Cadmium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.3		80	120		
LFB-MS			0.1	101.0		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	71688001		0.4	98.0	97.4	75	125	0.5	20
SPK/SPKD	71688001		0.1	96.3	98.5	75	125	2.3	20
MS/MSD	71691002		0.4	101.0	102.0	75	125	0.7	20
MS/MSD	71691003		0.4	98.1	95.9	75	125	2.1	20
SPK	71693003		0.1	104.0		75	125		
SPK/SPKD	71694001		0.1	95.6	92.8	75	125	3.0	20

Chromium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	106.0		80	120		
LFB-MS			0.1	109.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	71688001		0.4	102.0	101.0	75	125	1.7	20
MS/MSD	71691002		0.4	98.3	102.0	75	125	3.2	20
MS/MSD	71691003		0.4	99.6	100.0	75	125	1.0	20
SPK	71693003		0.1	109.0		75	125		

Chromium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	109.0		80	120		
LFB-MS			0.1	106.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	71688001		0.4	102.0	101.0	75	125	1.7	20
SPK/SPKD	71688001		0.1	108.0	113.0	75	125	4.4	20

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Chromium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	71691002		0.4	98.3	102.0	75	125	3.2	20
MS/MSD	71691003		0.4	99.6	100.0	75	125	1.0	20
SPK	71693003		0.1	109.0		75	125		
SPK/SPKD	71694001		0.1	108.0	108.0	75	125	0.6	20

Cobalt				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	107.0		80	120		
LFB-MS			0.1	105.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	71688001		0.4	101.0	99.5	75	125	1.7	20
MS/MSD	71691002		0.4	96.5	99.7	75	125	3.3	20
MS/MSD	71691003		0.4	99.0	98.5	75	125	0.5	20
SPK	71693003		0.1	107.0		75	125		

Cobalt, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	107.0		80	120		
LFB-MS			0.1	105.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	71688001		0.4	101.0	99.5	75	125	1.7	20
SPK/SPKD	71688001		0.1	108.0	113.0	75	125	3.9	20
MS/MSD	71691002		0.4	96.5	99.7	75	125	3.3	20
MS/MSD	71691003		0.4	99.0	98.5	75	125	0.5	20
SPK	71693003		0.1	107.0		75	125		
SPK/SPKD	71694001		0.1	108.0	107.0	75	125	1.3	20

Lead				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.6		80	120		
LFB-MS			0.1	99.2		80	120		
MB		<0.0005							

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Lead				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.0005							
MS/MSD	71688001		0.4	95.9	93.7	75	125	2.4	20
MS/MSD	71691002		0.4	93.5	93.7	75	125	0.0	20
MS/MSD	71691003		0.4	95.4	91.8	75	125	4.0	20
SPK	71693003		0.1	97.8		75	125		

Lead, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.6		80	120		
LFB-MS			0.1	99.2		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	71688001		0.4	95.9	93.7	75	125	2.4	20
SPK/SPKD	71688001		0.1	94.1	97.5	75	125	3.6	20
MS/MSD	71691002		0.4	93.5	93.7	75	125	0.0	20
MS/MSD	71691003		0.4	95.4	91.8	75	125	4.0	20
SPK	71693003		0.1	97.8		75	125		
SPK/SPKD	71694001		0.1	99.3	97.3	75	125	2.0	20

Molybdenum				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	106.0		80	120		
LFB-MS			0.1	111.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	71688001		0.4	95.8	93.8	75	125	1.6	20
MS/MSD	71691002		0.4	105.0	105.0	75	125	0.0	20
MS/MSD	71691003		0.4	100.0	105.0	75	125	4.5	20
SPK	71693003		0.1	115.0		75	125		

Molybdenum, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	106.0		80	120		
LFB-MS			0.1	111.0		80	120		

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Molybdenum, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.002							
MB		<0.002							
MS/MSD	71688001		0.4	95.8	93.8	75	125	1.6	20
SPK/SPKD	71688001		0.1	91.1	95.6	75	125	1.7	20
MS/MSD	71691002		0.4	105.0	105.0	75	125	0.0	20
MS/MSD	71691003		0.4	100.0	105.0	75	125	4.5	20
SPK	71693003		0.1	115.0		75	125		
SPK/SPKD	71694001		0.1	105.0	102.0	75	125	2.8	20

Selenium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.6		80	120		
LFB-MS			0.1	94.7		80	120		
MB		<0.005							
MB		<0.005							
MS/MSD	71688001		0.4	98.8	101.0	75	125	2.0	20
MS/MSD	71691002		0.4	97.8	99.8	75	125	2.0	20
MS/MSD	71691003		0.4	99.8	98.6	75	125	1.3	20
SPK	71693003		0.1	101.0		75	125		

Selenium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.6		80	120		
LFB-MS			0.1	94.7		80	120		
MB		<0.005							
MB		<0.005							
MS/MSD	71688001		0.4	98.8	101.0	75	125	2.0	20
SPK/SPKD	71688001		0.1	105.0	108.0	75	125	3.5	20
MS/MSD	71691002		0.4	97.8	99.8	75	125	2.0	20
MS/MSD	71691003		0.4	99.8	98.6	75	125	1.3	20
SPK	71693003		0.1	101.0		75	125		
SPK/SPKD	71694001		0.1	103.0	105.0	75	125	1.7	20

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Thallium				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.8		80	120		
LFB-MS			0.1	97.8		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	71688001		0.4	94.1	90.8	75	125	3.5	20
MS/MSD	71691002		0.4	91.8	92.8	75	125	1.1	20
MS/MSD	71691003		0.4	93.2	91.3	75	125	2.2	20
SPK	71693003		0.1	95.3		75	125		

Thallium, Dissolved				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	97.8		80	120		
LFB-MS			0.1	98.8		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	71688001		0.4	94.1	90.8	75	125	3.5	20
SPK	71688001					75	125		
SPK/SPKD	71688001		0.1	103.0	105.0	75	125	1.4	20
MS/MSD	71691002		0.4	91.8	92.8	75	125	1.1	20
MS/MSD	71691003		0.4	93.2	91.3	75	125	2.2	20
SPK	71694001					75	125		
SPK/SPKD	71694001		0.1	98.9	96.2	75	125	2.8	20

Mercury				Units: mg/L					
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	103.0		85	115		
LFB			0.002	106.0		85	115		
LFB			0.002	106.0		85	115		
LFB			0.002	107.0		85	115		
LRB		<0.0002							
LRB		<0.0002							
MB		<0.0002							
MB		<0.0002							

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Mercury — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	71294004		0.002	97.5	98.0	70	130	0.0	20
MS/MSD	71485004		0.002	100.0	100.0	70	130	0.0	20
MS/MSD	71688001		0.002	77.5	78.0	70	130	0.0	20
MS/MSD	71693001		0.002	97.0	97.0	70	130	0.0	20

Mercury, Dissolved — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	102.0		85	115		
MB		<0.0002							
MS/MSD	71688001		0.002	82.0	82.0	70	130	0.0	20
MS/MSD	71691002		0.002	104.0	104.0	70	130	0.0	20
MS/MSD	71694001		0.002	100.0	102.0	70	130	0.0	20

Alkalinity, Total — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			501	92.2		80	120		
LFB			410	90.9		90	110		
LFB			410	91.1		90	110		
LFB			410	90.8		90	110		
MB		<20.5							
MB		<20.5							
MB		<20.5							
MS/MSD	71677001		410	87.9	89.2	80	120	0.7	20
MS/MSD	71691003		410	87.5	86.2	80	120	0.6	20

pH — Units: units

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	99.2		98.33	101.67		
CRM-PH			6	99.5		98.33	101.67		
CRM-PH			6	99.0		98.33	101.67		
DUP	71688001							0.7	20
DUP	71694001							0.1	20

Fluoride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			3.06	108.0		83.99	111.11		

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Fluoride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-F			0.5	104.0		90	110		
LFB-F			0.5	100.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MS/MSD-F	71693001		0.5	92.0	92.0	80	120	0.0	20

Total Dissolved Solids Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	97.0		90.35	110.33		
MB		<10							
DUP	71688001							0.9	20
DUP	71694001							3.6	20

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Account #: 5109 **Client:** Great River Energy

Minnesota Valley Testing Laboratories
2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Great River Energy
WO: 71691

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS 2023 Wells
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: Nov Sept 2024
Address:		Lakewood, CO 80228	Sampled By:
Phone:			
Email:	CJohnston@GREnergy.com		

Sample Information					Sample Containers									Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Liter Nitric					Temp (°C)	Spec. Cond.	pH	Turbidity (NTU)	Analysis Required
001	MW-300	20Nov24	1252	GW	X	X	X							10.43	2825	7.38	22.24	App III, AppIV, Additional List (total and dissolved for all metals) (See Attachments)
002	MW-301	20Nov24	1203	GW	X	X	X							9.20	1254	7.84	529.55	
003	MW-PB3	20Nov24	1045	GW	X	X	X							8.15	2225	7.35	1.45	
004	FB-2023	20Nov24	1230	GW	X	X	X							NA	NA	NA	NA	

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1	20Nov24 1745	Log In Walk In #2	4.2 °C/TM 805 ROI Y/N		21Nov24 0805
2					

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February 2024 GREAT RIVER ENERGY - STANTON STATION GL21509219.000
DRAFT - SUBJECT TO CHANGE

Table 1: Proposed 2024 Stanton Station Plant Facilities Sampling Schedule

Location	Well ID		2024				
			Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-7A	1	Field Parameters (Field pH)				
	MW-7B	1					
	MW-8B	1					
	MW-105	1	Field Parameters (Field pH)				
Bottom Ash Landfill	MW-9N	1					
	MW-102	1					
	MW-103	1					
Property Boundary	MW-PB1	1					
Wells Installed in May 2022	MW-210	1					
	MW-211	1					
	MW-212	1					
	MW-213	1					
	MW-214	1					
Piezometers [1]	PZ-BA-A	1					
	PZ-BA-B	1					
Sumps [2]	BAI-Sump-S	1					
Surface Water [3]	Missouri-River	1					
	Rail-Drainage	1					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R	1					
	MW-104	1					
Bottom Ash Impoundment	MW-201	1				Subset of App IV detected in Q1, Iron, Aluminum, Manganese (Dissolved and Total for Each Metal)	
	MW-202	1					
	MW-203	1					
Closed Landfill	MW-10	1			App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)
	MW-204	1	Sulfate + Field parameters				
	MW-205	1	Sulfate + Field parameters				
Additional Internal Locations	MW-4	1					
	MW-PB2	1					
Wells Installed in February 2023	MW-215	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-216	1					
	MW-217	1					
	MW-218	1					
	MW-219	1					
	MW-220	1					
	MW-221	1					
	MW-222	1					
	MW-300	1					
	MW-301	1					
	MW-PB3	1					
Total # of Sample Locations			4	35	40	6	40

Notes:
App III - Appendix III Detection Monitoring List, Table 2
App IV - Appendix IV Assessment Monitoring List, Table 3
Additional List - Table 4
Required field parameters are listed in Table 2 and Table 3
Suggested locations for collection of QA/QC samples are listed in Table 5.
1. The piezometers do not have dedicated pumps and will need to be sampled by other methods.
2. The sump should be sampled using surface water collection methods via the sump riser.
3. Surface water samples to be collected if safely accessible and free water is present.

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February 2024 GL21509219.000

Table 2. Parameter and Analysis Summary - Appendix III Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/11	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	SM 4500 F E/11	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	ASTM D516-16	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	USGS I-1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total and dissolved)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:
1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent methods.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

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Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

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Table 4: Additional List Parameter and Analysis Summary

Parameter [1]	Method Reference [2]	Reporting Limit	Preparation Method Reference [2]	Sample Container [3]	Required Preservation [4]	Maximum Holding Time from Sampling [5]
General Chemistry						
Total Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Bicarbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Carbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Metals (Total and Dissolved)						
Iron	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Magnesium	EPA 6010D	0.2 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Potassium	EPA 6010D	3.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Sodium	EPA 6010D	1.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Aluminum	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Manganese	EPA 6010D	0.05 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months

Notes:

1. All listed parameters are tested in the laboratory. Listed parameters are to be collected in conjunction with other CCR parameter lists (Table 2 and Table 3).

2. Or equivalent method.
3. Containers and volumes will be specified by the analytical laboratory.
4. In addition to the required preservation for each sample container, sufficient ice should be placed with the sample containers in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when samples arrive, measurement of the temperature of samples immediately upon receipt is necessary to confirm that the 4° C temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible following collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid, without the use of qualifiers.

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Table 5: 2024 Proposed Quality Assurance/Quality Control Sample Collection Locations

Location	Well ID	Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B		Field Blank			
	MW-7A					
	MW-7B		Duplicate			MS/MSD
	MW-8B					
	MW-105			Duplicate		
Bottom Ash Landfill	MW-9N					Duplicate
	MW-102		MS/MSD			
	MW-103			Field Blank		
Property Boundary	MW-PB1					
Wells Installed in May 2022	MW-210					Duplicate
	MW-211			MS/MSD		
	MW-212					Field Blank
	MW-213			Duplicate		
	MW-214		Field Blank			
Piezometers [1]	PZ-BA-A					
	PZ-BA-B					Field Blank
Sumps [2]	BAI-Sump-S					
Surface Water [3]	Missouri-River					
	Rail-Drainage					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R			Duplicate		
	MW-104					
Bottom Ash Impoundment	MW-201			Field Blank		MS/MSD
	MW-202		Duplicate		Field Blank	
	MW-203					Duplicate
Closed Landfill	MW-10					
	MW-204					
	MW-205					
Additional Internal Locations	MW-4					
	MW-PB2					
Wells Installed in February 2023	MW-215			Field Blank		
	MW-216		Field Blank			
	MW-217					Duplicate
	MW-218			MS/MSD		
	MW-219					
	MW-220					Field Blank
	MW-221		Duplicate			
	MW-222					
	MW-300					
	MW-301			Duplicate		
	MW-PB3					
Total # of Sample Locations		4	35	40	6	40
Total # of QC Samples		0	7	9	1	9

Notes:
Locations to collect samples are **suggestions only** to help with the distribution of QA/QC samples across the site and between facilities while meeting QA/QC objectives for the sampling programs.
Notes for QA/QC
Duplicates = 10-15% of primary collected sample
Field Blanks = 1 per day; based on number of primary collected samples, assuming 2 to 4 total per event
Equipment Blanks - only needed for non-dedicated equipement, none required.
MS/MSD = 1 per 20 primary collected samples, assuming 1 or 2 total per event.

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov ~~June~~ 2024
Sample ID: 300
Sampling Personal: JH

Weather Conditions: Temp: 20 °F Wind: W @ 10-15 Precip: Sunny / Partly Cloudy / (Cloudy)

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	12.53	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	12.92	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
20 Nov 24	1227	Start of Well Purge									
	1232	10.78	2804	7.38	0.38	-79.1	56.59	12.76	200.0	1.0	Clear
	1237	10.61	2821	7.38	0.30	-85.5	36.00	12.79	200.0	1.0	Clear
	1242	10.55	2828	7.38	0.10	-99.2	41.86	12.80	200.0	1.0	Clear
	1247	10.57	2823	7.38	0.10	-102.1	42.57	12.85	200.0	1.0	Clear
	1252	10.43	2825	7.38	0.06	-106.5	22.24	12.90	200.0	1.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
20 Nov 24	1252	10.43	2825	7.38			22.24				Clear

Comments: Collected field Blank 2023 @ 1230

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2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov June 2024
Sample ID: 301
Sampling Personal: JM

Weather Conditions: Temp: 20 °F Wind: W @ 10-15 Precip: Sunny / Partly Cloudy / (Cloudy)

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	15.88	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	24.90	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:
Purge: 3 Sec.
Recover: 27 Sec.
PSI: —

Bottle List:
1 Liter Raw
1 Gal Nitric
500mL Nitric
500mL Nitric (filtered)

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
20Nov24	1138	Start of Well Purge									clear, slightly turbid, turbid
	1143	9.47	1255	7.85	0.36	25.3	60.93	19.02	200.0	1.0	Clear
	1148	8.88	1257	7.84	0.15	-13.0	88.59	21.22	200.0	1.0	Clear
	1153	9.40	1254	7.83	0.19	-1.4	136.70	22.80	200.0	1.0	Clear
	1158	9.30	1253	7.83	0.26	17.4	310.61	23.60	200.0	1.0	Slightly Turbid
	1203	9.20	1254	7.84	0.44	35.3	529.55	24.40	200.0	1.0	ST

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
20Nov24	1203	9.20	1254	7.84			529.55				ST

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

YP 30Dec24

Company: GRE Stanton Station
Event: November ~~June~~ 2024
Sample ID: PB3
Sampling Personal:

Weather Conditions: Temp: 20 °F Wind: W @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	27.19	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	29.40	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 3	Sec.
Recover: 57	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
	1020	Start of Well Purge									clear, slightly turbid, turbid
20Nov24	1025	8.27	2205	7.38	1.17	72.1	5.30	28.25	100.0	0.5	Clear
	1030	8.19	2181	7.35	1.14	70.2	1.74	28.89	100.0	0.5	Clear
	1035	8.19	2198	7.35	1.08	70.4	1.01	29.06	100.0	0.5	Clear
	1040	8.25	2218	7.34	0.94	71.6	1.47	29.10	100.0	0.5	Clear
	1045	8.15	2225	7.35	0.82	71.5	1.45	29.15	100.0	0.5	Clear

Well Stabilized? YES NO Total Volume Purged: 2.5 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
20Nov24	1045	8.15	2225	7.35			1.45				Clear

Comments:

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Account #: 5109 **Client:** Great River Energy
Workorder: SS 2023 Well Nov 2024 (71696) **PO:** 8117397

Cassie Johnston
Great River Energy
12300 Elm Creek Boulevard
Osseo, MN 55369

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBv	Energy Labs Casper	2393 Salt Creek Highway, Casper. WY 82601	307-235-0515	CERT

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71696001 **Date Collected:** 11/20/2024 12:52 **Matrix:** Groundwater
Sample ID: MW- 300 **Date Received:** 11/20/2024 17:45 **Collector:** MVTL Field Service

Temp @ Receipt (C): 5.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/31/2024 16:56	
Radium 228	See Attached			1		12/31/2024 16:56	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71696002 **Date Collected:** 11/20/2024 12:03 **Matrix:** Groundwater
Sample ID: MW- 301 **Date Received:** 11/20/2024 17:45 **Collector:** MVTL Field Service

Temp @ Receipt (C): 5.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/31/2024 16:56	
Radium 228	See Attached			1		12/31/2024 16:56	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71696003 **Date Collected:** 11/20/2024 10:45 **Matrix:** Groundwater
Sample ID: MW- PB3 **Date Received:** 11/20/2024 17:45 **Collector:** MVTL Field Service

Temp @ Receipt (C): 5.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/31/2024 16:56	
Radium 228	See Attached			1		12/31/2024 16:56	

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Account #: 5109 **Client:** Great River Energy

Analytical Results

Lab ID: 71696004 **Date Collected:** 11/20/2024 12:30 **Matrix:** Groundwater
Sample ID: FB- 2023 **Date Received:** 11/20/2024 17:45 **Collector:** MVTL Field Service

Temp @ Receipt (C): 5.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: Contracted Result							
Radium 226	See Attached			1		12/31/2024 16:56	
Radium 228	See Attached			1		12/31/2024 16:56	

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ANALYTICAL SUMMARY REPORT

December 31, 2024

Minnesota Valley Testing Laboratories
1126 N Front St
New Ulm, MN 56073-1176

Work Order: C24110878 Quote ID: C15480
Project Name: 71696

Energy Laboratories, Inc. Casper WY received the following 4 samples for Minnesota Valley Testing Laboratories on 11/25/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C24110878-001	71696001, MW-300	11/20/24 12:52	11/25/24	Groundwater	Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total
C24110878-002	71696002, MW-301	11/20/24 12:03	11/25/24	Groundwater	Same As Above
C24110878-003	71696003, MW-PB3	11/20/24 10:45	11/25/24	Groundwater	Same As Above
C24110878-004	71696004, FB 2023	11/20/24 12:30	11/25/24	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy, Casper, WY 82601-9601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

Energy Laboratories, Inc. verifies the reported results for the analysis has been technically reviewed and approved for release.

If you have any questions regarding these test results, please contact your Project Manager.

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71696
Lab ID: C24110878-001
Client Sample ID: 71696001, MW-300

Report Date: 12/31/24
Collection Date: 11/20/24 12:52
DateReceived: 11/25/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.2	pCi/L	U			E903.0	12/16/24 09:59 / apt
Radium 226 precision (±)	0.1	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 226 MDC	0.2	pCi/L				E903.0	12/16/24 09:59 / apt
Radium 228	0.5	pCi/L	U			RA-05	12/11/24 16:41 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	12/11/24 16:41 / trs
Radium 228 MDC	1.1	pCi/L				RA-05	12/11/24 16:41 / trs
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	12/18/24 14:50 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71696
Lab ID: C24110878-002
Client Sample ID: 71696002, MW-301

Report Date: 12/31/24
Collection Date: 11/20/24 12:03
DateReceived: 11/25/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	2.3	pCi/L				E903.0	12/30/24 14:26 / apt
Radium 226 precision (±)	0.5	pCi/L				E903.0	12/30/24 14:26 / apt
Radium 226 MDC	0.2	pCi/L				E903.0	12/30/24 14:26 / apt
Radium 228	2.5	pCi/L				RA-05	12/24/24 11:53 / trs
Radium 228 precision (±)	1.3	pCi/L				RA-05	12/24/24 11:53 / trs
Radium 228 MDC	1.7	pCi/L				RA-05	12/24/24 11:53 / trs
Radium 226 + Radium 228	4.8	pCi/L				A7500-RA	12/31/24 11:15 / dmf
Radium 226 + Radium 228 precision (±)	1.4	pCi/L				A7500-RA	12/31/24 11:15 / dmf
Radium 226 + Radium 228 MDC	1.7	pCi/L				A7500-RA	12/31/24 11:15 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71696
Lab ID: C24110878-003
Client Sample ID: 71696003, MW-PB3

Report Date: 12/31/24
Collection Date: 11/20/24 10:45
DateReceived: 11/25/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.08	pCi/L	U			E903.0	12/16/24 12:18 / apt
Radium 226 precision (±)	0.09	pCi/L				E903.0	12/16/24 12:18 / apt
Radium 226 MDC	0.1	pCi/L				E903.0	12/16/24 12:18 / apt
Radium 228	0.9	pCi/L	U			RA-05	12/11/24 17:36 / trs
Radium 228 precision (±)	0.8	pCi/L				RA-05	12/11/24 17:36 / trs
Radium 228 MDC	1.2	pCi/L				RA-05	12/11/24 17:36 / trs
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 MDC	1.2	pCi/L				A7500-RA	12/18/24 14:50 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Minnesota Valley Testing Laboratories
Project: 71696
Lab ID: C24110878-004
Client Sample ID: 71696004, FB 2023

Report Date: 12/31/24
Collection Date: 11/20/24 12:30
DateReceived: 11/25/24
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	0.02	pCi/L	U			E903.0	12/16/24 12:18 / apt
Radium 226 precision (±)	0.08	pCi/L				E903.0	12/16/24 12:18 / apt
Radium 226 MDC	0.1	pCi/L				E903.0	12/16/24 12:18 / apt
Radium 228	1.2	pCi/L	U			RA-05	12/11/24 17:36 / trs
Radium 228 precision (±)	0.9	pCi/L				RA-05	12/11/24 17:36 / trs
Radium 228 MDC	1.3	pCi/L				RA-05	12/11/24 17:36 / trs
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	12/18/24 14:50 / dmf
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	12/18/24 14:50 / dmf

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U - Not detected
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QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C24110878 **Report Date:** 12/31/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-11530
Lab ID: LCS-RA226-11530	3	Laboratory Control Sample				Run: TENNELEC-4_241203G			12/16/24 09:59	
Radium 226		10	pCi/L		101	70	130			
Radium 226 precision (±)		1.6	pCi/L							
Radium 226 MDC		0.15	pCi/L							
Lab ID: MB-RA226-11530	3	Method Blank				Run: TENNELEC-4_241203G			12/16/24 09:59	
Radium 226		0.01	pCi/L							U
Radium 226 precision (±)		0.08	pCi/L							
Radium 226 MDC		0.1	pCi/L							
Lab ID: C24110855-003AMS	3	Sample Matrix Spike				Run: TENNELEC-4_241203G			12/16/24 09:59	
Radium 226		8.8	pCi/L		87	70	130			
Radium 226 precision (±)		1.4	pCi/L							
Radium 226 MDC		0.14	pCi/L							
Lab ID: C24110855-003AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_241203G			12/16/24 09:59	
Radium 226		9.4	pCi/L		93	70	130	6.4	30	
Radium 226 precision (±)		1.5	pCi/L							
Radium 226 MDC		0.18	pCi/L							
- The RER result is 0.28.										
Method: E903.0										Batch: RA226-11542
Lab ID: LCS-RA226-11542	3	Laboratory Control Sample				Run: TENNELEC-4_241213E			12/30/24 10:57	
Radium 226		11	pCi/L		113	70	130			
Radium 226 precision (±)		1.8	pCi/L							
Radium 226 MDC		0.16	pCi/L							
Lab ID: MB-RA226-11542	3	Method Blank				Run: TENNELEC-4_241213E			12/30/24 10:57	
Radium 226		0.1	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C24120372-001ADUP	3	Sample Duplicate				Run: TENNELEC-4_241213E			12/30/24 10:57	
Radium 226		31	pCi/L					8.1	30	
Radium 226 precision (±)		4.8	pCi/L							
Radium 226 MDC		0.22	pCi/L							
- The RER result is 0.37.										

Qualifiers:

RL - Analyte Reporting Limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected

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Account #: 5109 **Client:** Great River Energy

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QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C24110878 **Report Date:** 12/31/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7540
Lab ID: LCS-228-RA228-7540	3	Laboratory Control Sample				Run: TENNELEC-4_241203F				12/11/24 16:05
Radium 228		9.8	pCi/L		99	70	130			
Radium 228 precision (±)		2.6	pCi/L							
Radium 228 MDC		1.1	pCi/L							
Lab ID: MB-228-RA228-7540	3	Method Blank				Run: TENNELEC-4_241203F				12/11/24 16:05
Radium 228		0.9	pCi/L							U
Radium 228 precision (±)		0.7	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C24110855-003AMS	3	Sample Matrix Spike				Run: TENNELEC-4_241203F				12/11/24 16:05
Radium 228		6.3	pCi/L		57	70	130			S
Radium 228 precision (±)		1.8	pCi/L							
Radium 228 MDC		0.99	pCi/L							
Lab ID: C24110855-003AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_241203F				12/11/24 16:05
Radium 228		4.0	pCi/L		34	70	130	44	30	SR
Radium 228 precision (±)		1.2	pCi/L							
Radium 228 MDC		0.97	pCi/L							
- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than or equal to the limit of 3, the RER result is 1.04.										
Method: RA-05										Batch: RA228-7550
Lab ID: LCS-228-RA226-11542	3	Laboratory Control Sample				Run: TENNELEC-4_241213C				12/24/24 11:53
Radium 228		11	pCi/L		108	70	130			
Radium 228 precision (±)		2.8	pCi/L							
Radium 228 MDC		1.2	pCi/L							
Lab ID: MB-RA226-11542	3	Method Blank				Run: TENNELEC-4_241213C				12/24/24 11:53
Radium 228		0.9	pCi/L							U
Radium 228 precision (±)		0.7	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C24120372-001ADUP	3	Sample Duplicate				Run: TENNELEC-4_241213C				12/24/24 11:53
Radium 228		9.6	pCi/L					3.1	30	
Radium 228 precision (±)		2.6	pCi/L							
Radium 228 MDC		1.1	pCi/L							
- The RER result is 0.08.										

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
U - Not detected
ND - Not detected at the Reporting Limit (RL)
S - Spike recovery outside of advisory limits

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Work Order Receipt Checklist

Minnesota Valley Testing Laboratories C24110878

Login completed by: Cristen C. Smith
Reviewed by: lquezada
Reviewed Date: 11/26/2024
Date Received: 11/25/2024
Received by: AJS
Carrier name: UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	4.4°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Trip Blanks and/or Blind Duplicate samples are assigned the earliest collection time for the associated requested analysis in order to evaluate the holding time unless specifically indicated.

Contact and Corrective Action Comments:

The temperature blank temperature in shipping container 1 was 2.2°C, shipping container 2 was 4.2°C, shipping container 3 was 2.0°C, shipping container 4 was 4.4°C and shipping container 5 was 2.6°C. CCS 11/25/24

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Laboratory Certifications and Accreditations

Current certificates are available at www.energylab.com website:

	Agency	Number
Billings, MT	Alaska	17-023
	California	3087
	Colorado	MT00005
	Department of Defense (DoD)/ISO17025	ADE-2588
	Florida (Primary NELAP)	E87668
	Idaho	MT00005
	Louisiana	05079
	Montana	CERT0044
	Nebraska	NE-OS-13-04
	Nevada	NV-C24-00250
	North Dakota	R-007
	National Radon Proficiency	109383-RMP
	Oregon	4184
	South Dakota	ARSD 74:04:07
	Texas	TX-C24-00302
	US EPA Region VIII	Reciprocal
	USDA Soil Permit	P330-20-00170
	Washington	C1039
Casper, WY	Alaska	20-006
	California	3021
	Colorado	WY00002
	Florida (Primary NELAP)	E87641
	Idaho	WY00002
	Louisiana	05083
	Montana	CERT0002
	Nebraska	NE-OS-08-04
	Nevada	NV-C24-00245
	North Dakota	R-125
	Oregon	WY200001
	South Dakota	WY00002
	Texas	T104704181-23-21
	US EPA Region VIII	WY00002
	USNRC License	49-26846-01
	Washington	C1012
Gillette, WY	US EPA Region VIII	WY00006
Helena, MT	Colorado	MT00945
	Montana	CERT0079
	Nevada	NV-C24-00119
	US EPA Region VIII	Reciprocal
	USDA Soil Permit	P330-20-00090

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Toll Free: (800) 279-6885

Chain of Custody Record

Page 1 of 1

Work Order # 71696 C24110878

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501

Account #:
Contact: Claudette
Name of Sampler:
Quote Number C15480 v5
Project Name/Number:

Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box X
Date Submitted: 21-Nov-24
Purchase Order #: BL6980

Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073

Lab Number	Sample Information: MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Untreated	Gallon HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis: Analysis Required
	71696001	MW-300	GW	20-Nov-24	1252	1					Ra226 & Ra228
	71696002	MW-301	GW	20-Nov-24	1203	1					Ra226 & Ra228
	71696003	MW-PB3	GW	20-Nov-24	1045	1					Ra226 & Ra228
	71696004	FB 2023	GW	20-Nov-24	1230	1					Ra226 & Ra228

Comments: Individual results as well as combined Ra226 & Ra228 must be reported for all samples.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
G. Ziegler	21-Nov-24	1700		Aaron Smith	11.25.24 10:25	

Page 10 of 10

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(701) 258-9720

Great River Energy
WO: 71696

Chain of Custody Record

Report To:	Great River Energy	CC: Golder Associates	Project Name: SS 2023 Wells
Attn:	Cassie Johnston	44 Union Blvd, Suite 300	Event: Nov ~~Sept~~ 2024
Address:		Lakewood, CO 80228	Sampled By:
Phone:			
Email:	CJohnston@GREnergy.com		

Sample Information				Sample Containers									Field Readings				
Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	1 Gal Nitric								Analysis Required
001	MW-300	20 Nov 24	1252	GW					X								Radium 226 and 228 Combined
002	MW-301	20 Nov 24	1203	GW					X								
003	MW-PB3	20 Nov 24	1045	GW					X								
004	FB 2023	20 Nov 24	1230	GW					X								

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
1	20 Nov 24 1745	Log In Walk In #2	5.1 °C/TM 805 ROI Y/N		21 Nov 24 0820
2					

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Table 1: Proposed 2024 Stanton Station Plant Facilities Sampling Schedule

Location	Well ID		2024				
			Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)	App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-7A	1	Field Parameters (Field pH)				
	MW-7B	1					
	MW-8B	1					
	MW-105	1	Field Parameters (Field pH)				
Bottom Ash Landfill	MW-9N	1					
	MW-102	1					
	MW-103	1					
Property Boundary	MW-PB1	1					
Wells Installed in May 2022	MW-210	1					
	MW-211	1					
	MW-212	1					
	MW-213	1					
	MW-214	1					
Piezometers [1]	PZ-BA-A	1					
	PZ-BA-B	1					
Sumps [2]	BAI-Sump-S	1					
Surface Water [3]	Missouri-River	1					
	Rail-Drainage	1					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R	1					
	MW-104	1					
Bottom Ash Impoundment	MW-201	1				Subset of App IV detected in Q1, Iron, Aluminum, Manganese (Dissolved and Total for Each Metal)	
	MW-202	1					
	MW-203	1					
Closed Landfill	MW-10	1			App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)	App III, App IV, Additional List (Dissolved and Total for Each Metal)
	MW-204	1	Sulfate + Field parameters				
	MW-205	1	Sulfate + Field parameters				
Additional Internal Locations	MW-4	1			App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)		App III, Subset of App IV detected in Q1, Additional List (Dissolved and Total for Each Metal)
	MW-PB2	1					
Wells Installed in February 2023	MW-215	1		App IV, Iron, Aluminum, Mangangese (Dissolved and Total for Each Metal)			
	MW-216	1					
	MW-217	1					
	MW-218	1					
	MW-219	1					
	MW-220	1					
	MW-221	1					
	MW-222	1					
	MW-300	1					
	MW-301	1					
	MW-PB3	1					
Total # of Sample Locations			4	35	40	8	40

Notes:
App III - Appendix III Detection Monitoring List, Table 2
App IV - Appendix IV Assessment Monitoring List, Table 3
Additional List - Table 4
Required field parameters are listed in Table 2 and Table 3
Suggested locations for collection of QA/QC samples are listed in Table 5.
1. The piezometers do not have dedicated pumps and will need to be sampled by other methods.
2. The sump should be sampled using surface water collection methods via the sump riser.
3. Surface water samples to be collected if safely accessible and free water is present.

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February 2024 GL21509219.000

Table 2. Parameter and Analysis Summary - Appendix III Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/11	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	SM 4500 F E/11	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	ASTM D516-16	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	USGS I-1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total and dissolved)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:
1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent methods.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

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Table 3. Parameter and Analysis Summary - Appendix IV Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	EPA 9040C	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	LSASDPROC-1010-R7	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SM 2550 B	--	--	--	Immediately or within 15 minutes
Turbidity*	SM 2130 B	--	--	--	Immediately or within 15 minutes
Dissolved Oxygen (DO)*	LSASDPROC-106-R4	--	--	--	Immediately or within 15 minutes
Oxidation-Reduction Potential (ORP)*	LSASDPROC-113-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	SM 4500 F E/11	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/11	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total and dissolved)					
Antimony	EPA 6010 / 6020 as applicable	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 245.1	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:
1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, specific conductance, dissolved oxygen, and oxidation-reduction potential are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

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Table 4: Additional List Parameter and Analysis Summary

Parameter [1]	Method Reference [2]	Reporting Limit	Preparation Method Reference [2]	Sample Container [3]	Required Preservation [4]	Maximum Holding Time from Sampling [5]
General Chemistry						
Total Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Bicarbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Carbonate Alkalinity	SM 2320B	10 mg/L	--	Plastic	≤ 4° C	14 days
Metals (Total and Dissolved)						
Iron	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Magnesium	EPA 6010D	0.2 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Potassium	EPA 6010D	3.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Sodium	EPA 6010D	1.0 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Aluminum	EPA 6010D	0.1 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months
Manganese	EPA 6010D	0.05 mg/L	EPA 3010A	Plastic or Glass	HNO_3 to pH < 2	6 months

Notes:

1. All listed parameters are tested in the laboratory. Listed parameters are to be collected in conjunction with other CCR parameter lists (Table 2 and Table 3).

2. Or equivalent method.
3. Containers and volumes will be specified by the analytical laboratory.
4. In addition to the required preservation for each sample container, sufficient ice should be placed with the sample containers in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when samples arrive, measurement of the temperature of samples immediately upon receipt is necessary to confirm that the 4° C temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible following collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid, without the use of qualifiers.

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Account #: 5109 **Client:** Great River Energy

Table 5: 2024 Proposed Quality Assurance/Quality Control Sample Collection Locations

Location	Well ID	Q1 - Feb	Q1 - Mar	Q2 - Jun	Q3 - Sep	Q4 - Nov
Upgradient/Side-gradient	MW-6B		Field Blank			
	MW-7A					
	MW-7B		Duplicate			MS/MSD
	MW-8B					
	MW-105			Duplicate		
Bottom Ash Landfill	MW-9N					Duplicate
	MW-102		MS/MSD			
	MW-103			Field Blank		
Property Boundary	MW-PB1					
Wells Installed in May 2022	MW-210					Duplicate
	MW-211			MS/MSD		
	MW-212					Field Blank
	MW-213			Duplicate		
	MW-214		Field Blank			
Piezometers [1]	PZ-BA-A					
	PZ-BA-B					Field Blank
Sumps [2]	BAI-Sump-S					
Surface Water [3]	Missouri-River					
	Rail-Drainage					
Internal - Prior Bottom Ash Impoundment Downgradient	MW-1R			Duplicate		
	MW-104					
Bottom Ash Impoundment	MW-201			Field Blank		MS/MSD
	MW-202		Duplicate		Field Blank	
	MW-203					Duplicate
Closed Landfill	MW-10					
	MW-204					
	MW-205					
Additional Internal Locations	MW-4					
	MW-PB2					
Wells Installed in February 2023	MW-215			Field Blank		
	MW-216		Field Blank			
	MW-217					Duplicate
	MW-218			MS/MSD		
	MW-219					
	MW-220					Field Blank
	MW-221		Duplicate			
	MW-222					
	MW-300					
	MW-301			Duplicate		
	MW-PB3					
Total # of Sample Locations		4	35	40	6	40
Total # of QC Samples		0	7	9	1	9

Notes:
Locations to collect samples are **suggestions only** to help with the distribution of QA/QC samples across the site and between facilities while meeting QA/QC objectives for the sampling programs.
Notes for QA/QC
Duplicates = 10-15% of primary collected sample
Field Blanks = 1 per day; based on number of primary collected samples, assuming 2 to 4 total per event
Equipment Blanks - only needed for non-dedicated equipement, none required.
MS/MSD = 1 per 20 primary collected samples, assuming 1 or 2 total per event.

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www.MVTL.com

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov ~~June~~ 2024
Sample ID: 300
Sampling Personal:

Weather Conditions: Temp: 20 °F Wind: W @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	12.53	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	12.92	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:	
Purge: 2	Sec.
Recover: 28	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		clear, slightly turbid, turbid
20 Nov 24	1227	Start of Well Purge									
	1232	10.78	2809	7.38	0.38	-79.1	56.59	12.76	200.0	1.0	Clear
	1237	10.61	2821	7.38	0.30	-85.5	36.00	12.79	200.0	1.0	Clear
	1242	10.55	2828	7.38	0.10	-99.2	41.86	12.80	200.0	1.0	Clear
	1247	10.57	2823	7.38	0.10	-102.1	42.57	12.85	200.0	1.0	Clear
	1252	10.43	2825	7.38	0.06	-106.5	22.24	12.90	200.0	1.0	Clear

Well Stabilized? YES NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
20 Nov 24	1252	10.43	2825	7.38			22.24				Clear

Comments: Collected Field Blank 2023 @ 1230

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Member ACIL

Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: Nov ~~June~~ 2024
Sample ID: 307
Sampling Personal: JM

Weather Conditions: Temp: 20 °F Wind: W @ 10-15 Precip: Sunny / Partly Cloudy / (Cloudy)

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	15.88	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	24.90	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	(YES)	NO

Control Settings:	
Purge: 3	Sec.
Recover: 27	Sec.
PSI: —	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / (NO)
Duplicate Sample ID:
—

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
20Nov24	1138	Start of Well Purge									
	1143	9.47	1255	7.85	0.36	25.3	60.93	19.02	200.0	1.0	Clear
	1148	8.88	1257	7.84	0.15	-13.0	88.59	21.22	200.0	1.0	Clear
	1153	9.40	1254	7.83	0.19	-1.4	136.70	22.80	200.0	1.0	Clear
	1158	9.30	1253	7.83	0.26	17.4	310.61	23.60	200.0	1.0	Slightly Turbid
	1203	9.20	1254	7.84	0.44	35.3	529.55	24.40	200.0	1.0	ST

Well Stabilized? (YES) NO Total Volume Purged: 5.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
20Nov24	1203	9.20	1254	7.84			529.55				ST

Comments:

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Account #: 5109 **Client:** Great River Energy

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: GRE Stanton Station
Event: November June 2024
Sample ID: PB3
Sampling Personal:

Weather Conditions: Temp: 20 °F Wind: W @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	27.19	ft
Depth to Top of Pump:	—	ft
Water Level After Sample:	29.40	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Control Settings:		
Purge:	3	Sec.
Recover:	57	Sec.
PSI:	—	

Bottle List:	
1 Liter Raw	1 Gal Nitric
500mL Nitric	
500mL Nitric (filtered)	

Duplicate Sample?
YES / NO
Duplicate Sample ID:

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	Time	±0.3°	±3%	±0.1				(ft)	mL/Min		Clarity, Color, Odor, Ect.
	1020	Start of Well Purge									clear, slightly turbid, turbid
20Nov24	1025	8.27	2205	7.38	1.17	72.1	5.30	28.25	100.0	0.5	Clear
	1030	8.19	2181	7.35	1.14	70.2	1.74	28.89	100.0	0.5	Clear
	1035	8.19	2198	7.35	1.08	70.4	1.01	29.06	100.0	0.5	Clear
	1040	8.25	2218	7.34	0.94	71.6	1.47	29.10	100.0	0.5	Clear
	1045	8.15	2225	7.35	0.82	71.5	1.45	29.15	100.0	0.5	Clear

Well Stabilized? YES NO Total Volume Purged: 2.5 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
20Nov24	1045	8.15	2225	7.35			1.45				Clear

Comments:

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APPENDIX B

Detection Monitoring Comparative Statistics

Table 1: MW-6B (Background, Sidegradient) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2023 Result	CUSUM Value	Within Compliance?	Q2 2024 Result	CUSUM Value	Within Compliance?	Q2 2024 Re-sample	CUSUM Value	Within Compliance?
Detection Monitoring Analytes	**Units**			**6-Nov-23**			**17-Jun-24**			**22-Oct-24**		
Boron, Total	mg/L	CUSUM	0.41	0.32	0.33	Yes	0.31	0.33	Yes	--	--	--
Calcium, Total	mg/L	CUSUM	41.7	24.6	29.3	Yes	29.1	29.3	Yes	--	--	--
Chloride	mg/L	CUSUM	19.8	16.8	42.7	No - Ongoing Verified SSI	16.2	44.0	No - Ongoing Verified SSI	--	--	--
Fluoride	mg/L	CUSUM	0.64	0.57	0.56	Yes	0.55	0.56	Yes	--	--	--
pH, Field-Measured	s.u.	CUSUM	7.19, 8.03	7.79	7.61, 7.93	Yes	7.95	7.61, 8.16	No - Potential Exceedance	7.69	7.61, 7.90	Yes - Prior Result was a False-Positive
Sulfate	mg/L	CUSUM	442	372	362	Yes	386	379	Yes	--	--	--
Total Dissolved Solids	mg/L	CUSUM	1147	1020	1051	Yes	1070	1051	Yes	--	--	--

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
CUSUM: Parametric Shewhart-CUSUM Control Chart
Statistical limit for fluoride was deseasonalized and may vary slightly between events.

Table 2: MW-7A (Background, Upgradient) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2023 Result	CUSUM Value	Within Compliance?	Q4 2023 Re-sample	CUSUM Value	Within Compliance?	Q2 2024 Result	CUSUM Value	Within Compliance?	Q2 2024 Re-sample	CUSUM Value	Within Compliance?
Detection Monitoring Analytes	**Units**			**6-Nov-23**			**29-Feb-24**			**17-Jun-24**			**22-Oct-24**		
Boron, Total	mg/L	CUSUM	1.36	0.71	0.70	Yes	--	--	--	0.56	0.7013	Yes	--	--	--
Calcium, Total	mg/L	CUSUM	521	370	428	Yes	--	--	--	457	434	Yes	--	--	--
Chloride	mg/L	CUSUM	63.0	36.1	41.6	Yes	--	--	--	39.1	41.6	Yes	--	--	--
Fluoride	mg/L	CUSUM	0.66	0.51	0.54	Yes	--	--	--	0.55	0.54	Yes	--	--	--
pH, Field-Measured	s.u.	CUSUM	6.83, 7.57	7.43	7.20, 7.60	No - Potential Exceedance	7.35	7.20, 7.52	Yes - Prior Result was a False-Positive	7.39	7.20, 7.62	No - Potential Exceedance	7.31	7.20, 7.54	Yes - Prior Result was a False-Positive
Sulfate	mg/L	CUSUM	13706	11100	10454	Yes	--	--	--	11100	10454	Yes	--	--	--
Total Dissolved Solids	mg/L	CUSUM	18675	16800	17885	Yes	--	--	--	17000	18376	Yes	--	--	--

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
CUSUM: Parametric Shewhart-CUSUM Control Chart
Statistical limit for fluoride was deseasonalized and may vary slightly between events

Table 3: MW-7B (Background, Upgradient) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2023 Result	CUSUM Value	Within Compliance?	Q2 2024 Result	CUSUM Value	Within Compliance?
Detection Monitoring Analytes	**Units**			**6-Nov-23**			**17-Jun-24**		
Boron, Total	mg/L	CUSUM	0.54	0.45	0.43	Yes	0.44	0.43	Yes
Calcium, Total	mg/L	CUSUM	21.2	15.0	18.9	Yes	16.7	18.9	Yes
Chloride	mg/L	CUSUM	14.1	12.7	38.0	No - Ongoing Verified SSI	11.5	39.2	No - Ongoing Verified SSI
Fluoride	mg/L	CUSUM	0.70	0.64	0.63	Yes	0.63	0.65	Yes
pH, Field-Measured	s.u.	CUSUM	7.18, 8.06	7.91	7.62, 7.98	Yes	7.81	7.62, 8.06	Yes
Sulfate	mg/L	CUSUM	446	232	309	Yes	299	309	Yes
Total Dissolved Solids	mg/L	CUSUM	1324	1020	1040	Yes	1050	1040	Yes

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
CUSUM: Parametric Shewhart-CUSUM Control Chart

Table 4: MW-8B (Background, Upgradient) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2023 Result	CUSUM Value	Within Compliance?	Q2 2024 Result	CUSUM Value	Within Compliance?
Detection Monitoring Analytes	**Units**			**6-Nov-23**			**17-Jun-24**		
Boron, Total	mg/L	CUSUM	0.54	0.38	0.32	Yes	0.32	0.31	Yes
Calcium, Total	mg/L	CUSUM	112.7	67.5	84.5	Yes	79.7	84.5	Yes
Chloride	mg/L	CUSUM	20.0	12.2	11.3	Yes	11.1	11.3	Yes
Fluoride	mg/L	CUSUM	0.46	0.28	0.25	Yes	0.28	0.25	Yes
pH, Field-Measured	s.u.	CUSUM	7.10, 7.65	7.52	7.37, 7.46	Yes	7.53	7.37, 7.54	Yes
Sulfate	mg/L	CUSUM	848	266	367	Yes	314	367	Yes
Total Dissolved Solids	mg/L	CUSUM	1846	909	1000	Yes	936	1000	Yes

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
CUSUM: Parametric Shewhart-CUSUM Control Chart

Table 5: MW-105 (Background, Upgradient) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2023 Result	CUSUM Value	Within Compliance?	Q4 2023 Re-sample	CUSUM Value	Within Compliance?	Q2 2024 Result	CUSUM Value	Within Compliance?
Detection Monitoring Analytes	**Units**			**6-Nov-23**			**29-Feb-24**			**17-Jun-24**		
Boron, Tota	mg/L	CUSUM	0.47	0.38	0.36	Yes	--	--	--	0.31	0.36	Yes
Calcium, Total	mg/L	CUSUM	84.0	40.6	50.9	Yes	--	--	--	42.1	50.9	Yes
Chloride	mg/L	CUSUM	66.8	11.0	19.7	Yes	--	--	--	8.0	19.7	Yes
Fluoride	mg/L	CUSUM	1.22	0.90	0.95	Yes	--	--	--	0.85	0.95	Yes
pH, Field-Measured	s.u.	CUSUM	7.47, 7.98	7.91	7.73, 8.00	No - Potential Exceedance	7.83	7.73, 7.92	Yes - Prior Result was a False-Positive	7.85	7.73, 7.98	Yes*
Sulfate	mg/L	CUSUM	2028	448	916	Yes	--	--	--	411	916	Yes
Total Dissolved Solids	mg/L	CUSUM	3106	1310	1836	Yes	--	--	--	1320	1843	Yes

Notes:
mg/L, milligrams per lite
s.u., standard units for pH
CUSUM: Parametric Shewhart-CUSUM Control Cha
Statistical limit for fluoride was deseasonalized when setting the baseline and may vary slightly between events.
Statistical limit for field-measured pH was deseasonalized when setting the baseline and may vary slightly between eve
Statistical limit for total dissolved solids was deseasonalized when setting the baseline and may vary slightly between events.

* Statistical chart indicates that the upper CUSUM value exceeds the upper control limit, but both values are equal during the current event.

Table 6: MW-9N (Downgradient, Bottom Ash Landfill) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2023 Result	CUSUM Value	Within Compliance?	Q2 2024 Result	CUSUM Value	Within Compliance?
Detection Monitoring Analytes	**Units**			**6-Nov-23**			**18-Jun-24**		
Boron, Total	mg/L	CUSUM	3.67	2.97	2.72	Yes	2.39	2.68	Yes
Calcium, Total	mg/L	CUSUM	94.4	83.2	173.0	No - Ongoing Verified SSI	73.6	164.9	No - Ongoing Verified SSI
Chloride	mg/L	CUSUM	22.0	24.3	142.3	No - Ongoing Verified SSI	25.3	150.7	No - Ongoing Verified SSI
Fluoride	mg/L	CUSUM	0.69	0.70	1.61	No - Ongoing Verified SSI	0.69	1.71	No - Ongoing Verified SSI
pH, Field-Measured	s.u.	CUSUM	6.65, 7.32	7.19	6.99, 7.80	No - Ongoing Verified SSI	7.18	6.99, 7.91	No - Ongoing Verified SSI
Sulfate	mg/L	CUSUM	1685	1480	1379	Yes	1100	1282	Yes
Total Dissolved Solids	mg/L	CUSUM	3394	3060	3842	No - Ongoing Verified SSI	2840	3735	No - Ongoing Verified SSI

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
CUSUM: Parametric Shewhart-CUSUM Control Char

Table 7: MW-102 (Downgradient, Bottom Ash Landfill) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2023 Result	CUSUM Value	Within Compliance?	Q2 2024 Result	CUSUM Value	Within Compliance?
Detection Monitoring Analytes	**Units**			**6-Nov-23**			**18-Jun-24**		
Boron, Total	mg/L	CUSUM	2.89	0.48	1.90	Yes	0.43	1.90	Yes
Calcium, Total	mg/L	CUSUM	106.3	61.8	63.0	Yes	62.2	63.0	Yes
Chloride	mg/L	CUSUM	23.1	16.0	16.4	Yes	15.7	16.4	Yes
Fluoride	mg/L	CUSUM	1.20	0.49	0.69	Yes	0.48	0.69	Yes
pH, Field-Measured	s.u.	CUSUM	6.95, 7.85	7.69	7.40, 8.32	No - Ongoing Verified SSI	7.62	7.40, 8.43	No - Ongoing Verified SSI
Sulfate	mg/L	CUSUM	1592	591	1008	Yes	516	1008	Yes
Total Dissolved Solids	mg/L	NP-PL	2410	1360	--	Yes	1410	--	Yes

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
NP-PL: Non-Parametric Prediction Limit
CUSUM: Parametric Shewhart-CUSUM Control Chart

Table 8: MW-103 (Downgradient, Bottom Ash Landfill) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2023 Result	CUSUM Value	Within Compliance?	Q2 2024 Result	CUSUM Value	Within Compliance?
Detection Monitoring Analytes	**Units**			**6-Nov-23**			**18-Jun-24**		
Boron, Total	mg/L	CUSUM	1.33	1.55	3.62	No - Ongoing Verified SSI	1.5	3.93	No - Ongoing Verified SSI
Calcium, Total	mg/L	CUSUM	34.5	33.4	63.4	No - Ongoing Verified SSI	32.0	71.5	No - Ongoing Verified SSI
Chloride	mg/L	CUSUM	18.7	17.8	64.7	No - Ongoing Verified SSI	17.6	67.5	No - Ongoing Verified SSI
Fluoride	mg/L	CUSUM	0.33	0.51	2.16	No - Ongoing Verified SSI	0.56	2.45	No - Ongoing Verified SSI
pH, Field-Measured	s.u.	CUSUM	8.89, 9.47	8.84	7.92, 9.18	No - Verified SSI	8.87	7.67, 9.18	No - Ongoing Verified SSI
Sulfate	mg/L	CUSUM	961	767	1873	No - Ongoing Verified SSI	763	1918	No - Ongoing Verified SSI
Total Dissolved Solids	mg/L	CUSUM	1948	2080	3979	No - Ongoing Verified SSI	2060	4041	No - Ongoing Verified SSI

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
CUSUM: Parametric Shewhart-CUSUM Control Chart

Table 9: MW-201 (Downgradient, Bottom Ash Impoundment) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2023 Result	CUSUM Value	Within Compliance?	Q2 2024 Result	CUSUM Value	Within Compliance?
Detection Monitoring Analyte	**Units**			**22-Nov-23**			**18-Jun-24**		
Boron, Total	mg/L	CUSUM	2.44	1.66	1.67	Yes	1.38	1.67	Yes
Calcium, Total	mg/L	CUSUM	122.7	99.3	100.8	Yes	99.6	100.8	Yes
Chloride	mg/L	CUSUM	21.9	17.7	19.3	Yes	18.5	19.3	Yes
Fluoride	mg/L	CUSUM	1.11	0.85	0.81	Yes	0.74	0.81	Yes
pH, Field-Measured	s.u.	CUSUM	7.09, 7.75	7.42	7.42, 7.42	Yes	7.46	7.42, 7.42	Yes
Sulfate	mg/L	CUSUM	1484	1260	1172	Yes	1150	1145	Yes
Total Dissolved Solids	mg/L	CUSUM	2377	2200	2174	Yes	2190	2174	Yes

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
CUSUM: Parametric Shewhart-CUSUM Control Chart

Table 10: MW-202 (Downgradient, Bottom Ash Impoundment) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2023 Result	CUSUM Value	Within Compliance?	Q2 2024 Result	CUSUM Value	Within Compliance?
Detection Monitoring Analytes	**Units**			**22-Nov-23**			**18-Jun-24**		
Boron, Total	mg/L	CUSUM	2.13	2.02	1.93	Yes	1.74	1.89	Yes
Calcium, Total	mg/L	CUSUM	228	193	182	Yes	196	192	Yes
Chloride	mg/L	CUSUM	17.5	12.6	11.8	Yes	13.6	13.0	Yes
Fluoride	mg/L	CUSUM	0.24	0.16	0.16	Yes	0.12	0.16	Yes
pH, Field-Measured	s.u.	CUSUM	6.85, 7.62	7.22	7.23, 7.23	Yes	7.21	7.23, 7.23	Yes
Sulfate	mg/L	CUSUM	725	641	643	Yes	607	666	Yes
Total Dissolved Solids	mg/L	CUSUM	1697	1520	1466	Yes	1530	1489	Yes

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
CUSUM: Parametric Shewhart-CUSUM Control Chart

Table 11: MW-203 (Downgradient, Bottom Ash Impoundment) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2023 Result	CUSUM Value	Within Compliance?	Q2 2024 Result	CUSUM Value	Within Compliance?
Detection Monitoring Analytes	**Units**			**22-Nov-23**			**18-Jun-24**		
Boron, Total	mg/L	CUSUM	2.06	3.56	4.75	No - Ongoing Verified SSI	2.36	5.62	No - Ongoing Verified SSI
Calcium, Total	mg/L	CUSUM	124.8	90.5	73.9	Yes	80.3	87.5	Yes
Chloride	mg/L	CUSUM	50.9	29.5	26.0	Yes	20.9	26.0	Yes
Fluoride	mg/L	CUSUM	1.27	0.64	0.84	Yes	0.57	0.84	Yes
pH, Field-Measured	s.u.	CUSUM	6.86, 10.66	8.02	8.44, 8.76	Yes	8.27	8.38, 8.76	Yes
Sulfate	mg/L	CUSUM	706	2090	2460	No - Ongoing Verified SSI	1570	3570	No - Ongoing Verified SSI
Total Dissolved Solids	mg/L	CUSUM	1793	3930	4947	No - Ongoing Verified SSI	3340	6758	No - Ongoing Verified SSI

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
CUSUM: Parametric Shewhart-CUSUM Control Char

APPENDIX C

Assessment Monitoring Comparative Statistics

Table C1-1: Appendix IV Comparative Statistics, MW-9N (Downgradient, Bottom Ash Landfill) - Q4 2023

Parameter	Units	GWPS	First AM Sample	Most Recent AM Sample	Number of Samples	Number of Non-Detects	Percent of Non-Detects	Trends	Data Distribution	Type of Confidence Interval	Lower Confidence Limit	Upper Confidence Limit	Confidence Interval Within Compliance?
Appendix IV													
Antimony, Total	mg/L	0.006	3/16/2021	11/6/2023	10	9	90%	N/A	N/A	Non-Parametric	0.0010	0.0010	Yes
Arsenic, Total	mg/L	0.01	3/16/2021	11/6/2023	10	10	100%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Barium, Total	mg/L	2	3/16/2021	11/6/2023	10	0	0%	None	Normal	Parametric	0.0573	0.0732	Yes
Beryllium, Total	mg/L	0.004	3/16/2021	11/6/2023	10	10	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Cadmium, Total	mg/L	0.005	3/16/2021	11/6/2023	10	10	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Chromium, Total	mg/L	0.1	3/16/2021	11/6/2023	10	9	90%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Cobalt, Total	mg/L	0.006	3/16/2021	11/6/2023	10	0	0%	None	Cube Root	Parametric	0.0029	0.0061	Yes
Fluoride	mg/L	4	3/16/2021	11/6/2023	10	0	0%	None	Normal	Parametric	0.67	0.70	Yes
Lead, Total	mg/L	0.015	3/16/2021	11/6/2023	10	10	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Lithium, Total	mg/L	0.325	3/16/2021	11/6/2023	10	0	0%	None	Normal	Parametric	0.0502	0.0549	Yes
Mercury, Total	mg/L	0.002	3/16/2021	11/6/2023	10	9	90%	N/A	N/A	Non-Parametric	0.0002	0.0002	Yes
Molybdenum, Total	mg/L	0.1	3/16/2021	11/6/2023	10	0	0%	None	Natural Log	Parametric	0.0496	0.0629	Yes
Radium-226 + Radium-228	pCi/L	5	3/16/2021	11/6/2023	10	0	0%	None	Normal	Parametric	0.796	1.782	Yes
Selenium, Total	mg/L	0.05	3/16/2021	11/6/2023	10	0	0%	None	Normal	Parametric	0.0129	0.0184	Yes
Thallium, Total	mg/L	0.002	3/16/2021	11/6/2023	10	10	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes

Notes:
mg/L: milligrams per liter
pCi/L: picocuries per liter
GWPS: Groundwater Protection Standard
AM: Assessment Monitoring
Trends were tested at α = 99%. Statistically significant trends are reported at α = 99%.
N/A: Not applicable - trends and normality were not tested for parameters with greater than 50% non-detects.
None: No statistically significant trends were identified.
A discussion of the calculation of lower and upper confidence intervals is provided in-text.
Only datasets where both the upper and lower confidence intervals exceed the GWPS are considered outside of compliance.

Table C1-2: Appendix IV Comparative Statistics, MW-102 (Downgradient, Bottom Ash Landfill), Q4 2023

Parameter	Units	GWPS	First AM Sample	Most Recent AM Sample	Number of Samples	Number of Non-Detects	Percent of Non-Detects	Trends	Data Distribution	Type of Confidence Interval	Lower Confidence Limit	Upper Confidence Limit	Confidence Interval Within Compliance?
Appendix IV													
Antimony, Total	mg/L	0.006	3/16/2021	11/6/2023	10	10	100%	N/A	N/A	Non-Parametric	0.0010	0.0010	Yes
Arsenic, Total	mg/L	0.01	3/16/2021	11/6/2023	10	10	100%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Barium, Total	mg/L	2	3/16/2021	11/6/2023	10	0	0%	None	Normal	Parametric	0.0276	0.0362	Yes
Beryllium, Total	mg/L	0.004	3/16/2021	11/6/2023	10	10	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Cadmium, Total	mg/L	0.005	3/16/2021	11/6/2023	10	10	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Chromium, Total	mg/L	0.1	3/16/2021	11/6/2023	10	10	100%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Cobalt, Total	mg/L	0.006	3/16/2021	11/6/2023	10	5	50%	None	Non-Normal	Non-Parametric	0.0020	0.0036	Yes
Fluoride	mg/L	4	3/16/2021	11/6/2023	10	0	0%	None	Normal	Parametric	0.49	0.50	Yes
Lead, Total	mg/L	0.015	3/16/2021	11/6/2023	10	9	90%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Lithium, Total	mg/L	0.325	3/16/2021	11/6/2023	10	0	0%	None	Normal	Parametric	0.0577	0.0608	Yes
Mercury, Total	mg/L	0.002	3/16/2021	11/6/2023	10	9	90%	N/A	N/A	Non-Parametric	0.0002	0.0002	Yes
Molybdenum, Total	mg/L	0.1	3/16/2021	11/6/2023	10	0	0%	None	Normal	Parametric	0.0207	0.0238	Yes
Radium-226 + Radium-228	pCi/L	5	3/16/2021	11/6/2023	10	0	0%	None	Normal	Parametric	0.685	1.421	Yes
Selenium, Total	mg/L	0.05	3/16/2021	11/6/2023	10	10	100%	N/A	N/A	Non-Parametric	0.0050	0.0050	Yes
Thallium, Total	mg/L	0.002	3/16/2021	11/6/2023	10	10	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes

Notes:
mg/L: milligrams per liter
pCi/L: picocuries per liter
GWPS: Groundwater Protection Standard
AM: Assessment Monitoring
Trends were tested at α = 99%. Statistically significant trends are reported at α = 99%.
N/A: Not applicable - trends and normality were not tested for parameters with greater than 50% non-detects.
None: No statistically significant trends were identified.
A discussion of the calculation of lower and upper confidence intervals is provided in-text.
Only datasets where both the upper and lower confidence intervals exceed the GWPS are considered outside of compliance.

Table C1-3: Appendix IV Comparative Statistics, MW-103 (Downgradient, Bottom Ash Landfill), Q4 2023

Parameter	Units	GWPS	First AM Sample	Most Recent AM Sample	Number of Samples	Number of Non-Detects	Percent of Non-Detects	Trends	Data Distribution	Type of Confidence Interval	Lower Confidence Limit	Upper Confidence Limit	Confidence Interval Within Compliance?
Appendix IV													
Antimony, Total	mg/L	0.006	3/16/2021	11/6/2023	10	10	100%	N/A	N/A	Non-Parametric	0.0010	0.0010	Yes
Arsenic, Total	mg/L	0.01	3/16/2021	11/6/2023	10	0	0%	None	Normal	Parametric	0.0124	0.0157	No
Barium, Total	mg/L	2	3/16/2021	11/6/2023	10	0	0%	None	Normal	Parametric	0.0560	0.0651	Yes
Beryllium, Total	mg/L	0.004	3/16/2021	11/6/2023	10	10	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Cadmium, Total	mg/L	0.005	3/16/2021	11/6/2023	10	10	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Chromium, Total	mg/L	0.1	3/16/2021	11/6/2023	10	9	90%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Cobalt, Total	mg/L	0.006	3/16/2021	11/6/2023	10	9	90%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Fluoride	mg/L	4	3/16/2021	11/6/2023	10	0	0%	None	Normal	Parametric	0.34	0.43	Yes
Lead, Total	mg/L	0.015	3/16/2021	11/6/2023	10	0	0%	None	Normal	Parametric	0.0015	0.0026	Yes
Lithium, Total	mg/L	0.325	3/16/2021	11/6/2023	10	0	0%	None	Normal	Parametric	0.0250	0.0312	Yes
Mercury, Total	mg/L	0.002	3/16/2021	11/6/2023	10	10	100%	N/A	N/A	Non-Parametric	0.0002	0.0002	Yes
Molybdenum, Total	mg/L	0.1	3/16/2021	11/6/2023	10	0	0%	None	Normal	Parametric	0.0445	0.0563	Yes
Radium-226 + Radium-228	pCi/L	5	3/16/2021	11/6/2023	10	0	0%	None	Normal	Parametric	0.645	1.718	Yes
Selenium, Total	mg/L	0.05	3/16/2021	11/6/2023	10	1	10%	None	Normal	Parametric	0.0076	0.0117	Yes
Thallium, Total	mg/L	0.002	3/16/2021	11/6/2023	10	10	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes

Notes:
mg/L: milligrams per liter
pCi/L: picocuries per liter
GWPS: Groundwater Protection Standard
AM: Assessment Monitoring
Trends were tested at α = 99%. Statistically significant trends are reported at α = 99%.
N/A: Not applicable - trends and normality were not tested for parameters with greater than 50% non-detects.
None: No statistically significant trends were identified.
A discussion of the calculation of lower and upper confidence intervals is provided in-text.
Only datasets where both the upper and lower confidence intervals exceed the GWPS are considered outside of compliance.

Table C2-1: Appendix IV Comparative Statistics, MW-9N (Downgradient, Bottom Ash Landfill)

Parameter	Units	GWPS	First AM Sample	Most Recent AM Sample	Number of Samples	Number of Non-Detects	Percent of Non-Detects	Trends	Data Distribution	Type of Confidence Interval	Lower Confidence Limit	Upper Confidence Limit	Confidence Interval Within Compliance?
Appendix IV													
Antimony, Total	mg/L	0.006	3/16/2021	3/28/2024	11	9	82%	N/A	N/A	Non-Parametric	0.0010	0.0011	Yes
Arsenic, Total	mg/L	0.01	3/16/2021	3/28/2024	11	11	100%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Barium, Total	mg/L	2	3/16/2021	3/28/2024	11	0	0%	None	Normal	Parametric	0.0593	0.0760	Yes
Beryllium, Total	mg/L	0.004	3/16/2021	3/28/2024	11	11	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Cadmium, Total	mg/L	0.005	3/16/2021	3/28/2024	11	10	91%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Chromium, Total	mg/L	0.1	3/16/2021	3/28/2024	11	10	91%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Cobalt, Total	mg/L	0.006	3/16/2021	3/28/2024	11	0	0%	None	Cube Root	Parametric	0.0032	0.0073	Yes
Fluoride	mg/L	4	3/16/2021	3/28/2024	11	0	0%	None	Normal	Parametric	0.6632	0.6986	Yes
Lead, Total	mg/L	0.015	3/16/2021	3/28/2024	11	11	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Lithium, Total	mg/L	0.325	3/16/2021	3/28/2024	11	0	0%	None	Normal	Parametric	0.0495	0.0543	Yes
Mercury, Total	mg/L	0.002	3/16/2021	3/28/2024	11	10	91%	N/A	N/A	Non-Parametric	0.0002	0.0002	Yes
Molybdenum, Total	mg/L	0.1	3/16/2021	3/28/2024	11	0	0%	None	Normal	Parametric	0.0512	0.0661	Yes
Radium-226 + Radium-228	pCi/L	5	3/16/2021	3/28/2024	11	0	0%	None	Normal	Parametric	0.8730	1.7610	Yes
Selenium, Total	mg/L	0.05	3/16/2021	3/28/2024	11	0	0%	None	Normal	Parametric	0.0126	0.0178	Yes
Thallium, Total	mg/L	0.002	3/16/2021	3/28/2024	11	11	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes

Notes:
mg/L: milligrams per liter
pCi/L: picocuries per liter
GWPS: Groundwater Protection Standard
AM: Assessment Monitoring
Trends were tested at α = 99%. Statistically significant trends are reported at α = 99%.
N/A: Not applicable - trends and normality were not tested for parameters with greater than 50% non-detects.
None: No statistically significant trends were identified.
A discussion of the calculation of lower and upper confidence intervals is provided in-text.
Only datasets where both the upper and lower confidence intervals exceed the GWPS are considered outside of compliance.

Table C2-2: Appendix IV Comparative Statistics, MW-102 (Downgradient, Bottom Ash Landfill)

Parameter	Units	GWPS	First AM Sample	Most Recent AM Sample	Number of Samples	Number of Non-Detects	Percent of Non-Detects	Trends	Data Distribution	Type of Confidence Interval	Lower Confidence Limit	Upper Confidence Limit	Confidence Interval Within Compliance?
Appendix IV													
Antimony, Total	mg/L	0.006	3/16/2021	3/28/2024	11	11	100%	N/A	N/A	Non-Parametric	0.0010	0.0010	Yes
Arsenic, Total	mg/L	0.01	3/16/2021	3/28/2024	11	11	100%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Barium, Total	mg/L	2	3/16/2021	3/28/2024	11	0	0%	None	Natural Log	Parametric	0.0274	0.0346	Yes
Beryllium, Total	mg/L	0.004	3/16/2021	3/28/2024	11	11	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Cadmium, Total	mg/L	0.005	3/16/2021	3/28/2024	11	11	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Chromium, Total	mg/L	0.1	3/16/2021	3/28/2024	11	11	100%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Cobalt, Total	mg/L	0.006	3/16/2021	3/28/2024	11	6	55%	N/A	N/A	Non-Parametric	0.0020	0.0036	Yes
Fluoride	mg/L	4	3/16/2021	3/28/2024	11	0	0%	None	Normal	Parametric	0.48	0.50	Yes
Lead, Total	mg/L	0.015	3/16/2021	3/28/2024	11	10	91%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Lithium, Total	mg/L	0.325	3/16/2021	3/28/2024	11	0	0%	None	Normal	Parametric	0.0574	0.0604	Yes
Mercury, Total	mg/L	0.002	3/16/2021	3/28/2024	11	10	91%	N/A	N/A	Non-Parametric	0.0002	0.0002	Yes
Molybdenum, Total	mg/L	0.1	3/16/2021	3/28/2024	11	0	0%	None	Normal	Parametric	0.0205	0.0234	Yes
Radium-226 + Radium-228	pCi/L	5	3/16/2021	3/28/2024	11	0	0%	None	Normal	Parametric	0.687	1.355	Yes
Selenium, Total	mg/L	0.05	3/16/2021	3/28/2024	11	11	100%	N/A	N/A	Non-Parametric	0.005	0.005	Yes
Thallium, Total	mg/L	0.002	3/16/2021	3/28/2024	11	11	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes

Notes:
mg/L: milligrams per liter
pCi/L: picocuries per liter
GWPS: Groundwater Protection Standard
AM: Assessment Monitoring
Trends were tested at α = 99%. Statistically significant trends are reported at α = 99%.
N/A: Not applicable - trends and normality were not tested for parameters with greater than 50% non-detects.
None: No statistically significant trends were identified.
A discussion of the calculation of lower and upper confidence intervals is provided in-text.
Only datasets where both the upper and lower confidence intervals exceed the GWPS are considered outside of compliance.

Table C2-3: Appendix IV Comparative Statistics, MW-103 (Downgradient, Bottom Ash Landfill)

Parameter	Units	GWPS	First AM Sample	Most Recent AM Sample	Number of Samples	Number of Non-Detects	Percent of Non-Detects	Trends	Data Distribution	Type of Confidence Interval	Lower Confidence Limit	Upper Confidence Limit	Confidence Interval Within Compliance?
Appendix IV													
Antimony, Total	mg/L	0.006	3/16/2021	3/28/2024	11	11	100%	N/A	N/A	Non-Parametric	0.0010	0.0010	Yes
Arsenic, Total	mg/L	0.01	3/16/2021	3/28/2024	11	0	0%	None	Normal	Parametric	0.0128	0.0157	No
Barium, Total	mg/L	2	3/16/2021	3/28/2024	11	0	0%	None	Normal	Parametric	0.0558	0.0642	Yes
Beryllium, Total	mg/L	0.004	3/16/2021	3/28/2024	11	11	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Cadmium, Total	mg/L	0.005	3/16/2021	3/28/2024	11	11	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Chromium, Total	mg/L	0.1	3/16/2021	3/28/2024	11	10	91%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Cobalt, Total	mg/L	0.006	3/16/2021	3/28/2024	11	10	91%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Fluoride	mg/L	4	3/16/2021	3/28/2024	11	0	0%	None	Normal	Parametric	0.35	0.43	Yes
Lead, Total	mg/L	0.015	3/16/2021	3/28/2024	11	0	0%	None	Normal	Parametric	0.0015	0.0025	Yes
Lithium, Total	mg/L	0.325	3/16/2021	3/28/2024	11	0	0%	None	Normal	Parametric	0.0250	0.0306	Yes
Mercury, Total	mg/L	0.002	3/16/2021	3/28/2024	11	11	100%	N/A	N/A	Non-Parametric	0.0002	0.0002	Yes
Molybdenum, Total	mg/L	0.1	3/16/2021	3/28/2024	11	0	0%	None	Normal	Parametric	0.0457	0.0566	Yes
Radium-226 + Radium-228	pCi/L	5	3/16/2021	3/28/2024	11	0	0%	None	Normal	Parametric	0.674	1.638	Yes
Selenium, Total	mg/L	0.05	3/16/2021	3/28/2024	11	1	9%	None	Normal	Parametric	0.0080	0.0116	Yes
Thallium, Total	mg/L	0.002	3/16/2021	3/28/2024	11	11	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes

Notes:
mg/L: milligrams per liter
pCi/L: picocuries per liter
GWPS: Groundwater Protection Standard
AM: Assessment Monitoring
Trends were tested at α = 99%. Statistically significant trends are reported at α = 99%.
N/A: Not applicable - trends and normality were not tested for parameters with greater than 50% non-detects.
None: No statistically significant trends were identified.
A discussion of the calculation of lower and upper confidence intervals is provided in-text.
Only datasets where both the upper and lower confidence intervals exceed the GWPS are considered outside of compliance.

Table C3-1: Appendix IV Comparative Statistics, MW-9N (Downgradient, Bottom Ash Landfill), Q2 2024

Parameter	Units	GWPS	First AM Sample	Most Recent AM Sample	Number of Samples	Number of Non-Detects	Percent of Non-Detects	Trends	Data Distribution	Type of Confidence Interval	Lower Confidence Limit	Upper Confidence Limit	Confidence Interval Within Compliance?
Appendix IV													
Antimony, Total	mg/L	0.006	3/16/2021	6/18/2024	12	10	83%	N/A	N/A	Non-Parametric	0.0010	0.0011	Yes
Arsenic, Total	mg/L	0.01	3/16/2021	6/18/2024	12	12	100%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Barium, Total	mg/L	2	3/16/2021	6/18/2024	12	0	0%	None	Normal	Parametric	0.0584	0.0742	Yes
Beryllium, Total	mg/L	0.004	3/16/2021	6/18/2024	12	12	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Cadmium, Total	mg/L	0.005	3/16/2021	6/18/2024	12	11	92%	N/A	N/A	Non-Parametric	0.0005	0.0007	Yes
Chromium, Total	mg/L	0.1	3/16/2021	6/18/2024	12	11	92%	N/A	N/A	Non-Parametric	0.0020	0.0024	Yes
Cobalt, Total	mg/L	0.006	3/16/2021	6/18/2024	12	0	0%	None	Natural Log	Parametric	0.0032	0.0064	Yes
Fluoride	mg/L	4	3/16/2021	6/18/2024	12	0	0%	None	Normal	Parametric	0.67	0.70	Yes
Lead, Total	mg/L	0.015	3/16/2021	6/18/2024	12	12	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Lithium, Total	mg/L	0.325	3/16/2021	6/18/2024	12	0	0%	Decreasing trend significant at 99% confidence level	Normal	Confidence Band Around Trend Line	0.0403	0.0524	Yes
Mercury, Total	mg/L	0.002	3/16/2021	6/18/2024	12	11	92%	N/A	N/A	Non-Parametric	0.0002	0.0003	Yes
Molybdenum, Total	mg/L	0.1	3/16/2021	6/18/2024	12	0	0%	None	Square Root	Parametric	0.0505	0.0637	Yes
Radium-226 + Radium-228	pCi/L	5	3/16/2021	6/18/2024	12	0	0%	None	Normal	Parametric	0.9	1.7	Yes
Selenium, Total	mg/L	0.05	3/16/2021	6/18/2024	12	0	0%	None	Normal	Parametric	0.0123	0.0172	Yes
Thallium, Total	mg/L	0.002	3/16/2021	6/18/2024	12	12	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes

Notes:
mg/L: milligrams per liter
pCi/L: picocuries per liter
GWPS: Groundwater Protection Standard
AM: Assessment Monitoring
Trends were tested at α = 99%. Statistically significant trends are reported at α = 99%.
N/A: Not applicable - trends and normality were not tested for parameters with greater than 50% non-detects.
None: No statistically significant trends were identified.
A discussion of the calculation of lower and upper confidence intervals is provided in-text.
Only datasets where both the upper and lower confidence intervals exceed the GWPS are considered outside of compliance.

Table C3-2: Appendix IV Comparative Statistics, MW-102 (Downgradient, Bottom Ash Landfill), Q2 2024

Parameter	Units	GWPS	First AM Sample	Most Recent AM Sample	Number of Samples	Number of Non-Detects	Percent of Non-Detects	Trends	Data Distribution	Type of Confidence Interval	Lower Confidence Limit	Upper Confidence Limit	Confidence Interval Within Compliance?
Appendix IV													
Antimony, Total	mg/L	0.006	3/16/2021	6/18/2024	12	12	100%	N/A	N/A	Non-Parametric	0.0010	0.0010	Yes
Arsenic, Total	mg/L	0.01	3/16/2021	6/18/2024	12	12	100%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Barium, Total	mg/L	2	3/16/2021	6/18/2024	12	0	0%	None	Natural Log	Parametric	0.0270	0.0337	Yes
Beryllium, Total	mg/L	0.004	3/16/2021	6/18/2024	12	12	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Cadmium, Total	mg/L	0.005	3/16/2021	6/18/2024	12	12	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Chromium, Total	mg/L	0.1	3/16/2021	6/18/2024	12	12	100%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Cobalt, Total	mg/L	0.006	3/16/2021	6/18/2024	12	7	58%	N/A	N/A	Non-Parametric	0.0020	0.0027	Yes
Fluoride	mg/L	4	3/16/2021	6/18/2024	12	0	0%	None	Normal	Parametric	0.48	0.50	Yes
Lead, Total	mg/L	0.015	3/16/2021	6/18/2024	12	11	92%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Lithium, Total	mg/L	0.325	3/16/2021	6/18/2024	12	0	0%	None	Normal	Parametric	0.0569	0.0601	Yes
Mercury, Total	mg/L	0.002	3/16/2021	6/18/2024	12	11	92%	N/A	N/A	Non-Parametric	0.0002	0.0003	Yes
Molybdenum, Total	mg/L	0.1	3/16/2021	6/18/2024	12	0	0%	None	Normal	Parametric	0.0203	0.0231	Yes
Radium-226 + Radium-228	pCi/L	5	3/16/2021	6/18/2024	12	0	0%	None	Normal	Parametric	0.7	1.3	Yes
Selenium, Total	mg/L	0.05	3/16/2021	6/18/2024	12	12	100%	N/A	N/A	Non-Parametric	0.005	0.005	Yes
Thallium, Total	mg/L	0.002	3/16/2021	6/18/2024	12	12	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes

Notes:
mg/L: milligrams per liter
pCi/L: picocuries per liter
GWPS: Groundwater Protection Standard
AM: Assessment Monitoring
Trends were tested at α = 99%. Statistically significant trends are reported at α = 99%.
N/A: Not applicable - trends and normality were not tested for parameters with greater than 50% non-detects.
None: No statistically significant trends were identified.
A discussion of the calculation of lower and upper confidence intervals is provided in-text.
Only datasets where both the upper and lower confidence intervals exceed the GWPS are considered outside of compliance.

Table C3-3: Appendix IV Comparative Statistics, MW-103 (Downgradient, Bottom Ash Landfill), Q2 2024

Parameter	Units	GWPS	First AM Sample	Most Recent AM Sample	Number of Samples	Number of Non-Detects	Percent of Non-Detects	Trends	Data Distribution	Type of Confidence Interval	Lower Confidence Limit	Upper Confidence Limit	Confidence Interval Within Compliance?
Appendix IV													
Antimony, Total	mg/L	0.006	3/16/2021	6/18/2024	12	12	100%	N/A	N/A	Non-Parametric	0.0010	0.0010	Yes
Arsenic, Total	mg/L	0.01	3/16/2021	6/18/2024	12	0	0%	None	Normal	Parametric	0.0131	0.0161	No
Barium, Total	mg/L	2	3/16/2021	6/18/2024	12	0	0%	None	Normal	Parametric	0.0543	0.0631	Yes
Beryllium, Total	mg/L	0.004	3/16/2021	6/18/2024	12	12	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Cadmium, Total	mg/L	0.005	3/16/2021	6/18/2024	12	12	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Chromium, Total	mg/L	0.1	3/16/2021	6/18/2024	12	11	92%	N/A	N/A	Non-Parametric	0.0020	0.0024	Yes
Cobalt, Total	mg/L	0.006	3/16/2021	6/18/2024	12	11	92%	N/A	N/A	Non-Parametric	0.0020	0.0022	Yes
Fluoride	mg/L	4	3/16/2021	6/18/2024	12	0	0%	None	Normal	Parametric	0.36	0.45	Yes
Lead, Total	mg/L	0.015	3/16/2021	6/18/2024	12	0	0%	None	Square Root	Parametric	0.0014	0.0023	Yes
Lithium, Total	mg/L	0.325	3/16/2021	6/18/2024	12	0	0%	None	Normal	Parametric	0.0244	0.0299	Yes
Mercury, Total	mg/L	0.002	3/16/2021	6/18/2024	12	12	100%	N/A	N/A	Non-Parametric	0.0002	0.0002	Yes
Molybdenum, Total	mg/L	0.1	3/16/2021	6/18/2024	12	0	0%	None	Normal	Parametric	0.0467	0.0569	Yes
Radium-226 + Radium-228	pCi/L	5	3/16/2021	6/18/2024	12	0	0%	None	Normal	Parametric	0.8	1.6	Yes
Selenium, Total	mg/L	0.05	3/16/2021	6/18/2024	12	1	8%	None	Normal	Parametric	0.0083	0.0117	Yes
Thallium, Total	mg/L	0.002	3/16/2021	6/18/2024	12	12	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes

Notes:
mg/L: milligrams per liter
pCi/L: picocuries per liter
GWPS: Groundwater Protection Standard
AM: Assessment Monitoring
Trends were tested at α = 99%. Statistically significant trends are reported at α = 99%.
N/A: Not applicable - trends and normality were not tested for parameters with greater than 50% non-detects.
None: No statistically significant trends were identified.
A discussion of the calculation of lower and upper confidence intervals is provided in-text.
Only datasets where both the upper and lower confidence intervals exceed the GWPS are considered outside of compliance.

APPENDIX D

ACM Arsenic Plume Delineation Figures

MISSOURI RIVER

HISTORIC STANTON STATION GENERATING FACILITY

MW-PB3 0.002

MW-PB1 0.020

MW-6B 0.003

MW-300 0.021

MW-301 0.008

MW-213 0.004

MW-217 0.006

MW-218 0.003

MW-220 0.005

MW-210 0.003

MW-215 0.012

MW-216 0.004

MW-1R 0.002

MW-211 0.026

MW-9N 0.002

MW-102 0.002

MW-104 0.002

MW-222 0.021

MW-212 0.004

MW-221 0.014

MW-103 0.016

MW-219 0.013

HIGHWAY 200A

BOTTOM ASH LANDFILL

HISTORIC NORTH CELL

NOTE 3

NOTE 5

HISTORIC CENTER CELL

BOTTOM ASH IMPOUNDMENT

NOTE 4

SOUTH CELL

MW-214 0.002

MW-105 0.002

MW-8B 0.002

MW-7B 0.002

MW-7A 0.004

1675

1680

1685

1690

1695

1700

LEGEND - Q1 2024 TOTAL ARSENIC

- RESULT ND < 0.002
- RESULT 0.002 TO <0.01
- RESULT 0.01 TO < 0.02
- RESULT > 0.02
- CLOSED BOTTOM ASH LANDFILL/IMPOUNDMENT FOOTPRINT
- GENERAL DIRECTION OF GROUNDWATER FLOW
- GROUNDWATER CONTOURS AND ELEVATIONS

NOTE(S)

1. AERIAL IMAGERY OBTAINED FROM UNITED STATES DEPARTMENT OF AGRICULTURE, NATIONAL AGRICULTURE IMAGERY PROGRAM, 2023.
2. GROUNDWATER CONTOURS ARE BASED ON MARCH 2024 ELEVATION INFORMATION FROM THE SHOWN MONITORING WELLS, AS WELL AS MONITORING WELLS AND PIEZOMETERS NOT SHOWN.
3. THE NORTH AND CENTER CELLS OF THE BOTTOM ASH IMPOUNDMENT WERE CLOSED BY REMOVAL OF WASTE AND LINER.
4. THE SOUTH CELL OF THE BOTTOM ASH IMPOUNDMENT WAS CLOSED WITH A FINAL COVER OVER PLACED WASTE.
5. THE BOTTOM ASH LANDFILL WAS CLOSED BY CONSOLIDATION OF PLACED WASTE INTO A SMALLER FOOTPRINT AND CONSTRUCTION OF A FINAL COVER.
6. TOTAL ARSENIC RESULTS ARE FROM Q1 2024 SAMPLING EVENT.
7. ALL CONCENTRATION AREAS ARE FOR VISUAL PURPOSES. THESE ARE ESTIMATIONS BASED ON THE Q1 2024 SAMPLING EVENT.

N

0 200 400

1" = 200' FEET

wsp

Q1 2024 TOTAL ARSENIC CONCENTRATIONS
GREAT RIVER ENERGY - STANTON STATION

FIGURE 2

Path: \\corp.pbwan.net\US\CentralData\USLJK200\acad\GREAT RIVER ENERGY\STANTON\99_PROJECTS\2150921 9\Annual Monitoring Reports\ | File Name: 21509219_2024_WQ-StantonNDDEQ_Q1_Total Arsenic_Figure 2.dwg



LEGEND - Q1 2024 DISSOLVED ARSENIC

- RESULT ND < 0.002
- RESULT 0.002 TO < 0.01
- RESULT 0.01 TO < 0.02
- CLOSED BOTTOM ASH LANDFILL/IMPOUNDMENT FOOTPRINT
- GENERAL DIRECTION OF GROUNDWATER FLOW
- GROUNDWATER CONTOURS AND ELEVATIONS

NOTE(S)

1. AERIAL IMAGERY OBTAINED FROM UNITED STATES DEPARTMENT OF AGRICULTURE, NATIONAL AGRICULTURE IMAGERY PROGRAM, 2023.
2. GROUNDWATER CONTOURS ARE BASED ON MARCH 2024 ELEVATION INFORMATION FROM THE SHOWN MONITORING WELLS, AS WELL AS MONITORING WELLS AND PIEZOMETERS NOT SHOWN.
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4. THE SOUTH CELL OF THE BOTTOM ASH IMPOUNDMENT WAS CLOSED WITH A FINAL COVER OVER PLACED WASTE.
5. THE BOTTOM ASH LANDFILL WAS CLOSED BY CONSOLIDATION OF PLACED WASTE INTO A SMALLER FOOTPRINT AND CONSTRUCTION OF A FINAL COVER.
6. DISSOLVED ARSENIC RESULTS ARE FROM Q1 2024 SAMPLING EVENT.
7. ALL CONCENTRATION AREAS ARE FOR VISUAL PURPOSES. THESE ARE ESTIMATIONS BASED ON THE Q1 2024 SAMPLING EVENT.

N

0 200 400
1" = 200' FEET

wsp

Q1 2024 DISSOLVED ARSENIC CONCENTRATIONS
GREAT RIVER ENERGY - STANTON STATION

FIGURE 3

Path: \\corp.pbwan.net\US\Central\Data\US_IK\200\acad\GREAT RIVER ENERGY\STANTON\99_PROJECTS\215092\19\Annual Monitoring Reports\ | File Name: 215092\19_2024_WQ-StantonNDDEQ_Q1_DissolvedArsenic_Figure 3.dwg

MISSOURI RIVER

HISTORIC STANTON STATION GENERATING FACILITY

MW-PB3 0.002

MW-PB1 0.004

MW-6B 0.003

MW-300 0.007

MW-213 0.002

MW-301 0.020

MW-217 0.005

MW-218 0.002

MW-220 0.003

MW-210 0.002

MW-215 0.004

MW-1R 0.002

MW-211 0.010

MW-216 0.004

MW-9N 0.002

MW-102 0.002

MW-104 0.002

MW-212 0.003

MW-222 0.021

MW-103 0.018

MW-221 0.013

MW-219 0.005

BOTTOM ASH LANDFILL

HISTORIC NORTH CELL

NOTE 3

NOTE 5

HISTORIC CENTER CELL

BOTTOM ASH IMPOUNDMENT

HIGHWAY 200A

MW-214 0.002

NOTE 4

SOUTH CELL

MW-105 0.002

MW-8B 0.002

MW-7B 0.002

MW-7A 0.008

1675 1680 1685 1690 1695 1700

LEGEND - Q2 2024 TOTAL ARSENIC

- RESULT ND < 0.002
- RESULT 0.002 TO < 0.01
- RESULT 0.01 TO < 0.02
- RESULT > 0.02
- CLOSED BOTTOM ASH LANDFILL/IMPOUNDMENT FOOTPRINT
- GENERAL DIRECTION OF GROUNDWATER FLOW
- GROUNDWATER CONTOURS AND ELEVATIONS

NOTE(S)

1. AERIAL IMAGERY OBTAINED FROM UNITED STATES DEPARTMENT OF AGRICULTURE, NATIONAL AGRICULTURE IMAGERY PROGRAM, 2023.
2. GROUNDWATER CONTOURS ARE BASED ON JUNE 2024 ELEVATION INFORMATION FROM THE SHOWN MONITORING WELLS, AS WELL AS MONITORING WELLS AND PIEZOMETERS NOT SHOWN.
3. THE NORTH AND CENTER CELLS OF THE BOTTOM ASH IMPOUNDMENT WERE CLOSED BY REMOVAL OF WASTE AND LINER.
4. THE SOUTH CELL OF THE BOTTOM ASH IMPOUNDMENT WAS CLOSED WITH A FINAL COVER OVER PLACED WASTE.
5. THE BOTTOM ASH LANDFILL WAS CLOSED BY CONSOLIDATION OF PLACED WASTE INTO A SMALLER FOOTPRINT AND CONSTRUCTION OF A FINAL COVER.
6. TOTAL ARSENIC RESULTS ARE FROM Q2 2024 SAMPLING EVENT.
7. ALL CONCENTRATION AREAS ARE FOR VISUAL PURPOSES. THESE ARE ESTIMATIONS BASED ON THE Q2 2024 SAMPLING EVENT.

N

0 200 400
1" = 200' FEET

wsp

Q2 2024 TOTAL ARSENIC CONCENTRATIONS
GREAT RIVER ENERGY - STANTON STATION

FIGURE 1

Path: \\corp.pbwan.net\US\Central\Data\US_JK100\acad\GREAT RIVER ENERGY\STANTON\99_PROJECTS\215092\9\Annual Monitoring Reports\ | File Name: 215092\9_2024_WO-StantonNDDEQ_Q2_Total_As.dwg

MISSOURI RIVER

HISTORIC STANTON STATION GENERATING FACILITY

MW-PB3 0.002

MW-PB1 0.002

MW-6B 0.003

MW-300 0.004

MW-213 0.002

MW-301 0.021

MW-217 0.002

MW-218 0.002

MW-220 0.002

MW-215 0.002

MW-210 0.002

MW-211 0.009

MW-216 0.002

MW-1R 0.002

MW-9N 0.002

MW-102 0.002

MW-104 0.002

MW-222 0.021

MW-212 0.002

MW-103 0.018

MW-221 0.007

MW-219 0.003

BOTTOM ASH LANDFILL

HISTORIC NORTH CELL

NOTE 3

NOTE 5

HISTORIC CENTER CELL

BOTTOM ASH IMPOUNDMENT

HIGHWAY 200A

MW-214 0.002

NOTE 4

SOUTH CELL

MW-105 0.002

MW-8B 0.002

MW-7B 0.002

MW-7A 0.008

1675 1680 1685 1690 1695 1700

LEGEND - Q2 2024 DISSOLVED ARSENIC

- RESULT ND < 0.002
- RESULT 0.002 TO < 0.01
- RESULT 0.01 TO < 0.02
- RESULT > 0.02
- CLOSED BOTTOM ASH LANDFILL/IMPOUNDMENT FOOTPRINT
- GENERAL DIRECTION OF GROUNDWATER FLOW
- GROUNDWATER CONTOURS AND ELEVATIONS

NOTE(S)

1. AERIAL IMAGERY OBTAINED FROM UNITED STATES DEPARTMENT OF AGRICULTURE, NATIONAL AGRICULTURE IMAGERY PROGRAM, 2023.
2. GROUNDWATER CONTOURS ARE BASED ON JUNE 2024 ELEVATION INFORMATION FROM THE SHOWN MONITORING WELLS, AS WELL AS MONITORING WELLS AND PIEZOMETERS NOT SHOWN.
3. THE NORTH AND CENTER CELLS OF THE BOTTOM ASH IMPOUNDMENT WERE CLOSED BY REMOVAL OF WASTE AND LINER.
4. THE SOUTH CELL OF THE BOTTOM ASH IMPOUNDMENT WAS CLOSED WITH A FINAL COVER OVER PLACED WASTE.
5. THE BOTTOM ASH LANDFILL WAS CLOSED BY CONSOLIDATION OF PLACED WASTE INTO A SMALLER FOOTPRINT AND CONSTRUCTION OF A FINAL COVER.
6. DISSOLVED ARSENIC RESULTS ARE FROM Q2 2024 SAMPLING EVENT.
7. ALL CONCENTRATION AREAS ARE FOR VISUAL PURPOSES. THESE ARE ESTIMATIONS BASED ON THE Q2 2024 SAMPLING EVENT.

N

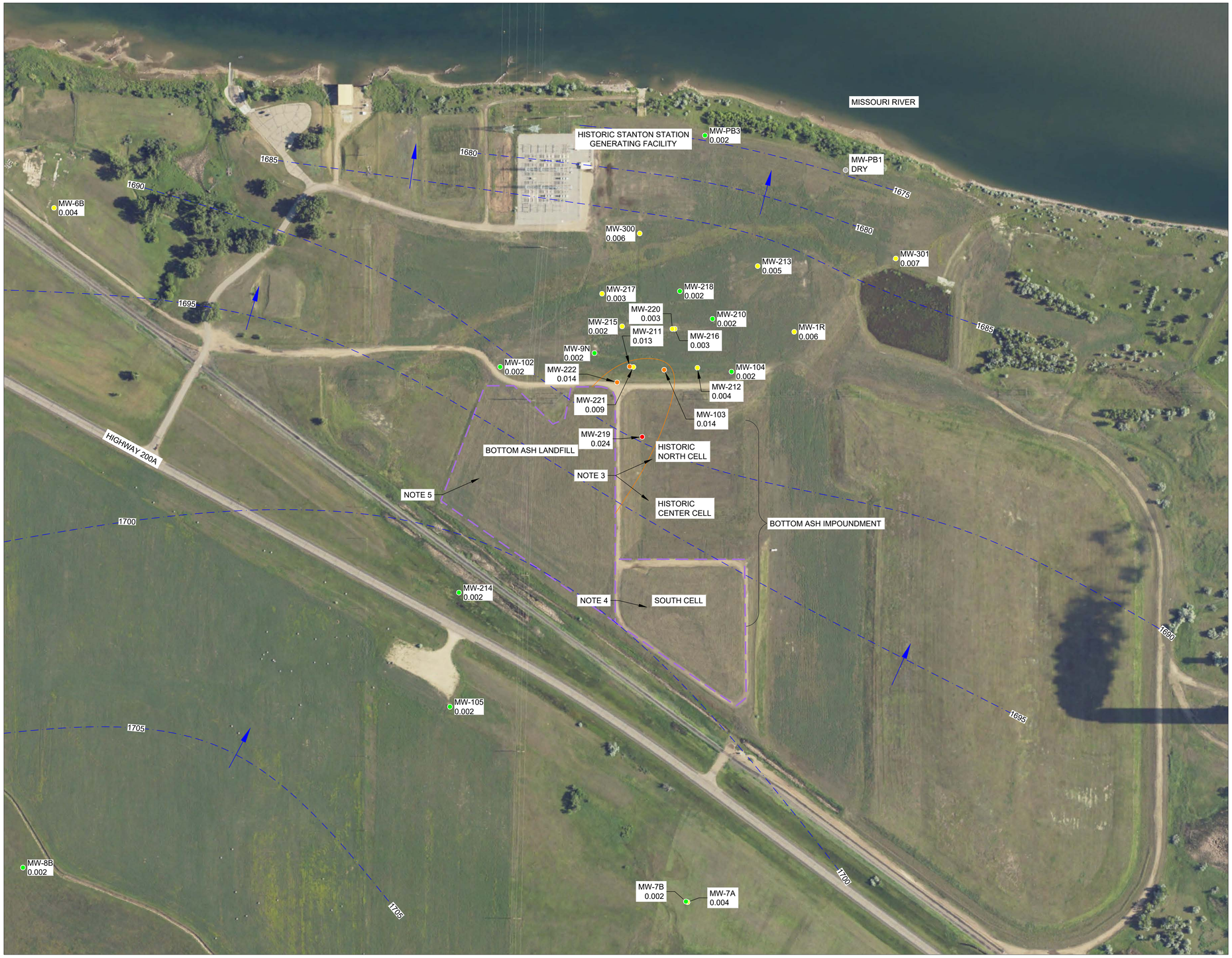
0 200 400
1" = 200' FEET

wsp

Q2 2024 DISSOLVED ARSENIC CONCENTRATIONS
GREAT RIVER ENERGY - STANTON STATION

FIGURE 1

Path: \\corp.pbwan.net\US\Central\Data\US_JK100\acad\GREAT RIVER ENERGY\STANTON\99_PROJECTS\215092\9\Annual Monitoring Reports\ | File Name: 215092\9_2024_WO-StantonNDDEQ_Q2_Dissolved_As.dwg



LEGEND - Q4 2024 TOTAL ARSENIC

- RESULT ND < 0.002
- RESULT 0.002 TO < 0.01
- RESULT 0.01 TO < 0.02
- RESULT > 0.02
- CLOSED BOTTOM ASH LANDFILL/IMPOUNDMENT FOOTPRINT
- GENERAL DIRECTION OF GROUNDWATER FLOW
- GROUNDWATER CONTOURS AND ELEVATIONS

NOTE(S)

1. AERIAL IMAGERY OBTAINED FROM UNITED STATES DEPARTMENT OF AGRICULTURE, NATIONAL AGRICULTURE IMAGERY PROGRAM, 2023.
2. GROUNDWATER CONTOURS ARE BASED ON NOVEMBER 2024 ELEVATION INFORMATION FROM THE SHOWN MONITORING WELLS, AS WELL AS MONITORING WELLS AND PIEZOMETERS NOT SHOWN.
3. THE NORTH AND CENTER CELLS OF THE BOTTOM ASH IMPOUNDMENT WERE CLOSED BY REMOVAL OF WASTE AND LINER.
4. THE SOUTH CELL OF THE BOTTOM ASH IMPOUNDMENT WAS CLOSED WITH A FINAL COVER OVER PLACED WASTE.
5. THE BOTTOM ASH LANDFILL WAS CLOSED BY CONSOLIDATION OF PLACED WASTE INTO A SMALLER FOOTPRINT AND CONSTRUCTION OF A FINAL COVER.
6. TOTAL ARSENIC RESULTS ARE FROM Q4 2024 SAMPLING EVENT.
7. ALL CONCENTRATION AREAS ARE FOR VISUAL PURPOSES. THESE ARE ESTIMATIONS BASED ON THE Q4 2024 SAMPLING EVENT.

N

0 200 400
1" = 200' FEET

wsp

Q4 2024 TOTAL ARSENIC CONCENTRATIONS
GREAT RIVER ENERGY - STANTON STATION

FIGURE 1

Path: \\corp.pbwan.net\US\Central\Data\US_JK100\acad\GREAT RIVER ENERGY\STANTON\99_PROJECTS\215092219\Annual Monitoring Reports\ | File Name: 215092219_2024_WQ-StantonNDEQ_Q4_TotalAs.dwg



LEGEND - Q4 2024 DISSOLVED ARSENIC

- RESULT ND < 0.002
- RESULT 0.002 TO < 0.01
- RESULT 0.01 TO < 0.02
- RESULT > 0.02
- CLOSED BOTTOM ASH LANDFILL/IMPOUNDMENT FOOTPRINT
- GENERAL DIRECTION OF GROUNDWATER FLOW
- GROUNDWATER CONTOURS AND ELEVATIONS

NOTE(S)

1. AERIAL IMAGERY OBTAINED FROM UNITED STATES DEPARTMENT OF AGRICULTURE, NATIONAL AGRICULTURE IMAGERY PROGRAM, 2023.
2. GROUNDWATER CONTOURS ARE BASED ON NOVEMBER 2024 ELEVATION INFORMATION FROM THE SHOWN MONITORING WELLS, AS WELL AS MONITORING WELLS AND PIEZOMETERS NOT SHOWN.
3. THE NORTH AND CENTER CELLS OF THE BOTTOM ASH IMPOUNDMENT WERE CLOSED BY REMOVAL OF WASTE AND LINER.
4. THE SOUTH CELL OF THE BOTTOM ASH IMPOUNDMENT WAS CLOSED WITH A FINAL COVER OVER PLACED WASTE.
5. THE BOTTOM ASH LANDFILL WAS CLOSED BY CONSOLIDATION OF PLACED WASTE INTO A SMALLER FOOTPRINT AND CONSTRUCTION OF A FINAL COVER.
6. DISSOLVED ARSENIC RESULTS ARE FROM Q4 2024 SAMPLING EVENT.
7. ALL CONCENTRATION AREAS ARE FOR VISUAL PURPOSES. THESE ARE ESTIMATIONS BASED ON THE Q4 2024 SAMPLING EVENT.

N

0 200 400
1" = 200' FEET

wsp

Q4 2024 DISSOLVED ARSENIC CONCENTRATIONS
GREAT RIVER ENERGY - STANTON STATION

FIGURE 1

Path: \\corp.pbwan.net\US\Central\Data\US_JK100\acad\GREAT RIVER ENERGY\STANTON\99_PROJECTS\215092190\Annual Monitoring Reports\ | File Name: 215092190_2024_WQ-StantonNDDEQ_Q4_DissolvedAs.dwg

APPENDIX E

1-Dimensional Geochemical Modeling

REPORT

One-Dimensional Geochemical Modeling

Great River Energy, Stanton Station Bottom Ash Landfill

Submitted to:

Great River Energy

12300 Elm Creek Boulevard, Maple Grove, Minnesota 55369

Submitted by:

WSP USA Inc.

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GL21509219.000-023-RPT-0

October 28, 2024



Table of Contents

1.0 INTRODUCTION 1

2.0 APPROACH 1

2.1 Arsenic Geochemical Data 1

2.2 Geochemical Modeling 1

2.2.1 Modeling Assumptions 2

3.0 RESULTS 3

4.0 CLOSING 3

5.0 REFERENCES 5

FIGURES

Figure 1. Estimated Arsenic Concentrations Based on Iron(III) Oxide ISI 1-D Transport Modeling

Figure 2. Estimated Arsenic Concentrations Based on Oxygen Gas ISI 1-D Transport Modeling

Figure 3. Estimated Arsenic Concentrations Based on Iron(III) Oxide and Oxygen Gas ISI 1-D Transport Modeling

1.0 INTRODUCTION

On behalf of Great River Energy (GRE), WSP USA Inc. (WSP) performed an evaluation of groundwater and solids from the uppermost water-bearing unit (herein also referred to as the “aquifer”) to determine the potential effectiveness of various in-situ injection (ISI) remedial actions using 1-dimensional geochemical transport modeling. This effort was undertaken as part of potential remedial action evaluation under the 2015 Coal Combustion Residual (CCR) rule.

A Statistically Significant Level (SSL) of arsenic above the groundwater protection standard ([GWPS] set at 0.01 milligrams per liter [mg/L]) has been identified in groundwater at monitoring well MW-103 beginning with the assessment monitoring statistical analysis for the fourth quarter (Q4) 2021 sampling event (March 28, 2022). Monitoring well MW-103 is a downgradient well for the Bottom Ash Landfill. No other program monitoring wells at the Stanton Station Site (herein referred to as “The Site” or “Site”) currently have an SSL of arsenic in groundwater. A notification identifying the SSL for arsenic was prepared and posted online and submitted to the North Dakota Department of Environmental Quality (NDDEQ) on April 27, 2022 (within 30 days of identifying the SSL). Arsenic is the constituent of interest (COI) for this modeling evaluation, but other CCR Rule Appendix III and IV constituents were included in modeling.

2.0 APPROACH

This section presents a description of the approach that WSP used to evaluate the fate and transport of arsenic along the transect running from the edge of the Bottom Ash Landfill, through well MW-103, and terminating at downgradient well MW-218 (WSP 2024). To assess the geochemical system, WSP used geochemical modeling to determine the geochemical conditions affecting fate and transport of each constituent in the groundwater system. Details on the specific methodologies are provided in the following sections.

2.1 Arsenic Geochemical Data

- The arsenic concentration resulting in an SSL at well MW-103 is likely due to reducing conditions causing arsenite to present in groundwater, leading to minimal arsenic attenuation.
- Generally, the aquifer has adequate capacity to attenuate arsenic downgradient of MW-103 where arsenic has not exceeded the GWPS.
- Specific details of the initial transport model setup, including adsorption surface site calculations, can be found in the Tier II and III MNA Evaluation report (WSP 2024).

2.2 Geochemical Modeling

Three, 1-dimensional transport models, were developed to determine the effectiveness of ISIs along the transect of arsenic remediation. The initial condition modeling for each of the three ISI models was based on the modeling performed for MNA evaluation, as described in the Tier II and III MNA Evaluation Report (WSP 2024). The model transect for well MW-103 is 150 meters (m) in length and is split into 15 cells measuring 10 m each. Each of the models ran forward for 60 years (150 total shifts) to evaluate the effectiveness of each treatment by evaluating predicted arsenic concentrations along the transects.

ISI models simulated the addition of sorptive material or oxidation of groundwater by ISI along the modeled transect to decrease groundwater arsenic concentrations to below the GWPS (0.01 mg/L). Materials used for modeling ISI included the injection of iron(III) oxide, and oxygen gas (air sparging). Iron(III) oxide was used as a representative iron adsorptive surface in this model, however, other materials may also be effective (i.e. various

ferric or ferrous iron compounds). Bench scale testing of the appropriate materials and initial dosing for injections should be completed under anoxic conditions using groundwater and aquifer materials collected under the same conditions. Where the injection of additional attenuation surfaces was simulated, iron hydroxides were allowed to precipitate forming new sorption surfaces. ISIs were modeled for conceptual purposes and the next phase of bench testing will be used to evaluate practical application and evaluate subsurface conditions (i.e. residual sulfide presence, etc.).

Adsorption of CCP constituents and other trace metals to metal hydr(oxides) initially proceeds very quickly, with half-lives of minutes or less (Appelo and Postma 2005; Bruemmer et al. 1988; Borda and Sparks 2008). The vast majority of adsorption occurs during this rapid phase, while only a minor amount of adsorption occurs afterwards (Borda and Sparks 2008). Because of this, for modeling purposes, adsorption is modeled as an equilibrium process, meaning adsorption will be instantaneous. Additionally, amorphous ferric iron precipitation in most systems has been identified to occur in the timeframe of minutes to hours and given the groundwater flux rate of 0.22 feet/day (or 0.11 inches per hour) ferric iron precipitation is also modeled as an equilibrium process.

2.2.1 Modeling Assumptions

The following assumptions were made in describing the geochemical system:

- Groundwater data from the March 2023 sampling event were used for modeling.
- Groundwater “total” values were used rather than dissolved due to the lack of dissolved data for the site, and consistency with the required reporting of total data for the CCR rule.
- Model calibration and sensitivity analysis was completed during the “current conditions” model design phase and is discussed in detail the Tier II and III MNA Evaluation Report (WSP 2024). Calibration evaluated the concentration of the respective SSL at the start and end of the transect as well as evaluating select CCR indicator parameter concentrations.
- The modeling time step was calculated based on groundwater velocity, cell size, and transect length.
- All reactions occur at thermodynamic equilibrium (i.e., no kinetics or other time-dependent rate expressions are necessary to describe the chemical reactions).
- All sorption reactions occur on Hydrous Ferric Oxide (Hfo) or Hydrous Aluminum Oxide (Hao), calculated by the abundance of naturally occurring metal (hydr)oxide minerals present in aquifer solids. Where ISI is described, additional iron adsorption surface was formed in those cells by allowing precipitation of the mineral ferrihydrite [$FeOH_3$]. Other aquifer materials may play a role in metal attenuation but are not included in this modeling effort.
- Clay minerals may also play an important role in sequestering arsenic through cation exchange; however, that attenuation process is not modeled here due to the anionic behavior of arsenic within the groundwater at the site and the minimal cation exchange capacity measured for site soils.
- The attenuation modeling accounts for competitive adsorption from major cations, anions, and metal species where thermodynamic data were available from Dzombak and Morel (1990) and Karamalidis and Dzombak (2010).

- All chemical reactions in the system are described using the equilibrium constant published by the USEPA Minteq v.4 thermodynamic database (Allison et al. 1991) as well as the additional thermodynamic data included in files from Karamalidis and Dzombak (2010).
- Dispersivity was set to maintain a Peclet number of <2.0 and generally set to between one-half to one cell length.

3.0 RESULTS

This section presents the results of the modeling simulating ISI and evaluates the effectiveness of each modeled scenario to decrease the concentration of arsenic in groundwater to below the GWPS in a reasonable timeframe along the transect.

The simulated injection of 0.01 millimoles iron(III) oxide in the first five cells of the model (representative of the transect area upgradient of well MW-103) indicates that the addition of iron adsorption sites could result in the decrease of arsenic concentrations to below the GWPS at well MW-103 after 6 years (Figure 1). Due to the reducing conditions of groundwater along the transect, less iron hydroxides are likely to precipitate, and arsenic is less likely to adsorb, leading to potentially less arsenic adsorption compared to a more oxidized system (Cambell and Nordstrom 2014).

Due to the relatively high concentration of iron reported in the aquifer materials at the site, an injection of oxygen gas was simulated to stimulate the creation of iron hydroxide adsorption sites, leading to arsenic attenuation along the transect. Modeling indicates that an injection of 0.01 millimoles oxygen gas in the first 5 cells results in a decrease in aqueous arsenic concentrations to below the GWPS after 4 years at well MW-103 (Figure 2). While the modeling indicates that the use of solely oxygen gas would result in the decrease the dissolved arsenic concentration along the transect, enough native iron must be present in the subsurface to be oxygenated to create additional adsorption sites for the modeled conditions to occur.

To simulate the addition of iron adsorption sites as well as an oxidizing agent, 0.01 millimoles of iron(III) oxide and oxygen gas were injected in the first 5 cells of the model to create additional iron adsorption sites. Modeling indicated that arsenic concentrations would fall below the GWPS at well MW-103 after just 2 years (Figure 3).

While modeling results indicate ISI can be effective at reducing arsenic concentrations at MW-103, each of the modeled approaches requires specific bench scale laboratory testing using site specific groundwater and aquifer solids materials to better determine their effectiveness and the volume of injectate needed.

Additionally, more complex 3-D reactive transport modeling using USGS PHAST can provide detailed information regarding the injection volumes, longevity of the injectate, and the optimal location for injections, as well as providing more graphical representations of the site.

4.0 CLOSING

Based on the results of modeling described in Section 3.0, ISI can be effective in meeting the GWPS for arsenic in a reasonable timeframe at well MW-103. A discussion of the time for pre-design investigation, permitting of ISI, and time until implementation has not been included within this report.

To promote the sorption of arsenic, ISI can be used to add additional iron adsorption sites along the modeled transect. Modeling has predicted that ISI would be successful in reducing arsenic concentrations to below the GWPS at MW-103 in less than 2 to 6 years depending on the approach implemented.

Signature Page

WSP USA Inc.





Cole Mayer
Associate Geochemist

PJ Nolan, PhD, PG (KY/MN)
Technical Principal & Asst. Vice President, Geochemist

CM/PJN/ELH/df

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5.0 REFERENCES

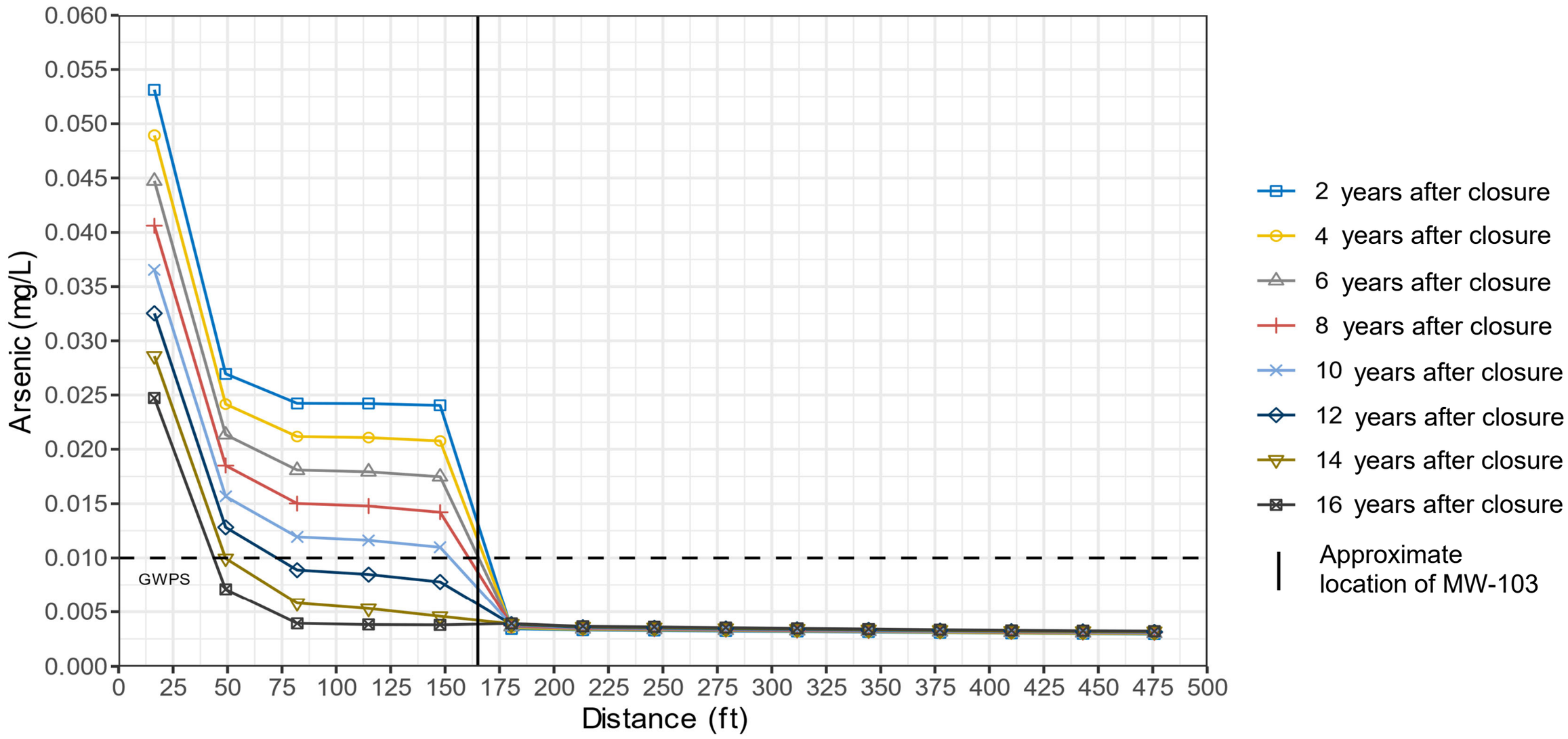
Allison, J.D., D.S. Brown, and K.J Novo-Gradac. 1991. MINTEQA2/PRODEFA2, A Geochemical Assessment Model for Environmental Systems: Version 3.0 User's Manual. EPA/600/3-91/021.

Dzombak, D. and Morel, F. 1990. Surface complexation modeling: hydrous ferric oxide. John Wiley & Sons.

Karamalidis, A., and Dzombak, D. 2010. Surface Complexation Modeling: Gibbsite. John Wiley and Sons, New Jersey.

WSP. 2024. Tier II and III MNA Evaluation for Arsenic, Bottom Ash Landfill – Stanton Station. WSP USA, July 2024.

Figures



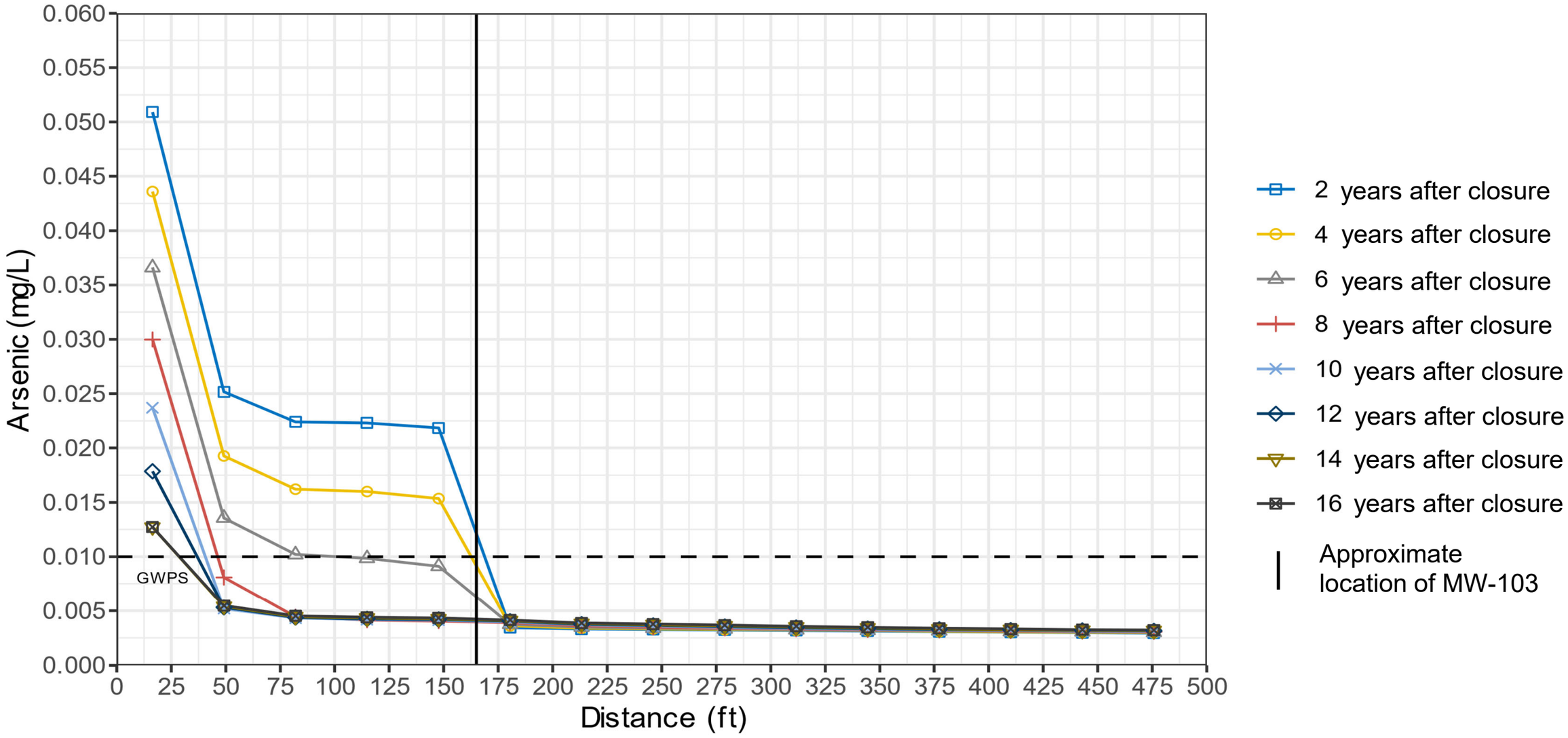
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GREAT RIVER ENERGY
STANTON STATION

CONSULTANT
wsp

PROJECT
GEOCHEMICAL MODELING

TITLE
Estimated Arsenic Concentrations Based on Iron(III) Oxide ISI 1-D Transport Modeling

PROJECT NO.	PHASE	REV.	FIGURE
GL21509219.000	01.LBR	0	1



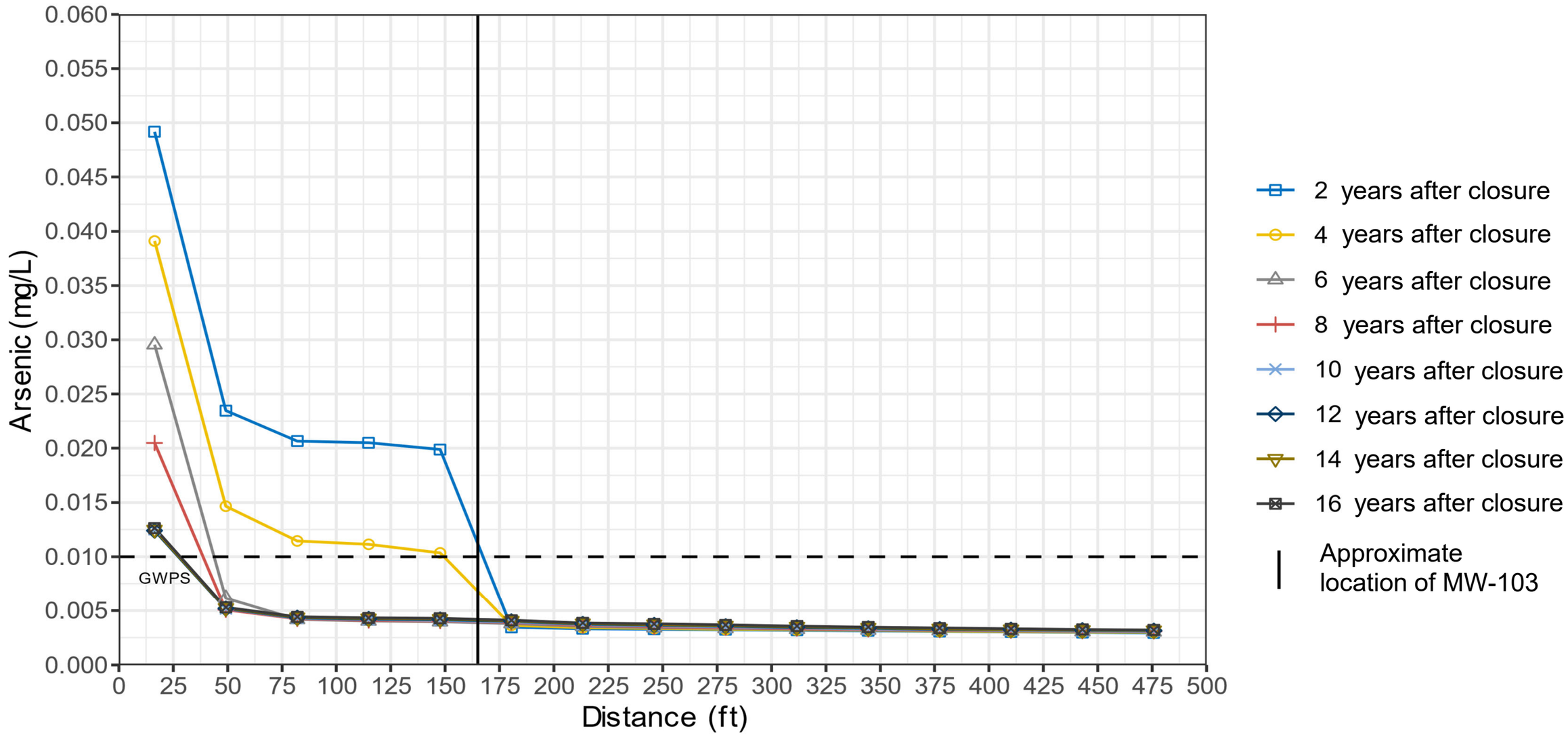
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PROJECT
GEOCHEMICAL MODELING

TITLE
Estimated Arsenic Concentrations Based on Oxygen Gas ISI 1-D Transport Modeling

PROJECT NO.	PHASE	REV.	FIGURE
GL21509219.000	01.LBR	0	2



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PROJECT
GEOCHEMICAL MODELING

TITLE
Estimated Arsenic Concentrations Based on Iron(III) Oxide and Oxygen Gas ISI 1-D Transport Modeling

PROJECT NO.	PHASE	REV.	FIGURE
GL21509219.000	01.LBR	0	3



wsp.com

APPENDIX F

Bench-Scale Treatability Testing Groundwater Sampling and Analysis Plan

DRAFT

TECHNICAL MEMORANDUM

DATE November 8, 2024 **Project No.** GL21509219.000

TO Erik Heinen, Great River Energy; Jeremy Meyer, MVTL

CC Todd Stong, Todd Rees, PJ Nolan, Cole Meyer

FROM Erin Hunter **EMAIL erin.hunter@wsp.com**

SAMPLING AND ANALYSIS PLAN – INITIAL PHASE, BENCH-SCALE TREATABILITY TESTING

This memorandum has been prepared to describe the planned procedures for the acquisition of groundwater samples for use in bench-scale treatability testing evaluations for Great River Energy's Stanton Station. Based on the current site conditions, samples are planned from two locations during the initial phase of testing, at wells MW-103 and MW-211 (Figure 1).

Details for collection of samples in this document provide additional information beyond the sampling and analysis procedures within the site Groundwater Monitoring Plan (Golder 2019), included as Attachment A. The following sections within the site Groundwater Monitoring Plan will be referenced and followed as part of the sampling procedures:

- Procedures Prior to Sampling, Section 3.1
- Sample Collection, Section 3.2
  - Decontamination, Section 3.2.1
  - Sampling Equipment and Materials, Section 3.2.2
  - Purging, Section 3.2.3.1
  - Sample Collection, Section 3.2.3.2
  - Sample Preservation, Handling, and Shipment, Section 3.2.3.3
- Chain-of-Custody Controls, Section 3.4
- Field Documentation, Section 3.5

Equipment

The following additional equipment is required for collection for the treatability testing samples beyond the standard sampling equipment detailed in Section 3.2.2 of Attachment A.

- EZ-Pour F-Style Jugs – 1-gallon (total of 15 for this event – 14 planned samples and 1 spare)

- Nitrogen gas with gas flow regulator – for maintaining zero-oxygen headspace within the sample collection jugs
- Gas flow meter (for use with the nitrogen gas)
- Tubing – New, certified clean tubing will be attached to the end of each monitoring well's dedicated tubing for sampling purposes, and additional tubing for use from the gas flow regulator into the sample jugs
- Scissors or other equipment for trimming tubing to the required lengths.
- Coolers for 14, 1-gallon sample jugs
- Indelible ink pens
- Packing tape
- Garbage or Ziploc-style bags sized for use as secondary containment during shipping for the sample containers
- Coupling for connecting to the existing dedicated pump tubing (minimum of one per well)
- Field Datasheets (example included as Attachment B)

Additionally, WSP will coordinate with Minnesota Valley Testing Laboratories (the primary contracted sampler at the site) for access to the well keys and assistance with sampling with the dedicated equipment.

Sampling Procedures

The objective of the sampling is to obtain seven (7) gallons of groundwater each from both MW-103 and MW-211.

- Prepare sample jug immediately prior to sampling, by writing the required sample identification information directly on the sample jug with an indelible ink pen.
- Prior to sampling, each 1-gallon sample jug will be rinsed with DI water, and the screw-on lid will be reattached.
- Purge dedicated pump and tubing following the procedure outlined in Section 3.2.3.1 of Attachment A, including measurement of field parameters to stability.
- Attach a clean coupling to the existing tubing at the monitoring well and attach the other end of the coupling to at least a 2-ft length of clean tubing.
- Attach a clean length of tubing to the regulator on the nitrogen tank, insert the open end of the tubing into the sample jug, and fill the jug with nitrogen gas at 2,000 milliliters per minute (mL/min) for 2 minutes. The rate of gas flow will be monitored with a gas flow meter with appropriate range. A spare cap is recommended for providing coverage for the tubing while filling the sample jugs.
- While maintain a nitrogen gas flow rate of 100 mL/min of nitrogen purge, the sampling tubing will be inserted into the bottom of the sample jug.
- While maintaining a groundwater extraction flow rate of 200 mL/min or less, fill the provided sample jug from the bottom up while maintaining the nitrogen purge of the headspace of the sample jug. Bottles should be

filled from the bottom up, in order to maintain the nitrogen headspace layer and minimize contact of the groundwater with the natural atmosphere.

- Minimize head space in the sample container as much as possible, filling to the extent possible, and reattach the screw-on lid.
- Place each sample jug in a bag (either resealable or garbage bag) and close, to minimize direct contact between the sample jugs and ice for sample label preservation and secondary containment for shipping.
- Place packaged sample containers in coolers with ice and prepare for shipping. Prior to shipping, coolers will be secured with packing tape.
- Chain-of-custody forms will be filled out at the associated sample collection and handling stages, and will be sent with the samples, either taped to the interior or exterior of the shipping coolers.
- Samples will be shipped overnight to:

  Terra Systems, Inc.
  ATTN: Michael Lee
  130 Hickman Road, Suite 1
  Claymont, Delaware 19703
- Upon shipment of the samples, a notification including the sample tracking number is to be provided to:

  Erin Hunter
  WSP USA Inc.
  Cell: 814-341-6488
  Email: erin.hunter@wsp.com

WSP USA Inc.

Attachments: Figure 1 – Site Map
Attachment A – 2019 Groundwater Monitoring Plan
Attachment B – Example Field Data Sheet

https://wsponlinenam.sharepoint.com/sites/gld-170737/project files/5 technical work/2024- stanton gw/acm/chemical injection/sap/gl21509219.000_tm_isi-sap-round1.docx

FIGURE

Site Map



LEGEND

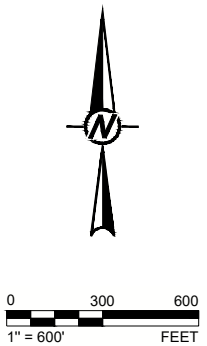
- UPGRADIENT OR SIDEGRADIENT MONITORING WELL
- DOWNGRADIENT MONITORING WELL
- DOWNGRADIENT PROPERTY BOUNDARY MONITORING WELL
- PIEZOMETER
- CLOSED BOTTOM ASH LANDFILL/IMPOUNDMENT FOOTPRINT

NOTE(S)

1. SEE TEXT FOR DETAILS OF SAMPLING PROGRAM.
2. CLOSED BOTTOM ASH LANDFILL/IMPOUNDMENT FOOTPRINT IS APPROXIMATE.

REFERENCE(S)

1. AERIAL IMAGERY OBTAINED FROM UNITED STATES DEPARTMENT OF AGRICULTURE, NATIONAL AGRICULTURE IMAGERY PROGRAM, 2020.



wsp

MONITORING WELL AND PIEZOMETER 2024 SAMPLING LOCATIONS
GREAT RIVER ENERGY - STANTON STATION

FIGURE 1

ATTACHMENT A

2019 Groundwater Monitoring Plan

Groundwater Monitoring Plan

Great River Energy - Stanton Station
Permit Number SP-043

Submitted to:

North Dakota Department of Health
Division of Waste Management
918 East Divide Avenue, 3rd Floor
Bismarck, North Dakota 58501

Submitted by:

Great River Energy
2875 Third Street SW, Underwood, North Dakota 58576

Prepared by:

Golder Associates Inc.
44 Union Boulevard, Suite 300
Lakewood, Colorado 80228
+1 303 980-0540

1894121

February 20, 2019

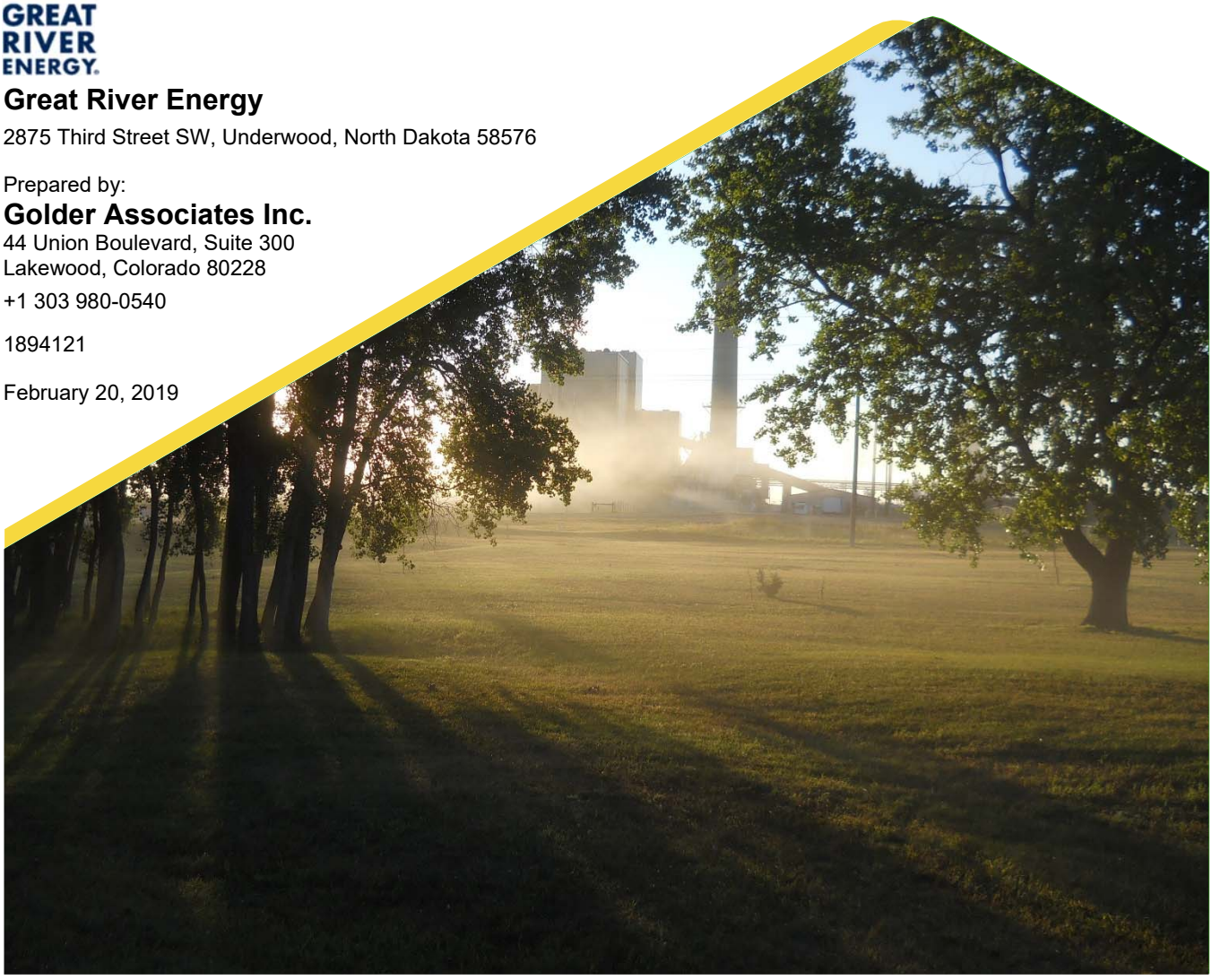


Table of Contents

1.0 INTRODUCTION 1

1.1 Plan Objectives 2

1.2 Document Organization 2

1.3 Background 2

1.4 2019 Changes to Program 3

1.5 Site Setting 6

1.5.1 Site Geology 6

1.5.2 Site Hydrogeology 6

1.5.3 Release Conceptual Model 6

2.0 MONITORING NETWORK 7

2.1 Facilities 7

2.2 Monitoring Locations 7

3.0 SAMPLING AND ANALYSIS PROCEDURES 8

3.1 Procedures Prior to Sampling 8

3.2 Sample Collection 8

3.2.1 Decontamination 9

3.2.2 Sampling Equipment and Materials 9

3.2.3 Procedures 9

3.2.3.1 Purging 10

3.2.3.2 Sample Collection 10

3.2.3.3 Sample Preservation, Handling, and Shipment 11

3.3 Quality Assurance/Quality Control (QA/QC) 11

3.4 Chain-of-Custody Controls 12

3.5 Field Documentation 12

3.6 Analytical Procedures 13

3.6.1 Analytical Reports 13

3.7 Data Evaluation 14

4.0 MONITORING PROGRAM 14
4.1 Parameters 14
4.2 Frequency of Sampling 14
4.3 Statistical Analysis 15
5.0 STATISTICAL ANALYSIS PLAN 15
5.1 Current Data 15
5.2 Intra-Well Methodology 15
5.3 Methodology for Baseline Diagnostic Tests 16
5.3.1 Collection of Baseline Data 16
5.3.2 Initial Data Review and Non-Detect Handling 16
5.3.3 Data Distribution 16
5.3.4 Outlier Analysis 17
5.3.5 Trend Analysis 17
5.3.6 Seasonality 18
5.3.7 Updating the Baseline Period 18
5.4 Statistical Limits 18
5.5 Comparative Statistical Analysis 19
5.6 Reporting and Actions for Verified SSIs 20
5.6.1 Bottom Ash Landfill and Bottom Ash Impoundment 20
5.6.2 Closed Special Waste Landfill 20
6.0 DATA MANAGEMENT 21
7.0 REPORTING 21
8.0 REFERENCES 21

TABLES

Table 1: Monitoring Well Summary
Table 2: Sampling Methods
Table 3: Parameter and Analysis Summary – Detection Monitoring
Table 4: Parameter and Analysis Summary – Assessment Monitoring
Table 5: Proposed Quality Assurance/Quality Control Sample Collection Locations

FIGURES

Figure 1: Site Location (Google Earth Pro, July 2016).....1

Figure 1: Site Location (Google Earth Pro, July 2016)

Figure 2: Proposed Monitoring Well Network

APPENDICES

APPENDIX A
Coal Combustion Residuals Groundwater Statistical Method Certification, Great River Energy - Stanton Station

APPENDIX B
Geologic Cross Sections

APPENDIX C
Monitoring Well Construction Logs

APPENDIX D
Example Field Forms

APPENDIX E
Manufacturer's User Guides for Low Flow Pumps and Controller

APPENDIX F
EPA Region 1 SOP No. GW 004: Low Stress (Low Flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells

APPENDIX G
Example Laboratory Data Evaluation Checklist

Tables

Figures

1.0 INTRODUCTION

This Groundwater Monitoring Plan (GMP) has been prepared by Golder Associates Inc. (Golder) on behalf of Great River Energy (GRE) for the inert waste landfill (Bottom Ash Landfill), Surface Impoundment (Bottom Ash Impoundment), and Closed Special Waste Landfill (Ponds B and C) regulated by the North Dakota Department of Health (NDDH) under Permit Number 0043. Stanton Station is a coal-fired electric generation facility located in Mercer County, North Dakota, approximately 3 miles southeast of the city of Stanton along the Missouri River. Figure 1 shows the location of Stanton Station.

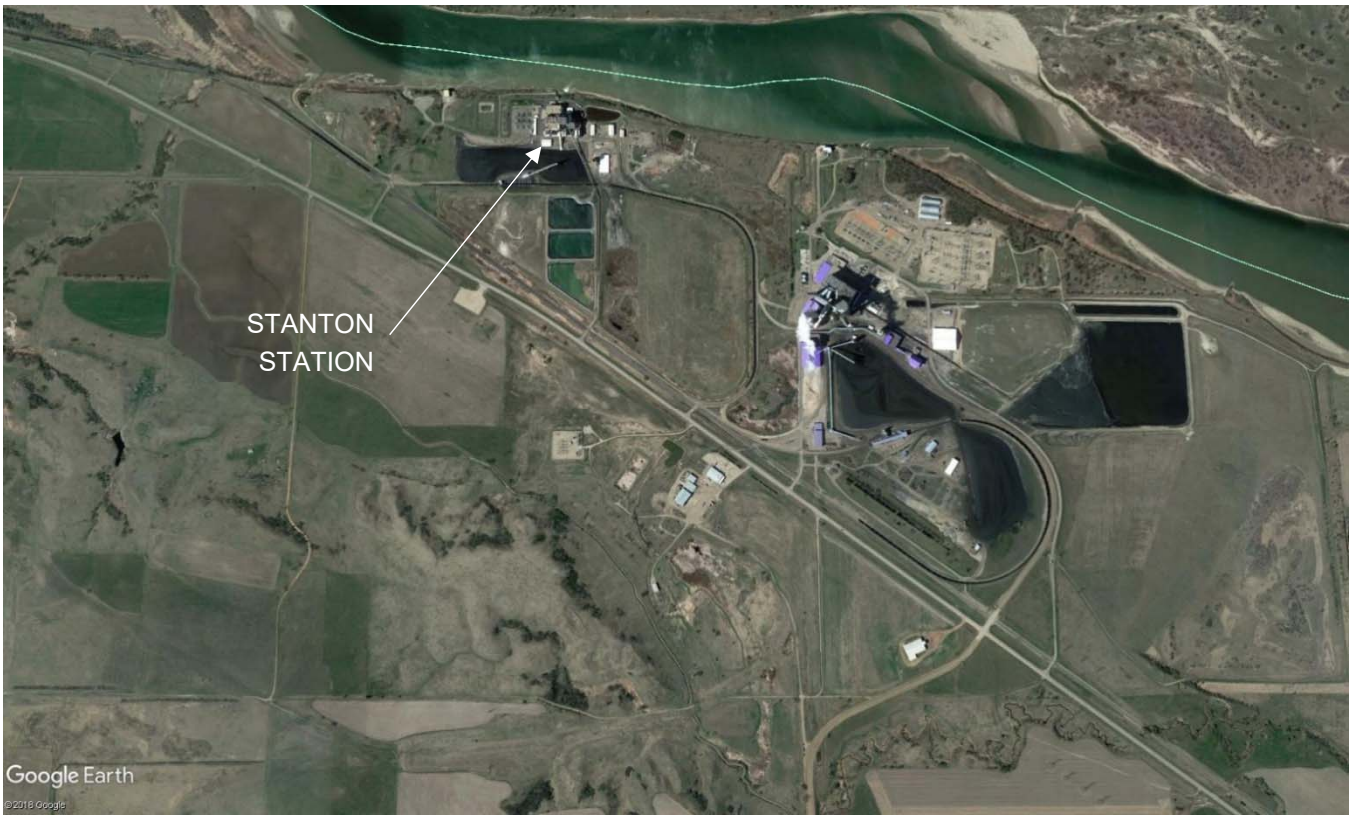


Figure 1: Site Location (Google Earth Pro, July 2016)

This GMP has been developed in accordance with requirements of the NDDH, standards-of-practice, and is designed to be consistent with U.S. Environmental Protection Agency (EPA) accepted procedures such as those described in:

- Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance (EPA 2009); and
- Criteria for Municipal Solid Waste Landfills, Code of Federal Regulations Title 40 Part 258 (40 CFR 258);

Per the requirements of North Dakota Administrative Code (NDAC) 33-20-13-02.4, this GMP includes:

- Number and location of wells;
- Procedures for decontamination of sampling equipment;
- Procedures for sample collection;

- Laboratory analytical methods;
- Chain-of-custody (COC) controls;
- Parameters for analysis;
- Quality assurance/quality control (QA/QC) procedures;
- A monitoring schedule;
- Data statistical methods and analysis procedures;
- Data management practices; and
- Reporting procedures.

1.1 Plan Objectives

The purpose of this GMP is to:

1) Provide methods and procedures for collecting and analyzing groundwater data to ensure the results are representative of groundwater conditions at the site.

2) Provide a means to consistently evaluate the data and to establish criteria that will identify statistically significant increases (SSIs).

3) Provide a basis for evaluating site groundwater during the closure and post-closure monitoring period (no active disposal with all areas closed and covered). In particular, evaluate the effects of the following on the groundwater data: ceasing disposal, removing portions of the Bottom Ash Impoundment, constructing final cover, and establishing vegetation.

1.2 Document Organization

This document is intended as a comprehensive guidance for personnel involved with water quality monitoring at Stanton Station. Section 1.0 provides background information, including site geologic and hydrogeologic conditions. Section 2.0 provides an overview of the monitoring well network. Section 3.0 presents the sampling and analysis procedures, detailing methods for sample collection and analytical testing. Section 4.0 describes the monitoring program at Stanton Station. Section 5.0 discusses the statistical analysis plan for the site monitoring program. Section 6.0 provides data management procedures, while Section 7.0 presents annual reporting requirements and procedures. A list of references is provided in Section 8.0.

1.3 Background

GRE's Stanton Station began generating power in 1966 and ceased power production in February 2017. Coal combustion residuals (CCRs) are managed in composite-lined surface water impoundment cells and dry waste facilities regulated and permitted by the NDDH in accordance with NDAC Article 33-20, Solid Waste Management and Land Protection.

At the start of operations, ash was sluiced to an area east of the power station currently referred to in Permit 0043 as the "Historic Ash Disposal Area." Beginning in 1982, ash disposal was directed to three unlined treatment ponds (Ponds A, B, and C) via wet placement. Starting in 1992, Ponds A, B, and C were converted to the composite-lined Bottom Ash Impoundment over the eastern portion of Pond A, the Bottom Ash Landfill over the western portion of

Pond A, and an ash landfill over the eastern portions of Ponds B and C. The ash landfill occupying the prior locations of Ponds B and C was subsequently closed and capped, and is referred to within this document as the Closed Special Waste Landfill. Final cover construction over the Closed Special Waste Landfill was completed in 1997.

In 2017, Stanton Station ceased production of power and began deconstruction of the plant and restoration of the site. As part of the restoration activities, a revised Closure and Post-Closure plan for the Bottom Ash Landfill and Bottom Ash Impoundment was developed and submitted to the NDDH (Golder 2018). Closure of the Bottom Ash Landfill and Bottom Ash Impoundment are anticipated to begin in 2019, as well as site regrading for post-restoration activities.

Consistent monitoring of groundwater at Stanton Station began in 1997. Earlier samples collected at wells across the site are included in the complete groundwater database.

1.4 2019 Changes to Program

Stanton Station is currently monitored under two separate programs – a NDDH program as described in the 2005 Sampling and Analysis Plan (SAP) (McCain 2005), and a separate coal combustion residual (CCR) program administered in conjunction with the EPA's CCR rule (40 CFR Parts 257 and 261), herein referred to as the CCR program. With closure and post-closure activities occurring at the site, the following changes are proposed to better align the site monitoring programs while meeting the plan objectives.

1) Consolidation of sampling programs.

    a. With closure and post-closure care ongoing at the facility, a consolidation of monitoring programs is proposed. For the Bottom Ash Landfill and Bottom Ash Impoundment, a move to follow the CCR program as outlined within the *Coal Combustion Residuals Groundwater Monitoring System Certification* and the *Coal Combustion Residuals Groundwater Statistical Method Certification* for Stanton Station (Golder 2017a and 2017b) is proposed, while no longer monitoring in accordance with the program as currently defined in the 2005 SAP (McCain 2005). For the Closed Special Waste Landfill, changes and additions to the program to provide consistency with the CCR monitoring program at the remainder of the site are described within this document.

2) Removal of wells MW-4 and MW-8A from the NDDH monitoring program (The proposed monitoring well network is shown in Figure 2).

    a. MW-4 is an upgradient well that the NDDH previously requested to not include with the upgradient monitoring wells for statistics. MW-4 has been monitored at GRE's discretion, and was not considered part of the monitoring network in the 2005 SAP. GRE is proposing removal of this well from discretionary monitoring since the existing five upgradient/side-gradient monitoring wells in the program provide sufficient upgradient information.

    b. MW-8A is an upgradient well. Only one sample has been collected from this location, at the time of drilling and installation of the well in 1992. The well has historically had insufficient volume for sample collection, as evidenced by the lack of samples collected since the 1992 sample. The well is not anticipated to have enough volume for sample collection at any point, as the measured depth of MW-8A is 27.0 feet below ground surface (ft bgs), while the water level in its nested well, MW-8B, is approximately 40 ft bgs (during the October 2017 monitoring event, 39.2 ft bgs; May 2018, 43.2 ft bgs).

3) Removal of wells due to Facility Closure and Site Re-Grading (The proposed monitoring well network is shown in Figure 2).

   As part of closure of the Bottom Ash Landfill and Bottom Ash Impoundment (consistent with the closure/post-closure care plan submitted to the NDDH in December, Golder 2018) and re-grading of the site for post-restoration activities, several monitoring wells are proposed to be removed. These include MW-3B, MW-1R, and MW-100.

   a. MW-3B is located downgradient of the currently permitted Bottom Ash Landfill footprint. Due to re-grading and closure, the Bottom Ash Landfill will be consolidated into a smaller footprint, and this well will no longer be downgradient of the closed Bottom Ash Landfill. In addition, to accommodate improved site drainage around the Bottom Ash Landfill after closure, the well and berm on which this well is installed will be removed.

   b. MW-1R is located downgradient of the current Bottom Ash Impoundment boundary. The north and center cells of the Bottom Ash Impoundment will be closed by removal of CCR and this well will no longer be located within a reasonable distance of the facility boundary and will not be positioned in a location to adequately monitor for potential impacts from the closed Bottom Ash Impoundment south cell footprint. Additionally, this well may be impacted by the post-restoration site drainage plan.

   c. MW-100 is located between the Bottom Ash Landfill and the Bottom Ash Impoundment (see Section 2.1 for a description of the monitored facilities), at the edge of the Bottom Ash Impoundment center cell. Due to its location, MW-100 was included as part of the monitoring network in the 2005 SAP but was not considered a downgradient compliance monitoring well within the 2005 SAP. This well will be removed as part of the closure plan for removal of the Bottom Ash Impoundment center cell.

4) Addition of wells to the monitoring program (The proposed monitoring well network is shown in Figure 2).

   As a result of the removal of wells described above, and changes to the final closure footprints for the Bottom Ash Landfill and Bottom Ash Impoundment, additional wells have been added or are proposed to be added to the monitoring network.

   a. MW-105 has been added as an additional upgradient well, located south of the facilities across North Dakota Highway 200.

   b. MW-102 and MW-103 have been added downgradient of the Bottom Ash Landfill to work in conjunction with MW-9N to monitor groundwater behavior downgradient of the Bottom Ash Landfill.

   c. To monitor conditions downgradient of the reduced Bottom Ash Impoundment footprint (as only the south cell will be closed with CCR in place) three new monitoring wells are proposed (MW-201, MW-202, and MW-203).

   d. To more comprehensively monitor the Closed Special Waste Landfill during the remainder of the post-closure period, two monitoring wells downgradient of the Closed Special Waste Landfill are proposed (MW-204 and MW-205). Post-closure activities for the Closed Special Waste Landfill are expected to be completed in 2027, following 30 years of post-closure monitoring (closure construction completed Fall of 1997).

5) Alterations to the sampling frequency.

   a. To mirror the CCR detection monitoring program, this plan proposes changing the sampling frequency from quarterly to semi-annually.

6) Alterations to the analyte list.

   a. For the Bottom Ash Landfill and Bottom Ash Impoundment, the CCR Appendix III list will be used during Detection Monitoring, while the CCR Appendix IV list will be used for Assessment Monitoring (as described in Section 5.6). The Appendix III list represents appropriate indicator parameters for monitoring impacts associated with CCRs. In the EPA CCR Rule, it indicates:

      "In selecting the parameters for detection monitoring, EPA chose constituents that are present in CCR and would rapidly move through the subsurface, and thus provide an early detection of whether contaminants were migrating from the CCR unit." (EPA 2015),

      The Appendix IV list includes parameters closely associated with CCRs that have known impacts to human health and the environment.

   b. For the Closed Special Waste Landfill, changes to the current parameter list are proposed to align with the CCR monitoring program and to better meet the objectives of monitoring potential releases from the Closed Special Waste Landfill. To accomplish this, the CCR Appendix III list is proposed for Detection Monitoring of the Closed Special Waste Landfill, and the CCR Appendix IV list is proposed for Assessment Monitoring of the Closed Special Waste Landfill.

7) Updates and changes to statistical methodology.

   a. Since publication and approval of the 2005 SAP, the EPA published an updated version of the *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* (EPA 2009), the prevailing guidance for groundwater monitoring and statistical analysis at RCRA facilities. The updates within this plan aim to bring the statistical analysis of site groundwater results in line with the Unified Guidance and state-of-the-practice techniques.

   b. The 2005 SAP cites use of inter-well statistical methodology as the primary means for statistical analysis at the site in an effort to "simplify" the interpretation. However, earlier documentation at the site described in the 2005 SAP as well as the EPA Unified Guidance (EPA 2009) recommend use of intra-well statistical methodology for historically impacted and geologically heterogenous sites, such as those included under Permit 0043 at Stanton Station.

   c. For the Bottom Ash Landfill and Bottom Ash Impoundment, the statistical methodology is detailed in the *Coal* Combustion *Residuals Groundwater Statistical Method Certification* (Golder 2017b). This document in included as APPENDIX A.

   d. For the Closed Special Waste Landfill, similar approaches to those described in APPENDIX A for the CCR program will be followed and are detailed within this document.

1.5 Site Setting

Stanton Station is located along the Missouri River, and the general area is primarily characterized by the presence of glacial deposits, with alluvial deposits dominating near-surface geology adjacent to the Missouri River. The following sections detail regional and site geology and hydrogeology.

1.5.1 Site Geology

Regional geology of the area surrounding Stanton Station is documented in the *Hydrogeologic Assessment Report, Stanton Station Ash Ponds* (Braun 1993). Physiographically, Stanton Station is located in the Missouri Slope District of the Glaciated Missouri Plateau Section of the Great Plains Province. Subsurface and surficial stratigraphy of Mercer County and the adjacent Oliver County were reviewed in depth by C.G. Carlson for the North Dakota Geological Society (Carlson 1973). Primary near-surface stratigraphic units in the area of Stanton Station include the Tongue River Formation and Cannonball Formation, with named lignite beds prominent in the vicinity of the site.

Near-surface geology at Stanton Station consists of two primary geologic units: the upper alluvial terrace deposits of the Missouri River, and underlying sediments and bedrock belonging to the Bullion Creek Formation, each of which have varying extents and thicknesses across the site (Braun 1993). Conceptual geologic cross sections were developed as part of the *Coal Combustion Residuals Groundwater Monitoring System Certification* (Golder 2017a) based on boring and historical site information (APPENDIX B).

1.5.2 Site Hydrogeology

The principal hydrostratigraphic unit and uppermost water-bearing unit in the vicinity of the CCR facilities (Bottom Ash Landfill and Bottom Ash Impoundment) consists of alluvial deposits, which includes two subunits: an upper silty sand and clay, and an underlying outwash sand and gravel. Individually, these subunits are laterally heterogeneous and geologic conditions within these subunits can be characterized by interbedded layers of gravel, sand, silt, clay, and coal.

Due to variations in subunit thickness throughout the site, groundwater in the uppermost water bearing unit is monitored in both the outwash subunit and the silty sand and clay subunit, with flow generally moving from southwest to northeast towards the Missouri River. Depths from the ground surface to the uppermost water-bearing unit range from 5 to 20 feet in the area around Stanton Station. A map showing recent available groundwater elevations is shown in Figure 2.

1.5.3 Release Conceptual Model

At Stanton Station, a hypothetical sub-surface release from the Bottom Ash Landfill, Bottom Ash Impoundment, or the Closed Special Waste Landfill would flow downgradient, to the northeast of the site. The downgradient wells are positioned along the northern edge of the Bottom Ash Landfill and Bottom Ash Impoundment, and along both the northern and eastern edges of the Closed Special Waste Landfill, to monitor for a potential release.

The groundwater flow rate across each facility was estimated with the equation $V_s = k \times i/n_e$, where:

- V_s is the groundwater flow rate, in feet per day (ft/day);
- k is the hydraulic conductivity, estimated from slug testing results from system wells (Braun 1993), in ft/day;
- i is the hydraulic gradient, calculated based on groundwater elevations for each monitoring event, in feet per feet (ft/ft);

- n_e is the effective porosity, estimated to be 0.25 for a silt/sand and is reflective of site soils (Duffield 2007).

The range of groundwater flow velocities calculated for the units during the May 2018 and November 2018 detection monitoring sampling events are shown below. As the Bottom Ash Landfill, Bottom Ash Impoundment, and Closed Ash Landfill are adjacent to one another and intersect similar geologic formations within the uppermost water-bearing zone, the groundwater flow rates are the same during each sampling event and are presented below based on a range of measured hydraulic conductivity (k) values from 1.05 ft/day to 40 ft/day.

- May 2018: 0.03 – 1.20 ft/day
- November 2018: 0.03 – 1.30 ft/day

2.0 MONITORING NETWORK

This GMP includes a monitoring network for each of the facilities at Stanton Station. To support the evaluation and analysis of water quality at the site, both upgradient and downgradient monitoring wells will be sampled.

2.1 Facilities

Stanton Station has three facilities that are monitored for the NDDH program:

- Bottom Ash Landfill – The Bottom Ash Landfill is located south of the plant site and west of the Bottom Ash Impoundment.
- Bottom Ash Impoundment – The Bottom Ash Impoundment is located south of the plant site, east of the Bottom Ash Landfill and west of the Closed Special Waste Landfill and consists of three interconnected cells designated as the north, center, and south cells. Only the south cell is planned to be closed with CCR in-place, while the north and center cells are planned to be closed by removal of CCR consistent with the closure/post-closure plan that was submitted to the NDDH in December 2018 (Golder 2018).
- Closed Special Waste Landfill – The Closed Special Waste Landfill is located to the southeast of the plant site, east of the Bottom Ash Impoundment.

2.2 Monitoring Locations

With the removal of the monitoring wells described in Section 1.4, water quality samples at Stanton Station will be collected from 14 locations. There are five upgradient/side-gradient monitoring wells (MW-6B, MW-7A, MW-7B, MW-8B, and MW-105) and nine downgradient monitoring wells, divided by unit as follows:

- Bottom Ash Landfill: MW-9N, MW-102, and MW-103
- Bottom Ash Impoundment: MW-201, MW-202, and MW-203
- Closed Special Waste Landfill: MW-10, MW-204, and MW-205

Monitoring well locations (both existing and proposed) are shown on Figure 2, construction details are provided in Table 1, and well construction logs are provided in APPENDIX C. Once this GMP and the location of the proposed wells is approved, GRE will submit an installation plan for the proposed wells (MW-201 through MW-205) to the NDDH for approval. The new wells will be installed in accordance with NDAC 33-20-13-04.

3.0 SAMPLING AND ANALYSIS PROCEDURES

The procedures for sampling and analysis provided in this section are intended as a working document that will be adapted as needed to reflect regulatory, technological, or operational changes. The data gathering and evaluation (i.e., sampling and analysis) procedures described herein are designed to:

- Be in accordance with the NDDH Regulations for Solid Waste Management.
- Be consistent with procedures recommended by the EPA.
- Provide monitoring results that represent groundwater quality at the upgradient and downgradient locations.

The following methodology is considered appropriate for sample collection to accurately monitor parameters in groundwater samples collected at the site.

3.1 Procedures Prior to Sampling

Prior to sample collection, the field procedure will begin with the preparation of the field log, verification of the required sample bottles, and organization and inspection of the field instrumentation.

Sample bottles will be provided by the analytical laboratory. Additional bottles for quality assurance/quality control (QA/QC) samples (duplicates, field blanks, and equipment blanks) will be arranged with the laboratory prior to shipment, as necessary. Specifics regarding QA/QC procedures are described in Section 3.3.

The laboratory will provide sample labels, chain-of-custody (COC) forms, and COC seals with delivery of the sample bottles. The containers, preservation techniques, and holding times for each parameter will be consistent with EPA-accepted procedures.

Each monitoring well will be inspected prior to sampling. The condition of the casing, monitoring well pad, reference mark for water level measurements, protective casing, monitoring well identification markings, and security lock will be recorded. Further, a check of the total depth of each well is recommended every four to eight sampling events to confirm well integrity.

Static water levels will be measured in monitoring wells at the facility within 24 hours of each other, prior to purging and groundwater sampling. Water level measurements will be made to the nearest 0.01 foot using a portable electric water level indicator. The depth to water will be measured from a dedicated reference mark on the riser pipe. Occasionally, the dedicated reference mark will be re-surveyed, if needed. A summary of the monitoring well depths is provided in Table 1, and well logs are provided in APPENDIX C.

The water level probe and tape will be decontaminated prior to use and between each location. Refer to Section 3.2.1 for decontamination procedures. A pair of new disposable gloves of appropriate material (e.g., latex or nitrile) will be worn while performing groundwater level measurements. Gloves will be changed between monitoring locations.

3.2 Sample Collection

Samples will be collected from the monitoring wells using low-flow procedures (Puls and Barcelona 1996). Dedicated bladder pumps and/or other reusable or disposable equipment will be used for purging and sample collection. Sample collection procedures are provided below.

3.2.1 Decontamination

All reusable, non-dedicated sampling equipment will be decontaminated prior to sampling and between each sampling location. Decontamination will be performed by washing all equipment with an Alconox® or comparable solution followed by a rinse with distilled or deionized water, followed by a second final rinse with distilled or deionized water. All clean or unused sampling equipment will be handled and maintained by personnel wearing clean, new, disposable gloves constructed of appropriate material (e.g., nitrile or latex). Decontamination times and locations will be recorded in the field log.

3.2.2 Sampling Equipment and Materials

The sampling equipment and materials may include the following:

- Dedicated bladder pump, controlling unit, compressed gas and discharge tubing, or disposable bailers with nylon rope
- Electric water level indicator
- Field water quality meter(s) capable of measuring pH, temperature, turbidity, and specific conductance
- Flow-through cell for the water quality meter(s)
- Water quality meter calibration solutions
- Disposable gloves (latex, nitrile, or other appropriate material)
- Deionized or distilled water
- Phosphate-free environmental detergent such as Alconox®
- Plastic sheeting to limit possible contamination of sampling equipment
- Re-sealable bags for sample storage and shipping
- Graduated container for purge water
- 5-gallon plastic buckets for decontamination
- Sample bottles and sample preservatives (if bottles are not pre-preserved by the laboratory)
- Field record forms, including sampling forms, COC forms, and sample labels
- Coolers and ice
- Paper towels

3.2.3 Procedures

Before the start of purging activities at each monitoring well, the date, time, weather conditions, physical condition of the monitoring well, and other pertinent data will be recorded in the field log. Any non-dedicated purging and sampling equipment will be decontaminated in accordance with the procedures described in Section 3.2.1 prior to use. Field parameter (pH, temperature, turbidity, and specific conductance) meters will be user-calibrated following manufacturer's recommended procedures prior to the sampling event. Field calibration values will be recorded in the field log or on an Instrument Calibration Form, similar to the example provided in APPENDIX D.

3.2.3.1 Purging

Low-flow sampling methods and procedures will be used to purge the monitoring wells. Low-flow refers to the rate at which water is drawn into the pump, typically 0.1 to 0.5 liters per minute or approximately 0.025 to 0.125 gallons per minute (Puls and Barcelona 1996) and involves purging and sampling across a small portion of the screened interval. During low-flow sampling, the static water level will be monitored with an electric water level indicator. Pumping rates will need to be adjusted to limit drawdown when purging. Manufacturer information for the bladder pumps and associated controlling unit (GeoControl Pro) is included in APPENDIX E.

Additional details for low-flow sampling procedures is provided in the EPA's Region I Standard Operating Procedure (SOP), Low Stress (Low Flow) Purging and Sampling Procedure for the Collection of Ground Water Samples from Monitoring Wells included as APPENDIX F (EPA 2017).

Prior to sample collection, each well will be purged of stagnant water from the pump and tubing. Once the stagnant water has been purged, field parameters (pH, temperature, turbidity, and specific conductance) will be measured using either a handheld meter or a flow through cell in conjunction with a field meter. The field parameters will be recorded in the field log approximately every three to five minutes. Field parameters will be monitored no fewer than three times before sample collection. Samples will be collected once the stagnant water has been removed and the field parameters have stabilized. Stabilization is considered to have been reached when there is less than ± 3 percent change in at least three consecutive measurements of temperature and specific conductance, and ± 0.1 units change in three consecutive measurements of pH.

A summary of sampling activities for monitoring wells, including the sampling schedule and method, purge rate, and stabilization criteria are included in Table 2. If a monitoring well is pumped dry during purging, it can be assumed that stagnant water has been removed. In this case, the sample may be collected once the well has recharged enough to provide adequate sample volume.

The cumulative volume of water purged will be recorded upon stabilization of the field parameters. Purge water generated during sampling events will be discharged on the ground at or near the monitoring well location.

3.2.3.2 Sample Collection

After purging is completed and before handling the sample containers, sampling personnel will re-glove with new disposable gloves of appropriate material. Sample bottles will be labeled with the monitoring well number, date and time of sample collection, and preservative (if applicable), along with name of collector and parameters requested for analysis if required.

Samples will be collected in plastic or glass containers of appropriate capacity. Pre-cleaned sample containers with appropriate preservatives will be provided by the analytical laboratory. Containers should not be rinsed before filling. Sample containers and preservatives are outlined in Tables 3 and 4 for the various programs. For monitoring wells that are pumped dry, samples will be collected after a sufficient volume is available. Wells proposed for inclusion in the program (Section 2.2) are not anticipated to go dry based on site history and sampling methodology.

During sampling, equipment or fingers will not be allowed to contact the inside of the sample containers or the caps. Aliquots for each groundwater sample will be collected directly from the pump discharge and the pumping will be kept at a low rate. Field filtering of samples will not be performed, and any necessary filtering of samples will be performed by the laboratory.

Following completion of groundwater sampling at each monitoring well, all non-dedicated sample equipment will be decontaminated in accordance with the procedures specified above in Section 3.2.1. Following sample collection at each monitoring well, the monitoring well security cap will be replaced and locked.

3.2.3.3 Sample Preservation, Handling, and Shipment

Samples collected for laboratory analysis require preservation and/or refrigeration. Preservation and refrigeration requirements for detection monitoring events are provided on Table 3, and for assessment monitoring events in Table 4. Preservation of samples ensures sample integrity and prevents or minimizes degradation or transformation of the constituents to be analyzed. Appropriate preservatives will be provided by the laboratory and attached to the sample containers in small vials or added to the empty bottles in the laboratory before they are taken to the field. Samples will be placed in a chilled cooler containing ice (or ice packs) to reduce and maintain sample temperatures at or below 4° Celsius. More ice will be added as needed during sample collection and prior to sample drop-off or shipment to the analytical laboratory.

At the end of each day of sampling, the collected samples will be dropped-off or shipped for overnight delivery to the analytical laboratory. Packing material will be added to each cooler to reduce the risk of sample container breakage, particularly glass containers, during transport. A completed and signed COC form for all samples contained within the cooler will be sealed inside a re-sealable bag and placed in the cooler. The cooler will be sealed with shipping tape wrapped completely around the lid and box and a signed COC seal, provided by the laboratory, will be affixed to the outside of the cooler.

Recommended holding times for each analyte or group of analytes are presented in Tables 3 and 4. Sampling schedules and shipments to the laboratory will be coordinated to meet the recommended holding times (i.e., coordinate ahead of time with the laboratory if a Saturday delivery will occur). Laboratory analyses performed outside the recommended holding times will be flagged or qualified appropriately in the analytical report provided by the laboratory.

3.3 Quality Assurance/Quality Control (QA/QC)

QA/QC procedures will be followed so that laboratory preparation, field sampling, and transport activities do not bias the results of the chemical analysis. QA/QC samples are collected to provide a quantitative basis for evaluating the analytical results. Proposed locations for collecting the QA/QC samples are provided on Table 5 to meet the recommended frequency for QA/QC samples collected for groundwater sampling programs.

The QA/QC samples will be used to validate the data for both downgradient and upgradient samples.

Blind Duplicate Sample – Blind duplicate samples will be collected by the sampling personnel in a manner identical to the primary sample. The duplicate sample will be analyzed by the laboratory just as the primary sample is analyzed and assigned unique sample identification numbers unassociated with the primary sample (i.e., MW-A, MW-1000, Duplicate 1, etc.). The duplicate is submitted to the analytical laboratory to allow for a determination of overall analytical precision. The quantity of duplicate samples should equal 5 to 10 percent of the total primary samples for a sampling event.

Field Blank – A field blank consists of sample bottles filled with deionized or distilled water at the sample site. The field blank will be analyzed by the laboratory as if it was a “real” sample. The blanks will serve as a quality check on container cleanliness, reagent, external contamination, and the analytical method. At least one field blank is typically collected for each day of sampling. The field blank will be labeled as “Field Blank” on the sample bottle and COC, and a field form should be completed.

Equipment Blank – A variation of the field blank is the equipment blank. Equipment blanks will be prepared in a manner identical to field blanks, except that deionized water is poured through clean (field decontaminated) non-dedicated sampling equipment and into the sample bottle. Equipment blank samples are used to assess that the potential for cross-contamination has been minimized by the equipment decontamination procedures. One equipment blank is typically collected for each day of sampling when non-dedicated sampling equipment is used. The equipment blank will be labeled as “Equipment Blank” on the sample bottle and COC. A field form should be completed documenting the piece of equipment associated with the equipment blank. At present, no non-dedicated equipment is used at Stanton Station, so no equipment blanks have been included on Table 5.

Matrix Spike and Matrix Spike Duplicate – Matrix spike (MS) and matrix spike duplicate (MSD) samples are collected by the sampling personnel in a manner identical to the primary sample. Once at the laboratory, the MS/MSD sample will be “spiked” with a known concentration of an analyte and analyzed by the laboratory just as the primary sample is analyzed. The spikes provide a measure of the precision of the analytical method(s) and techniques used by the laboratory. The duplicate is intended to assess that the results from the primary sample are accurate and reproducible. MS/MSDs are usually collected at a frequency of at least one MS/MSD pair per 20 regular samples. The MS/MSD will be labeled as “MS/MSD-1”, “MS/MSD-2”, etc. on the sample bottle and COC. A field form should be completed documenting the sample location associated with the MS/MSD.

3.4 Chain-of-Custody Controls

EPA-accepted COC procedures will be followed to document the integrity of the samples from the time the sample containers leave the laboratory until the issuing of the laboratory results. A written record of sample container possession and transference of samples will be documented on appropriate COC forms. From the time the empty sample containers leave the laboratory until the issuing of the laboratory results, the samples and/or sample containers will be: 1) in sight of the assigned custodian; or 2) locked in a tamper proof location; or 3) sealed with a tamper proof seal. A written record of sample container possession and transference of samples will be documented on appropriate COC forms.

The forms will also be used as a mechanism of communication between the sampling personnel and the analytical laboratory to note any specific details or requirements regarding the requested laboratory analysis. At the completion of the sampling event, a copy of the completed COC form(s) signed by all appropriate entities handling the samples will be retained with the laboratory report for site records.

3.5 Field Documentation

Documentation of observations and data acquired in the field provides information on the acquisition of samples and a permanent record of field activities. Observations and data will be recorded on field forms or in a field log. An example field form is provided in APPENDIX D. The field forms or log will be maintained by field personnel during the sampling and measurement activities. Field logs will be initialed and dated by the person recording the data. The field log entries are to include a full description of each sampling event, which may include the following:

- Monitoring well number
- Date and time the monitoring well was sampled
- Personnel present
- Weather conditions

- Any unusual field conditions or sampling difficulties
- Physical condition of the monitoring well (e.g., evidence of tampering)
- Depth to monitoring well screen and pump intake
- Purging device (pump type)
- Depth to water
- Pump dial setting
- Purge rate and volume purged
- Instrument calibration notes and results
- Stabilization parameter readings
- Color, clarity, and/or other visual characteristics of the water
- Temperature inside of cooler prior to shipping
- Notes to accompany any photos taken during sampling
- Documentation of repairs that may be needed
- Comments and/or other site observations

Additionally, any QA/QC samples collected (e.g., duplicate samples) should be described in the field log and will be assigned an appropriate sample identification number. A discussion of groundwater monitoring QA/QC procedures is presented in Section 3.3.

3.6 Analytical Procedures

Laboratory analytical methods will be performed in accordance with EPA-approved methods by a North Dakota-certified analytical laboratory. Laboratory analytical methods may be modified periodically to reflect the current technical practice. Reporting limits for the parameters analyzed will be the lowest concentrations that can be reliably achieved within the specified limits of precision and accuracy during routine laboratory operating conditions. Instrument detection limits will be kept at or below the practical quantitation limits (PQLs). Analytical methods and reporting limits are listed in Tables 3 and 4.

QA/QC procedures performed by the certified laboratory can be provided upon request and should be included with analytical reports. Quality control checks by the laboratory may include analyses of MS/MSD samples, laboratory blanks, and laboratory control standards for each parameter in the monitoring program.

3.6.1 Analytical Reports

The contents of the laboratory analytical reports will include:

- The sample identification number;
- Analytical results for both primary and duplicate samples;
- Dates that samples are collected in the field, received by the laboratory, and analyzed by the laboratory;

- Analytical methods;
- Reporting limits;
- MS/MSD results; and
- Other QA/QC results.

3.7 Data Evaluation

Data evaluation should be performed on the analytical data. The data should be reviewed to determine the usability of the data. The data should be reviewed in a timely manner to allow for re-analysis of a sample within holding times, where possible.

Data evaluation will include a review of holding times to assess whether EPA-prescribed holding times were met, and an evaluation of analytical accuracy and precision based on the results of analyses of duplicate samples, MS/MSD samples, and other samples tested for QA/QC purposes. QA/QC data will be compared to the certified laboratory's quality assurance objectives and deviations from these objectives will be investigated. An example laboratory data evaluation checklist, which assists in data evaluation, is included in APPENDIX G. Refer to the following EPA guidance documents for additional information:

- Guidance on Environmental Data Verification and Data Validation (EPA 2002)
- National Functional Guidelines for Inorganic Superfund Methods Data Review (EPA 2017)

4.0 MONITORING PROGRAM

This monitoring program has been developed to support and manage water quality monitoring at Stanton Station, as regulated by the NDDH under Permit Number 0043. The monitoring parameters, frequency of monitoring, and statistical analysis methods for the monitoring program are described in the following sections.

4.1 Parameters

Water quality will be sampled and analyzed at the Bottom Ash Landfill, Bottom Ash Impoundment, and Closed Special Waste Landfill for the parameters provided in Table 3 during detection monitoring and for the parameters provided in Table 4 in the event of assessment monitoring (as described in Section 5.6). Water levels will also be measured at the time of sample collection for all wells. Additionally, the following field parameters will be monitored: pH, specific conductance, temperature, and turbidity. In the future, the analyte list may be revised to account for site-specific conditions, if necessitated and approved by the NDDH.

Parameters reflect the requirements of the EPA's CCR rule, with required parameters for detection monitoring (40 CFR 257.94(a)) listed in Appendix III of the rule and required parameters for assessment monitoring (40 CFR 257.95(b)) listed in Appendix IV of the rule.

4.2 Frequency of Sampling

Samples for the detection monitoring program will be collected semi-annually. In the event of assessment monitoring (as described in Section 5.6), sampling schedules will be modified to reflect the requirements of the assessment monitoring program.

4.3 Statistical Analysis

The purpose of groundwater monitoring at Stanton Station is to determine if on-site disposal has impacted the groundwater quality and to evaluate the effects of recent and ongoing measures during site-closure activities. To determine if an impact has occurred, baseline and more recent groundwater data from each well will undergo statistical analysis. The statistical plan for the groundwater analytical data for the Bottom Ash Impoundment and Bottom Ash Landfill for the CCR program is included as APPENDIX A, while the statistical plan for the Closed Special Waste Landfill is described in detail in Section 5.0.

5.0 STATISTICAL ANALYSIS PLAN

The statistical plan for the groundwater analytical data during detection monitoring for the Closed Special Waste Landfill is described within the following section. The statistical methodology outlined within this document was selected in accordance with the Unified Guidance (EPA 2009).

Statistical analysis will be conducted using Sanitas (Sanitas Technologies 2014) or similar statistical analysis software.

Comparative statistical analysis will be performed semi-annually following each monitoring event to identify whether concentrations are statistically significant in comparison to baseline values, with the results reported annually.

The baseline data for constituents in the monitoring program will be reviewed periodically (approximately every 2 to 3 years based on a semi-annual sampling frequency) to determine if recent results that are not statistically significant in comparison to baseline values can be incorporated into an updated baseline period (specifics of the baseline update procedure are discussed in depth in Section 5.3.7).

5.1 Current Data

At present, the statistics used for analysis of Stanton Station's groundwater conditions utilize all available data points, with exceptions provided for issues identified using professional judgement (i.e., outliers, database errors, detection limit changes). To best identify potential changes to groundwater quality based on current site conditions, truncating or shifting of baseline periods may occur in the future. In many cases this will allow for more conservative limits to be established for parameters where reporting limits have been reduced.

5.2 Intra-Well Methodology

Intra-well (comparing compliance data to baseline data within a single well) statistics were identified as an appropriate method for groundwater monitoring at Stanton Station. This method was selected based on the following factors outlined in the Unified Guidance (EPA 2009).

- Per the Unified Guidance: Intra-well methodology allows establishment of reasonable baseline periods for future tests in historically impacted wells. Additionally, measurements occur solely between the baseline period and compliance period of testing within a single well.
  - Past CCR depositional facilities are known to have impacted the subsurface hydrology. Those facilities have been removed and new facilities with engineered liner systems have been constructed (see Section 1.3). The use of intra-well statistics allows future potential changes in water chemistry to be more readily tracked in relation to current facilities at Stanton Station.
- Per the Unified Guidance: Confounding results stemming from spatial variability can be eliminated.

- Due to the heterogeneity of the glacial geology at Stanton Station (see Section 1.5), spatial variability of the monitored hydrostratigraphic units is encountered throughout the groundwater monitoring network. Use of intra-well statistics allows comparisons to be made on a per well basis, which avoids comparisons being made between differing geologic and geochemical conditions.

5.3 Methodology for Baseline Diagnostic Tests

5.3.1 Collection of Baseline Data

Baseline samples (a minimum of eight) will be collected for new wells added to the program, as well as for wells not historically part of the CCR program (i.e., MW-10). Samples will be analyzed for both the Appendix III and Appendix IV constituent lists (Tables 3 and 4). The following field parameters will also be recorded: pH, specific conductivity, temperature, and turbidity. Following collection of the baseline samples, semi-annual detection monitoring samples will be analyzed for the Appendix III constituent list. In the event of assessment monitoring, samples will be analyzed for the Appendix IV constituent list. During both the baseline period and any future sample collection, metals will be analyzed as total recoverable metals, i.e., samples will not be filtered.

To obtain independent samples, baseline samples will be collected approximately every two months during the baseline period. As a result of site restoration and re-grading activities, new wells will likely not be installed until late 2019/early 2020. Comparative statistics will not be conducted until a complete set of baseline data (i.e., a minimum of eight samples per constituent) has been collected.

The statistical analyses described in the following sections will be performed for each of the Appendix III constituents listed in Table 3 during detection monitoring. With the exception of field pH, statistical analysis will not be conducted on field constituents (specific conductivity, temperature, and turbidity). There is a high potential for false positive results with field measurements due to the potential for sample collection inconsistency (e.g., changes in field conditions and sampling personnel), equipment calibration variability, and other causes of measurement variability.

5.3.2 Initial Data Review and Non-Detect Handling

Initially, data will be plotted on time-series graphs to assess the temporal variability of the data and to visually screen for potential outliers. Temporal variability can be caused by seasonality, changes to the monitored system, changes to the analytical method, recalibration of instruments, and anomalies in the sampling method (EPA 2009).

Non-detect values (ND) are results where the constituent is not detected at a concentration above the PQL. The PQL is the lowest concentration that can be reliably achieved within the specified limits of precision and accuracy during routine laboratory operating conditions. ND values will be managed within the statistical procedures discussed in this document, following the approach recommended by the Unified Guidance (EPA 2009):

- For sample populations with < 15% ND, direct substitution of the NDs with ½ the PQL.
- For sample populations with 15% < ND ≤ 50%, the Kaplan-Meier approach or other appropriate method will be used to estimate the mean and standard deviation of the population.
- For sample populations with > 50% ND, non-parametric approaches are used to assess the data, with direct substitution of the NDs with the PQL.

5.3.3 Data Distribution

Parametric statistical tests assume that the data are normally-distributed or can be transformed to a normal distribution. The distribution of the data will be tested for normality using the Shapiro-Wilk normality test with a

95 percent confidence level (or the Shapiro-Francia test when there are more than 50 results within the dataset). Each constituent from each well will be analyzed separately. Datasets found to be non-normal will be tested for other distributions using the 'Ladder of Powers' described by the Unified Guidance and transformed accordingly. Following transformation, parametric statistical methods will be performed on the transform-normally distributed data. Non-parametric statistics will be used for datasets that do not show normal or transform-normal distributions.

5.3.4 Outlier Analysis

In accordance with the Unified Guidance, data points will be identified as outliers if the value was an "extreme, unusual-looking measurement" and "inconsistent with the distribution of the remaining measurements." The Unified Guidance recommends testing for outliers within baseline data, but cautions against removal of outliers, unless a likely error or specific discrepancy can be identified, such as recordkeeping errors, unusual sampling and laboratory procedures or conditions, inconsistent sample turbidity, or values significantly outside the range of other results. In accordance with the Unified Guidance, apparent outliers will be periodically revisited even if initially removed, due to the propensity of groundwater chemistry to change over time.

Outliers will be evaluated and identified through visual inspection and the EPA-recommended Dixon's Test for statistical outliers (or Rosner's Test when there are greater than 25 samples). Dixon's and Rosner's Tests assume that all data values, except the suspected outlier, are normally distributed or can be transformed to fit a normal distribution. Consequently, visual inspection of concentrations over time is important in screening for outliers. The effect of removing outliers from the baseline data will usually be to lower the statistical limit (due to a reduction in the standard deviation), resulting in a more conservative statistical limit and improving the odds of detecting increasing concentration levels.

Outliers will be managed as follows:

- Any suspected outlier identified through statistical analysis or visual methods will be reviewed (i.e., through evaluation of the associated analytical report, laboratory narrative, associated laboratory QA/QC information, and/or field notes) before removal from the dataset to determine if any systematic or systemic errors were responsible for the noted anomalous readings. Rejected data points will not be included in the baseline dataset.
- The rationale for the removal of any outliers will be documented. Most outliers will likely be isolated values that can be attributed to inconsistent sampling or analytical chemistry methodology resulting in laboratory contamination or other anomalies.
- If an outlier is removed, the normality test (Section 5.3.3) will be re-run to determine if the dataset is normally-distributed or transform-normal without the outlier.

5.3.5 Trend Analysis

Most statistical tests assume concentrations do not demonstrate temporal correlation. The Sen's Slope methodology is an intra-well non-parametric statistical analysis for increases or decreases in measured concentrations over time, measured by calculating the slope of the linear relationship of concentration levels and time. Sen's Slope Methodology is paired with the Mann-Kendall test to determine the statistical significance of the calculated Sen's Slope. The methodology involves examining all possible pairs of measurements in the dataset and scoring each pair to determine if a trend exists. The test will be conducted using a confidence level of 99 percent.

If temporal trends are identified within the dataset, the data will be adjusted to account for the trends, the time period used for the baseline statistics will be reassessed, and/or an alternative statistical method will be used to assess for statistically significant increases above background. In the case of downward trends (other than pH), no adjustments may be considered appropriate and a constituent may not be considered for statistical analysis until further data is collected.

5.3.6 Seasonality

Seasonal temporal variability can mask changes in groundwater chemistry. Time-series plots will be observed for visual signs of seasonality, and once enough data has been collected within the program, the data will be evaluated for seasonal variations using the Kruskal-Wallis test. The Kruskal-Wallis test will be performed individually for each constituent at each well and requires at least 3 occurrences of each prospective season with results to calculate the statistic. Datasets that are found to have seasonality will be de-seasonalized for subsequent statistical analysis.

5.3.7 Updating the Baseline Period

The Unified Guidance recommends updating the baseline period every two to three years when the sampling frequency is semi-annual, or when four to eight samples have been collected. A baseline update will include a review of any revisions to federal and state regulations and EPA statistical guidance documents that may have been promulgated since the previous baseline statistical analysis. The baseline period for a specific constituent will not be updated if verified SSIs have been identified for that constituent, unless a demonstration has been made that the SSI is not related to a release from the facility.

Prior to inclusion of more recent data in an updated baseline period, a Wilcoxon Rank-Sum test will be conducted. The Wilcoxon Rank-Sum test, also referred to as the Mann-Whitney test, determines if measurements from one population are statistically significantly higher or lower than another population. The test is non-parametric, namely the data being tested is not assumed to fit a specific distribution, such as a normal distribution. When the baseline period is updated, the Wilcoxon Rank-Sum test will be used to compare data from the current baseline period with the more recent data that are intended to be reclassified and included in the updated baseline period. The test will be conducted at a 95 percent confidence level. If the two datasets are drawn from the same population, then the results of the test support updating the prior baseline dataset with the recent data. After the new data are incorporated into the dataset, the baseline diagnostic tests outlined in Section 5.3 will be conducted.

If the Wilcoxon Rank-Sum test detects a significant difference between two sample populations, additional data review will be necessary. The data will be reviewed to determine whether a gradual trend or other change not stemming from a release from the facility has occurred that was not detected during comparative statistical analysis. At the time of the baseline update, some earlier baseline data might need to be removed from the updated baseline period. Removal of earlier baseline data ensures that future statistical analysis is based on current groundwater conditions, rather than on outdated measurements of groundwater chemistry. Alternatively, outliers identified in the previous baseline period (as described in Section 5.3.4) will be re-incorporated into the dataset and re-evaluated as potential outliers during the baseline update, unless the outlier(s) were removed due to sampling, laboratory, or other determinant error.

5.4 Statistical Limits

Either a parametric or non-parametric method will be used to generate the baseline statistical limit for each constituent. The statistical method will vary between constituents and will be selected based on the percent of ND values in the baseline period and the baseline data distribution for each constituent at each well, in accordance with the Unified Guidance (EPA 2009).

For those constituent-well pairs where concentrations of a given analyte are normally or transform-normally distributed and have equal to or greater than 50% detections, Shewhart-CUSUM control charts will be used. The Unified Guidance notes that Shewhart-CUSUM control charts use two separate evaluation procedures. First, compliance measurements are compared to the Shewhart Control Limit (SCL). Second, the cumulative summation (CUSUM) of the standardized means is compared to the "internal decision value" (h_i). The Unified Guidance recommends one standardized control limit (h_c) for both the SCL and h_i. The mean ($\bar{x}$) and standard deviation (s) of the baseline data set are used to calculate the control limit, by the following equation:

$$h_c = \bar{x}_{BG} + hs_{BG}$$

Per the Unified Guidance, h is the standardized control limit and will be set at 4.5.

Where the concentrations of a given constituent-well pair are not normally or transform-normally distributed, or has less than or equal to 50 percent detections, a non-parametric prediction limit will be used. The non-parametric limit will be assigned as the highest detected value (excluding outliers) or the highest PQL, whichever is greater.

In the case of increasing trends within the baseline period, the data will be adjusted to account for the trends where a source other than the facility can be identified and/or an alternative statistical method will be used to assess for statistically significant increases above background. In the case of downward trends (other than pH), no adjustments may be considered appropriate and a constituent may not be considered for statistical analysis until further data is collected; therefore, the trend test will serve as the alternative method for constituents with decreasing trends.

5.5 Comparative Statistical Analysis

Comparative statistical analysis will be conducted following each monitoring event. For both Shewhart-CUSUM limits and non-parametric prediction limits, the comparative statistical analysis will consist of a comparison of monitoring results (the recent analytical results for each monitoring event performed after the baseline period) to the statistical limit calculated from the baseline data.

The following definitions will be used in discussion of the comparative statistical analysis:

- Elevated CUSUM – an elevated CUSUM occurs when the CUSUM is greater than the Shewhart-CUSUM limit established by the baseline statistical analysis, but the analytical result does not exceed the Shewhart-CUSUM limit. An elevated CUSUM is an indication that concentrations are gradually increasing and that analytical results may exceed the Shewhart-CUSUM limit in the future.
- Potential Exceedance – is defined as an initial elevated CUSUM or an initial analytical result that exceeds the Shewhart-CUSUM limit or non-parametric statistical limit established by the baseline statistical analysis. Confirmatory resampling will determine if the potential exceedance is a false-positive or a verified statistically significant increase (SSI). Non-detect results that exceed either the Shewhart-CUSUM limit or the non-parametric statistical limit are not considered potential exceedances.
- False-positive – is defined as an analytical result that exceeds the statistical limit that can clearly be attributed to laboratory error, changes in analytical precision, or is invalidated through confirmatory re-sampling. False-positives are not used in calculation of subsequent CUSUMs.
- Confirmatory re-sampling – is designated as the next scheduled sampling event.

- Verified SSI – is interpreted as two consecutive SSIs (the original sample and the confirmatory re-sample for analytical results, or two consecutive elevated CUSUMs) for analytical results, or two consecutive elevated CUSUMs for the same constituent at the same well.

The monitoring program has been developed to identify potential exceedances over baseline values. A potential exceedance will not be considered a verified SSI until confirmatory re-sampling is performed. Confirmatory re-sampling will occur during the next regularly scheduled sampling event.

5.6 Reporting and Actions for Verified SSIs

5.6.1 Bottom Ash Landfill and Bottom Ash Impoundment

For the Bottom Ash Landfill and Bottom Ash Impoundment, a description of the course of action for a detection monitoring verified SSI is detailed in Section 3.3 of APPENDIX A, including transitioning to assessment monitoring. Section 3.3 of APPENDIX A describes actions required in the event of an assessment monitoring verified SSI.

If a verified SSI is identified in a downgradient well for an Appendix III constituent as part of the detection monitoring program, GRE will establish an assessment monitoring program meeting the requirements of 40 CFR 257.95 of the CCR rule. Alternatively, GRE may demonstrate that a source other than the regulated CCR facilities caused the SSI, or that the SSI was a result of an error in sampling, analysis, statistical evaluation, or natural variability in the groundwater quality that failed to be captured during baseline data collection (40 CFR 257.94(e)(2)). A report documenting the alternative source demonstration (ASD) will be certified by a Professional Engineer registered in the state of North Dakota and placed in the Site's Operating Record within 90 days of the SSI determination. If a successful demonstration is made and documented, GRE will continue with the detection monitoring program. If, after 90 days, a successful demonstration is not made, GRE will initiate an assessment monitoring program.

5.6.2 Closed Special Waste Landfill

If a detection monitoring verified SSI is identified for the downgradient wells monitoring the Closed Special Waste Landfill, GRE will notify the NDDH within 90 days of completing the comparative statistics. Following identification of a verified SSI, GRE may do one of the following:

- Demonstrate that a source other than the Closed Special Waste Landfill caused the SSI, or that the SSI was a result of an error in sampling, analysis, statistical evaluation, or natural variability in the groundwater quality that failed to be captured during baseline data collection. A report documenting the alternative source demonstration (ASD) will be prepared and included with the annual report. If a successful demonstration is made and documented, monitoring will continue as outlined within this document.
- Continue monitoring the Closed Special Waste Landfill as outlined within this document during the remainder of the post-closure period or an agreed upon length of time with the NDDH to assess the effectiveness of recent and ongoing site source control measures.
- In the event a successful ASD cannot be made, or GRE and the NDDH agree that site source control measures are ineffective, GRE will initiate an assessment monitoring program. The assessment monitoring program will be approved by the NDDH and will generally follow the assessment monitoring program outlined in the EPA's CCR Rule.

6.0 DATA MANAGEMENT

The water quality database for Stanton Station is maintained electronically using Earthsoft's EQuIS™ data management software. Upon completion of each monitoring event and subsequent laboratory analysis, analytical results are received from the laboratory in hard-copy report formats and as electronic data deliverable (EDD) files. After the results have been verified and reviewed (Section 3.7), the EDDs will be appended to the existing database. These data management procedures support the QA/QC procedures discussed in Section 3.3.

7.0 REPORTING

An annual monitoring report will be submitted to the NDDH in the year following the monitoring year. The report will summarize the results of the year's groundwater monitoring, describe any changes or modifications at the site that may affect the monitoring network, and propose changes to the monitoring network, parameters, or frequency based on evaluation of the annual data. The report will also note the occurrence of any verified SSIs and proposed actions to resolve the verified SSI.

Revisions to this GMP, including statistical methods, will be submitted to the NDDH for approval along with the rationale for the proposed change.

8.0 REFERENCES

Braun. 1993. Hydrogeologic Assessment Report, Stanton Station Ash Ponds. Prepared for Great River Energy Stanton Generating Station. Prepared by Braun Intertec Environmental Inc., 1993.

Duffield, Glenn M. 2007. AQTESOLV for Windows Version 4.5 User's Guide.

Golder Associates Inc. 2017a. Coal Combustion Residuals Groundwater Monitoring System Certification, Great River Energy – Stanton Station. October 12, 2017.

Golder Associates Inc. 2017b. Coal Combustion Residuals Groundwater Statistical Method Certification, Great River Energy – Stanton Station. October 12, 2017.

Golder Associates Inc. 2018. Closure/Post-Closure Care Plan, Permit Number SP-043, Great River Energy – Stanton Station. December 26, 2018.

McCain and Associates, Inc. 2005. Groundwater Sampling and Analysis Plan – Stanton Station Plant Site, Permitted Ash Disposal Facility, Permit #SP043, Stanton, North Dakota. September 2005.

Puls, R.W. and Barcelona, M.J. 1996. Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures, USEPA Office of Research and Development and Office of Solid Waste and Emergency Response, EAP/540/S-95/504, April 1996.

Sanitas Technologies. 2014. Sanitas User Guide, Version 9.5.

United States Environmental Protection Agency (EPA). 2002. Guidance on Environmental Data Verification and Data Validation, Office of Environmental Information, EPA/240/R-02/004, November 2002.

United States Environmental Protection Agency (EPA). 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance, Office of Resource Conservation and Recovery, EPA-R-09-007, March 2009.

United States Environmental Protection Agency (EPA). 2010. Low Stress (Low Flow) Purging and Sampling Procedure for the collection of Ground Water Samples from Monitoring Wells, Revision 3, EPA Region I Standard Operating Procedure (SOP) No. GW 001, January 19, 2010.

United States Environmental Protection Agency (EPA). 2015. Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities, 40 CFR 257 and 261.

United States Environmental Protection Agency (EPA). 2017. National Functional Guidelines for Inorganic Superfund Methods Data Review, Office of Superfund Remediation and Technology Innovation, USEPA-540-R-2017-001, January 2017.

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Tables

Table 1: Monitoring Well Summary

Location	Well ID	Date Constructed	TOC Elevation	Ground Surface Elevation	Screen Interval	Top of Screen Elevation	Bottom of Screen Elevation	Sand Pack Interval	Geologic Unit(s) Completed In
			ft amsl	ft amsl	ft bgs	ft amsl	ft amsl	ft bgs	
Upgradient/Side-gradient	MW-6B	9/8/1992	1711.2	1709.3	28.4-38.4	1681	1671	19.0-38.5	Outwash
	MW-7A	8/27/1992	1713.4	1711.0	7.0-17.0	1704	1694	5.0-18.0	Silty Sand/Clay
	MW-7B	9/9/1992	1712.7	1710.9	28.1-38.1	1682	1672	23.0-38.5	Silty Sand/Outwash
	MW-8B	9/3/1992	1749.7	1747.2	54.0-64.0	1694	1684	49.0-64.5	Outwash
	MW-105	11/18/2015	1716.6	1713.5	9.0-19.0	1704	1694	7.0-19.0	Clay/Outwash
Bottom Ash Landfill Downgradient	MW-9N	7/19/2010	1708.1	1705.5	16.0-26.0	1689	1679	14.0 - 26.0	Outwash
	MW-102	11/17/2015	1711.7	1708.5	14.0-24.0	1694	1684	12.0-24.0	Silty Sand/Clay
	MW-103	11/17/2015	1709.1	1705.6	14.0-24.0	1692	1682	12.0-24.0	Outwash
Bottom Ash ImpoundmentDowngradient	MW-201 *								
	MW-202 *								
	MW-203 *								
Closed Ash Landfill	MW-10	7/19/2010	1707.7	1705.1	15.0-25.0	1690	1680	13.0-25.0	Sand/Silty Sand/Clay
	MW-204 *								
	MW-205 *								

Notes:

TOC: top of casing

ft amsl: feet above mean sea level

ft bgs: feet below ground surface

TOC and ground surface elevations surveyed by Interstate Engineering, Inc. in December 2015.

Well construction measurements are from the original bore log, well data sheet or well construction form.

* MW-201, MW-202, MW-203, MW-204, and MW-205 are proposed well locations. Once approved, these wells will be constructed in accordance with NDAC 33-20-13-07 and the installation information will be provided to the NDDH.

Table 2: Sampling Methods

Location	Sampling Schedule	Sampling Method	Purge Rate (mL/min)	Determination of Steady-State Conditions			Time Interval Goal for Steady-State
				Temperature	pH	Specific Conductance	
Monitoring Wells	Semiannual	Low-Flow	100 - 500	Less than +/- 3% change in three consecutive readings	Three consecutive readings within +/- 0.1 pH units	Less than +/- 3% change in three consecutive readings	3-5 minutes between readings

Table 3. Parameter and Analysis Summary - Detection Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit	Container [3]	Preservation [4]	Max. Holding Time from Sampling [5]
Field Parameters					
pH	SESDPROC-100-R3	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	SESDPROC-101-R1	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SESDPROC-102-R4	--	--	--	Immediately or within 15 minutes
Turbidity*	SESDPROC-103-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Chloride	SM 4500 Cl E/00	1.0 mg/L	Plastic	4° ± 2°C	28 days
Fluoride	EPA 9214	TBD		4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/00	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Sulfate	SM 4500 SO4	5.0 mg/L		4° ± 2°C	28 days
Total Dissolved Solids	I1750-85	5.0 mg/L		4° ± 2°C	7 days
Metals (total)					
Boron	EPA 6010	0.1	Plastic	HNO_3 to pH<2	6 months
Calcium		1.0			

Notes:

1. Boron, calcium, chloride, fluoride, sulfate, and total dissolved solids are tested in the laboratory. Temperature, turbidity, and specific conductance are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Containers and volumes will be specified by the lab.
4. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix III Detection Monitoring list and are collected for informational purposes only.

Table 4. Parameter and Analysis Summary - Assessment Monitoring

Parameter [1]	Method Reference [2]	Target Reporting Limit [3]	Container [4]	Preservation [5]	Max. Holding Time from Sampling [6]
Field Parameters					
pH	SESDPROC-100-R3	0.1 units	--	--	Immediately or within 15 minutes
Specific Conductance*	SESDPROC-101-R1	1.00 umhos/cm	--	--	Immediately or within 15 minutes
Temperature*	SESDPROC-102-R4	--	--	--	Immediately or within 15 minutes
Turbidity*	SESDPROC-103-R3	--	--	--	Immediately or within 15 minutes
General Chemistry					
Fluoride	EPA 9214	TBD	Plastic	4° ± 2°C	28 days
pH (lab)*	SM 4500 H+ B/00	0.1 units		4° ± 2°C	Immediately or within 15 minutes
Metals (total)					
Antimony	EPA 6010	0.001 mg/L	Plastic	HNO_3 to pH<2	6 months
Arsenic		0.002			
Barium		0.002			
Beryllium		0.0005			
Cadmium		0.0005			
Chromium		0.002			
Cobalt		0.002			
Lead		0.0005			
Lithium		0.1			
Molybdenum		0.002			
Selenium		0.002			
Thallium		0.0005			
Mercury	EPA 7470A	0.2	Plastic	HNO_3 to pH<2	28 days
Radium-226 and 228 combined	EPA 9315 and EPA 9320	1.0 and 2.0 pCi/L	Plastic	HNO_3	6 months

Notes:

1. Fluoride and all metals are tested in the laboratory. Temperature, turbidity, and specific conductance are tested in the field and pH is tested in the field and in the laboratory.
2. Or equivalent method.
3. Listed reporting limits are the maximum allowable reporting limits.
4. Containers and volumes will be specified by the lab.
5. Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the temperature maximum has not been exceeded.
6. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid.

* Additional parameters that are not part of the Appendix IV Assessment Monitoring list and are collected for informational purposes only.

Table 5: Proposed Quality Assurance/Quality Control Sample Collection Locations

Location	Well ID	Detection Monitoring Event	Assessment Monitoring Event
Upgradient/Side-gradient	MW-6B		Duplicate
	MW-7A		
	MW-7B	Duplicate	
	MW-8B		Field Blank
	MW-105		
Bottom Ash Landfill	MW-9N		
	MW-102	Duplicate	
	MW-103		MS/MSD
Bottom Ash Impoundment	MW-201		
	MW-202	Field Blank	
	MW-203		Duplicate
Closed Ash Landfill	MW-10		Field Blank
	MW-204		
	MW-205	MS/MSD	

Notes:
Locations to collect samples are suggestions only to help with the distribution of QA/QC samples across the site and between facilities.

Figures



LEGEND

- EXISTING GROUND TOPOGRAPHY (REFERENCES 3 AND 4)
- CONCEPTUAL FINAL GRADES (REFERENCES 3 AND 4)
- EXISTING PROGRAM MONITORING WELLS
- NEW PROGRAM MONITORING WELLS
- PROPOSED MONITORING WELLS TO REMOVE
- PROPOSED NEW MONITORING WELLS (LOCATIONS APPROXIMATE, FOR DISCUSSION ONLY)
- (1688) GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL) (NOTE 1)
- GENERAL DIRECTION OF GROUNDWATER FLOW
- POTENTIOMETRIC SURFACE CONTOUR (NOTE 3)

NOTE(S)

1. GROUNDWATER ELEVATIONS WERE MEASURED NOVEMBER 2018.
2. MW-8A IS PROPOSED FOR REMOVAL. MW-8B WILL REMAIN A PART OF THE MONITORING PROGRAM.
3. GROUNDWATER SITE INFORMATION WAS USED IN THE CREATION OF POTENTIOMETRIC SURFACE CONTOURS. CONTOUR INTERVAL IS FIVE (5) FEET.
4. GROUNDWATER ELEVATION MEASUREMENTS FOR MW-1R DID NOT OCCUR DURING NOVEMBER 2018 AS THE MONITORING WELL WAS INACCESSIBLE DURING PLANT DECONSTRUCTION.

REFERENCE(S)

1. T144N, R84W, MERCER COUNTY, NORTH DAKOTA.
2. AERIAL IMAGE IS A COMBINATION OF IMAGERY OBTAINED FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE NATIONAL AERIAL IMAGE PROGRAM, ACQUIRED IN 2018, AND IMAGERY PROVIDED BY GRE, ACQUIRED IN JUNE 2018.
3. EXISTING GROUND TOPOGRAPHY IS FROM AN AERIAL SURVEY PERFORMED BY KBM, INC. ON APRIL 27, 2001 (SITE WIDE), A GROUND SURVEY PERFORMED BY INTERSTATE ENGINEERING IN 2014 (BOTTOM ASH IMPOUNDMENT AND LANDFILL AREA), A GROUND SURVEY PERFORMED BY INTERSTATE ENGINEERING IN 2017 (COAL PILE AREA), AND A GROUND SURVEY PERFORMED BY INTERSTATE ENGINEERING IN 2018.
4. EXISTING GROUND CONTOURS ARE TWO (2) FEET AND CONCEPTUAL FINAL GRADE CONTOURS ARE ONE (1) FOOT.

GOLDER

PROPOSED MONITORING WELL NETWORK

GREAT RIVER ENERGY – STANTON STATION

FIGURE 2

Path: \\den1-v-fs1\acad\GREAT RIVER ENERGY\STANTON\99_PROJECTS\1894194\Site Restoration\Conceptual Figures\ | File Name: 1894194A005.dwg

APPENDIX A

Coal Combustion Residuals Groundwater Statistical Method Certification, Great River Energy - Stanton Station

CCR GROUNDWATER STATISTICAL METHOD CERTIFICATION

COAL COMBUSTION RESIDUALS GROUNDWATER STATISTICAL METHOD CERTIFICATION

Great River Energy – Stanton Station

GREAT RIVER ENERGY®

Submitted To: Great River Energy
Stanton Station
4001 Highway 200A
Stanton, North Dakota 58571

Submitted By: Golder Associates Inc.
44 Union Boulevard, Suite 300
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October 12, 2017 **177255**

Golder Associates

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Table of Contents

1.0 INTRODUCTION 1
1.1 Purpose 1
1.2 Site Background 1
1.3 Constituents 1
2.0 STATISTICAL METHODOLOGY 3
2.1 Intra-Well Methodology 3
2.2 Methodology for Baseline Diagnostic Tests 4
2.2.1 Initial Data Review and Non-detect Handling 4
2.2.2 Data Distribution 4
2.2.3 Outlier Analysis 4
2.2.4 Trend Analysis 5
2.2.5 Seasonality 6
2.2.6 Updating the Baseline Period 6
3.0 DETECTION MONITORING 7
3.1 Statistical Limits 7
3.2 Comparative Statistical Analysis 7
3.3 Alternative Source Demonstrations and Assessment Monitoring 8
4.0 ASSESSMENT MONITORING 9
4.1 Establishment of Groundwater Protection Standards 9
4.2 Comparative Statistics 9
4.2.1 Maximum Contaminant Level (MCL) Based GWPS 9
4.2.2 Baseline Based GWPS 10
4.3 Returning to Detection Monitoring, ASD, and ACM 10
5.0 CERTIFICATION 11
6.0 REFERENCES 12

List of Tables

Table 1 CCR Constituent Lists

1.0 INTRODUCTION

Golder Associates Inc. (Golder) has prepared this Coal Combustion Residuals (CCR) Statistics Groundwater Statistical Method Certification Report on behalf of Great River Energy (GRE) to certify that the statistical methodology to be employed at GRE's Stanton Station (SS) is appropriate and meets the requirements of 40 CFR 257.93.

1.1 Purpose

The CCR rule establishes specific requirements for statistical analysis of groundwater monitoring networks in 40 CFR 257.93 (Groundwater sampling and analysis requirements). Per part (f) of § 257.93, owners or operators of CCR units must select a statistical method to evaluate groundwater monitoring data for the constituents specified in Appendix III and Appendix IV of the rule. This report serves as the documentation of the required certification of the selected statistical methodology, in accordance with 40 CFR 257.93(f)(6).

This document may be periodically revised based on a review of changes to guidance documents provided by the United States Environmental Protection Agency (EPA) or other governing entities, as well as revisions to the language of the rule itself.

1.2 Site Background

Stanton Station is a coal-fired electric generation facility located in Mercer County, North Dakota, approximately 3 miles southeast of the city of Stanton along the Missouri River. SS has two CCR facilities regulated under the CCR rule. The CCR units include the following:

- Bottom Ash CCR Landfill (Bottom Ash Landfill)
- Bottom Ash CCR Surface Impoundment (Bottom Ash Impoundment)

1.3 Constituents

Baseline samples (a minimum of eight) were collected between June 2016 and April 2017 and were analyzed for both the Appendix III and Appendix IV constituent lists associated with the CCR rule (Table 1). Additionally, the following field parameters were recorded: pH, specific conductivity, temperature, and turbidity. Following collection of the baseline samples, semi-annual detection monitoring samples will be analyzed for the Appendix III constituent list. If assessment monitoring is required, samples will also be analyzed for the Appendix IV constituent list in accordance with CCR rule requirements. During both the baseline period and any future sample collection, metals will be analyzed as total recoverable metals, i.e. the samples will not be filtered.

The statistical analyses described in the following sections will be performed for each of the Appendix III constituents listed in Table 1 during detection monitoring, and for the Appendix IV constituents in the event of assessment monitoring. With the exception of field pH, statistical analysis will not be conducted on field

constituents (specific conductivity, temperature, and turbidity). There is a high potential for false positive results with field measurements because of sample collection inconsistency (e.g., changes in field conditions and sampling personnel), equipment calibration variability, and other causes of measurement variability.

Table 1. CCR Constituent Lists

Appendix III Constituents		Appendix IV Constituents
Boron		Antimony
Calcium		Arsenic
Chloride		Barium
Fluoride		Beryllium
pH		Cadmium
Sulfate		Chromium
Total Dissolved Solids (TDS)		Cobalt
		Fluoride
		Lead
		Lithium
		Molybdenum
		Mercury
		Radium-226 and -228 combined
		Selenium
		Thallium

2.0 STATISTICAL METHODOLOGY

The purpose of groundwater monitoring in conjunction with the CCR rule is to determine if the regulated CCR Units are impacting groundwater. To determine if an impact has occurred, recent groundwater data from each well will undergo statistical analysis. The statistical methodology outlined within this document was selected in accordance with 40 CFR 257.93 of the CCR rule and the *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* (Unified Guidance, EPA 2009). Additional consideration was given to recommendations prepared by the Electric Power Research Institute (EPRI, 2015).

Baseline diagnostic tests will be conducted using the baseline samples that were collected at each well between June 2016 and April 2017. Statistical analysis will be conducted using Sanitas (Sanitas Technologies 2014) or similar statistical analysis software.

During detection monitoring, comparative statistical analysis will be performed after each monitoring event to identify whether concentrations are potentially statistically significant in comparison to baseline values, with the results reported annually. If assessment monitoring is conducted, comparative statistical analysis will be conducted following the collection of the specified number of confirmation samples.

The baseline data for all constituents, as determined by the monitoring program, will be reviewed periodically (approximately every 2 to 3 years based on a semi-annual sampling frequency) to determine if recent results that are not statistically significant in comparison to baseline values can be incorporated into an updated baseline period (specifics of the baseline update procedure are discussed in depth in Section 2.2.6).

2.1 Intra-Well Methodology

Intra-well (comparing compliance data to baseline data within a single well) statistics were identified as an appropriate method for groundwater monitoring at SS. This method was based on the following factors outlined in the Unified Guidance (EPA 2009).

- Per the Unified Guidance: “Intra-well methodology allows establishment of reasonable baseline periods for future tests in historically impacted wells. Additionally, measurements occur solely between the baseline period and compliance period of testing within a single well.”
  - Past CCR depositional facilities are known to have impacted the subsurface hydrology. Those facilities have been removed and new facilities with engineered lining systems constructed. The use of intra-well statistics allows future potential changes in water chemistry to be more readily tracked in relation to current CCR facilities at SS.
- Per the Unified Guidance: “Confounding results stemming from spatial variability can be eliminated.”

- Due to the heterogeneity of the glacial geology at SS, spatial variability is displayed throughout the groundwater monitoring network. Use of intra-well statistics allows comparisons to be made on a per well basis, which avoids comparisons being made in differing geologic/geochemical conditions.

2.2 Methodology for Baseline Diagnostic Tests

2.2.1 Initial Data Review and Non-detect Handling

Initially, data will be plotted on time-series graphs to assess the temporal variability of the data and to visually screen for potential outliers. Temporal variability can be caused by seasonality, changes to the monitored system, changes to the analytical method, recalibration of instruments, and anomalies in the sampling method (EPA 2009).

Non-detect values (ND) are results where the constituent is not detected at a concentration above the Practical Quantitation Limit (PQL). The PQL is the lowest concentration that can be reliably achieved within the specified limits of precision and accuracy during routine laboratory operating conditions. ND values will be managed within the other statistical procedures discussed in this document, following the approach recommended by the Unified Guidance (EPA 2009):

- For sample populations with < 15% ND, direct substitution of the NDs with ½ the PQL.
- For sample populations with 15% < ND ≤ 50%, the Kaplan-Meier approach will be used to estimate the mean and standard deviation of the population.
- For sample populations with > 50% ND, non-parametric approaches are used to assess the data, with direct substitution of the NDs with the PQL

2.2.2 Data Distribution

Parametric statistical tests are based on the assumption that the data are normally-distributed or can be transformed to a normal distribution. The distribution of the data will be tested for normality using the Shapiro-Wilk normality test with a 95 percent confidence level (or the Shapiro-Francia test when there are more than 50 results within the dataset). Each constituent from each well will be analyzed separately. Datasets found to be non-normal will be tested for other distributions using the 'Ladder of Powers' described by the Unified Guidance and transformed accordingly. Following transformation, parametric statistical methods will be performed on the normally or transform-normally distributed data. Non-parametric statistics will be used for datasets that do not show normal or transform-normal distributions.

2.2.3 Outlier Analysis

In accordance with the Unified Guidance, data points will be identified as outliers if the value was an "extreme, unusual-looking measurement" and "inconsistent with the distribution of the remaining measurements." The Unified Guidance recommends testing for outliers within baseline data, but cautions against removal of outliers, unless a likely error or specific discrepancy can be identified, such as

recordkeeping errors, unusual sampling and laboratory procedures or conditions, inconsistent sample turbidity, and values significantly outside the range of other results. In accordance with the Unified Guidance, apparent outliers will be periodically revisited even if initially removed, due to the propensity of groundwater chemistry to change over time.

Outliers will be evaluated and identified through visual inspection and the EPA-recommended Dixon's Test for statistical outliers (or Rosner's Test when there are greater than 25 samples). Dixon's and Rosner's Tests assume that all data values, except the suspected outlier, are normally distributed or can be transformed to fit a normal distribution. Consequently, visual inspection of concentrations over time is important in screening for outliers. The effect of removing outliers from the baseline data will usually be to lower the statistical limit (due to a reduction in the standard deviation), resulting in a more conservative statistical limit and improving the odds of detecting increasing concentration levels.

Outliers will be managed as follows:

- Any suspected outlier identified through statistical analysis or visual methods will be reviewed (i.e., through evaluation of the associated analytical report, laboratory narrative, associated laboratory quality assurance/quality control information, and/or field notes) before removal from the dataset to determine if any systematic or systemic errors were responsible for the noted anomalous readings. Rejected data points will not be included in the baseline dataset.
- The rationale for the removal of any outliers will be documented. The majority of the outliers will likely be isolated values that can be attributed to inconsistent sampling or analytical chemistry methodology resulting in laboratory contamination or other anomalies.
- If an outlier is removed, the normality test (Section 2.2.2) will be re-run to determine if the dataset is normally-distributed or transform-normal without the outlier.

2.2.4 Trend Analysis

Most statistical tests assume concentrations do not demonstrate temporal correlation. The Sen's Slope methodology is an intra-well statistical analysis of increases or decreases in measured concentrations over time measured by calculating the slope of the linear relationship of concentration levels and time. Sen's Slope Methodology is paired with the Mann-Kendall test to determine the statistical significance of the calculated Sen's Slope. The methodology involves examining all possible pairs of measurements in the dataset and scoring each pair to determine if a trend exists. The test will be conducted using a target confidence level of 99 percent.

If temporal trends are identified within the dataset, the data will be adjusted to account for the trends, the time period used for the baseline statistics will be reassessed, and/or an alternative statistical method will be used to establish a limit. In the case of downward trends, no adjustments may be considered appropriate and a particular constituent may not be considered for statistical analysis until further data is collected.

2.2.5 Seasonality

Seasonal temporal variability can mask changes in groundwater chemistry. Time-series plots will be observed for visual signs of seasonality, and once enough data has been collected within the program, the data will be evaluated for seasonal variations using the seasonal Mann-Kendall trend test. The Mann-Kendall test is an intra-well evaluation performed individually for each constituent at each well and requires at least 3 occurrences of each prospective season with results to calculate the statistic. Datasets that are found to be have seasonality will be de-seasonalized for subsequent statistical analysis.

2.2.6 Updating the Baseline Period

The Unified Guidance recommends updating the baseline period every two to three years when the sampling frequency is semi-annual, or four to eight samples. A baseline update will include a review of any revisions to federal and state regulations and EPA statistical guidance documents that may have been promulgated since the previous baseline statistical analysis. The baseline period for a specific constituent will not be updated if verified statistically significant increases (SSIs) have been identified for that constituent, unless a demonstration has been made that the SSI is not related to a release from the facility.

Prior to inclusion of more recent data in an updated baseline period, a Wilcoxon Rank-Sum test will be conducted. The Wilcoxon Rank-Sum test, also referred to as the Mann-Whitney test, determines if measurements from one population are statistically significantly higher or lower than another population. The test is non-parametric, namely the data being tested is not assumed to fit a specific distribution, such as a normal distribution. When the baseline period is updated in the future, the Wilcoxon Rank-Sum test will be used to compare data from the current baseline period with the more recent data that are intended to be reclassified and included in the updated baseline period. The test will be conducted at a 95 percent confidence level. If the two datasets are drawn from the same population, then the results of the test support updating the prior baseline dataset with the recent data. After the new data are incorporated into the dataset, the baseline diagnostic tests outlined in Section 2.2 will be conducted.

If the Wilcoxon Rank-Sum test detects a significant difference between two sample populations, additional data review will be necessary. The data will be reviewed to determine whether a gradual trend or other change not stemming from a release from the facility has occurred that was not detected during comparative statistical analysis. At the time of the baseline update, some earlier baseline data might need to be removed from the updated baseline period. Removal of earlier baseline data ensures that future statistical analysis is based on current groundwater conditions, rather than on outdated measurements of groundwater chemistry. Alternatively, outliers identified in the previous baseline period (as described in Section 2.2.3) will be re-incorporated into the dataset and reevaluated as potential outliers during the baseline update, unless the outlier(s) were removed due to sampling, laboratory, or other determinant error.

3.0 DETECTION MONITORING

3.1 Statistical Limits

Either a parametric or non-parametric method will be used to generate the baseline statistical limit for each constituent. The statistical method will vary between constituents and will be selected based on the percent of ND values in the baseline period and the baseline data distribution for each constituent at each well, in accordance with the Unified Guidance (EPA 2009).

For those constituent-well pairs where concentrations of a given analyte are normally or transform-normally distributed and have equal to or greater than 50% detections, Shewhart-CUSUM control charts will be used. The Unified Guidance notes that Shewhart-CUSUM control charts use two separate evaluation procedures. The Shewhart portion is similar to a prediction limit, comparing compliance measurements to a baseline limit. The CUSUM (cumulative summation) portion analyzes new measurements against prior compliance measurements. The mean ($\bar{x}$) and standard deviation (s) of the baseline data set are used to calculate the limit, by the following equation:

$$\bar{x}_{BG} + hs_{BG}$$

Per the Unified Guidance, h is the standardized control limit and will be set at 4.5.

Where the concentrations of a given constituent-well pairs are not normally or transform-normally distributed, or has less than or equal to 50 percent detections, a non-parametric prediction limit will be used. The non-parametric limit will be assigned as the highest detected value (excluding outliers) or the highest PQL, whichever is greater.

In the case of increasing trends within the baseline period, the data will be adjusted to account for the trends where a source other than the facility can be identified and/or an alternative statistical method will be used to establish a limit. In the case of downward trends, no adjustments may be considered appropriate and a particular constituent may not be considered for statistical analysis until further data is collected; therefore, the trend test will serve as the alternative method for constituents with decreasing trends.

3.2 Comparative Statistical Analysis

Comparative statistical analysis will be conducted following each detection monitoring event. For both Shewhart-CUSUM limits and non-parametric prediction limits, the comparative statistical analysis will consist of a comparison of detection monitoring results (the recent analytical results for each monitoring event performed after the baseline data period) to the statistical limit calculated from the baseline data.

The following definitions will be used in discussion of the comparative statistical analysis:

- Elevated CUSUM – an elevated CUSUM occurs when the CUSUM is greater than the Shewhart-CUSUM limit established by the baseline statistical analysis, but the analytical result does not exceed the Shewhart-CUSUM limit. An elevated CUSUM is an indication that concentrations are gradually increasing and that analytical results may exceed the Shewhart-CUSUM limit in the future.
- SSI – is a statistically significant increase (SSI) and is defined as an elevated CUSUM or an analytical result that exceeds the Shewhart-CUSUM limit or non-parametric statistical limit established by the baseline statistical analysis.
- False-positive SSI – is defined as an analytical result that exceeds the statistical limit that can clearly be attributed to laboratory error, changes in analytical precision, or is invalidated through confirmatory re-sampling. False-positive SSIs are not used in calculation of any subsequent CUSUMs.
- Confirmatory re-sampling – is designated as the next scheduled sampling event.
- Verified SSI – is interpreted as two consecutive SSIs (the original sample and the confirmatory re-sample for analytical results, or two consecutive elevated CUSUMs) for the same constituent at the same well.

The detection monitoring program has been developed to identify potential SSIs over baseline values for the Appendix III constituents. This determination will be made within 90 days of receiving the finalized laboratory analytical report(s) for each sampling event and completion of data quality review as necessary to address questions concerning the validity of sampling methods or laboratory analyses. A potential SSI will not be considered a verified SSI until confirmatory re-sampling is performed. Confirmatory re-sampling will occur during the next regularly scheduled sampling event.

3.3 Alternative Source Demonstrations and Assessment Monitoring

If a verified SSI is identified in a downgradient well for an Appendix III constituent as part of the detection monitoring program, GRE will establish an assessment monitoring program meeting the requirements of 40 CFR 257.95 of the CCR rule. Alternatively, GRE may demonstrate that a source other than the regulated CCR facilities caused the SSI, or that the SSI was a result of an error in sampling, analysis, statistical evaluation, or natural variability in the groundwater quality that failed to be captured during baseline data collection (40 CFR 257.94(e)(2)). A report documenting the alternative source demonstration (ASD) will be certified by a Professional Engineer registered in the state of North Dakota and placed in the Site's Operating Record within 90 days of the SSI determination. If a successful demonstration is made and documented, GRE will continue with the detection monitoring program. If, after 90 days, a successful demonstration is not made, GRE will initiate an assessment monitoring program as described in Section 4.0.

4.0 ASSESSMENT MONITORING

An assessment monitoring program will be initiated in the event of a verified SSI of an Appendix III constituent in a downgradient well, unless a successful demonstration is made that an alternative source affected the groundwater chemistry, or that the SSI was a result of an error in sampling, analysis, statistical evaluation, or natural variability in the groundwater quality that was not captured during the baseline data collection period.

Many of the statistical comparisons used in assessment monitoring require baseline analyses to be completed prior to comparative statistics. Baseline statistics for assessment monitoring mirror those for detection monitoring, and are discussed in further detail in section 2.2.

4.1 Establishment of Groundwater Protection Standards

In general, the assessment monitoring program will comply with 40 CFR 257.95. Within 90 days of triggering the assessment monitoring program, GRE will sample and analyze each well for the Appendix IV constituents listed in Table 1. Groundwater protection standards (GWPS) will be established for each Appendix IV constituent. Per the CCR rule (40CFR 257.95(h)), the GWPS must fall within one of the following categories:

- For constituents for which a maximum contaminant level (MCL) has been established by the EPA (40 CFR 141), the MCL for that constituent will be the GWPS.
- For constituents for which an MCL has not been established, the statistical baseline concentration for the constituent at the well will be the GWPS.
- For constituents where the statistical baseline level is higher than the MCL, the statistical baseline concentration will be the GWPS.

For those constituents without MCLs or where the statistical baseline level is higher than the MCL, the GWPS will be determined through statistical methods. For those constituents with a normal or transform-normal distribution, prediction limits for future means will be developed. For constituents that are non-normal or have a high percentage of non-detects, prediction limits for future medians will be developed. For both types, the GWPS is considered a one-sided upper prediction interval calculated from the background data for a specified number of future comparisons.

4.2 Comparative Statistics

To determine if Appendix IV constituents have statistically exceeded the associated GWPS, the approaches discussed in the following sections will be used.

4.2.1 Maximum Contaminant Level (MCL) Based GWPS

For those constituents with MCLs as the GWPS, a confidence interval approach will be used. Per recommendations provided by the Unified Guidance and detailed by EPRI (2015), a confidence interval

statistically defines the upper and lower bound (the upper and lower confidence limit) of the true mean associated with a groundwater population. The Unified Guidance recommends confidence intervals for assessment monitoring. Confidence intervals identify SSIs through comparison against a fixed standard, namely the MCL-based GWPS.

To calculate a confidence interval, at least 4 samples (the initial sample and 3 resamples) are required. A confidence interval will only be considered statistically above the associated GWPS if *both* the upper and lower confidence limits exceed the GWPS.

4.2.2 Baseline Based GWPS

For those constituents with a GWPS based on baseline concentrations, a prediction interval approach will be used. The Unified Guidance recommends prediction intervals for a future mean for data that follow a normal or transform-normal distribution, and prediction intervals for a future median for data with high percentages of non-detects or non-normally distributed data.

When using prediction intervals for a GWPS, a one-sided prediction interval is calculated using baseline datasets based on a specified number of future comparisons. For parametric comparisons, four measurements are averaged to compare to the GWPS, with statistical significance occurring when the mean is greater than the GWPS. For non-parametric comparisons, the median of three measurements is compared to the GWPS, with statistical significance occurring when the calculated comparative median is greater than the GWPS.

4.3 Returning to Detection Monitoring, ASD, and ACM

If the concentrations of constituents listed in Appendix III and Appendix IV of the rule are shown to be at or below baseline values for two consecutive sampling events, GRE will return to detection monitoring. If the concentrations of any of the Appendix III and Appendix IV constituents are above baseline values, but the Appendix IV constituents are below the established GWPS, GRE will continue with assessment monitoring. If one or more Appendix IV constituents are detected at statistically significant levels above the established GWPS, GRE will place a notification of the exceedance in the Site Operating Record and follow the course of action outlined in 40 CFR 257.95(g) of the CCR rule and as determined by GRE.

If, within 90 days of detecting an Appendix IV constituent at statistically significant levels above the GWPS, a successful alternative source demonstration (ASD) has not been made to indicate an alternative source or that the SSI was a result of an error in sampling, analysis, statistical evaluation, or natural variability in the groundwater quality that was not captured during the baseline data collection period, GRE will initiate an assessment of corrective measures (ACM) in accordance with 40 CFR 257.95(g). The ACM will be completed within 90 days, unless a demonstration is made for additional time to complete the assessment.

5.0 CERTIFICATION

Based upon the review described in this report, the undersigned Professional Engineer registered in the state of North Dakota certifies that the statistical methodology presented herein is appropriate for evaluating groundwater monitoring data associated with the regulated CCR facilities at SS, and meets the requirements of 40 CFR 257.93.

GOLDER ASSOCIATES INC.

Craig Schuettpelz, P.E.
Senior Project Engineer

Erin L. Hunter, PhD.
Project Engineer

ELH/dls



6.0 REFERENCES

Electric Power Research Institute (EPRI), 2015. Groundwater Monitoring Guidance for the Coal Combustion Residuals Rule – 2015 Technical Report. November 2015.

Sanitas Technologies, 2014. Sanitas User Guide, Version 9.5.

United States Environmental Protection Agency (EPA), 2009. *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance*, Office of Resource Conservation and Recovery, EPA-R-09-007, March 2009.

United States Environmental Protection Agency (EPA), 2015. Code of Federal Regulations Title 40 Part 257: Hazardous and Solid Waste Management System; *Disposal of Coal Combustion Residuals from Electric Utilities*. April 17, 2015.

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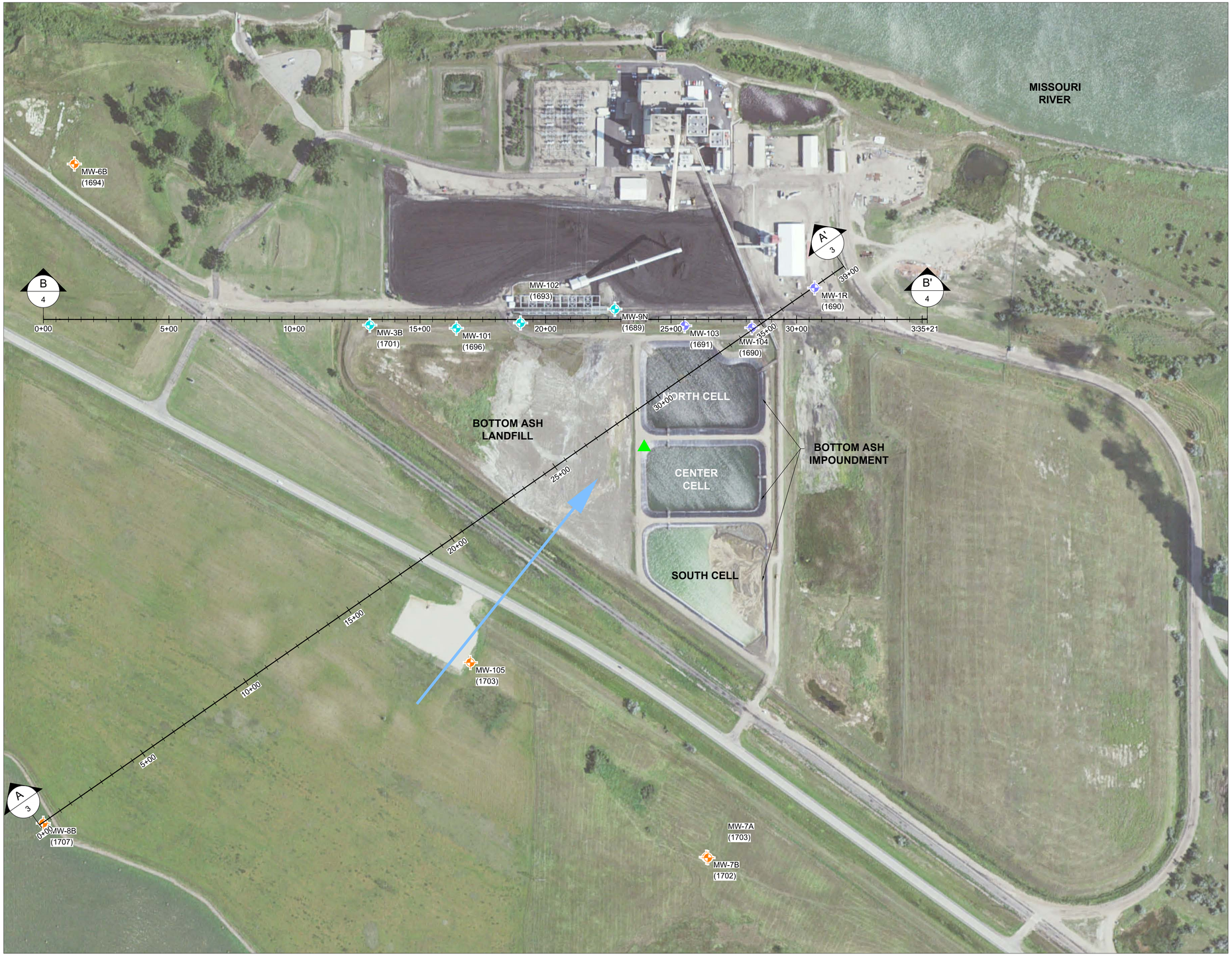
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APPENDIX B

Geologic Cross Sections



LEGEND

- UPGRADIENT MONITORING WELLS
- DOWNGRADIENT MONITORING WELLS - BOTTOM ASH LANDFILL
- DOWNGRADIENT MONITORING WELLS - BOTTOM ASH IMPOUNDMENT
- HISTORIC BOREHOLE
- GENERAL DIRECTION OF GROUNDWATER FLOW
- SECTION MARKER WITH FIGURE NUMBER

NOTE(S)

1. AERIAL IMAGERY OBTAINED FROM UNITED STATES DEPARTMENT OF AGRICULTURE, NATIONAL AERIAL IMAGERY PROGRAM, 2016.
2. GROUNDWATER ELEVATIONS WERE MEASURED APRIL 2017.

0 200 400
1" = 200' FEET

CROSS SECTION LOCATIONS

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FIGURE 1

Path: \\Denver.golder.gds\projects\17-JOBS\1772461 GRE SS\Water Quality\CCR Network Certification\Figures\ | File Name: 1772461_Cross-Section-Aerial.dwg

UNIFIED SOIL CLASSIFICATION SYSTEM

- CH - HIGH PLASTICITY CLAY
- CL - LOW PLASTICITY CLAY
- SP - POORLY GRADED SAND
- SC - CLAYEY SAND
- COAL
- SM - SILTY SAND
- SW - WELL GRADED SAND
- GP - POORLY GRADED GRAVEL
- ML-CL/CL-ML - SILTY LEAN CLAY/LEAN CLAY WITH SILT
- GW- WELL GRADED GRAVEL
- OL- ORGANIC TOPSOIL
- SP-SM - POORLY GRADED SAND WITH SILTY SAND
- CL-CH - LEAN-FAT CLAY
- ML - SANDY SILT
- SP-SC - POORLY GRADED SAND WITH CLAYEY SAND
- SM-SC/SC-SM - SILTY SAND WITH CLAYEY SAND
- ASH

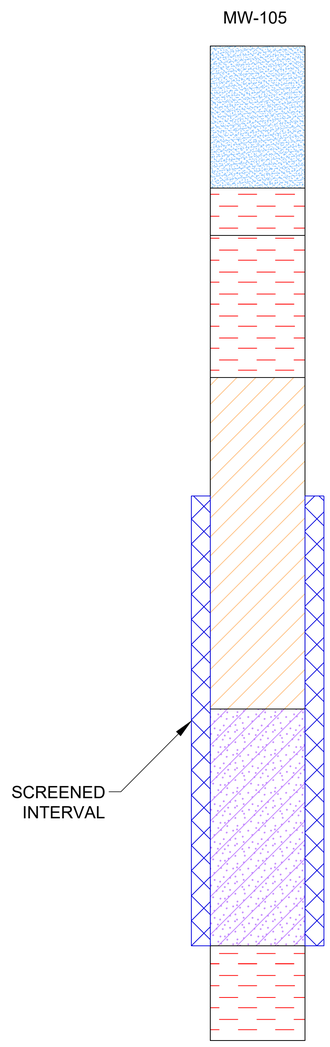
GEOLOGIC CLASSIFICATION

- OUTWASH - PRIMARILY SANDS AND GRAVELS
- CONFINING UNIT - PRIMARILY SILTS AND CLAYS
- TOPSOIL AND DISTURBED MATERIAL
- COAL COMBUSTION RESIDUALS

LINETYPES

- EXISTING GRADES
- APPROXIMATED GRADES
- TOP OF LINER
- ASSUMED MATERIAL BOUNDARY
- INFERRED MATERIAL BOUNDARY
- GROUNDWATER LEVELS (APRIL 2017)

TYPICAL WELL

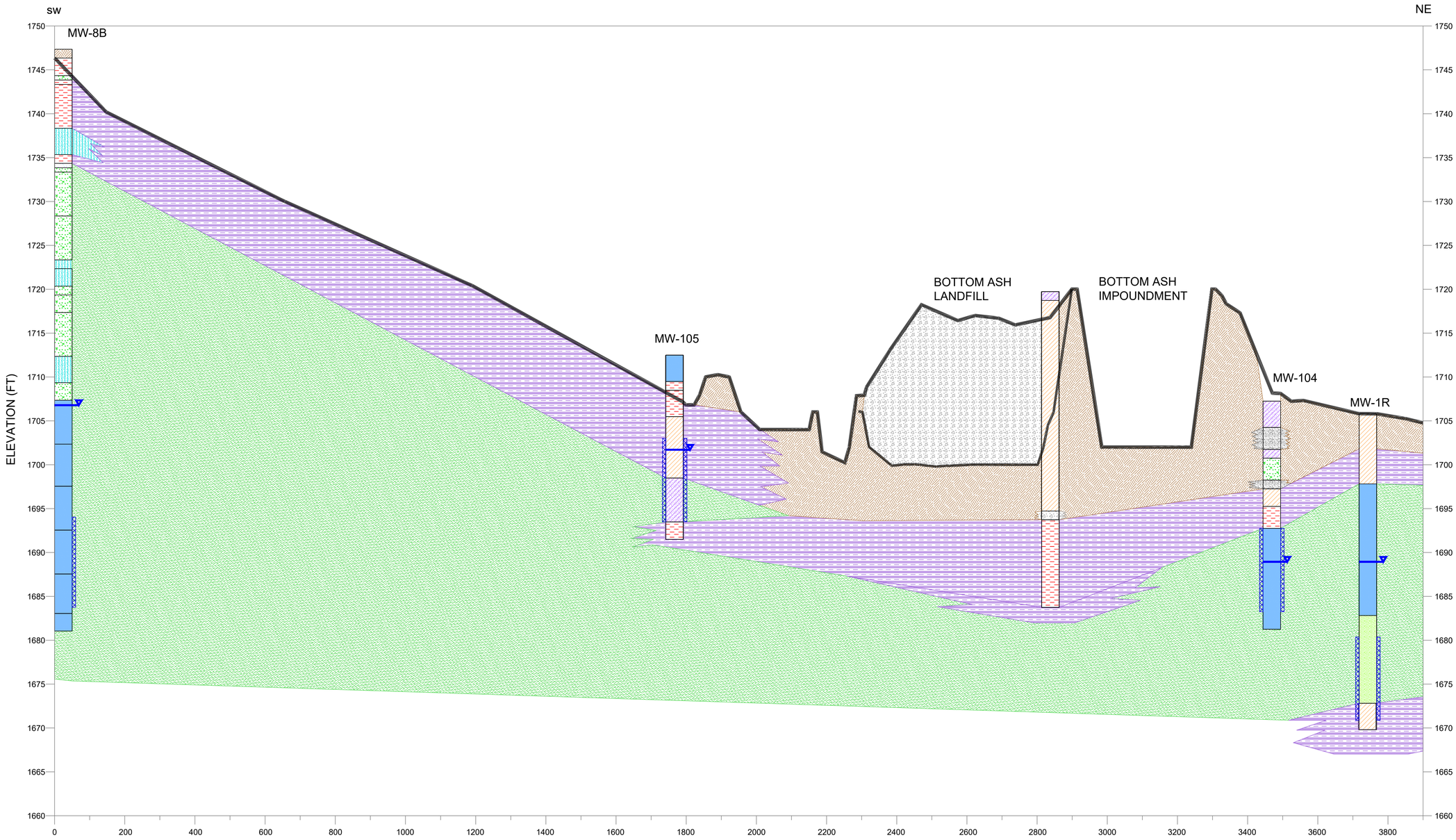


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LEGEND FOR CROSS SECTIONS

FIGURE 2

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CROSS SECTION A-A'

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FIGURE 3

W

E

MW-6B

MW-3B

MW-101

MW-102

MW-9N

MW-103

MW-104

MW-1R

ELEVATION (FT)

1715
1710
1705
1700
1695
1690
1685
1680
1675
1670
1665
1660
1655
1650
1645
1640

0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400 3521

DISTANCE (FT)

25x VERTICAL EXAGGERATION

CROSS SECTION B-B'

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FIGURE 4

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APPENDIX C

Monitoring Well Construction Logs

LOG OF BORING

PROJECT: CFEX-92-0094
ASH PONDS HYDROGEOLOGIC STUDY
United Power Association
Stanton Station
Stanton, North Dakota

BORING: SB-2 / MW-6A & MW-6

LOCATION: N91757.00 E91222.15

DATE: 8/27/92 SCALE: 1" = 4'

(See Report and Standard Plates for evaluation and descriptive terminology.)

Elev.	Depth	ASTM Symbol	Description of Materials (ASTM D 2488)	BPF	WL	Tests or Notes
100.0	0.0					
			TOPSOIL: Sandy Lean Clay, 0 to 1 foot, black, Silty Sand, medium-grained, reacts with HCL, light brown, roots, dry, loose. 1 to 4 feet, Silty Sand, medium-grained, reacts with HCL, light yellowish brown (2.5Y6/4), dry, trace of roots, loose.			
96.0	4.0					
		SM	FILL: SILTY SAND, medium-grained grading to a medium-grained Poorly Graded Sand with Silt at 7 to 9 feet, damp, light yellowish brown (2.5Y5/6).			
91.0	9.0					
		SP SM	FILL: Silty Sand, medium-grained grading to a medium-grained Poorly Graded Sand with Silt, damp, light yellowish brown (2.5Y5/6),			
89.0	11.0					
88.0	12.0	CL	natural bedding observed.			
		~~ML~~	LEAN CLAY with SILT, moist, olive brown (2.5Y4/3).			
		SP SM	POORLY GRADED SAND with SILTY SAND, medium-grained, light olive brown (2.5Y5/6), moist to wet at 14 feet.		▽	
86.0	14.0					
		SP SM	POORLY GRADED SAND with SILTY SAND, fine-grained, waterbearing, light olive brown (2.5Y5/6).			
80.5	19.5					
		SM	SILTY SAND, grayish brown (2.5Y5/2), waterbearing, cemented sand nodules, slight reaction to HCL.			Having to jet sand out of auger from 20-24 ft; sand blew up intowell at 19.5 ft.
76.5	23.5					
~~76.0~~	~~24.0~~	~~SP~~	POORLY GRADED SAND, yellowish brown (10YR5/8), fine- to medium-grained, waterbearing, cemented sand nodules, slight reaction with HCL.			
~~75.5~~	~~24.5~~	~~CH~~				
75.0	25.0	CH				
74.5	25.5	CL				
		CL	FAT CLAY, carbonaceous, trace of shell fragments, moist, medium dense, reacts with HCL, black (2.5Y2/0), some Silt and fine-grained Sand.			
70.5	29.5					
		SC	FAT CLAY, carbonaceous, trace of shell fragments, moist, medium dense, reacts with HCL, black (2.5Y2/0) at 24 3/4 feet, 2 inch layer of Silty Sand, olive (5Y5/4).			

LOG OF BORING

PROJECT: CFEX-92-0094
ASH PONDS HYDROGEOLOGIC STUDY
United Power Association
Stanton Station
Stanton, North Dakota

BORING: SB-2 (cont.)

LOCATION:
N91757.00 E91222.15

DATE: 8/27/92 | SCALE: 1" = 4'

(See Report and Standard Plates for evaluation and descriptive terminology.)

Elev.	Depth	ASTM Symbol	Description of Materials (ASTM D 2488)	BPF	WL	Tests or Notes
			SANDY LEAN CLAY, fine, gray (2.5Y6/0), trace of shell fragments.			
65.5	34.5		LEAN CLAY with GRAVEL, trace of shell fragments, lignite fragments, Clayey Sand			
		SC	gray to blue, blue to gray poorly graded, medium-grained Sand with trace of Clay, dense, bluish gray (5B5/1), homogeneous.			
			CLAYEY SAND, medium- to coarse-grained, bluish gray (5B5/1), homogeneous, subangular to subrounded.			
60.5	39.5		CLAYEY SAND, interbedded with medium-			Bedrock-Sandstone
		SC	to fine-grained poorly graded sand.			Sandstone
			CLAYEY SAND, at 40 feet a 1 inch seam of sand with lignite particles also at 43 feet the same, at 42 to 43 feet a zone of very dense sand interbedded with silts.			
55.5	44.5					
		SP SM	POORLY GRADED SAND with SILT, olive gray (5Y5/2) with lignite laminations, medium dense.			Sandstone
50.5	49.5					
		SP SM	POORLY GRADED SAND to SILTY SAND with CLAY, bluish gray (5B5/1), medium dense.			Sandstone
45.5	54.5					
		SM SC	SILTY SAND with CLAY to CLAYEY SAND, interbedded with lignite laminations, bluish gray (5B5/1), medium dense.			Sandstone
40.5	59.5					
			END OF BORING.			

MONITORING WELL FIELD DATA SHEET

Client: United Power Association | Proj. No.: CFEX-92-0094 | Location: UPA Station, Stanton, ND

Well Number: MW-6B | Well Location: SW¼, SW¼, Sec16, T144N, R84W | Date of Installation: 09/08/92

Date of Revision: | Crew: KD, TC, LL | B.M. Location & Elev. (±0.01):

Stick up above ground (to 0.1'): 1.86

Top of riser pipe (w/o cap) Elev. (±0.01'): 1711.54

Ground surface Elev. (±0.1'):

Depth to bottom of surface seal: 1'

Approximate water level before installation: TPVC 15.09'

Approximate depth of first water encountered in drilling: 13.5'

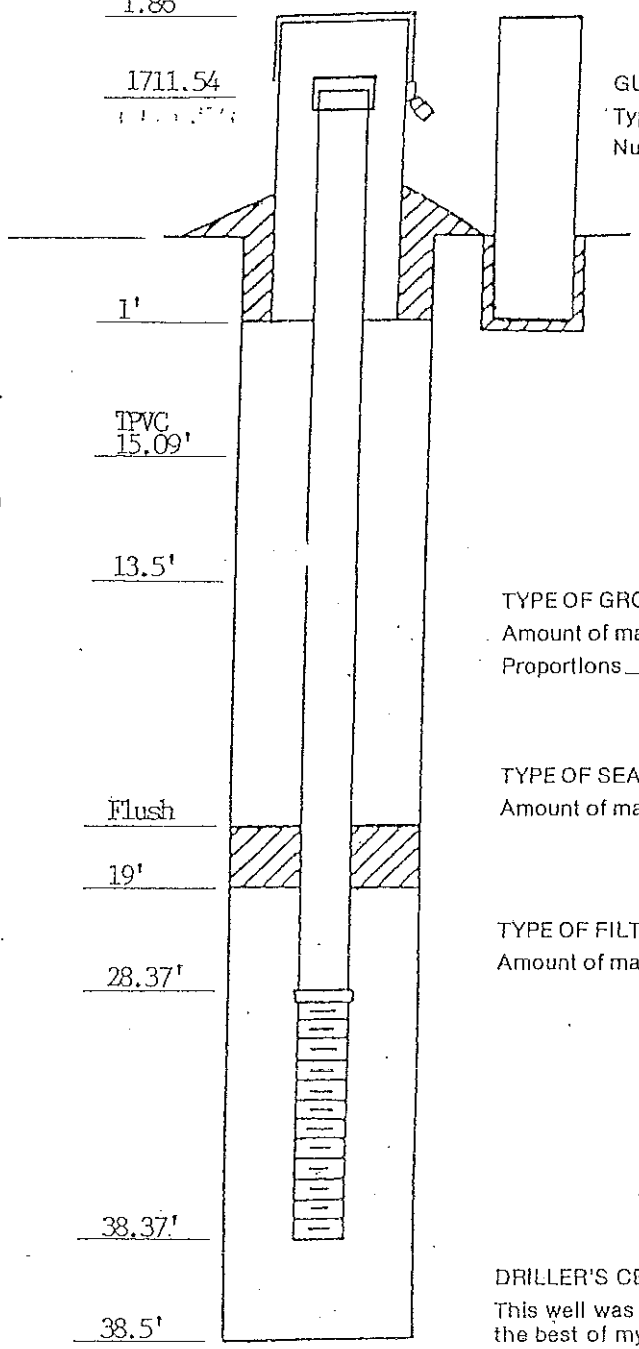
Depth to top of seal: Flush

Depth to bottom of seal: 19'

Depth to top of screen: 28.37'

Depth to bottom of screen: 38.37'

Depth to bottom of boring: 38.5'



GUARD POST:
Type: T-Posts
Number: 3

Protective Cover:
Type: Pro-Top
Length: 5'
Lock #: 2106

Type of sealing material: Concrete

RISER PIPE:
Type: PVC
Diameter: 2"
Total Length: 30'
Sections Used: 3'
Couplings: No
Cap: Yes X No

TYPE OF GROUT ABOVE SEAL: Bentonite - Portland Cement Grout
Amount of material used: 25 lbs Bentonite, 864 lbs Portland Cement
Proportions: 40 gallons of water

TYPE OF SEALING MATERIAL: Same as above
Amount of material used:

TYPE OF FILTER MATERIAL: 12 - 30 Silica Sand
Amount of material used: 300 lbs

SCREEN: Timco
Type: PVC
Slot Size: 0.010
Length: 10'
Diameter: 2"
Plug/Point: Male Plug

Note: Depths relative to ground surface.

Method of advance:
HSA: X I.D.: 3 3/4"
Casing: I.D.:
Cone: O.D.:

Method of development:
Air:
Jet: Surge: X Bail:

DRILLER'S CERTIFICATION

This well was drilled under my jurisdiction, and this report is true to the best of my knowledge.

Braun Intertec Environmental, Inc. — Driller's or Firm's Name — 420 — Certificate No.

913 S. 18th St., P.O. Box 2379, Bismarck, ND 58502-2379 — Address

Signed by — 11-23-92 — Date

BRAUN

Approved by: Plant Manager, Stanton Station.
Printed copy is not document controlled.
For most recent, authorized version, see GRE Intranet site.

LOG OF BORING

PROJECT: CFEX-92-0094
ASH PONDS HYDROGEOLOGIC STUDY
United Power Association
Stanton Station
Stanton, North Dakota

BORING: SB-3 / MW-7A & MW-7

LOCATION: N88990.05 E93743.52

DATE: 8/27/92 | SCALE: 1" = 4'

(See Report and Standard Plates for evaluation and descriptive terminology.)

Elev.	Depth	ASTM Symbol	Description of Materials (ASTM D 2488)	BPF	WL	Tests or Notes
100.0	0.0					
			TOPSOIL: Dark brown to light brownish gray, silty clay, friable, roots, dry, strong reaction to HCL.			
97.0	3.0					
96.0	4.0	SM	SILTY SAND, dry, olive yellow (2.5Y6/6).			
		CL CH	LEAN-FAT CLAY, stiff, moist. From 5 to 7 feet, a vertical sand stringer through half of core (dry), olive brown (2.5Y4/4), mottled, stiff, inclusions of calcite, reacts with HCL.			
90.0	10.0					
89.5	10.5	SM	SILTY SAND, wet, light olive brown (2.5Y5/4).			
88.5	11.5	CL				
88.0	12.0	CH	LEAN-FAT CLAY, soft, light olive brown (2.5Y5/4)			
87.0	13.0	SM ML	SILTY SAND, waterbearing, light olive brown (2.5Y5/4).			
86.5	13.5	CL				
86.0	14.0	CL CH SM CL CH	SILTY LEAN CLAY, wet, soft, light olive brown (2.5Y5/4). LEAN-FAT CLAY, wet, stiff, light olive brown (2.5Y5/4). SILTY SAND, waterbearing, light olive brown (2.5Y5/4).			
82.0	18.0					
		CH	LEAN-FAT CLAY, stiff, varying fine-grained sand content throughout, light olive brown (2.5Y5/4). FAT CLAY, moist, olive gray (5Y4/2), mild reaction to HCL, very dense, slightly sticky, plastic, very small shell fragments, fine roots noted at about 23 feet, starting at about 23 feet were small distinct, dark yellow brown (10YR3/4) mottles.			
74.5	25.5					
73.5	26.5	CL	LEAN CLAY with SAND, moist to waterbearing, dark grayish brown (2.5Y4/2), mild reaction to HCL, firm, slightly sticky, slightly plastic.			
		CH	FAT CLAY, moist, dry, color was light olive gray (5Y6/2), moist color was olive gray (5Y4/2), moist color grades to dark gray (2.5YN4/0) at about 30.5 feet. Strong reaction to HCL to 31 feet. Soil was hard,			
69.0	31.0					
		CL				

LOG OF BORING

PROJECT: CFEX-92-0094
ASH PONDS HYDROGEOLOGIC STUDY
United Power Association
Stanton Station
Stanton, North Dakota

BORING: SB-3 (cont.)

LOCATION:
N88990.05 E93743.52

DATE: 8/27/92 SCALE: 1" = 4'

(See Report and Standard Plates for evaluation and descriptive terminology.)

Elev.	Depth	ASTM Symbol	Description of Materials (ASTM D 2488)	BPF	WL	Tests or Notes
67.0	33.0	SP	friable with subangular blocky structure and slightly sticky to 30.5 feet. From 30.5 feet to 31 feet soil was dense, hard, slightly sticky and plastic. Calcareous nodules from 28.5 feet to 29.5 feet, light gray (5Y7/2) in color. One root channel noted, some small detridal coal, stringers of medium sand noted, a 3 inch layer of dark yellowish brown (10YR4/6), lean clay at about 30.5 feet noted. Many small snail shells from 30.5 feet to 31 feet.			Boring jetted following drilling. Many coal pieces washed out in jetting. Note that no coal pieces were found in barrel sampler in final formation. Coal pieces must be from lower in formation.
62.0	38.0		LEAN CLAY, moist, olive brown (2.5Y4/3) grading to very dark gray (5Y3/1). Strong reaction to HCL, slightly sticky, slightly plastic, hard, some detridal coal, some sand, some wood fragments, some roots, many small snail shells and fragments.			
			POORLY GRADED SAND with some CLAY, medium textured sand, waterbearing, black (5Y2.5/1), slight reaction to HCL, massive structure, soft, nonplastic. Lean Clay seam with cobbles from 37.2 feet to 37.3 feet. Medium sand from 37.3 to 37.5 feet. Coarse sand from 37.5 feet to 37.6 feet, dark olive gray (5Y3/2). Silty clay with sand from 37.6 feet to end of boring. Laminae visible. Sand of fine texture. Very dark gray (5Y3/1) with a slight reaction to HCL.			
			END OF BORING.			

MONITORING WELL FIELD DATA SHEET

Client United Power Association | Proj. No. CFEX-92-0094 | Location UPS Station, Stanton, ND

Well Number MW-7A | Well Location SW¼, NE¼, Sec21, T144N, R84W | Date of Installation 08/27/92

Date of Revision | Crew KD, TC, IM | B.M. Location & Elev. (± 0.01)

Stick up above ground (to 0.1') 2.20

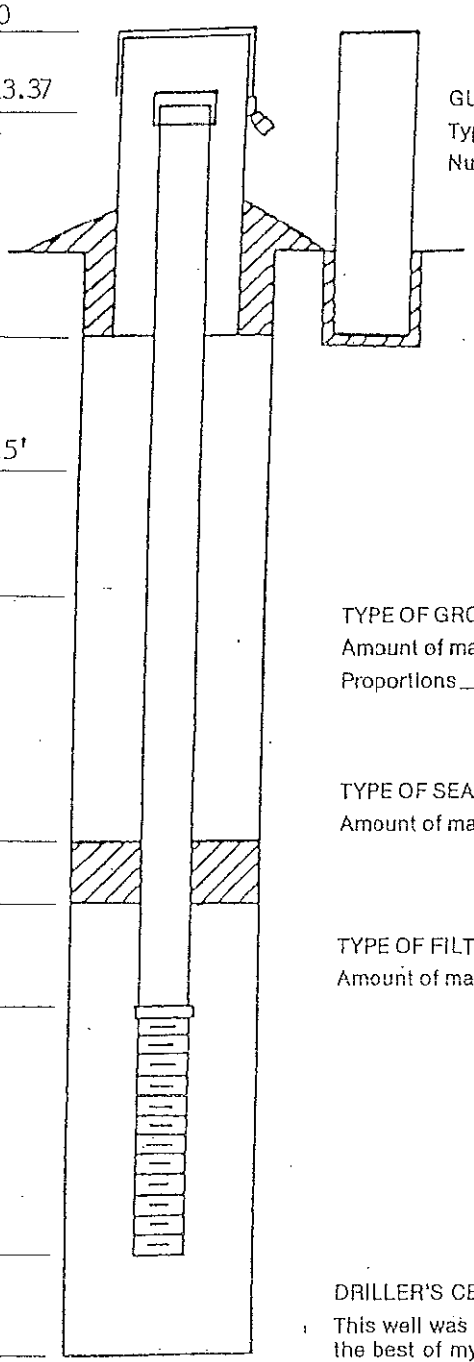
Top of riser pipe (w/o cap) Elev. (± 0.01') 1713.37

Ground surface Elev. (± 0.1')

Depth to bottom of surface seal 3'

Approximate water level before installation 17.5'

Approximate depth of first water encountered in drilling 12'



Depth to top of seal 3'

Depth to bottom of seal 5'

Depth to top of screen 7'

Depth to bottom of screen 17'

Depth to bottom of boring 18'

Note: Depths relative to ground surface.

GUARD POST:
Type T-Posts
Number 3

Protective Cover:
Type Pro-Top
Length 5'
Lock # 2106

Type of sealing material Concrete

RISER PIPE:
Type PVC
Diameter 2"
Total Length 7'
Sections Used 1'
Couplings No
Cap Yes X No

TYPE OF GROUT ABOVE SEAL: Concrete
Amount of material used
Proportions

TYPE OF SEALING MATERIAL: 1/4" Bentonite Pellet
Amount of material used 25 lbs.

TYPE OF FILTER MATERIAL: 12 - 30 Silica Sand
Amount of material used 240 lbs.

SCREEN:
Type PVC
Slot Size 0.010
Length 10'
Diameter 2"
Plug/Point Male Plug

Method of advance:
HSA X I.D. 3 1/4"
Casing I.D.
Cone O.D.

Method of development:
Air
Jet Surge X Bail

DRILLER'S CERTIFICATION

This well was drilled under my jurisdiction, and this report is true to the best of my knowledge.

Braun Intertec Environmental, Inc. 421
Driller's or Firm's Name Certificate No.

913 S. 18th St., P.O. Box 2379, Bismarck, ND 58502-2379
Address

Signed by 11-23-92 Date

BRAUN

Approved by: Plant Manager, Stanton Station.
Printed copy is not document controlled.
For most recent, authorized version, see GRE Intranet site.

MONITORING WELL FIELD DATA SHEET

Client: United Power Association | Proj. No.: CFEX-92-0094 | Location: UPA Station, Stanton, ND

Well Number: MW-7B | Well Location: SW¼, NE¼, Sec21, T144N, R84W | Date of Installation: 09/09/92

Date of Revision: | Crew: KD, TC, LL | B.M. Location & Elev. (±0.01):

Stick up above ground (to 0.1'): 1.53

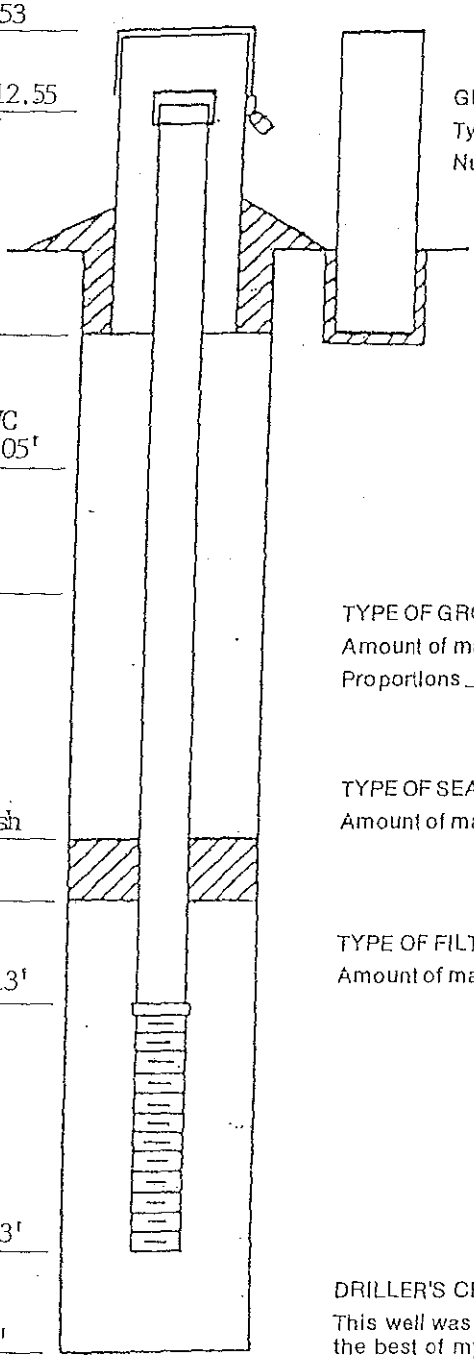
Top of riser pipe (w/o cap) Elev. (±0.01'): 1712.55

Ground surface Elev. (±0.1'):

Depth to bottom of surface seal: 1'

Approximate water level before installation: TPVC 15.05'

Approximate depth of first water encountered in drilling: 12'



GUARD POST:
Type: T-Posts
Number: 3

Protective Cover:
Type: Pro-Top
Length: 5'
Lock #: 2106

Type of sealing material: Concrete

RISER PIPE:
Type: PVC
Diameter: 2"
Total Length: 30'
Sections Used: 3
Couplings: Flush-Thread
Cap: Yes X No

TYPE OF GROUT ABOVE SEAL: Bentonite - Portland Cement Grout
Amount of material used: 15 lbs. Bentonite, 480 lbs Portland Cement
Proportions: 15 gallons of water.

Depth to top of seal: Flush

Depth to bottom of seal: 23'

TYPE OF SEALING MATERIAL: Bentonite - Portland Cement Grout
Amount of material used: 15 lbs. Bentonite, 480 lbs. Portland Cement
15 gallons of water.

Depth to top of screen: 28.13'

TYPE OF FILTER MATERIAL: 12 - 30 Silica Sand
Amount of material used: 350 lbs.

SCREEN:
Type: PVC
Slot Size: Timco 0.010
Length: 10'
Diameter: 2"
Plug/Point: Male Plug

Depth to bottom of screen: 38.13'

Depth to bottom of boring: 38.5'

Note: Depths relative to ground surface.

Method of advance:
HSA X I.D. 3 3/4"
Casing I.D.
Cone O.D.

DRILLER'S CERTIFICATION

This well was drilled under my jurisdiction, and this report is true to the best of my knowledge.

Braun Intertec Environmental, Inc. 420
Driller's or Firm's Name Certificate No.

913 S. 18th St., P.O. Box 2379, Bismarck, ND 58502-2379
Address

Signed by 11-23-92
Date

Method of development:
Air
at Surge

Approved by: Plant Manager, Stanton Station.
Printed copy is for document controlled.
For most recent, authorized version, see GRE Intranet site.

BRAUN

LOG OF BORING

PROJECT: CFEX-92-0094
ASH PONDS HYDROGEOLOGIC STUDY
United Power Association
Stanton Station
Stanton, North Dakota

BORING: SB-9 / MW-8A & MW-8

LOCATION: N89124.66 E91102.89

DATE: 9/1/92 SCALE: 1" = 4'

(See Report and Standard Plates for evaluation and descriptive terminology.)

Elev.	Depth	ASTM Symbol	Description of Materials (ASTM D 2488)	BPF	WL	Tests or Notes
100.0	0.0					
99.0	1.0		TOPSOIL: Grayish brown, many roots, silt, dry.			
97.0	3.0	CL	LEAN CLAY, roots, blochy structures, calcite rich, strong reaction to HCL, dry, light brown to gray.			
96.5	3.5	SM	SILTY SAND, loose, dry.			
96.0	4.0	CL	SANDY LEAN CLAY, dry, dense, strong reaction to HCL, trace of roots.			
91.0	9.0	CL	SANDY LEAN CLAY, dry, reacts strongly with HCL, dry, light olive brown (2.5Y5/4).			
88.0	12.0	SP SM	SILTY SAND, interbedded with silts and lean clay, damp, trace of lignite and calcite inclusions, light olive brown (2.5Y5/4).			
87.0	13.0	CL	SANDY LEAN CLAY, fine, moist, calcite stringers, trace of lignite, light olive brown (2.5Y5/4).			
86.5	13.5	SP	POORLY GRADED SAND, fine- to medium-grained sand, moist.			
86.0	14.0	SM	SILTY SAND with trace of CLAY, moist, light olive brown (2.5Y5/4).			
81.0	19.0	SM	SILTY SAND, damp, grayish brown (2.5Y5/2). At approximately 18 feet, a 4 inch layer of sandy lean clay, moist, trace of lignite, light olive brown (2.5Y5/2).			
76.0	24.0	SM	SILTY SAND with CLAY, waterbearing, few lignite laminae, from 22 to 24 feet, interbedded medium to coarse laminations of poorly graded sand, olive brown (2.5Y4/3).		▽	
73.0	27.0	SP SM	SILTY SAND, waterbearing, olive brown (2.5Y4/3).			
70.0	30.0	SM	SILTY SAND, waterbearing. At 29.5 feet, a 4 inch layer of the same with clay, olive (5Y5/4), few lignite particles, subrounded.			
		SM	SAND to SILTY SAND, assumed saturated.			No recovery-no sample

LOG OF BORING

PROJECT: CFEX-92-0094
ASH PONDS HYDROGEOLOGIC STUDY
United Power Association
Stanton Station
Stanton, North Dakota

BORING: SB-9 (cont.)
LOCATION: N89124.66 E91102.89
DATE: 9/1/92 SCALE: 1" = 4'

(See Report and Standard Plates for evaluation and descriptive terminology.)

Elev.	Depth	ASTM Symbol	Description of Materials (ASTM D 2488)	BPF	WL	Tests or Notes
65.0	35.0					
62.0	38.0	SP SM	POORLY GRADED SAND, waterbearing, trace of gravel, coarse grained.			
60.0	40.0	SM	SILTY SAND, trace of Gravel (shale), trace of coarse sand, olive (5Y4/3).			
55.0	45.0	SP	POORLY GRADED SAND, fine- to medium-grained, waterbearing, trace of gravel, few coarse sand stringers (vertical), trace of lignite, iron oxide nodules, olive (5Y4/3).			
50.2	49.8	SP	POORLY GRADED SAND, less gravel and iron oxide nodules. At 49.5 feet, a 3 inch layer of sandy lean clay. Sampler sent back down to the 45 to 50 foot depth. Upon retrieval of sampler, poorly graded fine- to medium-grained sand with cemented silica nodules (resembling a coral structure), mild to reacts strongly with HCL, olive (5Y4/3).			Sand forced up in auger approx. 8 ft. Problems getting hexrod and sampler down to starting depth to advance.
45.2	54.8	SP	No recovery, assume fine- to medium-grained sand.			Having to wash bore hole. Still blowing up 6 to 8 ft in auger.
40.2	59.8	SP	No recovery.			
		SP	Same as 45 to 50 feet with cemented silica nodules.			

LOG OF BORING

PROJECT: CFEX-92-0094
ASH PONDS HYDROGEOLOGIC STUDY
United Power Association
Stanton Station
Stanton, North Dakota

BORING: SB-9 (cont.)

LOCATION:
N89124.66 E91102.89

DATE: 9/1/92

SCALE: 1" = 4'

(See Report and Standard Plates for evaluation and descriptive terminology.)

Elev.	Depth	ASTM Symbol	Description of Materials (ASTM D 2488)	BPF	WL	Tests or Notes
35.7	64.3	SP	POORLY GRADED SAND, coarse grained with Gravel, waterbearing.			Switched to split spoon.
33.7	66.3		END OF BORING.			

MONITORING WELL FIELD DATA SHEET

Client: United Power Association | Proj. No.: CFEX-92-0094 | Location: UPA Station, Stanton, ND

Well Number: MW-8B | Well Location: SW¼, NW¼, Sec21, T144N, R84W | Date of Installation: 09/03/92

Date of Revision: | Crew: KD, TC, IM | B.M. Location & Elev. (± 0.01):

Stick up above ground (to 0.1'): 3.00

Top of riser pipe (w/o cap) Elev. (± 0.01'): 1749.37

Ground surface Elev. (± 0.1'):

Depth to bottom of surface seal: 1.5'

Approximate water level before installation: 22'

Approximate depth of first water encountered in drilling: 22.7'

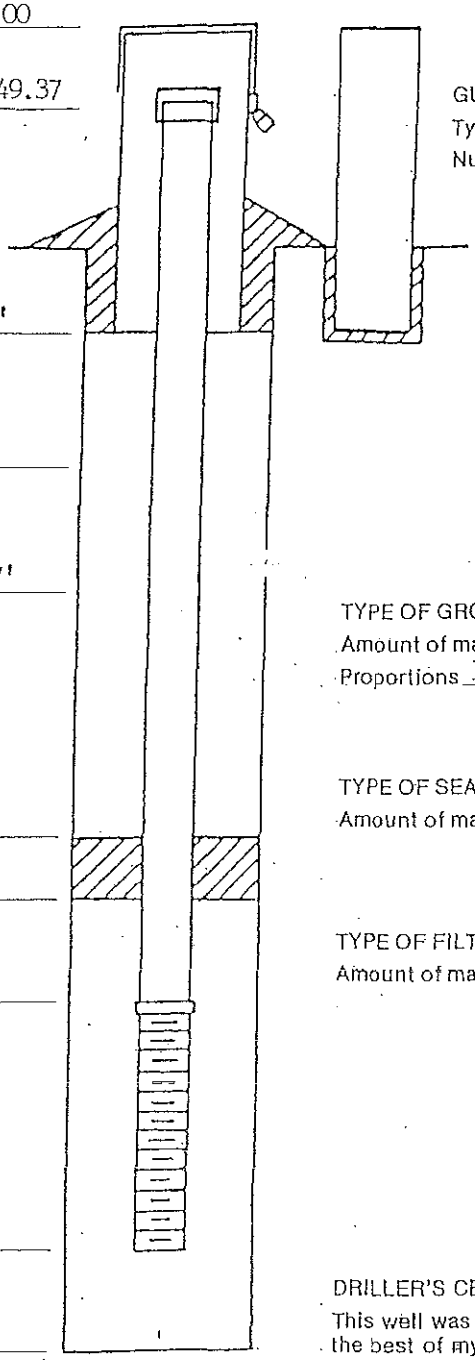
Depth to top of seal: 1.5'

Depth to bottom of seal: 49'

Depth to top of screen: 54'

Depth to bottom of screen: 64'

Depth to bottom of boring: 64.5'



Note: Depths relative to ground surface.

GUARD POST:
Type: T-Posts
Number: 3

Protective Cover:
Type: Pro-Top
Length: 5'
Lock #: 2106

Type of sealing material: Concrete

RISER PIPE:
Type: PVC
Diameter: 2"
Total Length: 60'
Sections Used: 6'
Couplings: No
Cap: Yes X No

TYPE OF GROUT ABOVE SEAL: Neat Cement Grout
Amount of material used:
Proportions: 11 bags Portland (1034#), 35 lbs. Bentonite, 60 gal wate

TYPE OF SEALING MATERIAL: Neat Cement Grout
Amount of material used: See grout above

TYPE OF FILTER MATERIAL: 12 - 30 Silica Sand and Natural
Amount of material used: 100 lbs. and Natural

SCREEN:
Type: PVC
Slot Size: 0.010
Length: 10'
Diameter: 2"
Plug/Point: Male Plug

DRILLER'S CERTIFICATION

This well was drilled under my jurisdiction, and this report is true to the best of my knowledge.

Braun Intertec Environmental, Inc. — Driller's or Firm's Name — 421 — Certificate No.

913 S. 18th St., P.O. Box 2379, Bismarck, ND 58502-2379 — Address

Russ D. Mayewski — Signed by — 11-23-92 — Date

Method of advance:
HSA X I.D. 3 3/4"
Casing I.D.
cone O.D.

Method of development:
Air
Jet Surge X Bail

BRAUN

Approved by: Plant Manager, Stanton Station.
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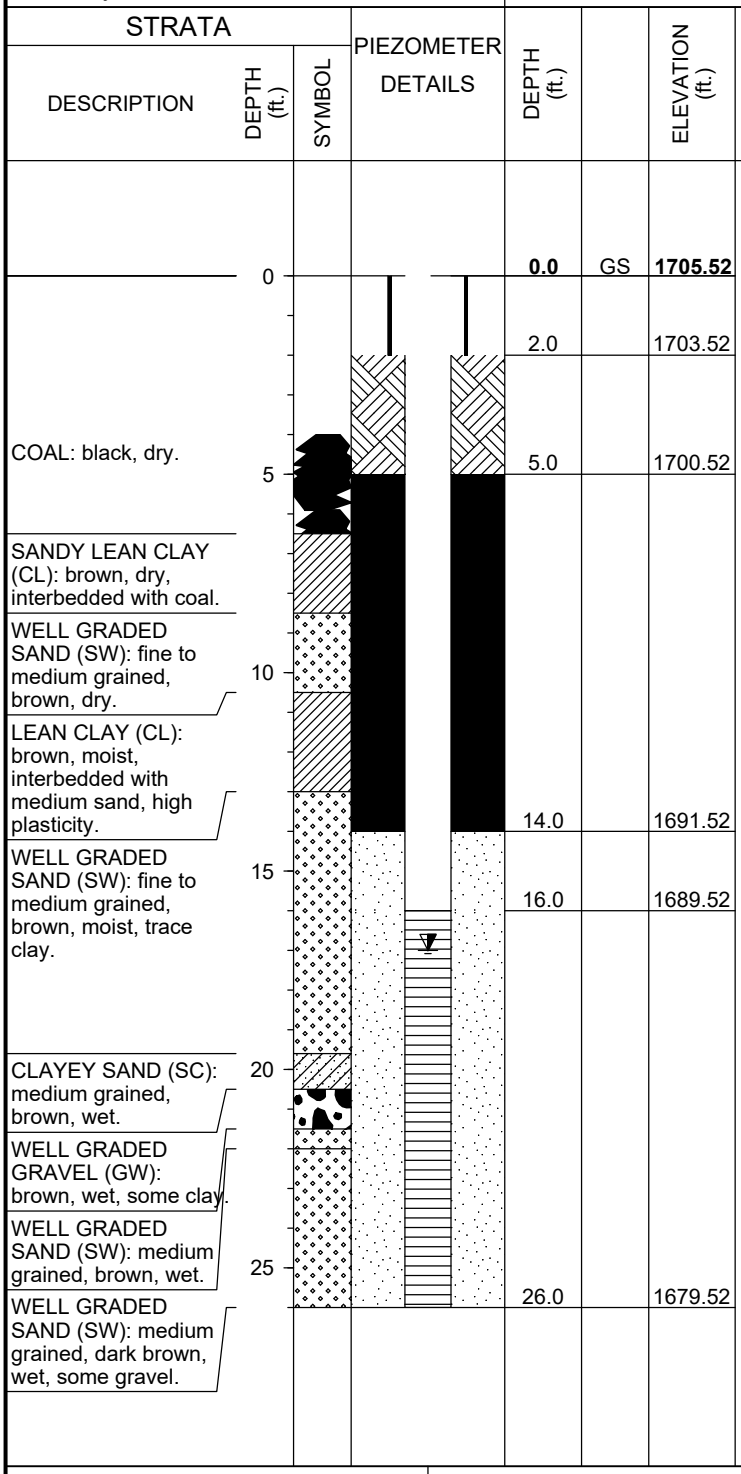
Barr Engineering Company

MW9N

LOG OF PIEZOMETER
(Reference Boring No. MW9)

Location: Stanton Station | Client: Great River Energy

Barr Project Number: 34291006 | Surface Elevation: 1705.52 | Top of Casing Elevation: 1708.18



Completion Depth:	26.0
Date Started:	7/19/10
Date Completed:	7/19/10
Logged By:	JLS4
Drilling Contractor:	BRAUN
Drilling Method:	HSA
Coordinates	
North:	
East:	

LEGEND
- FILTER PACK
- BENTONITE
- CEMENT GROUT
- CUTTINGS / BACKFILL

WATER LEVELS
WATER LEVEL: ▼ 17.0 ft
DATE: 07-19-2010
TIME: 11:30 am
0

The stratification lines represent approximate boundaries. The transition may be gradual.

M:\GINT\PROJECTS\34291006_STANTON.GPJ BARR ENGINEERING.GLB LOG OF BORING WELL REPORT BARR ENGINEERING.GDT

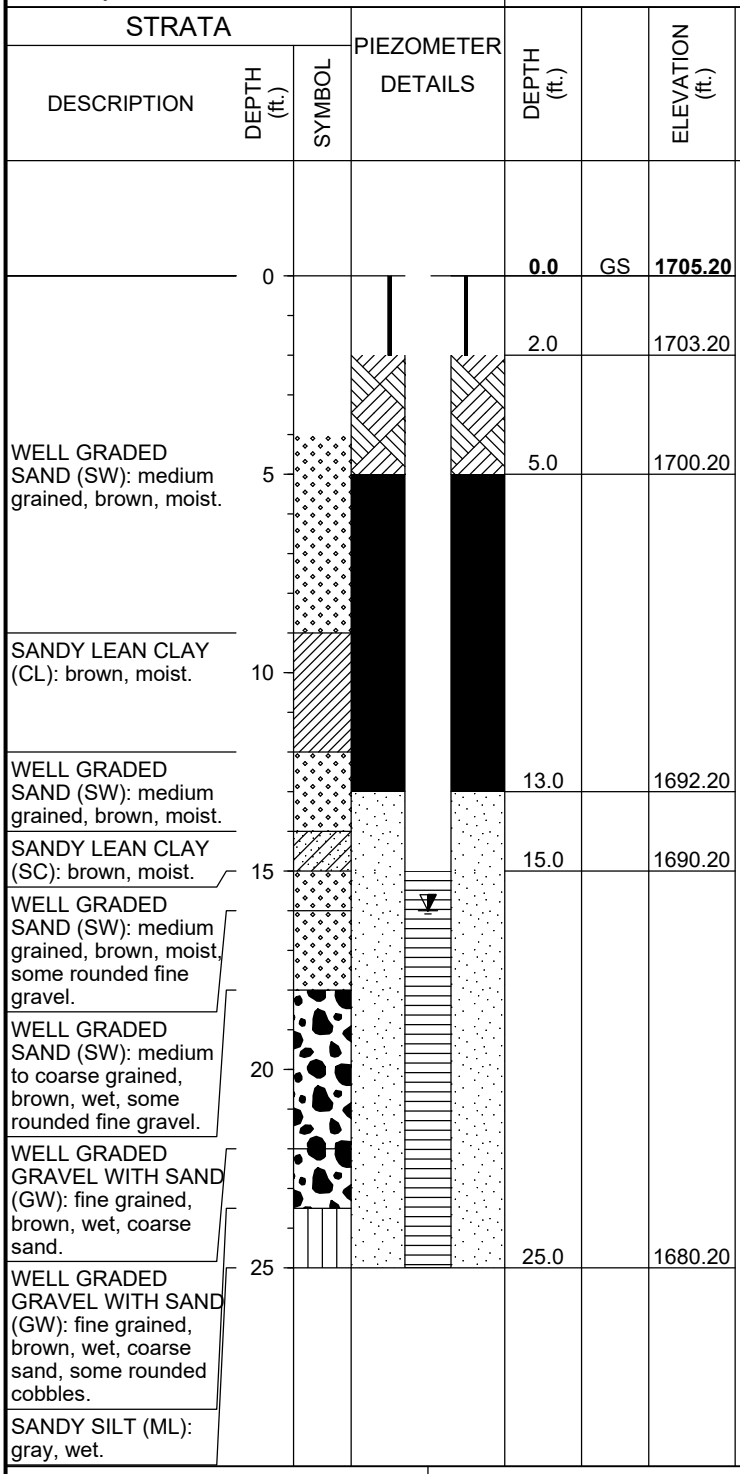
Barr Engineering Company

LOG OF PIEZOMETER

(Reference Boring No. MW10)

Location: Stanton Station | Client: Great River Energy

Barr Project Number: 34291006 | Surface Elevation: 1705.20 | Top of Casing Elevation: 1707.88



Completion Depth: 25.0
Date Started: 7/19/10
Date Completed: 7/19/10
Logged By: JLS4
Drilling Contractor: BRAUN
Drilling Method: HSA
Coordinates
North:
East:

LEGEND
- FILTER PACK
- BENTONITE
- CEMENT GROUT
- CUTTINGS / BACKFILL

WATER LEVELS
WATER LEVEL: ▼ 16.0 ft
DATE: 07-19-2010
TIME: 10:00 am
0

The stratification lines represent approximate boundaries. The transition may be gradual.

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BORING LOG NO. B-102

PROJECT: Monitoring Well Installations

CLIENT: Golder Associates, Inc.
Lakewood, Colorado

SITE: GRE - Stanton Station
Mercer County, North Dakota

LOCATION: See Exhibit A-2

Latitude: 47.28453° Longitude: -101.33443°

Surface Elev.: 1706 (Ft.)

DEPTH	ELEVATION (Ft.)	Description
0.0	1706	**FILL - CLAYEY SAND**, dark brown, very loose to loose, fine to medium-grained, coal inclusions
4.0	1702	**FILL - SILTY SAND**, dark brown, medium dense, fine to coarse-grained, coal inclusions
6.5	1699.5	**FILL - FAT CLAY**, brown, very stiff, boulder around 8 feet
9.0	1697	**CLAYEY SAND (SC)**, brown, medium dense, fine-grained
11.0	1695	**POORLY GRADED SAND WITH CLAY (SP-SC)**, brown, medium dense, fine-grained, sand lenses
14.0	1692	**FAT CLAY (CH)**, grayish-brown, very stiff to stiff waterbearing sand seam at 19 feet
21.0	1685	**SILTY SAND (SM)**, grayish-brown, dense, fine-grained, waterbearing
26.0	1680	***Boring Terminated at 26 Feet***

INSTALLATION DETAILS: Steel Casing; PVC Riser; Bentonite; PVC Screen; Silica Sand; Sluff

DEPTH (Ft.)	FIELD TEST RESULTS
0	1-1-1 N=2
	2-3-3 N=6
5	3-5-11 N=16
	9-15-15 N=30
10	6-7-6 N=13
	2-5-5 N=10
15	5-8-10 N=18
20	3-3-6 N=9
25	9-15-16 N=31

WATER LEVEL OBSERVATIONS: While drilling; On 11/20/2015

SAMPLE TYPE

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
3¼" ID HSA 0-24½'

Abandonment Method:
Boring converted to monitoring well installation.

See Exhibit A-3 for description of field procedures.

See Appendix B for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

While drilling

On 11/20/2015

Terracon
1805 Hancock Drive
Bismarck, North Dakota

Boring Started: 11/17/2015 Boring Completed: 11/17/2015

Drill Rig: D-90 Driller: MR

Project No.: M2155089 Exhibit: A-5

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-WELL M2155089.GPJ TERRACON2012.GDT 12/2/15

BORING LOG NO. B-103

PROJECT: Monitoring Well Installations

CLIENT: Golder Associates, Inc.
Lakewood, Colorado

SITE: GRE - Stanton Station
Mercer County, North Dakota

LOCATION: See Exhibit A-2

Latitude: 47.2845° Longitude: -101.33185°

Surface Elev.: 1707 (Ft.)

DEPTH	ELEVATION (Ft.)	Description
2.5	1704.5	**FILL - CLAYEY SAND**, dark brown, medium dense to loose, fine-grained, coal inclusions
5.0	1702	**FILL - COAL**
6.0	1701	**SILTY SAND (SM)**, brown, medium dense, fine-grained
9.0	1698	**POORLY GRADED SAND (SP)**, light brown, medium dense, fine-grained
11.0	1696	**POORLY GRADED SAND WITH CLAY (SP-SC)**, brown, loose, fine-grained
14.0	1693	**FAT CLAY (CH)**, brown, stiff, sand lenses
18.5	1688.5	**POORLY GRADED SAND WITH CLAY (SP-SC)**, brown, medium dense, fine-grained
21.0	1686	**POORLY GRADED SAND (SP)**, brown, loose, fine to coarse-grained, waterbearing
26.0	1681	**POORLY GRADED SAND WITH SILT AND GRAVEL (SP)**, grayish-brown, medium dense, fine to coarse-grained, waterbearing
		Boring Terminated at 26 Feet

INSTALLATION DETAILS: Steel Casing, PVC Riser, Bentonite, PVC Screen, Silica Sand, Sluff

DEPTH (Ft.)	FIELD TEST RESULTS
	3-5-11 N=16
	6-4-5 N=9
5	5-11-13 N=24
	5-6-5 N=11
10	3-3-6 N=9
	4-6-5 N=11
15	5-9-9 N=18
20	3-2-2 N=4
25	5-7-9 N=16

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
3¼" ID HSA 0-24½'

Abandonment Method:
Boring converted to monitoring well installation.

See Exhibit A-3 for description of field procedures.

See Appendix B for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

While drilling

On 11/20/2015

Terracon
1805 Hancock Drive
Bismarck, North Dakota

Boring Started: 11/17/2015 | Boring Completed: 11/17/2015

Drill Rig: D-90 | Driller: MR

Project No.: M2155089 | Exhibit: A-6

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-WELL M2155089.GPJ TERRACON2012.GDT 12/2/15

BORING LOG NO. B-105

PROJECT: Monitoring Well Installations

CLIENT: Golder Associates, Inc.
Lakewood, Colorado

SITE: GRE - Stanton Station
Mercer County, North Dakota

LOCATION: See Exhibit A-2

Latitude: 47.28083° Longitude: -101.33521°

Surface Elev.: 1708 (Ft.)

DEPTH	ELEVATION (Ft.)	Description
0.0	1708	**FILL - POORLY GRADED SAND**, light brown, medium dense, fine-grained
3.0	1705	**FILL - SANDY LEAN CLAY**, brown, medium stiff
4.0	1704	**LEAN CLAY (CL)**, brownish-gray, medium stiff, silt laminations
7.0	1701	**FAT CLAY (CH)**, brown, medium stiff, sand lenses and silt laminations waterbearing sand seam at 12.5 feet
14.0	1694	**CLAYEY SAND (SC)**, brown, loose, fine to medium-grained
19.0	1689	**SANDY LEAN CLAY (CL)**, brown, stiff, silt laminations
21.0	1687	***Boring Terminated at 21 Feet***

INSTALLATION DETAILS: Steel Casing, PVC Riser, Bentonite, Silica Sand, PVC Screen, Sluff

DEPTH (Ft.)	FIELD TEST RESULTS
0	3-4-6 N=10
3	3-2-3 N=5
5	3-2-3 N=5
8	3-3-5 N=8
10	3-3-3 N=6
13	3-3-1 N=4
15	2-2-2 N=4
20	2-4-4 N=8

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
3¼" ID HSA 0-19½'

Abandonment Method:
Boring converted to monitoring well installation.

See Exhibit A-3 for description of field procedures.

See Appendix B for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

While drilling

On 11/20/2015

Terracon
1805 Hancock Drive
Bismarck, North Dakota

Boring Started:

Boring Completed: 11/18/2015

Drill Rig: D-90

Driller: MR

Project No.: M2155089

Exhibit: A-8

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-WELL M2155089.GPJ TERRACON2012.GDT 12/2/15

APPENDIX D

Example Field Forms

Stanton Station

INSTRUMENT CALIBRATION FORM

Project Name: _____ **Project No:** _____

Calibration By: _____

Instrument Details

Instrument Name: _____

Serial No.: _____

Model No.: _____

Calibration Details

Calibration Standard: _____

_____

Calibration Standard(s) Expiration Date: _____

Calibration:

Date	Time	**Calibration Standard** Units: _____	**Instrument Reading** Units: _____

Comments:

Field Datasheet - Groundwater Assessment

Weather:	Temperature: °F / °C	Wind:	Precipitation:	Sunny / Partly Cloudy / Cloudy (circle one)

General Information	
Sampling Personnel:	
Program Name:	
Sampling Event:	
Location/Sample ID:	

Well Information		
Well Locked?	Yes	No
Well Labeled?	Yes	No
Casing Straight?	Yes	No
Grout Seal Intact?	Yes	No
Necessary Repairs:		
Casing Diameter:		

Purging and Sampling Information			
Purge Date:		**Time Purging Began:**	
Well Purged Dry?	Yes / No	Time Purged Dry:	
Sample Date:		**Time of Sampling:**	
Bottle List:			
Purging Method:		Control Settings	
Sampling Method:		Purge:	sec
Dedicated Equipment?	Yes / No	Recover:	sec.
QC Sample?	Yes / No	PSI:	
QC Sample ID:		Pumping Rate:	mL/min

Notes:

Water and Free Product Levels		
Static Water Level Before Purge:		(±0.01 ft)
Depth to Top of Pump:		(±0.01 ft)
Depth to Bottom of Well:		(±0.01 ft)
Water Level After Sampling:		(±0.01 ft)

Free Product Detected?	Yes	No
Product Level Before Purge:		(±0.01 ft)
Product Level After Purge:		(±0.01 ft)

Notes:

Field Measurements and Purge Parameters

Stabilization (3 consecutive)		Water Temp (°C)	Spec. Cond. (_S/cm)	pH (S.U.)	Turbidity (NTU)	Water Level (ft)	Volume Purged (mL)	Description: Clarity, Color, Odor, Etc.
Reading #	**Time**	±3%	±3%	±0.1				Clear, Slightly Turbid, Turbid

Stabilized: Yes No (circle one) Total Volume Removed: _____ mL

Minimum volume of stagnant water to purge prior to collection of field parameters: 500 mL

Measurements should be recorded with precision of ±0.5° (temp), ±5% (SC), and ±0.1 S.U. (pH)

Comments:

GREAT RIVER ENERGY

Field Datasheet - Stanton Station Groundwater Levels

Location [1]	Well ID	Date	Time	Depth to Water	Comments
Upgradient/Side-gradient	MW-6B				
	MW-7A				
	MW-7B				
	MW-8B				
	MW-105				
Bottom Ash Landfill Downgradient	MW-3B				
	MW-9N				
	MW-101				
	MW-102				
Bottom Ash Impoundment Downgradient	MW-1R				
	MW-103				
	MW-104				
Closed Ash Landfill	MW-10				
	MW-X				
	MW-XX				

Notes:
1. Sample upgradient sites first, followed by the downgradient sites.

APPENDIX E

Manufacturer's User Guides for Low Flow Pumps and Controller

Geotech Bladder Pumps

Installation and Operation Manual



Rev 1/22/2018 Part # 21150035

Table of Contents

Section 1: System Description 2

Function and Theory 3
System Components 4
Pump Housing 4
Air and Sample Line Connections 4
Bladder assembly 4

Section 2: System Installation 6

Pump Tubing Lines 6
Compression Fitting Installation 6
Safety Cable 7
Optional Drop Tube Assembly 8

Section 3: System Operation Bladder Pump Operation 9

Selecting an Air Source 9
Air Volume of Tubing 9
Air Volume of Bladder Pumps 9
Determining Operation Pressure 10
Flow Rates 10

Section 4: System Maintenance Bladder Pump 12

Replacing the Bladder 12
1.66" Models 12
Reassemble the 1.66" Models: 13
.850 and .675 Models 15
Reassemble .850 and .675 Models: 16

Section 5: System Troubleshooting 20

Section 6: System Specifications 21

Section 7: Replacement Parts List 22

1.66 Bladder Pump Components (36" & 18" LOW Pressure Models) 22
1.66 Bladder Pump Components (36" & 18" HIGH Pressure Models) 25
.850 Stainless Steel Bladder Pump Components 28
.675 Stainless Steel Bladder Pump Components 30

The Warranty 33

DOCUMENTATION CONVENTIONS

This document uses the following conventions to present information:



WARNING

An exclamation point icon indicates a **WARNING** of a situation or condition that could lead to personal injury or death. You should not proceed until you read and thoroughly understand the **WARNING** message.



CAUTION

A raised hand icon indicates **CAUTION** information that relates to a situation or condition that could lead to equipment malfunction or damage. You should not proceed until you read and thoroughly understand the **CAUTION** message.



NOTE

A note icon indicates **NOTE** information. Notes provide additional or supplementary information about an activity or concept.

Section 1: System Description

Function and Theory

Geotech's pneumatic Bladder Pumps operate with a unique air-driven action, ideal for both gentle low-flow sampling and high-flow rate purging. Timed ON/OFF cycles of compressed air alternately squeeze the flexible bladder to displace water out of the pump to the surface then exhaust the air allowing the pump to refill.

Fluid enters and fills the pump through the fluid inlet check valve at the bottom of the pump body via hydrostatic pressure. Once filled with fluid, compressed air enters the space between the bladder and the interior of the pump housing, squeezes the bladder, and pushes the fluid to the surface (see Figure 1-1). Operated by the BP Controller or Geocontrol PRO, this logic automatically repeats.
Air does not contact the sample. The bladder prevents contact between the pump driven air and the sample. All wetted pump parts are 316 Grade stainless steel to ensure the purity of the sample is maintained.

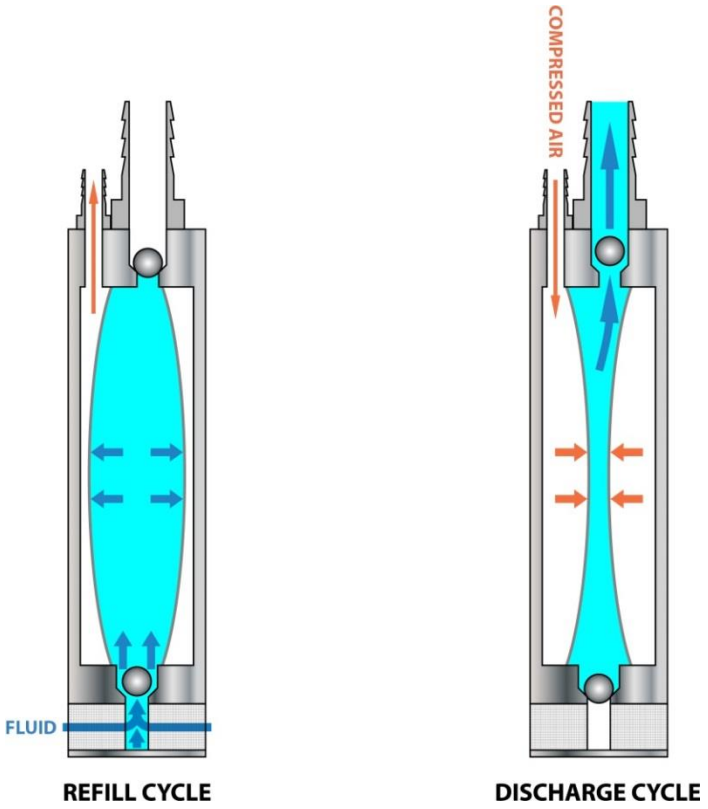


Figure 1-1: Bladder Pump Operation
Not to scale



Be sure to read and understand your portable generator and/or portable air compressor user manual for proper installation, operation, and Earth grounding instructions. If using portable compressed gas tanks, exercise caution, use safety protection devices as outlined by the supplier, and observe any additional safety requirements mandated by local jurisdiction.

System Components

The Geotech Bladder Pump features four accessible parts (see Figure 1-2):
- Intake Screen
- Pump Housing
- Air and Sample Line Connections
- Bladder Assembly

*Optional: Drop Tube Intake Assembly

Intake Screen

The intake filter screen is constructed of 316 Stainless Steel and is easily removed and disassembled for field maintenance. The intake filter screen is intended to protect and extend the life of the bladder material (see *The Warranty*).

Pump Housing

The Geotech Bladder Pump housing is constructed of electropolished 316 Stainless Steel. Viton O-rings provide the high-pressure seals between the end caps and the housing walls. Always lubricate the O-rings with deionized water before installing the housing and intake screen.

Air and Sample Line Connections

The 1.66” Bladder Pump is provided in both low and high-pressure configurations. The low-pressure model is equipped with hose barbs for air and sample line connections, whereas the high-pressure model is equipped with heavy-duty compression fittings. The .850” and .675” models are both considered low pressure. See *Section 6: System Specifications* for operating depths and pressures.

Bladder assembly

The bladders are extruded Polytetrafluoroethylene (PTFE) to provide a long life and to ensure undisturbed samples. The internal bladders are easily replaceable, see *Section 4: System Maintenance*.

Drop Tube Intake Assembly (Optional)

An optional drop tube can be used to sample from depths below the specified maximum sampling depth. The drop tube assembly connects a remote intake feature to the pump through a tube connected to the pump inlet. The intake depth can be any custom length of tubing. The pump assembly itself must still be submerged below the water level. This means the depth to water cannot exceed the maximum pumping depth of the pump.

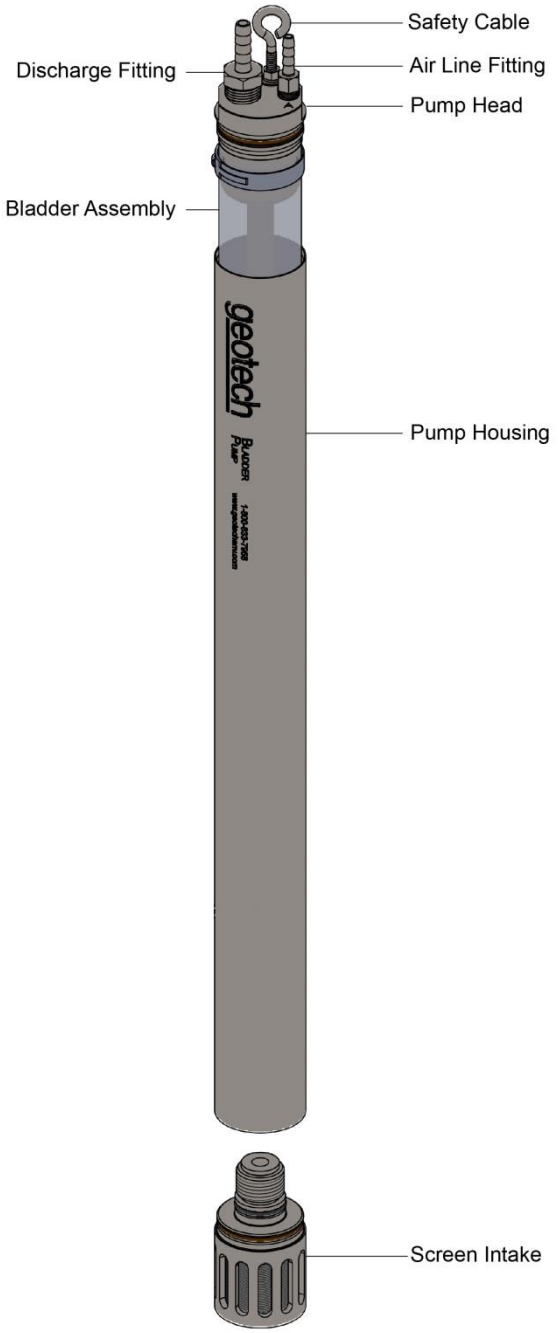


Figure 1-2: Basic* Bladder Pump Assembly

**Example above is based on 1.66" Low Pressure configuration*

Section 2: System Installation

Determine site-specific parameters such as water level, recharge rate and adherence to low flow purging guidelines. Speak with your Geotech Customer Service Representative to ensure the right equipment is being used.

Pump Controller

Geotech Bladder Pumps can be operated using a variety of controllers. Site requirements will determine the optimal control unit. Use the table below as a guide:

Controller	Air Source	Max Operating Depth
Geocontrol Pro	Internal compressor	180' (55m)
BP Controller 300 PSI	Externally supplied	690' (210m)
BP Controller 500 PSI	Externally supplied	1000' (305m)

Pump Tubing Lines

Geotech's Bladder Pumps are engineered for easy installation and use. Dedicated Bladder Pump systems are available with the tubing and well cap attached for ease of deployment. Well identifications (supplied by customer) are located on tags connected to the tubing, and on the tubing bags.

If not pre-attached, at the wellhead connect the airline tubing to air line connection at the top of the Bladder Pump (see Figure 1-2). The letter "A" has been stamped near the airline port on the top of each pump. See *Section 6: System Specifications* for air line system sizes.

Next, attach the discharge line to the discharge line connection at the top of pump (see Figure 1-2).



Failure to attach air and fluid lines to the appropriate ports could result in damage to the bladder.

Compression Fitting Installation

1. Ensure tubing is cut at a square, 90° angle.
2. Attach nut, back ferrule, and front ferrule to the tubing.
3. Ensure the front of the ferrule is touching the inlet, then slide the nut over the ferrule and tighten it finger-tight.
4. Mark the nut with a line.
   - This line will indicate the initial start point of the nut.
5. Hold the fitting body steady with a wrench. Turn the nut 1 ¼ turns.
   - Do not overtighten.
   - If re-installing compression fitting after repair/regular maintenance, turn the nut 1 turn after hand-tightening.

Safety Cable

Before deploying any sampling pump, secure a safety cable from an anchoring point at or near the wellhead to the top of the pump.

Carefully lower the Bladder Pump into the well using the Reverse Coil Method to avoid kinking, until the desired depth is achieved or until the well cap seats Reverse Coil Method

When lowering the pump into the well, it is important to reverse the natural bend of the coiled tubing so that the tubing straightens as it is lowered (see Figure 2-1). As the pump and tubing are lowered into the well, the direction of the bend should be reversed from the direction in which it is coiled. If the tubing is allowed to uncoil naturally and the natural bend not interrupted, the tubing will continue its coil into the well. Using the reverse coil method will avoid any difficulty while lowering the pump into the well, especially when the well is not completely vertical, or has come out of alignment for any reason.

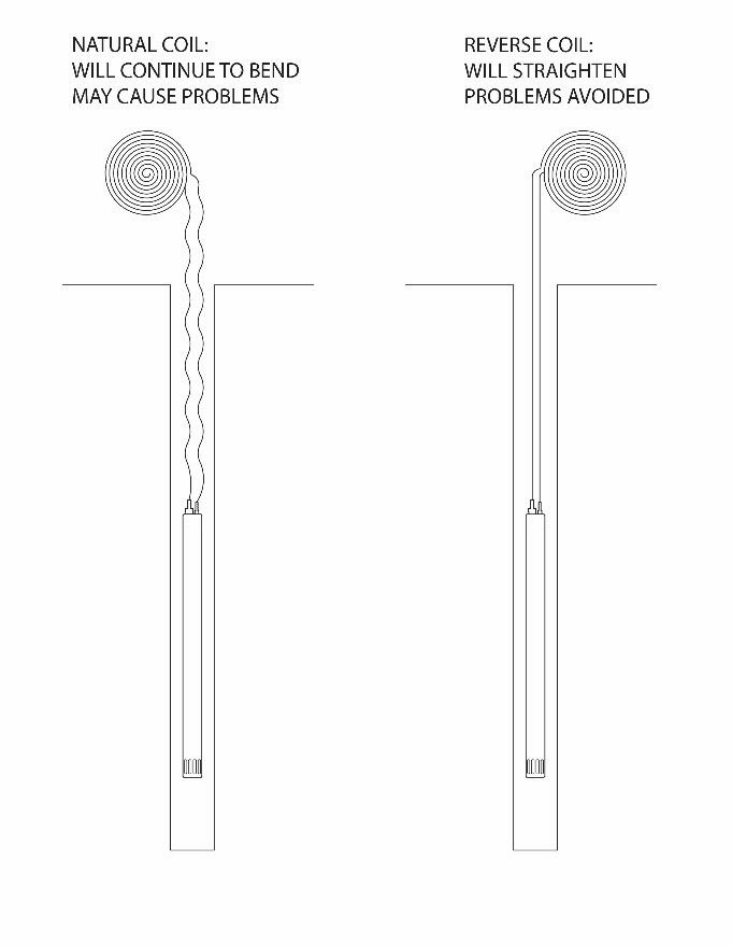


Figure 2-1: Reverse Coil Method

Optional Drop Tube Assembly

If a Drop Tube Intake Assembly is employed, a third tubing line is necessary to connect from the bottom of the bladder pump to the top of the drop tube intake.

For deployment of optional Drop Tube Intake Assembly, attach desired length of drop tube between the intake's hose barb and hose barb on bottom of pump. For added security, a safety cable may be installed to support the drop tube intake to the bottom of pump.

Send the drop tube intake down the well followed by the drop tube tubing, then the pump, and finally the air and fluid discharge line.

Section 3: System Operation

Bladder Pump Operation

Fluid enters the pump through the fluid inlet check valve at the bottom of the pump body via hydrostatic pressure. The pump MUST be submerged to operate. The bladder then fills with fluid. Compressed air enters the space between the bladder and the interior of the pump housing. The intake check valve closes and the discharge check valve (top) opens. Compressed air squeezes the bladder, pushing the fluid to the surface. The discharge check valve prevents back flow from the discharge tubing.

Selecting an Air Source

Air consumption depends on the volume of tubing and the size of deployed Bladder Pump. Follow the general guidelines and examples below to calculate the air consumption for specific sampling configurations.

Air Volume of Tubing

	TUBING LENGTH					
TUBE I.D.	1 ft/ 0.3 m	10 ft/ 3 m	50 ft/ 15 m	100 ft/ 30 m	250 ft/ 76 m	500 ft/ 152 m
0.17 in/ 0.43 cm	0.3 in^3/ 5 cm^3	3 in^3/ 50 cm^3	15 in^3/ 246 cm^3	30 in^3/ 492 cm^3	75 in^3/ 1230 cm^3	150 in^3/ 2460 cm^3
0.25 in/ 0.64 cm	0.6 in^3/ 10 cm^3	6 in^3/ 100 cm^3	30 in^3/ 492 cm^3	60 in^3/ 984 cm^3	150 in^3/ 2460 cm^3	300 in^3/ 4920 cm^3

Air Volume of Bladder Pumps

BP DIAMETER	BP LENGTH	VOLUME (in^3)
1.66 in/ 4 cm	36 in/ 91 cm	78 in^3/ 1278 cm^3
1.66 in/ 4 cm	18 in/ 46 cm	39 in^3/ 640 cm^3
0.85 in/ 4 cm	18 in/ 46 cm	10 in^3/ 164 cm^3
0.675 in/ 4 cm	18 in/ 46 cm	6 in^3/ 100 cm^3

Calculation guideline:
Volume of Tubing (in^3/cm^3)
+ Volume of Bladder Pump (in^3/ cm^3)
= Air Consumption per cycle (in^3/ cm^3)

If planning to use an air compressor, use one with a reserve tank to insure proper air supply to the pump. If using a Nitrogen Tank, see Figure 3-1 for Nitrogen Tank Volume vs. Bladder Pump consumption.

Determining Operation Pressure

Determine the air pressure needed to operate the Bladder Pump based on the length of the air supply line to the pump (well depth).

Use the simplified formula:

0.5 PSI (per foot) + 10 PSI (to account for tubing friction) = required PSI
0.12 bar (per meter) + 0.7 bar (to account for tubing friction) = required bar

As mentioned above, the additional 10 PSI (0.7 bar) is to account for the pump itself and friction loss along the air line tubing. When the length of the airline is 50’ (15m) or less, there is no need for the additional pressure.

To determine minimum operating pressures for the specific Bladder Pump model you are using, consult the pump’s specifications. Typically, the minimum operating pressure will be 5 PSI (0.4 bar) above static head.



The formulas stated above are not absolute, and are meant to provide baseline information.

Flow Rates

Bladder Pump flow rates are influenced by pump size (diameter and length); pump depth and submergence, as well as controller selection (i.e. compressor performance, valve flow coefficient). Generally, a large pump at shallow depths will produce the most flow, and a small pump at maximum depths will produce the least amount of flow.

Example flow rates:

Pump Size:	Depth: (3ft (0.9m) submergence)	Tubing Size		Flow Rate:
		Air line:	Discharge:	
1.66 x 36"	@ 275 ft (84 m)	.17"ID x 1/4"OD (4.3mm x 6.4mm)	1/4"ID x 3/8"OD (6.4mm x 9.5mm)	22 oz/min (0.7 L/min)
	@ 500 ft (152 m)	1/4"ID x 3/8"OD (6.4mm x 9.5mm)		17 oz/min (0.5 L/min)
1.66 x 18"	@ 275 ft (84 m)	.17"ID x 1/4"OD (4.3mm x 6.4mm)	1/4"ID x 3/8"OD (6.4mm x 9.5mm)	12 oz/min (0.4 L/min)
	@ 500 ft (152 m)	1/4"ID x 3/8"OD (6.4mm x 9.5mm)		8 oz/min (240 mL/min)
.850 x 18"	@ 150 ft (46 m)	.17"ID x 1/4"OD (4.3mm x 6.4mm)		2 oz/min (59 mL/min)
.675 x 18"	@ 150 ft (46 m)	.17"ID x 1/4"OD (4.3mm x 6.4mm)		1 oz/min (27 mL/min)



The above example flow rates are based on 3’ (0.9 m) of pump submergence. Typically, field environments will provide greater submergence (more than 10’ (3 m)), which will dramatically increase flow.

Factors that increase flow:

- increased submergence (depth of pump below water line)
- a strong compressor, like the Geocontrol PRO, will enable fast pressure build up in the air line tubing and pump cavity
- a clean intake screen will maximize the amount of water entering into the pump

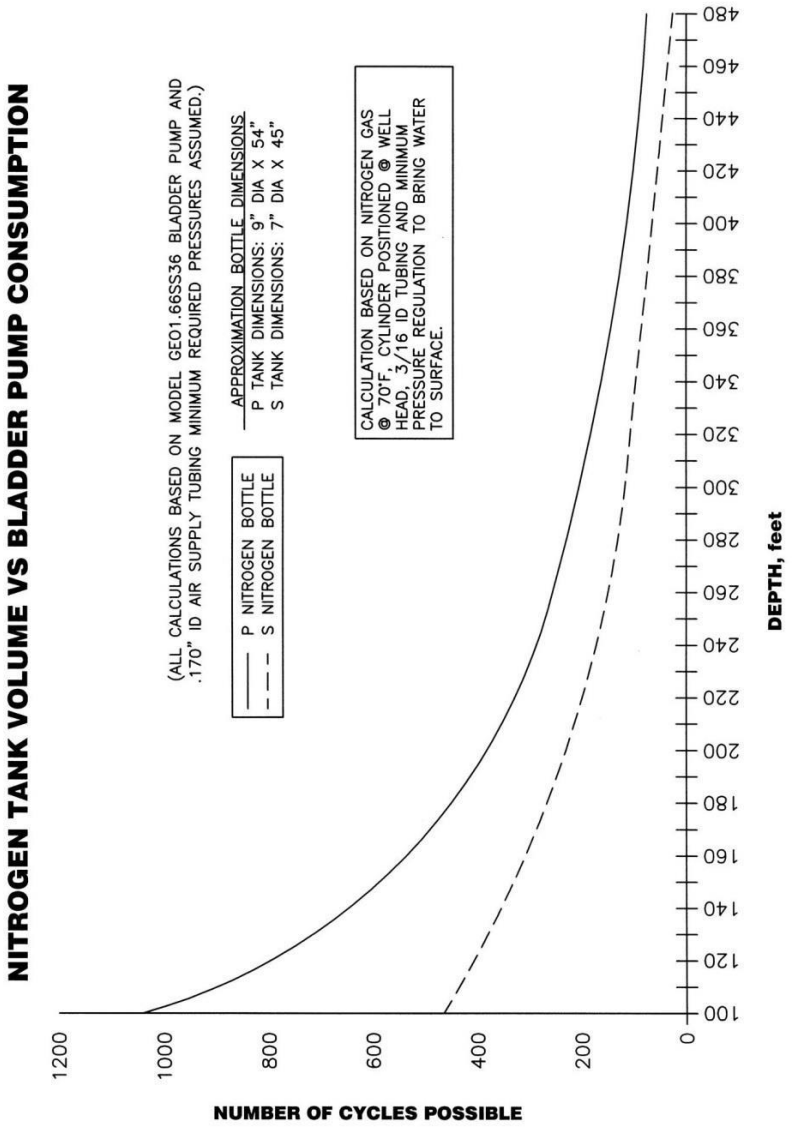


Figure 3-1: Tank Volume vs. BP Consumption

Section 4: System Maintenance

Bladder Pump

As with any pump, scheduled or periodic maintenance should be performed according to your sampling program and specific site conditions. Generally, the more turbid or sandy the water, the more maintenance and cleaning are required.

Replacement bladders, as well as other key components, can be found in *Section 7: Replacement Parts List*.

Disassemble Bladder Pump per instructions in this section, decontaminate or replace parts as needed, then reassemble.

Inspect O-rings and check balls for damage.
Replace Bladder if torn, ripped, or excessively worn.

Replacing the Bladder

<u>1.66" Models</u>

Pull pump from the well, it is not necessary to remove the air and sample lines from the pump. Take care, as the pump may be filled with fluid.

1. Hold the pump by its head with a towel or use the wrench flats, and turn the screen intake counter-clockwise to remove (see Figure 4-1).
   - The intake may be snug due to the high-pressure O-ring seal. Once the seal is broken, then intake should disengage easily.

2. Hold the pump by its head and slide or twist the housing off the pump body (see Figure 4-1).

3. Locate the Bladder clamps (see #3 on Figure 4-1).

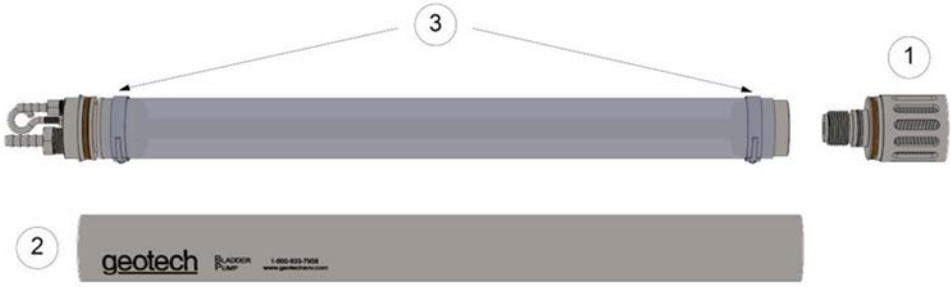


Figure 4-1: Accessing the Bladder Assembly

4. Obtain the clamp pincher tool (Geotech part # 11150031).

5. Pinch the tension hook and lift the end of the clamp until it releases from the retaining hooks (see Figure 4-2).

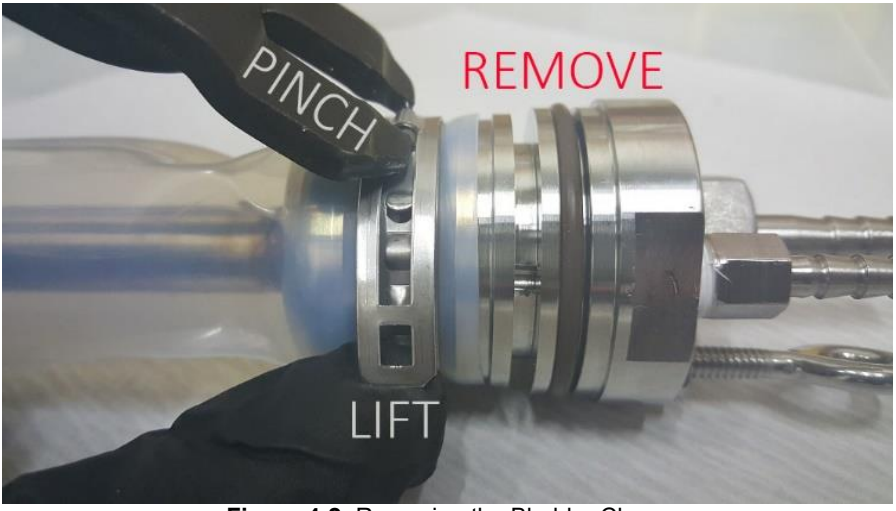


Figure 4-2: Removing the Bladder Clamp

6. Slide clamp off bladder.
   - Do this for both the top and the bottom bladder clamps.

7. Set the clamps aside, they are reusable.

8. Slide the bladder down over the pump body, decontaminate or replace as necessary.

9. Inspect O-rings for damage.

10. Replace O-rings as necessary.

Reassemble the 1.66" Models:

1. Slide the decontaminated or new bladder up the pump body and over the O-rings.

2. Ensure the O-rings are not dislodged and the bladder covers both O-rings with at least a 1/4" (.6cm) of clearance.

3. Slide the bladder clamps over the bladder and position each clamp over an O-ring, making sure the clamp and O-ring are aligned on center.

4. Using the clamp tool (Geotech part # 11150031). Pinch the tension hook and use your thumb to guide the end of the clamp over the retaining hooks until the clamp is locked in place (see Figure 4-4).

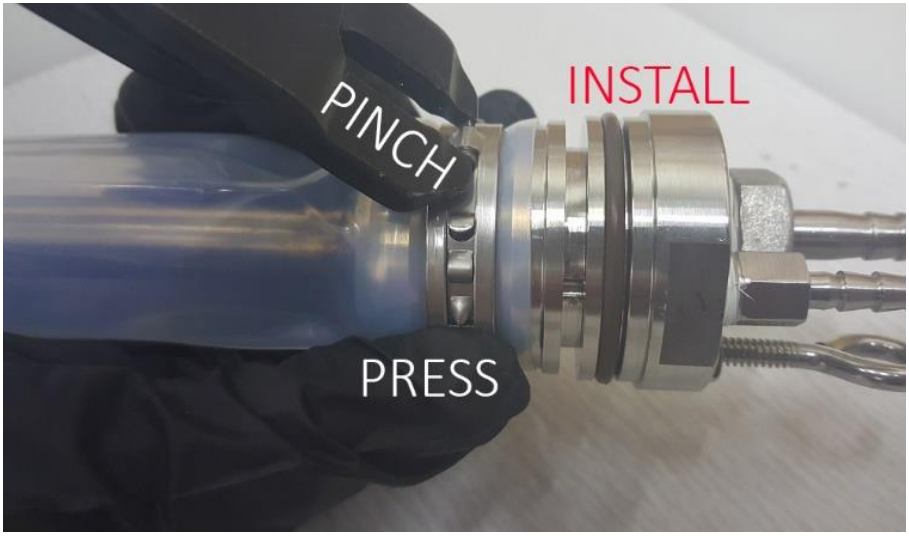


Figure 4-4: Installing the Bladder Clamp

5. Slide the housing over the pump body.

6. Lubricate the upper cap's O-ring using deionized water to ensure a pressure-ready installation.

7. Twist the housing on the body until it is flush with the upper cap.

8. Install the screen intake by lubricating the O-rings with deionized water and then turning clockwise into the pump's body.

9. Hold the pump by its head to ensure the screen intake is fully secured.
   - There should be no gaps between the outer housing and top or bottom caps.

10. Ensure the pump's fittings and safety cable are in good condition.

The pump is ready for service.

.850 and .675 Models

Pull pump from the well. It is not necessary to remove the air and sample lines from the pump. The pump may be filled with fluid.

1. Remove the lower screen and housing by turning the housing in a counter clockwise direction.
   - Use your hand or a strap wrench.

2. Remove the lower compression ring by pulling off end of the internal center tube assembly.

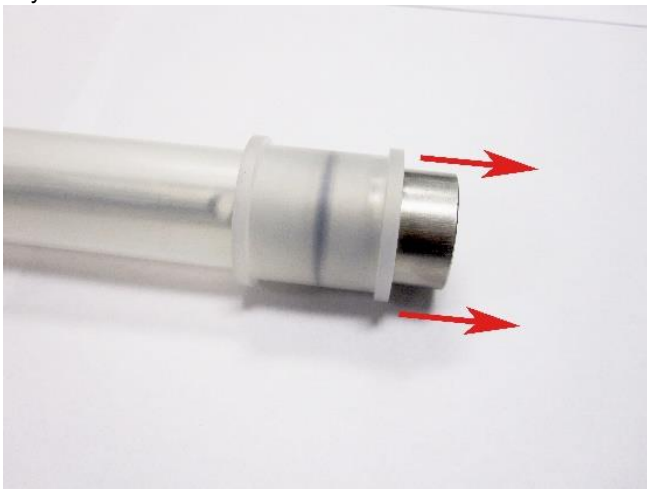


Figure 4-5: Inner Tube Center Assembly

3. Remove the upper compression ring by sliding it over the bladder and over the end of the internal center tube assembly.



Figure 4-6: Removing upper compression ring

4. Pulling from the lower end of the bladder, slide the bladder off the internal center tube weldment assembly.



Figure 4-7: Removing the bladder

The bladder can now be replaced or serviced.

Inspect the bottom intake for worn or damaged O-rings, clean the intake screen as needed, and inspect the PTFE disc for damage.

<u>Reassemble .850 and .675 Models:</u>

1. Install O-ring to upper end of the center tube weldment assembly.



Figure 4-7: Installing O-Ring

2. Install O-ring on the upper end of the center tube weldment assembly



Figure 4-8: Install second O-ring

3. Install O-ring on the lower end of the center tube weldment assembly.



Figure 4-9: Install O-ring on lower end of center tube weldment

4. Slide bladder onto the center tube assembly and over the O-ring on the upper end of the center tube assembly.
   - Do not roll the O-rings
   - If needed, use Deionized water or a silicone based lubricant on the O-ring seals to help the bladder slide over the O-rings.



Figure 4-10a: Sliding bladder on



Figure 4-10b: Bladder entirely on

5. Slide a compression ring over the bladder over the bladder to the upper end of the center tube weldment assembly.



Figure 4-11a: Compression Ring on Bladder



Figure 4-11b: Compression ring secured

6. Slide the compression ring over the bladder until it seats flush with the bottom of the center tube assembly.



Figure 4-12: Bottom Compression Ring

7. Lubricate the upper cap's O-ring with deionized water to ensure pressure-ready installation.

8. Replace the outer housing.

- Be sure the outer housing is sealed against the upper cap.



Figure 4-16a: Incorrect Installation



Figure 4-16b: Correct Installation

9. Twist the housing on the body until it is flush with the upper cap.

10. Replace the bottom intake assembly by screwing it into the bottom of the pump.
- There should be no gaps between the outer housing and top or bottom caps.

Compression Fittings

Tubing can wear out over time if compression fittings are overtightened. After repair, ensure that compression fittings are “snug”. One full rotation after hand tightening of the nut should be enough to tighten the compression fitting.

Section 5: System Troubleshooting

Problem: Air is cycling through controller but will not pump.
Solutions

- Discharge and Fill times are not set correctly. Check and adjust Discharge and Fill cycle times (i.e. if Discharge time is too long or if Fill and Discharge time is too short).
- Possible compromise in air line tubing. Check airline pumps for leaks. If needed, repair using compression union or replace tubing.
- Check pump intake screen for blockage and clean as needed.

Problem: Controller is cycling but the pump stops producing water.
Solutions

- Check drawdown level of water in the well. Ensure the pump is fully submerged and off of the bottom of the well.
- Check air pressure at the regulator and adjust as necessary (See *Section 3: Determining Operation Pressure*.)
- Check for kinks in the discharge line.
- Check pump intake screen for obstructions.
- Discharge time is too long or Fill time is too short; causes pressure build up in pump, causing the pump not to fill.
- Check power source, assure a strong reliable power supply. If using old or weak battery, the control valves may not operate properly.

Problem: Getting air bubbles in sample line.
Solutions

- Overcharging pump. Reduce discharge cycle time so the discharge cycle ends as fluid discharge trails off. Inspect pump for compromised bladder or O-rings.
- Pump is being over pressurized. Reduce air pressure to what is necessary to overcome pumping head.
- Check discharge line for holes or kinks. Repair using compression union or replace tubing.
- Ensure Bladder clamps are properly installed.

Problem: Discharge line drains back into pump.
Solution

- Check valve at the top of the pump is compromised. Remove hose barb on pump discharge outlet. Check the check ball seat for debris. Clean and re-install.
- Check the upper ball for roundness, pitting or scaling.

Problem: Discharge sucks up water at sampling end, especially during fill cycle.
Solution
The compression fitting ferrule has cut into the tubing. Follow installation instructions in *Section 2: System Installation*.

If you are experiencing other problems than mentioned above, please call Geotech Technical Support for immediate assistance, (800) 833-7958.

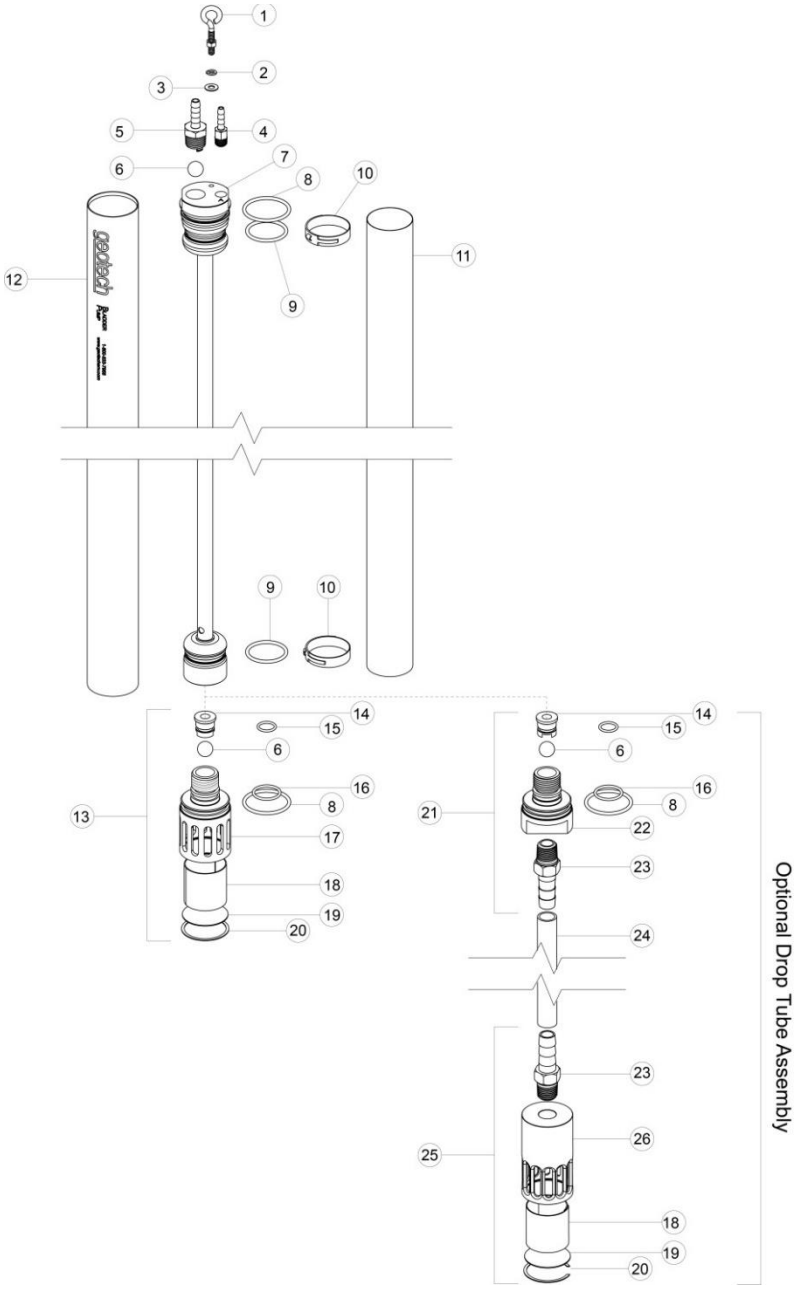
Section 6: System Specifications

	1.66 36"		1.66 18"		0.850"	0.675"
	High Pressure	Low Pressure	High Pressure	Low Pressure		
Pump Body	316 SS					
Fittings	316 SS					
Fitting Type	Compression	Hose barb	Compression	Hose barb	Hose barb	
Bladder Material	PTFE *Optional PE*					
Bladder Retainer	316 SS Clamp				PTFE Collar	
Pump O.D.	1.66" (4.2 cm)				.850" (2.2 cm)	.675" (1.7 cm)
Length	38" (96.5 cm)		20" (51 cm)		18 5/8" (47.3 cm)	18 3/4" (47.6 cm)
Weight	5.5 lbs. (2.5 kg)		3.5 lbs. (1.6 kg)		1.1 lbs. (0.5 kg)	.8 lbs. (0.4 kg)
Volume/ Cycle	22 oz. (650 mL)		11 oz. (325 mL)		1 oz. 29 mL	0.5 oz. 15 mL
Max Operating Temp.	PTFE Bladder: 32°F-212°F (0°C-100°C) *PE Bladder: 32°F -185°F (0°C -85°C*)					
Min. Well I.D.	2" (5 cm)				1" (2.5 cm)	.75" (1.9 cm)
Max. Sample Depth	1000 ft. (305 m)	290 ft. (88 m)	1000 ft. (305 m)	290 ft. (88 m)	200' (61 m)	
Min. Operating Pressure	5 psi ash* (.34 bar)					
Max. Operating Pressure	500 psi (34 bar)	125 psi (8.6 bar)	500 psi (34 bar)	125 psi (8.6 bar)	100 psi (7bar)	
Proof Pressure	675 psi (46 bar)	187 psi (13 bar)	675 psi (46 bar)	187 psi (13 bar)	150 psi (10 bar)	
Burst Pressure	1000 psi (69 bar)	300 psi (21 bar)	1000 psi (69 bar)	300 psi (21 bar)	300 psi (20 bar)	
Tubing Size (I.D. x O.D.)						
Air Line	1/4" x 3/8" (6 x 10 mm)	.17" x 1/4" (4 x 6 mm)	1/4" x 3/8" (6 x 10 mm)	.17" x 1/4" (4 x 6 mm)	.17" x 1/4" (4 x 6 mm)	
Discharge Line		1/4" x 3/8" (6 x 10 mm)		1/4" x 3/8" (6 x 10 mm)		

*ash = above static head

Section 7: Replacement Parts List

1.66 Bladder Pump Components (36” & 18” LOW Pressure Models)



Bladder Pump, 1.66, Stainless Steel, 36", Low Pressure - 81150120

Item	Qty	Description	Part No.
1	1	EYEBOLT, SS6, 10-24, 1" SHANK	16600347
2	1	WASHER, SS6, #10, LOCK	11150449
3	1	WASHER, SS6, #10	11150450
4	1	HOSEBARB, SS6, .170 x 1/8" MPT, AIR LINE	21150019
5	1	HOSEBARB, SS6, MOD, 1/4" x 3/8 MPT, DISCHARGE	21150145
6	2	BALL, SS6, 1/2"	17500082
7	1	CAP, UPPER WELDMENT, SS, 166x36"	21150143
8	2	O-RING, VITON, 2.5mm x 36mm, BROWN	11150318
9	2	O-RING, VITON, #123, BROWN	11200299
10	2	CLAMP, SS6, LOW PROFILE	11150444
11	1	BLADDER, PTFE, BP, 166SS36,DEDICATED	51150139
12	1	HOUSING, SS6, DED, 166x36"	51150142
13	1	ASSY, BOTTOM INTAKE, 166 BP	51150067
14	1	PLUG, BALL RETAINER, 166 BP	21150096
15	1	O-RING, VITON, #014, BROWN	17500119
16	1	O-RING, VITON, 2mmx20mm	11150332
17	1	CAP, LOWER, SS6, 166 BP	21150094
18	1	SCREEN, INTAKE, SS6, 166 BP	21150095
19	1	DISC, SS, 1.66, PBP	21150148
20	1	RING, SNAP, SS6, INTERNAL, 166 BP	11150051
21	§	ASSY,LOWER CAP,166 DROP TUBE WITH 1/2" HOSEBARB	51150128
22	§	DROPTUBE, CAP LOWER, SS6, 166	21150098
23	§	HOSEBARB, SS6, 1/2 x 3/8" MPT	16600217
24	§	TUBING, PE, 1/2 x 5/8"	87050504
25	§	ASSY, INTAKE, 166, DROP TUBE, WITH 1/2" HOSE BARB	51150071
26	§	INTAKE, DROPTUBE, SS6, 166	21150113
Not Shown:			
	1	MANUAL, BLADDER PUMPS	21150035
	§	TOOL, BLADDER PUMP, PINCER, 5mm	11150031
	§	KIT, 166 SS BP, O-RING SET, O-RING SERVICE SET [Item 8 (2), 9 (2), 15 (1), 16 (1)]	91150023

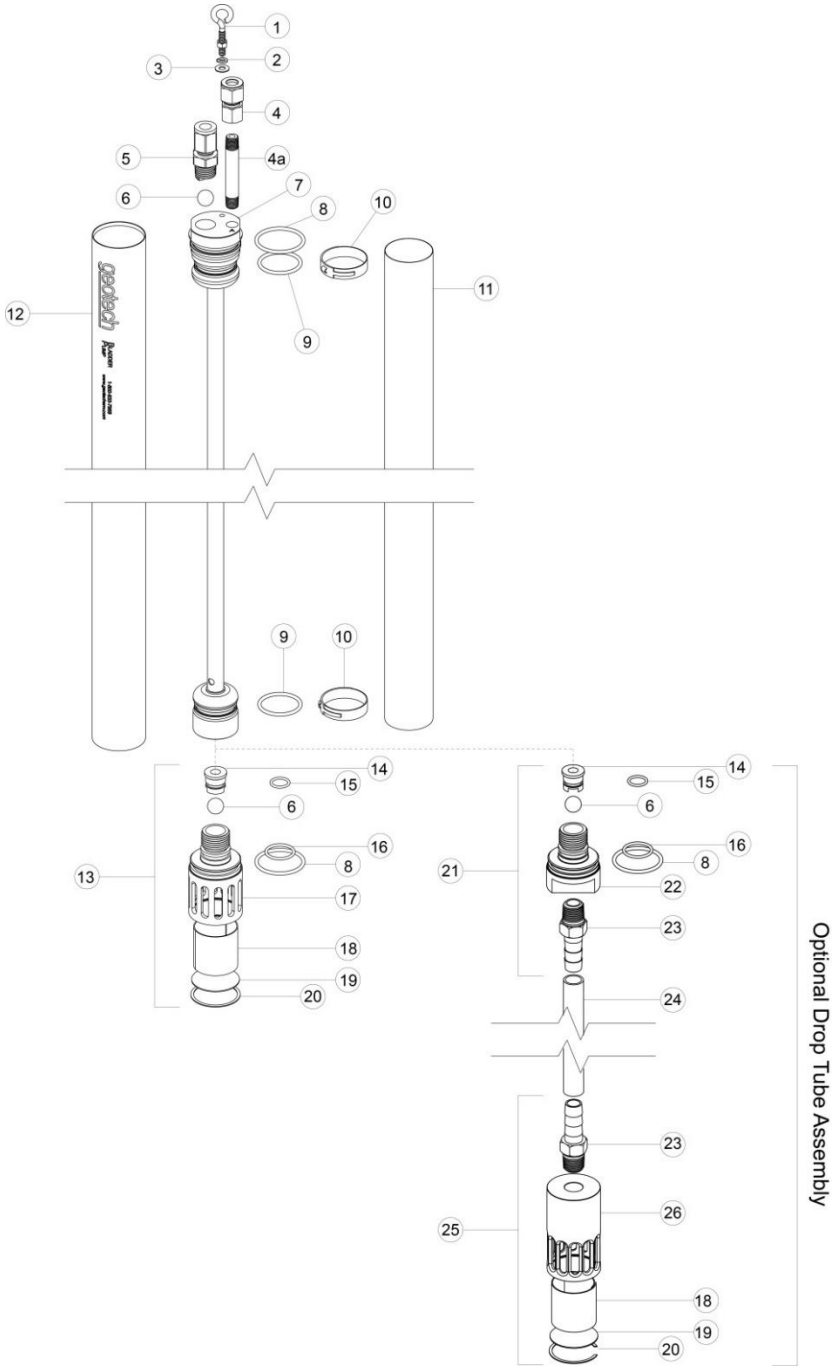
§ = *Sold Separately*

Bladder Pump, 1.66, Stainless Steel, 18", Low Pressure - 81150122

Item	Qty	Description	Part No.
1	1	EYEBOLT, SS6, 10-24, 1" SHANK	16600347
2	1	WASHER, SS6, #10, LOCK	11150449
3	1	WASHER, SS6, #10	11150450
4	1	HOSEBARB, SS6, .170 x 1/8" MPT, AIR LINE	21150019
5	1	HOSEBARB, SS6, MOD, 1/4 x 3/8" MPT, DISCHARGE	21150145
6	2	BALL, SS6, 1/2"	17500082
7	1	CAP, UPPER WELDMENT, SS, 166 x 18"	21150147
8	2	O-RING, VITON, 2.5mm x 36mm, BROWN	11150318
9	2	O-RING, VITON, #123, BROWN	11200299
10	2	CLAMP, SS6, LOW PROFILE	11150444
11	1	BLADDER, PTFE, BP, 166SS18, DEDICATED	51150140
12	1	HOUSING, SS6, DED, 166 x 18"	51150143
13	1	ASSY, BOTTOM INTAKE, 166 BP	51150067
14	1	PLUG, BALL RETAINER, 166 BP	21150096
15	1	O-RING, VITON, #014, BROWN	17500119
16	1	O-RING, VITON, 2mm x 20mm	11150332
17	1	CAP, LOWER, SS6, 166 BP	21150094
18	1	SCREEN, INTAKE, SS6, 166 BP	21150095
19	1	DISC, SS, 1.66, PBP	21150148
20	1	RING, SNAP, SS6, INTERNAL, 166 BP	11150051
21	§	ASSY,LOWER CAP,166 DROP TUBE WITH 1/2" HOSEBARB	51150128
22	§	DROPTUBE, CAP LOWER, SS6, 166	21150098
23	§	HOSEBARB, SS6, 1/2 x 3/8" MPT	16600217
24	§	TUBING, PE, 1/2 x 5/8"	87050504
25	§	ASSY, INTAKE, 166, DROP TUBE, WITH 1/2" HOSE BARB	51150071
26	§	INTAKE, DROPTUBE, SS6, 166	21150113
Not Shown:			
	1	MANUAL, BLADDER PUMPS	21150035
	§	TOOL, BLADDER PUMP, PINCER, 5mm	11150031
	§	KIT, 166 SS BP, O-RING SET, O-RING SERVICE SET [Item 8 (2), 9 (2), 15 (1), 16 (1)]	91150023

§ = *Sold Separately*

1.66 Bladder Pump Components (36” & 18” HIGH Pressure Models)



Bladder Pump, 1.66, Stainless Steel, 36", High Pressure - 81150119

Item	Qty	Description	Part No.
1	1	EYEBOLT, SS6, 10-24, 1" SHANK	16600347
2	1	WASHER, SS6, #10, LOCK	11150449
3	1	WASHER, SS6, #10	11150450
4	1	CMPRSN FITTING, SS6, 3/8 TUBE x 1/8 FPT	11150446
4a	1	NIPPLE, SS6, 1/8" NPT x 2.5"	11150447
5	1	CMPRSN FITTING, MOD, SS6, 3/8 TUBE x 3/8" MPT	21150144
6	2	BALL, SS6, 1/2"	17500082
7	1	CAP, UPPER WELDMENT, SS, 166 x 36"	21150143
8	2	O-RING, VITON, 2.5mm x 36mm, BROWN	11150318
9	2	O-RING, VITON, #123, BROWN	11200299
10	2	CLAMP, SS6, LOW PROFILE	11150444
11	1	BLADDER, PTFE, BP, 166SS36,DEDICATED	51150139
12	1	HOUSING, SS6, DED, 166x36"	51150142
13	1	ASSY, BOTTOM INTAKE, 166 BP	51150067
14	1	PLUG, BALL RETAINER, 166 BP	21150096
15	1	O-RING, VITON, #014, BROWN	17500119
16	1	O-RING, VITON, 2mmx20mm	11150332
17	1	CAP, LOWER, SS6, 166 BP	21150094
18	1	SCREEN, INTAKE, SS6, 166 BP	21150095
19	1	DISC ,SS, 1.66,PBP	21150148
20	1	RING, SNAP, SS6, INTERNAL, 166 BP	11150051
21	§	ASSY,LOWER CAP,166 DROP TUBE WITH 1/2" HOSEBARB	51150128
22	§	DROPTUBE, CAP LOWER, SS6, 166	21150098
23	§	HOSEBARB, SS6, 1/2 x 3/8" MPT	16600217
24	§	TUBING, PE, 1/2 x 5/8"	87050504
25	§	ASSY, INTAKE, 166, DROP TUBE, WITH 1/2" HOSE BARB	51150071
26	§	INTAKE, DROPTUBE, SS6, 166	21150113
Not Shown:			
	1	MANUAL, BLADDER PUMPS	21150035
	§	TOOL, BLADDER PUMP, PINCER, 5mm	11150031
	§	FERRULE SETS, SS6, 3/8"	57200010
	§	KIT, 166 SS BP, O-RING SET, O-RING SERVICE SET [Item 8 (2), 9 (2), 15 (1), 16 (1)]	91150023

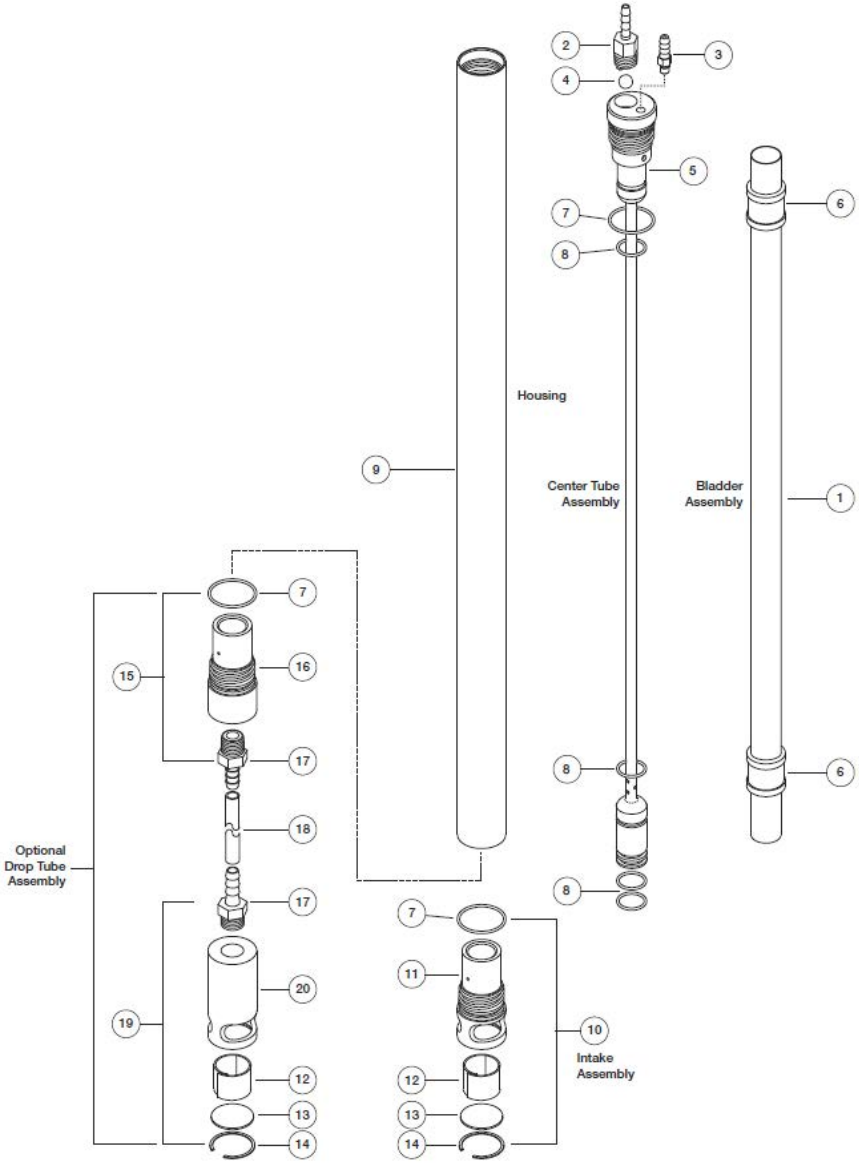
§ = *Sold Separately*

Bladder Pump, 1.66, Stainless Steel, 18", High Pressure - 81150121

Item	Qty	Description	Part No.
1	1	EYEBOLT, SS6, 10-24, 1" SHANK	16600347
2	1	WASHER, SS6, #10, LOCK	11150449
3	1	WASHER, SS6, #10	11150450
4	1	CMPRSN FITTING, SS6, 3/8 TUBE x 1/8 FPT	11150446
4a	1	NIPPLE, SS6, 1/8" NPT x 2.5"	11150447
5	1	CMPRSN FITTING, MOD, SS6, 3/8 TUBE x 3/8" MPT	21150144
6	2	BALL, SS6, 1/2"	17500082
7	1	CAP, UPPER WELDMENT, SS, 166x18"	21150147
8	2	O-RING, VITON, 2.5mm x 36mm, BROWN	11150318
9	2	O-RING, VITON, #123, BROWN	11200299
10	2	CLAMP, SS6, LOW PROFILE	11150444
11	1	BLADDER, PTFE, BP, 166SS18, DEDICATED	51150140
12	1	HOUSING, SS6, DED, 166x18"	51150143
13	1	ASSY, BOTTOM INTAKE, 166 BP	51150067
14	1	PLUG, BALL RETAINER, 166 BP	21150096
15	1	O-RING, VITON, #014, BROWN	17500119
16	1	O-RING, VITON, 2mmx20mm	11150332
17	1	CAP, LOWER, SS6, 166 BP	21150094
18	1	SCREEN, INTAKE, SS6, 166 BP	21150095
19	1	DISC, SS,1.66, PBP	21150148
20	1	RING, SNAP, SS6, INTERNAL, 166 BP	11150051
21	§	ASSY,LOWER CAP,166 DROP TUBE WITH 1/2" HOSEBARB	51150128
22	§	DROPTUBE, CAP LOWER, SS6, 166	21150098
23	§	HOSEBARB, SS6, 1/2 x 3/8" MPT	16600217
24	§	TUBING, PE, 1/2 x 5/8"	87050504
25	§	ASSY, INTAKE, 166, DROP TUBE, WITH 1/2" HOSE BARB	51150071
26	§	INTAKE, DROPTUBE, SS6, 166	21150113
Not Shown:			
	1	MANUAL, BLADDER PUMPS	21150035
	§	TOOL, BLADDER PUMP, PINCER, 5mm	11150031
	§	FERRULE SETS, SS6, 3/8"	57200010
	§	KIT, 166 SS BP, O-RING SET, O-RING SERVICE SET [Items 8 (2), 9 (2), 15 (1), 16 (1)]	91150023

§ = *Sold Separately*

.850 Stainless Steel Bladder Pump Components

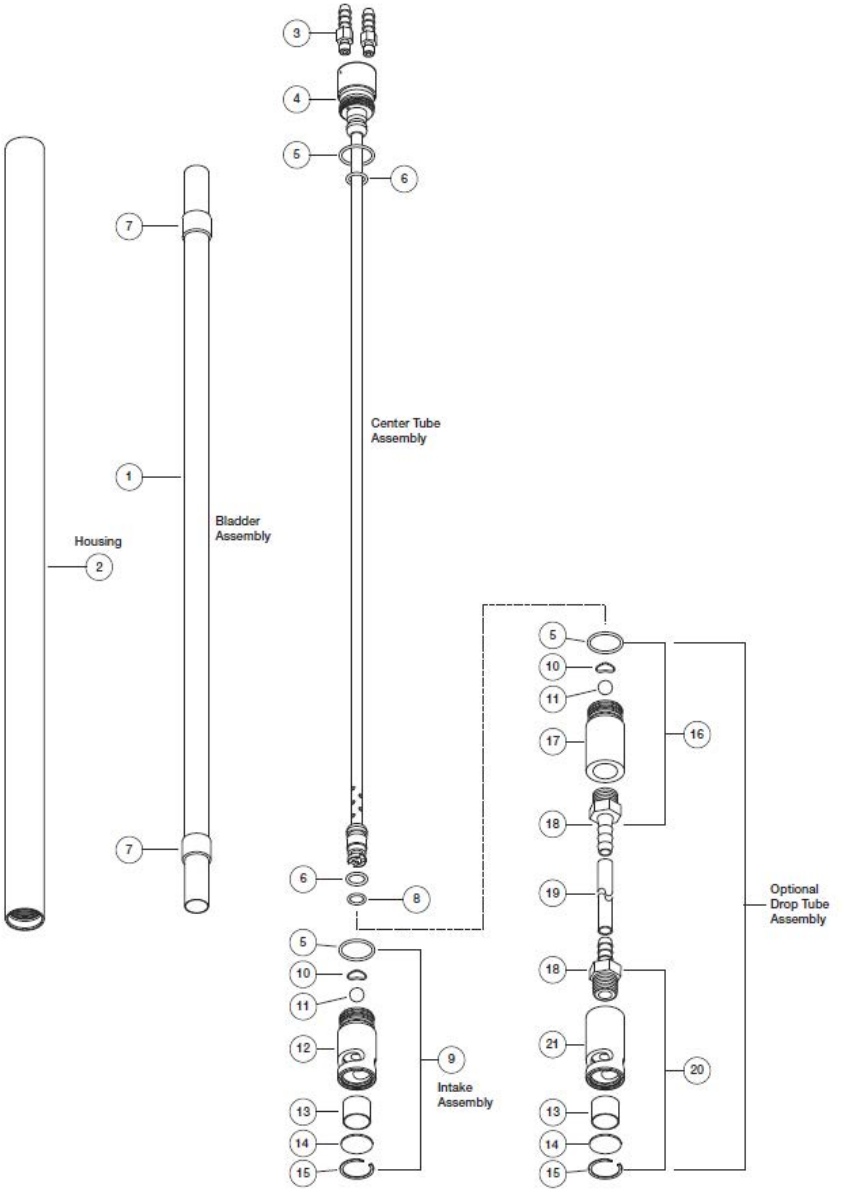


Bladder Pump, .850, Stainless Steel, Screened - 81150115

Item	Qty	Description	Part No.
1	1	BLADDER ,PTFE, .85 BP	51150051
1	§	BLADDER, PE, .85 BP, EA	21150100
1	§	BLADDER, PE, .85, CE, 12PK	21150099
2	1	HOSEBARB, SS6, MOD, .170 X 1/8 NPT DISCHARGE	11150118
3	1	HOSEBARB, SS6, .170 X 10/24 AIR	17200245
4	2	BALL, SS6, 1/4"	17500079
5	1	CAP UPPER WELDMENT, SS6, .85 BP	21150045
6	2	RING, COMPRESSION, PTFE, .850, CE, BP	21150048
7	2	O-RING, VITON, CS .0629, ID 17.1MM	17500112
8	4	O-RING, VITON, #012	17500111
9	1	HOUSING, SS6, .850, BP	21150047
10	1	ASSY, BOTTOM INTAKE, .85 BP	51150118
11	1	CAP, LOWER, SS6, .850, BP	21150046
12	1	SCREEN, INTAKE, SS6, .85 BP	21150050
13	1	DISC, PTFE, .85 BP	21150049
14	1	RING, SNAP, SS6, INTERNAL, .85 BP	11150053
15	§	ASSY, LOWER CAP, .850 BP, DROP TUBE, CE, W/ 1/4" HOSEBARB	51150129
16	§	DROP TUBE, CAP LOWER, .850 BP, CE SS	21150109
17	§	HOSEBARB, SS6, 1/4 X 1/8 MPT	17200072
18	§	TUBING, PE, 1/4 X 3/8, FT POLYETHYLENE	87050502
19	§	ASSY, INTAKE, .850 BP, DROP TUBE, CE, W/ 1/4" HOSEBARB	51150069
20	§	INTAKE, DROP TUBE, .850 BP, CE, SS	21150111
Not Shown:			
	1	MANUAL, BLADDER PUMPS	21150035
	§	SPARE PARTS KIT, .85, BP, CE [Items 4 (2), 6 (2), 7 (2), 8 (4), 12, 13, 14]	51150123
	§	KIT, .85 BP, O-RING SET, CE, O-RING SERVICE KIT [Items 7 (2), 8 (4)]	91150013

§ = *Sold Separately*

.675 Stainless Steel Bladder Pump Components



Bladder Pump, .675, Stainless Steel, Screened - 81150117

Item	Qty	Description	Part No.
1	1	BLADDER, PTFE, .675, BP, CE	51150126
1	§	BLADDER, PE, .675, EA	21150102
1	§	BLADDER, PE, .675, CE, 12PK	21150101
2	1	HOUSING, SS6, .675, BP	21150032
3	2	HOSEBARB, SS6, .170 X 10/24 AIR	17200245
4	1	WELDMENT, INNER, SS6, .675 BP	51150125
5	2	O-RING, VITON, #014	17500119
6	2	O-RING, VITON, #107	17500604
7	2	RING, COMPRESSION, PTFE, .675 BP, CE	21150106
8	1	O-RING, VITON, #009	17500113
9	1	ASSY, BOTTOM INTAKE, .675, BP	51150120
10	1	RETAINER, BALL, .675 BP, TACO	21150087
11	1	BALL, SS6, 1/4"	17500079
12	1	CAP, LOWER, SS6, .675 BP	21150031
13	1	SCREEN, INTAKE, SS6, .675 BP	11150317
14	1	DISC, PTFE, .675 BP	21150033
15	1	RING, SNAP, SS, .675 BP	11150182
16	§	ASSY, LOWER CAP, .675 BP, DROP TUBE, CE	51150130
17	§	DROP TUBE, CAP LOWER, .675 BP, CE SS	21150110
18	§	HOSEBARB, SS6, 1/4 X 1/8 MPT	17200072
19	§	TUBING, PE, 1/4 X 3/8, FT POLYETHYLENE	87050502
20	§	ASSY, INTAKE .675 BP, DROP TUBE CE	51150070
21	§	INTAKE, DROP TUBE, .675 BP, CE, SS	21150112
Not Shown:			
	1	MANUAL, BLADDER PUMPS	21150035
	§	SPARE PARTS KIT, .675, BP, CE [Items 5(2), 6 (2), 7(2), 8, 10, 11, 13, 14, 15]	51150124
	§	KIT, .675 BP, O-RING SET, CE O-RING SERVICE KIT [Items 5 (2), 6 (2), 8]	91150014

§ = *Sold Separately*

DOCUMENT REVISIONS		
EDCF#	DESCRIPTION	REV/DATE
Project 1375	Release, SP	3/11/2014
EDCF # 1870	Corrected Replacement Parts List (Ch. 7) for 1.66 pump, SP	2/17/2015
Project # 0992	Updated Manual to show new style 1.66 pump, SP	1/11/2015
#2001	Updated part numbers and minor formatting, SR	10/27/16
Project #1560	Adding temperature spec to Section 6: System Specifications. (185F/85C), PTFE to SS Disc in 1.66 models, StellaR	5/25/2017
Project #1565	Added compression fitting instructions, StellaR	9/18/2017
Project #1597	Added part # 91150023 – O-ring service kit, - StellaR	1/17/2018
Project #1597	Clarified part list – notes between included and items sold separately from pump. Included items in O-ring service kit for 1.66 pumps – StellaR	1/22/2018

The Warranty

For a period of one (1) year from date of first sale, product is warranted to be free from defects in materials and workmanship. Geotech agrees to repair or replace, at Geotech's option, the portion proving defective, or at our option to refund the purchase price thereof. Geotech will have no warranty obligation if the product is subjected to abnormal operating conditions, accident, abuse, misuse, unauthorized modification, alteration, repair, or replacement of wear parts. User assumes all other risk, if any, including the risk of injury, loss, or damage, direct or consequential, arising out of the use, misuse, or inability to use this product. User agrees to use, maintain and install product in accordance with recommendations and instructions. User is responsible for transportation charges connected to the repair or replacement of product under this warranty**.**

Equipment Return Policy

A Return Material Authorization number (RMA #) is required prior to return of any equipment to our facilities, please call 800 number for appropriate location. An RMA # will be issued upon receipt of your request to return equipment, which should include reasons for the return. Your return shipment to us must have this RMA # clearly marked on the outside of the package. Proof of date of purchase is required for processing of all warranty requests.

This policy applies to both equipment sales and repair orders.

FOR A RETURN MATERIAL AUTHORIZATION, PLEASE CALL OUR SERVICE DEPARTMENT AT 1-800-833-7958 OR 1-800-275-5325.

Model Number: _____
Serial Number: _____
Date: _____

Equipment Decontamination

Prior to return, all equipment must be thoroughly cleaned and decontaminated. Please make note on RMA form, the use of equipment, contaminants equipment was exposed to, and decontamination solutions/methods used.

Geotech reserves the right to refuse any equipment not properly decontaminated. Geotech may also choose to decontaminate equipment for a fee, which will be applied to the repair order invoice.

Geotech Environmental Equipment, Inc.
2650 East 40th Avenue Denver, Colorado 80205
(303) 320-4764 ● **(800) 833-7958** ● FAX (303) 322-7242
email: sales@geotechenv.com website: www.geotechenv.com

geotech

Geocontrol PRO

Installation and Operation Manual



Rev 01/13/2015 Part# 11150263

Table of Contents

DOCUMENTATION CONVENTIONS 1
NOTICES 1
Chapter 1: System Description 3
Chapter 2: System Installation 4
Chapter 3: System Operation 5
Chapter 4: System Maintenance 7
Chapter 5: System Troubleshooting 10
Chapter 6: System Specifications 12
Chapter 8: Replacement Parts List 15
NOTES 18
EC Declaration of Conformity 19
THE WARRANTY 20
Equipment Return Policy 20
Equipment Decontamination 20

DOCUMENTATION CONVENTIONS

This manual uses the following conventions to present information:



WARNING

An exclamation point icon indicates a **WARNING** of a situation or condition that could lead to personal injury or death. You should not proceed until you read and thoroughly understand the **WARNING** message.



CAUTION

A raised hand icon indicates **CAUTION** information that relates to a situation or condition that could lead to equipment malfunction or damage. You should not proceed until you read and thoroughly understand the **CAUTION** message.



NOTE

A note icon indicates **NOTE** information. Notes provide additional or supplementary information about an activity or concept.

NOTICES



CAUTION

In order to ensure that your Controller has a long service life and operates properly, adhere to the cautions below and read this manual before use.

Disconnect from power source when not in use.

Controller power input source must not exceed maximum ratings.

Controller must be wired to a negative ground system.

Controller may not operate properly with excess wiring not supplied by manufacturer.

Avoid spraying fluid directly at controller.

Never submerge controller.

Avoid pulling on wires to unplug controller wiring.

Avoid using controller with obvious physical damage.

To prevent controller damage, avoid dropping controller.



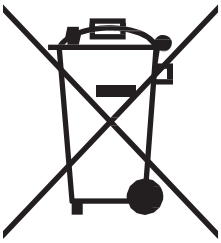
NOTE

The Geotech Geocontrol PRO cannot be made dangerous or unsafe as a result of failure due to EMC interference.



WARNING

Do not operate this equipment if it has visible signs of significant physical damage other than normal wear and tear.



Notice for consumers in Europe:

This symbol indicates that this product is to be collected separately.

The following apply only to users in European countries:

- This product is designated for separate collection at an appropriate collection point. Do not dispose of as household waste.
- For more information, contact the seller or the local authorities in charge of waste management.

Chapter 1: System Description

Function and Theory

The Geocontrol PRO is a unique controller for operating down well bladder type sampling pumps. When an external 12 VDC power source is connected to the controller, the internal air compressor is capable of producing a pressure of 100 PSI (7 bar). This pressure allows the user to take samples from a depth to 180 feet (55 mm).

The controller offers a variable cycle timer for controlling the portable compressor's on-time and off-time. While the compressor is on, air is pushed down well to the bladder pump, compressing the internal bladder and evacuating the liquid in the pump. When the compressor shuts off, the air pressure in the pump exhausts out of the system, allowing liquids to enter the pump.

Chapter 2: System Installation

WARNING

Verify the 12V system to be used is rated and fuse protected for operation at 15 amps continuous operation. Failure to verify system rating could result in damage to equipment. Over-heated wiring and other materials or components in contact or near by the power delivery system could pose a potential fire or burn hazard.

To operate the Geocontrol PRO, make sure the power switch is in the “off “position (rocker in down position). Plug the power input cord into a fuse protected 12V lighter receptacle on a negatively grounded system. If the controller is to be wired directly to a 12V battery, make sure to connect the positive (red) alligator clip to the positive (red) battery terminal and connect the negative (black) alligator clip to the negative (black) battery terminal. Next, securely plug in the circular plug connector on the opposite end of the cable to the corresponding receptacle on the face of the controller. Continue by plugging the pump’s air hose into the port labeled AIR on the controller’s face. Then plumb the pump’s discharge line into a suitable container. Check all wiring and plumbing for correctness.

Finally, double check to ensure the 12V system positive and negative is not reversed at any connection point.

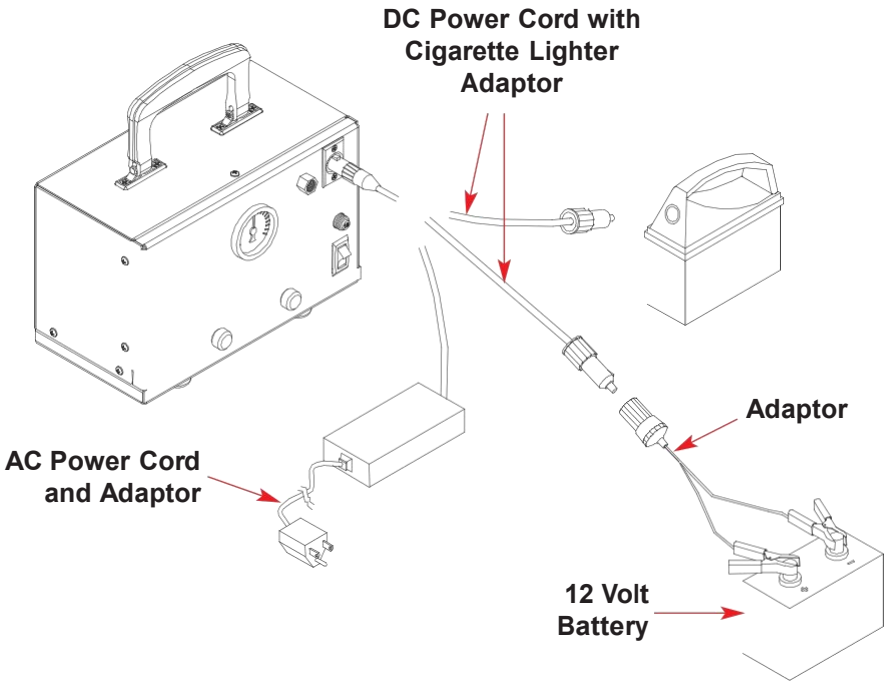


Figure 1
Installation Diagram

Chapter 3: System Operation



WARNING

Do not operate this equipment if it has visible signs of significant physical damage other than normal wear and tear.



CAUTION

Operating the equipment in any way other than that described within this document could potentially damage the equipment.

Disconnect power source when not in use.

Double check 12V systems positive and negative are not reversed at any connection point.

Before turning the power switch "on" turn the Geocontrol PRO's "Fill" and "Discharge" timer knobs to adjust the cycle times. These knobs are located on the front face of the Geocontrol PRO below the airline pressure gauge. To the left is Discharge time and to the right is Fill time. Use the radial number scales around each timer knob to adjust timer values in seconds.

Discharge Time:
The time it takes to squeeze the bladder and push the water out of the pump. Increase this time with increased depth to water and larger bladder pumps. Decrease this time with lower depth to water and smaller bladder pumps. Timer can be set from approximately 2 to 60 sec.

Fill Time:
The time allowed for the bladder to refill. Increase this time with increased depth to water and larger bladder pumps. Decrease this time with lower depth to water and smaller bladder pumps. Timer can be set from approximately 2 to 60 seconds. Fill rate depends on hydrostatic pressure (pressure from the water above the pump) and will vary depending on pump placement within the water column. Therefore, the more water above the pump the faster it will fill.

Turn the controller power switch ON. In case of long fluid discharge lines it could take multiple cycles for water to reach the outlet. If the fluid discharge from the pump falls off before the discharge cycle is complete, the discharge time is set too high. This could result in a creased bladder that will reduce per cycle pump volumes. Therefore, if the compressor is still running and water has stopped coming out of the discharge tube, the discharge time should be decreased. Pumping efficiency can be maximized by measuring the amount of fluid discharged. If the volume of fluid after one pump cycle is less than the rated volume of the pump being used, then the fill rate can be increased.

The air line pressure gauge can be utilized to maximize efficiency. As a general rule, the pressure indicated on the gauge should not exceed an equivalent depth to water pressure. 1 PSI = 2.31 feet (1 bar=1.02 m) of water. Once the bladder in the pump is empty of liquids the pressure will increase sharply. If a quick pressure increase is noticed, reduce the discharge time until the quick pressure increase is no longer obvious.

For example, if the well you are sampling has a depth to water of 23 feet (7 m) you should not expect to see a reading on the pressure gauge much over 10 PSI (.7 bar). When the discharge cycle begins the reading on the pressure gauge will begin to rise. Once depth to water pressure has been reached the reading will 'stall' at that pressure until the bladder is empty or discharged. Once the bladder is compressed completely the pressure will again start to rise. For maximum per cycle liquid pumping volume, this is the optimum point at which the discharge timer would expire and the fill rate timer would begin. Reduced per cycle liquid pumping volume can be achieved by further decreasing the discharge time, thus evacuating only part of the total bladder volume.



CAUTION

For use with negative (-) ground systems only.
Exceeding the recommended duty cycle will cause overheating.
Damage will result if the supply voltage exceeds 14 VDC.

Chapter 4: System Maintenance

Maintenance Procedures

Disconnect power source when not in use.

Unit must be returned to Geotech Environmental Equipment for any service. In order to ensure a long service life, keep the Geocontrol PRO clean. Often a soft, damp cloth can be used to remove dust and dirt from the exterior surfaces of the Geocontrol PRO. In extreme cases, or to remove aged caked on dirt and dust, a mild soap and water solution can be applied to a soft cloth and used to clean the exterior surfaces of the Geocontrol PRO. Do not soak or directly spray liquids on the Geocontrol PRO.



WARNING

Equipment should be repaired by Geotech Environmental Equipment factory trained repair technicians only. Improper repair of equipment may result in degradation of performance and/or service life. Disassembly exposes potentially dangerous moving components that could injure someone who is not properly trained to repair this equipment.

Solenoid Maintenance

The following procedure outlines how to remove, dis-assemble and clean a stuck or clogged breather vents on the solenoid.

• If you have brass breather vents and would like to replace them with the newer version of stainless steel breather vents, contact Geotech Environmental Equipment and reference part # 11150333.

• Note: The space that you will be working in will be pretty tight, so you will might need to use needle nose pliers to disassemble and reassemble the solenoid.

• Tools needed: Phillips head screwdriver
1/4” wrench
7/16” wrench
Needle nose pliers

Steps:

1. Unplug unit.

2. Remove clear tubing that connects to the compressor and the air pressure gage. Note that you should not remove this tubing at the connections on the solenoid. See Figure 4-1.



Figure 4-1

3. Remove the two screws that connect the solenoid to the casing. You do not have to disconnect the 3 black wires from the solenoid, they should be long enough to allow you to set the solenoid down on a flat surface for cleaning. See Figure 4-2.

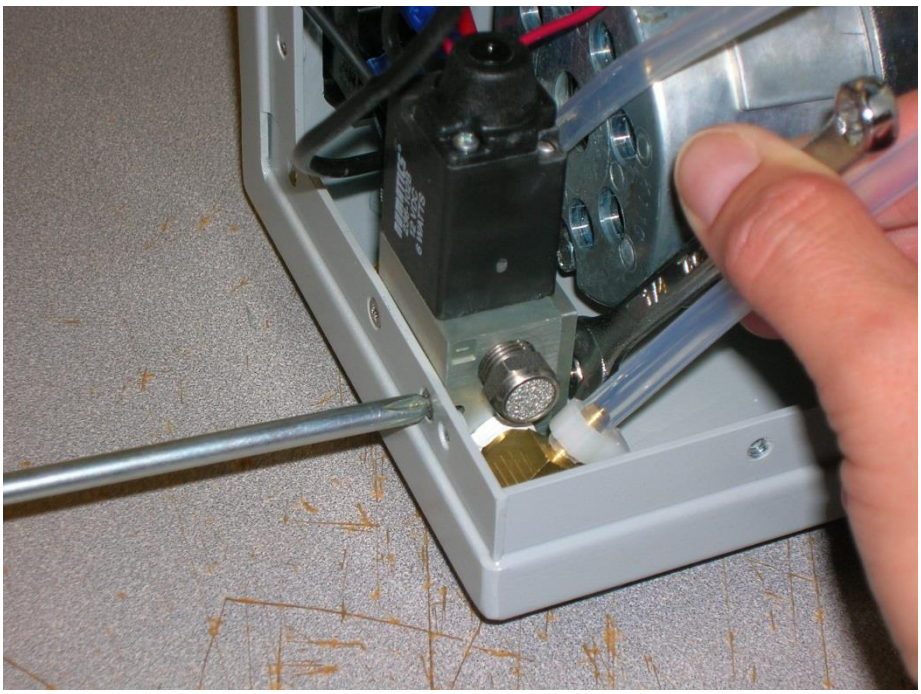


Figure 4-2

4. Unscrew the breather vents from the solenoid using a 7/16” wrench. See Figure 4-3.

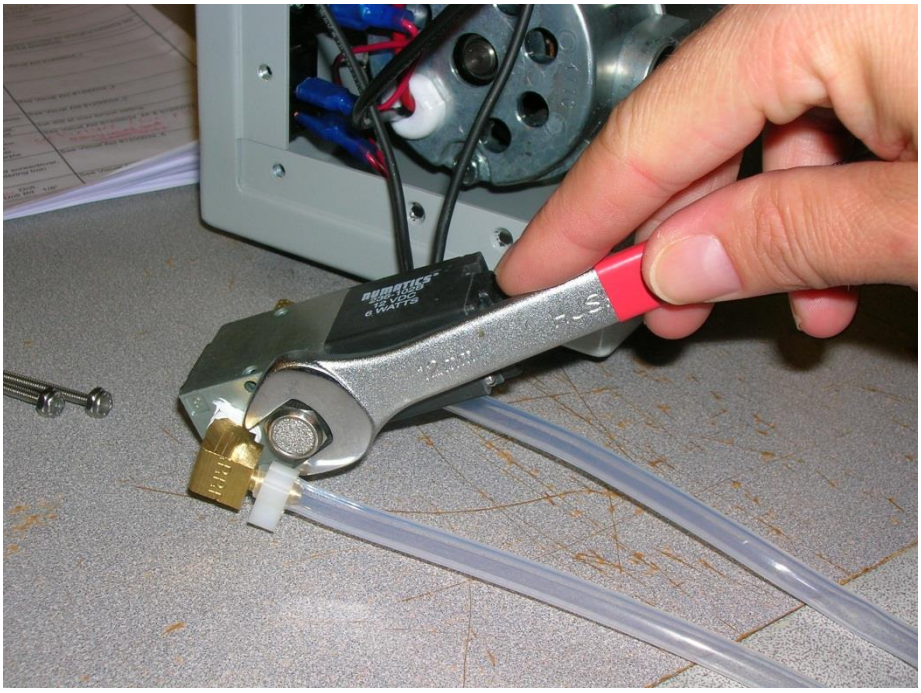


Figure 4-3

5. Clean breather vents with water. Do NOT use alcohol!

6. After cleaning is complete, put the breather vents back on the solenoid. Be sure they are tightened.

7. Attach the solenoid back to the casing using a 1/4” nut driver. Be sure that the clear tubing is pointing toward the compressor (right side).

8. Attach the tubing back to the compressor and the air pressure gage. Note that the longest piece of tubing attaches to the compressor.

If you need further assistance or want to replace the breather screens call Geotech Service at 1-800-833-7958.

Chapter 5: System Troubleshooting

The Geocontrol PRO has been designed and manufactured to provide a long service life and trouble free operation in the field. If the compressor, during charge cycles, becomes sluggish, check supply voltage. If the supply voltage falls below 12 VDC, the compressor's performance will be directly affected. A fully charged battery will produce the best results.

Other sources of low pump output may be 12V lighter receptacles or plugs. Make certain these connections are securely plugged in and clear of any debris. Once securely plugged in, rotating the connection can often help if there is a dead spot in the connector. Also, check for connection and cable fatigue, cracks, surface oxidation, rust etc.

If the compressor does not turn on:

- Double check battery polarity is correct. In other words, the positive and negative cables are connected positive to positive and negative to negative. The Geocontrol PRO is protected from damage due to reverse polarity connection.
- Turn the power switch to the OFF position and let the unit sit in the OFF state for two minutes. This will hard reset the electronic timer module.
- If ambient temperatures are in excess of 104°F (~40°C) then disconnect from power and let sit in a cool location. Do not open the case for any reason. This will not hasten the cooling process, but will invite debris into internal components that could result in reduced life or immediate equipment failure.
- If the compressor still does not turn on the electronic timer module may have failed. Call Geotech Service at 1-800-833-7958 to arrange for the equipment to be sent back to a factory authorized repair location.
- If 15 Amp circuit breaker is tripped, push to reset. If it trips again, call Geotech Service at 1-800-833-7958 to arrange the equipment to be sent back to a factory authorized repair location.

Compressor turns on and fluid is being pumped but no pressure is indicated on the gauge.

- The pressure gauge has failed; however operation of the device may continue even though the gauge feature is not operational. Call Geotech Service at 1-800-833-7958 to arrange for the equipment to be sent back to a factory authorized repair location.

Fluid is not being pumped and the compressor turns on, no pressure is indicated on the gauge.

- Remove the air line from the front of the Geocontrol PRO. Block the air outlet on the front of the Geocontrol PRO while the compressor is running to verify the pressure gauge needle indicates an increase in pressure. Remove the blockage from the air outlet and observe whether or not a small burst of compressed air is released. If pressure cannot be built at the outlet on the front of the Geocontrol PRO, call Geotech Service at 1-800-833-7958 to arrange for the equipment to be sent back to a factory authorized repair location.
- If pressure can be built at the air outlet on the front of the Geocontrol PRO while the compressor is running:

1) Attach the air line only and block the end. Verify the pressure gauge needle indicates an increase in pressure. Remove the blockage from the end of the air line and observe whether or not a small burst of compressed air is released. If pressure cannot be built at the end of the air line, check the air line for cuts, kinks and holes, especially at, and near, the bladder pump hose barb or compression fitting connections.

- If pressure can be built at the end of the air line while the compressor is running:

1) Attach the air line to the bladder pump. Remove the fluid discharge tube from the bladder pump. While the compressor is running, very little air discharge should be felt at the pump discharge fitting. The pressure gauge on the front of the Geocontrol PRO should indicate a rise in pressure. If this does not occur and a continuous air flow can still be felt at the pump fluid discharge fitting, then the bladder, or bladder seal, has been compromised and should be repaired or replaced. Information on this procedure can be found in the product manual specific to the bladder pump being used. Or call Geotech Service at 1-800-833-7958 for further assistance.

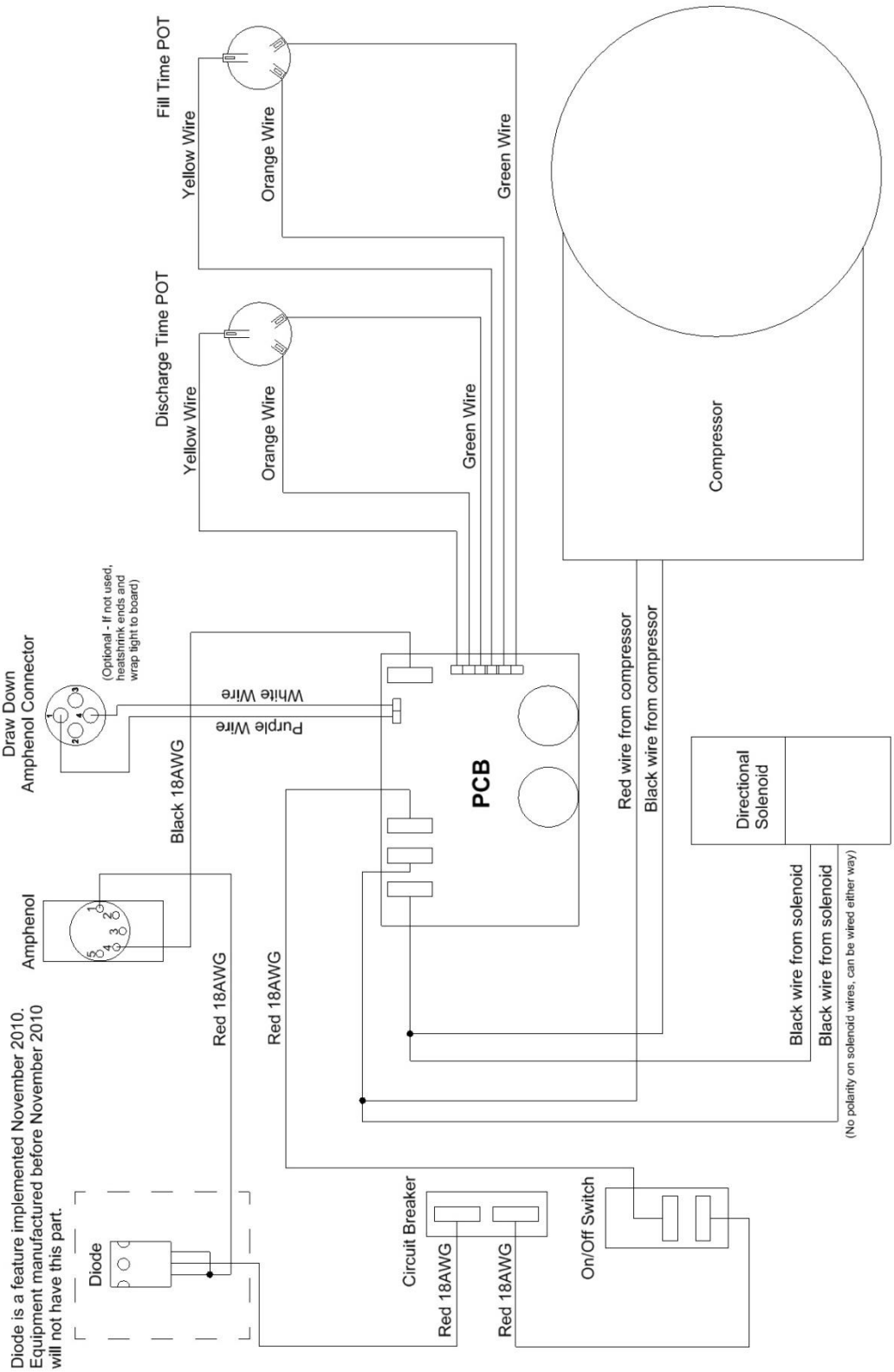
2) **Reminder:** Be careful not to over pressurize and crease the bladder inside the pump as this will reduce the fluid flow during normal operation.

Chapter 6: System Specifications

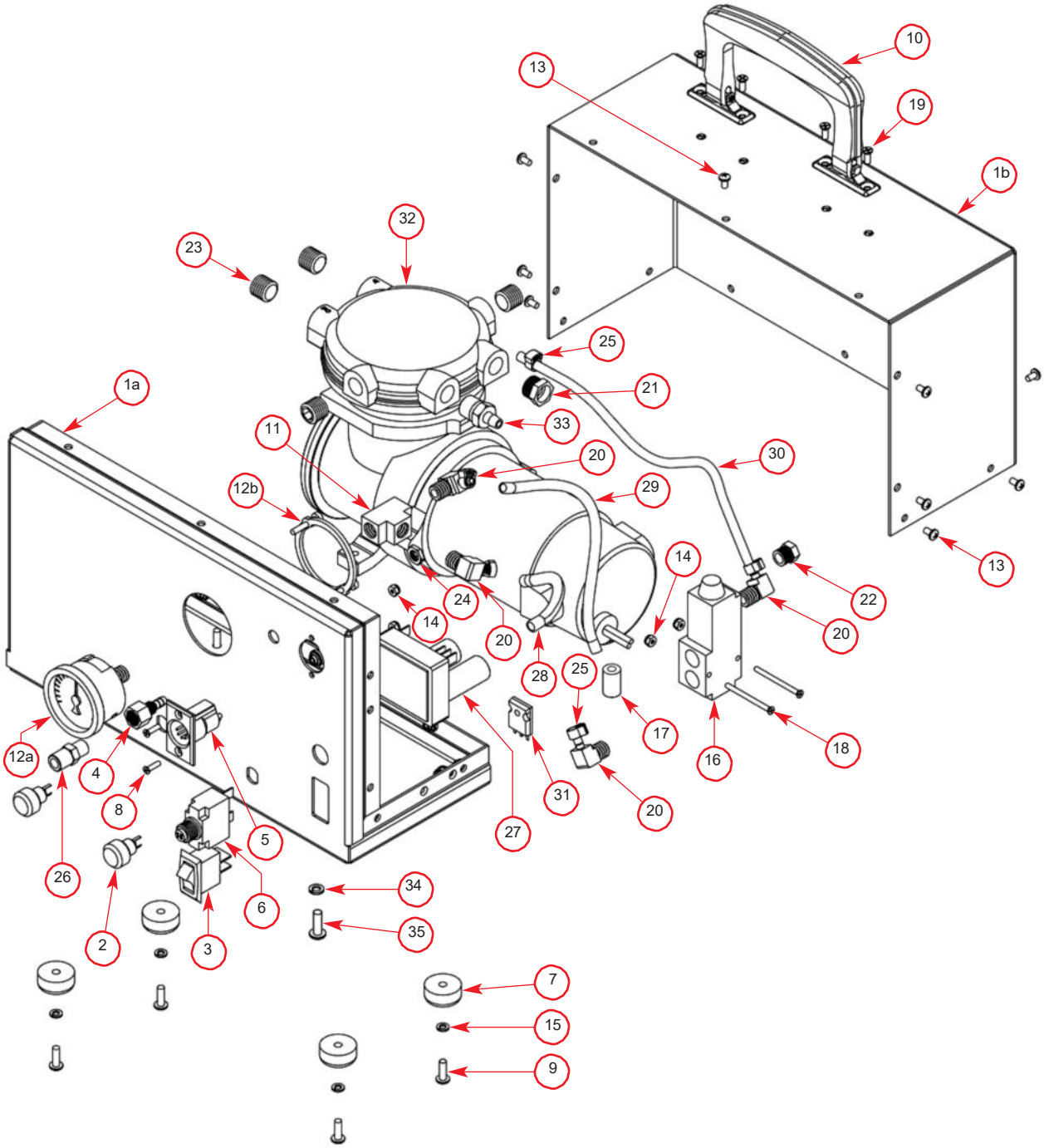
Power Requirements:	72-84 W 12-14 VDC input at 7.5 Amps
Nominal Operating Current:	6 Amps DC
Over Current Protection:	15 Amps
Timer: Discharge Time Fill Time	 1.8 sec. min. – 60 sec. max. 1.8 sec. min. – 60 sec. max. (+/- .25% repeatability)
Maximum Operating Depth:	180 ft. (55 m)
Maximum Operating Pressure:	100 PSI (7 bar) (self limited for safety) @ 0.83 CFM (1.41 m^3/h)
Ambient Operational Temperature:	50°F-104°F (10°C-40°C)
Dimensions:	6.70" H x 4.80" x 11.40" W (17.02cm H x 12.92cm D x 28.96cm W)
Weight:	9 lbs. (4 kg) total

Features

- Variable pump Discharge time control.
- Variable pump Fill time control.
- Interchangeable pump connection configurations.
- Operation with dedicated pump systems and special purpose well caps.
- Approx. 45 to 60 minute operation with 8.0Ah lead acid battery (Battery Module w/o Charger, Geotech PN: 77250001).
- Reverse polarity protection.
- AC adapter optional for use with world mains connection.


Fill Time POT
Yellow Wire
Orange Wire
Green Wire
Discharge Time POT
Yellow Wire
Orange Wire
Green Wire
Compressor
Draw Down
Amphenol Connector
(Optional - If not used, heatshrink ends and wrap tight to board)
White Wire
Purple Wire
Black 18AWG
PCB
Red wire from compressor
Black wire from compressor
Directional Solenoid
Amphenol
Red 18AWG
Red 18AWG
Black wire from solenoid
Black wire from solenoid
(No polarity on solenoid wires, can be wired either way)
Diode is a feature implemented November 2010. Equipment manufactured before November 2010 will not have this part.
Diode
Circuit Breaker
Red 18AWG
Red 18AWG
On/Off Switch

Parts Assembly



Chapter 8: Replacement Parts List

MODEL GEOCONTROL PRO – 51150122

Item	Qty	Description	Part No.
1a	1	ENCLOSURE, GEOCONTROL PRO, BACK, CE	51150121
1b	1	ENCLOSURE, GEOCONTROL PRO, BACK, CE	51150121
2	2	POT, 10K, 20% W/KNOB	11150244
3	1	SWITCH, GEOCONTROL PRO	11150248
4	1	HOSEBARB, SS4, BLKHD, .170 X 1/8"	21150021
5	1	CONN, AMP, MALE, PANEL MOUNT	17200014
6	1	CIRCUIT BREAKER, 15AMP GEOCONTROL PRO	11150247
7	4	FOOT, RUBBER, 7/8", W/WASHER	11150262
8	2	SCREW, SS8, 4-40 X 7/16" FH PHIL	16700007
9	4	SCREW SS8, 8-32 X .5", PNH	PPF036001
10	1	HANDLE, PE, NI	11350009
11	1	TEE, BRS, 1/8" NPT, FXFXF	PPP047034
12a	1	GAUGE, PANEL MOUNT, 1-100PSI W/MOUNTING CLAMP	11150254
12b	1	GAUGE, PANEL MOUNT, 1-100PSI W/MOUNTING CLAMP	11150254
13	14	SCREW, SS8, 6-32 X .25", PNH, M/S	17200078
14	4	NUT, HEX, 4-40, NYLOC	17200046
15	4	WASHER, SS8, #8, LOCK	17200081
16	1	SOLENOID, GEOCONTROL PRO	11150249
17	1	STANDOFF, NYL, .187 X .437 X .375	17500355
18	2	SCREW, SS8, 4-40 X 1.25", FLHD	PPF051015
19	4	SCREW, SS8, 6-32 X 3/8", FLH	PPF013034
20	4	HOSEBARB, BRS, 90D.170 X 1/8MPT	17200393
21	1	VENT, BREATHER, 1/4" NPT	11150252
22	2	VENT, BREATHER, 1/8" NPT	11150333
23	4	PLUG, BRS, 1/4"NPT, SOCKET	11150251
24	1	NUT, SS8, 5/16-32, HEX, THIN	11150261
25	5	CLAMP, NYL, 1/4" SNAPPER	11150259
26	1	QCK CNCT, NCKL, 1/4" X 1/8MPT, PUSH/PULL	PPP103001
27	1	ASSY, PCB, GEOCONTROL PRO POTTED	51150054
28	1	TUBING ,FEP, .170 X 1/4, FT FEP	87050509
29	1	TUBING ,FEP, .170 X 1/4, FT FEP	87050509
30	1	TUBING ,FEP, .170 X 1/4, FT FEP	87050509
31	1	DIODE, SCHOTTKY, 100V, 40A, TO-247AC	16550223
32	1	COMPRESSOR, PRO, SIPPER	11150325
33	1	HOSEBARB, BRS, .170 X 1/4MPT	16550032
34	3	WASHER, SS8, #10, LOCK	PPF022003
35	3	SCREW, SS8, 10-32 X 5/8", PNH	PPF037008
N/S	1	WASHER, SS410, 5/16", INTRNL TOOTH	17500339

N/S = Not Shown

Accessories

Description	Part No.
GEOCONTROL PRO W/CASE, 1.66, CE, PUMP, 12VDC CORD, BATTERY W/CHRG	91150011
GEOCONTROL PRO W/CASE, .85, CE, PUMP, 12VDC CORD, BATTERY W/CHRG	91150015
GEOCONTROL PRO W/CASE, .675, CE, PUMP, 12VDC CORD, BATTERY W/CHRG	91150016
GEOCONTROL PRO, W/CASE, CE, 12VDC CORD, NO PUMP, NO BATT	91150017
GEOCONTROL PRO, CE, SOLO, CONTROLLER ONLY, NO ACCESSORIES	51150122
POWER SUPPLY, EXTERNAL, AC ADAPT 12V, 100W	51150063
ADAPTOR, CONTROLPRO-WELL CAP INCLUDES 10FT TUBING	81150019
CASE, GEOCONTROL PRO, CE	51150127
ASSY, POWER CORD, DC W/AMP	57500008
ADAPTER, CIGARETTE TO CLIPS	17500035
BATTERY/CHARGER, MODULAR, 12VDC, 7.5Ah, MALE CIG PLUG	77250000
KIT, WLM-BP CONTROLLER LINK LOW DRAW DOWN OPTION	91150001
ASSY, CABLE, WLM, LOGIC UNIT CONT	52050174

Maintenance Accessories

Description	Part No.
REBUILD KIT, COMPRESSOR, SIPPER PRO	11150334
REBUILD KIT, SOLENOID, GEOCONTROL PRO	11150433

DOCUMENT REVISIONS		
EDCF#	DESCRIPTION	REV/DATE
-	Previous Release	10/29/12
1583	Added Compressor Repair Kit to Replacement Parts List. Added Revision History Table - SP	05/24/13
-	Updated back page information, updated EC Declaration of Conformity, added “Maintenance Accessories” under Chapter 8: Replacement Parts List, SP	1/13/15

NOTES

EC Declaration of Conformity

Manufacturer:

Geotech Environmental Equipment, Inc.
2650 E 40th Avenue
Denver, CO 80205

Declares that the following products,

Product Name: Geocontrol PRO

Model(s): 81150012
81150016
81150017
81150018

Year of manufacture: 2010

Conform to the principle safety objectives of 2006/95/EC Low Voltage Directive (LVD) by application of the following standards:

EN 61010-1: 2010

Year of affixation of the CE Marking: 2010

Conform to the protection requirements of 2004/108/EC Electromagnetic Compatibility (EMC) by application of the following standards:

EN 61000-6-1: 2007
EN 61000-6-3: 2012
EN 61326-1: 2013, emissions Class A

EMC conformity established 08/14/2009.

Production control follows the ISO 9001:2008 regulations and includes required safety routine tests.

This declaration issued under the sole responsibility of Geotech Environmental Equipment, Inc.

Joe Leonard
Product Development

Serial number _____

CE

THE WARRANTY

For a period of one (1) year from date of first sale, product is warranted to be free from defects in materials and workmanship. Geotech agrees to repair or replace, at Geotech's option, the portion proving defective, or at our option to refund the purchase price thereof. Geotech will have no warranty obligation if the product is subjected to abnormal operating conditions, accident, abuse, misuse, unauthorized modification, alteration, repair, or replacement of wear parts. User assumes all other risk, if any, including the risk of injury, loss, or damage, direct or consequential, arising out of the use, misuse, or inability to use this product. User agrees to use, maintain and install product in accordance with recommendations and instructions. User is responsible for transportation charges connected to the repair or replacement of product under this warranty.

Equipment Return Policy

A Return Material Authorization number (RMA #) is required prior to return of any equipment to our facilities, please call Geotech Service for appropriate location. An RMA # will be issued upon receipt of your request to return equipment, which should include reasons for the return. Your return shipment to us must have this RMA # clearly marked on the outside of the package. Proof of date of purchase is required for processing of all warranty requests.

This policy applies to both equipment sales and repair orders.

FOR A RETURN MATERIAL AUTHORIZATION, PLEASE CALL OUR SERVICE DEPARTMENT AT 1-800-833-7958

Model Number: _____

Serial Number: _____

Date of Purchase: _____

Equipment Decontamination

Prior to return, all equipment must be thoroughly cleaned and decontaminated. Please make note on RMA form, the use of equipment, contaminants equipment was exposed to, and decontamination solutions/methods used.

Geotech reserves the right to refuse any equipment not properly decontaminated. Geotech may also choose to decontaminate equipment for a fee, which will be applied to the repair order invoice.

CE

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APPENDIX F

EPA Region 1 SOP No. GW 004: Low Stress (Low Flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION I

LOW STRESS (low flow) PURGING AND SAMPLING PROCEDURE FOR THE COLLECTION OF GROUNDWATER SAMPLES FROM MONITORING WELLS

Quality Assurance Unit
U.S. Environmental Protection Agency – Region 1
11 Technology Drive
North Chelmsford, MA 01863

The controlled version of this document is the electronic version viewed on-line only. If this is a printed copy of the document, it is an uncontrolled version and may or may not be the version currently in use.

This document contains direction developed solely to provide guidance to U.S. Environmental Protection Agency (EPA) personnel. EPA retains the discretion to adopt approaches that differ from these procedures on a case-by-case basis. The procedures set forth do not create any rights, substantive or procedural, enforceable at law by party to litigation with EPA or the United States.

Prepared by:_____ _____
(Robert Reinhart, Quality Assurance Unit) Date

Approved by:_____ _____
(John Smaldone, Quality Assurance Unit) Date

Revision Page

Date	Rev #	Summary of changes	Sections
7/30/96	1	Finalized	
01/19/10	2	Updated	All sections
3/23/17	3	Updated	All sections
9/20/17	4	Updated	Section 7.0

Table of Contents

1.0 USE OF TERMS 4
2.0 SCOPE & APPLICATION 5
3.0 BACKGROUND FOR IMPLEMENTATION 6
4.0 HEALTH & SAFETY 7
5.0 CAUTIONS 7
6.0 PERSONNEL QUALIFICATIONS 9
7.0 EQUIPMENT AND SUPPLIES 9
8.0 EQUIPMENT/INSTRUMENT CALIBRATION 13
9.0 PRELIMINARY SITE ACTIVITIES (as applicable) 13
10.0 PURGING AND SAMPLING PROCEDURE 14
11.0 DECONTAMINATION 19
12.0 FIELD QUALITY CONTROL 21
13.0 FIELD LOGBOOK 21
14.0 DATA REPORT 22
15.0 REFERENCES 22
APPENDIX A 24
PERISTALTIC PUMPS 24
APPENDIX B 25
SUMMARY OF SAMPLING INSTRUCTIONS 25
Low-Flow Setup Diagram 29
APPENDIX C 30
WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM 30

1.0 USE OF TERMS

Equipment blank: The equipment blank shall include the pump and the pump's tubing. If tubing is dedicated to the well, the equipment blank needs only to include the pump in subsequent sampling rounds. If the pump and tubing are dedicated to the well, the equipment blank is collected prior to its placement in the well. If the pump and tubing will be used to sample multiple wells, the equipment blank is normally collected after sampling from contaminated wells and not after background wells.

Field duplicates: Field duplicates are collected to determine precision of the sampling procedure. For this procedure, collect duplicate for each analyte group in consecutive order (VOC original, VOC duplicate, SVOC original, SVOC duplicate, etc.).

Indicator field parameters: This SOP uses field measurements of turbidity, dissolved oxygen, specific conductance, temperature, pH, and oxidation/reduction potential (ORP) as indicators of when purging operations are sufficient and sample collection may begin.

Matrix Spike/Matrix Spike Duplicates: Used by the laboratory in its quality assurance program. Consult the laboratory for the sample volume to be collected.

Potentiometric Surface: The level to which water rises in a tightly cased well constructed in a confined aquifer. In an unconfined aquifer, the potentiometric surface is the water table.

QAPP: Quality Assurance Project Plan

SAP: Sampling and Analysis Plan

SOP: Standard operating procedure

Stabilization: A condition that is achieved when all indicator field parameter measurements are sufficiently stable (as described in the "Monitoring Indicator Field Parameters" section) to allow sample collection to begin.

Temperature blank: A temperature blank is added to each sample cooler. The blank is measured upon receipt at the laboratory to assess whether the samples were properly cooled during transit.

Trip blank (VOCs): Trip blank is a sample of analyte-free water taken to the sampling site and returned to the laboratory. The trip blanks (one pair) are added to each sample cooler that contains VOC samples.

2.0 SCOPE & APPLICATION

The goal of this groundwater sampling procedure is to collect water samples that reflect the total mobile organic and inorganic loads (dissolved and colloidal sized fractions) transported through the subsurface under ambient flow conditions, with minimal physical and chemical alterations from sampling operations. This standard operating procedure (SOP) for collecting groundwater samples will help ensure that the project's data quality objectives (DQOs) are met under certain low-flow conditions.

The SOP emphasizes the need to minimize hydraulic stress at the well-aquifer interface by maintaining low water-level drawdowns, and by using low pumping rates during purging and sampling operations. Indicator field parameters (e.g., dissolved oxygen, pH, etc.) are monitored during purging in order to determine when sample collection may begin. Samples properly collected using this SOP are suitable for analysis of groundwater contaminants (volatile and semi-volatile organic analytes, dissolved gases, pesticides, PCBs, metals and other inorganics), or naturally occurring analytes. This SOP is based on Puls, and Barcelona (1996).

This procedure is designed for monitoring wells with an inside diameter (1.5-inches or greater) that can accommodate a positive lift pump with a screen length or open interval ten feet or less and with a water level above the top of the screen or open interval (Hereafter, the "screen or open interval" will be referred to only as "screen interval"). This SOP is not applicable to other well-sampling conditions.

While the use of dedicated sampling equipment is not mandatory, dedicated pumps and tubing can reduce sampling costs significantly by streamlining sampling activities and thereby reducing the overall field costs.

The goal of this procedure is to emphasize the need for consistency in deploying and operating equipment while purging and sampling monitoring wells during each sampling event. This will help to minimize sampling variability.

This procedure describes a general framework for groundwater sampling. Other site specific information (hydrogeological context, conceptual site model (CSM), DQOs, etc.) coupled with systematic planning must be added to the procedure in order to develop an appropriate site specific SAP/QAPP. In addition, the site specific SAP/QAPP must identify the specific equipment that will be used to collect the groundwater samples.

This procedure does not address the collection of water or free product samples from wells containing free phase LNAPLs and/or DNAPLs (light or dense non-aqueous phase

liquids). For this type of situation, the reader may wish to check: Cohen, and Mercer (1993) or other pertinent documents.

This SOP is to be used when collecting groundwater samples from monitoring wells at all Superfund, Federal Facility and RCRA sites in Region 1 under the conditions described herein. Request for modification of this SOP, in order to better address specific situations at individual wells, must include adequate technical justification for proposed changes. All changes and modifications must be approved and included in a revised SAP/QAPP before implementation in field.

3.0 BACKGROUND FOR IMPLEMENTATION

It is expected that the monitoring well screen has been properly located (both laterally and vertically) to intercept existing contaminant plume(s) or along flow paths of potential contaminant migration. Problems with inappropriate monitoring well placement or faulty/improper well installation cannot be overcome by even the best water sampling procedures. This SOP presumes that the analytes of interest are moving (or will potentially move) primarily through the more permeable zones intercepted by the screen interval.

Proper well construction, development, and operation and maintenance cannot be overemphasized. The use of installation techniques that are appropriate to the hydrogeologic setting of the site often prevent "problem well" situations from occurring. During well development, or redevelopment, tests should be conducted to determine the hydraulic characteristics of the monitoring well. The data can then be used to set the purging/sampling rate, and provide a baseline for evaluating changes in well performance and the potential need for well rehabilitation. Note: if this installation data or well history (construction and sampling) is not available or discoverable, for all wells to be sampled, efforts to build a sampling history should commence with the next sampling event.

The pump intake should be located within the screen interval and at a depth that will remain under water at all times. It is recommended that the intake depth and pumping rate remain the same for all sampling events. The mid-point or the lowest historical midpoint of the saturated screen length is often used as the location of the pump intake. For new wells, or for wells without pump intake depth information, the site's SAP/QAPP must provide clear reasons and instructions on how the pump intake depth(s) will be selected, and reason(s) for the depth(s) selected. If the depths to top and bottom of the well screen are not known, the SAP/QAPP will need to describe how the sampling depth will be determined and how the data can be used.

Stabilization of indicator field parameters is used to indicate that conditions are suitable for sampling to begin. Achievement of turbidity levels of less than 5 NTU, and stable drawdowns of less than 0.3 feet, while desirable, are not mandatory. Sample collection

may still take place provided the indicator field parameter criteria in this procedure are met. If after 2 hours of purging indicator field parameters have not stabilized, one of three optional courses of action may be taken: a) continue purging until stabilization is achieved, b) discontinue purging, do not collect any samples, and record in log book that stabilization could not be achieved (documentation must describe attempts to achieve stabilization), c) discontinue purging, collect samples and provide full explanation of attempts to achieve stabilization (note: there is a risk that the analytical data obtained, especially metals and strongly hydrophobic organic analytes, may reflect a sampling bias and therefore, the data may not meet the data quality objectives of the sampling event).

It is recommended that low-flow sampling be conducted when the air temperature is above 32°F (0°C). If the procedure is used below 32°F, special precautions will need to be taken to prevent the groundwater from freezing in the equipment. Because sampling during freezing temperatures may adversely impact the data quality objectives, the need for water sample collection during months when these conditions are likely to occur should be evaluated during site planning and special sampling measures may need to be developed. Ice formation in the flow-through-cell will cause the monitoring probes to act erratically. A transparent flow-through-cell needs to be used to observe if ice is forming in the cell. If ice starts to form on the other pieces of the sampling equipment, additional problems may occur.

4.0 HEALTH & SAFETY

When working on-site, comply with all applicable OSHA requirements and the site's health/safety procedures. All proper personal protection clothing and equipment are to be worn. Some samples may contain biological and chemical hazards. These samples should be handled with suitable protection to skin, eyes, etc.

5.0 CAUTIONS

The following cautions need to be considered when planning to collect groundwater samples when the below conditions occur.

If the groundwater degasses during purging of the monitoring well, dissolved gases and VOCs will be lost. When this happens, the groundwater data for dissolved gases (e.g., methane, ethene, ethane, dissolved oxygen, etc.) and VOCs will need to be qualified. Some conditions that can promote degassing are the use of a vacuum pump (e.g., peristaltic pumps), changes in aperture along the sampling tubing, and squeezing/pinching the pump's tubing which results in a pressure change.

When collecting the samples for dissolved gases and VOCs analyses, avoid aerating the groundwater in the pump's tubing. This can cause loss of the dissolved gases and VOCs in

the groundwater. Having the pump's tubing completely filled prior to sampling will avoid this problem when using a centrifugal pump or peristaltic pump.

Direct sun light and hot ambient air temperatures may cause the groundwater in the tubing and flow-through-cell to heat up. This may cause the groundwater to degas which will result in loss of VOCs and dissolved gases. When sampling under these conditions, the sampler will need to shade the equipment from the sunlight (e.g., umbrella, tent, etc.). If possible, sampling on hot days, or during the hottest time of the day, should be avoided. The tubing exiting the monitoring well should be kept as short as possible to avoid the sun light or ambient air from heating up the groundwater.

Thermal currents in the monitoring well may cause vertical mixing of water in the well bore. When the air temperature is colder than the groundwater temperature, it can cool the top of the water column. Colder water which is denser than warm water sinks to the bottom of the well and the warmer water at the bottom of the well rises, setting up a convection cell. "During low-flow sampling, the pumped water may be a mixture of convecting water from within the well casing and aquifer water moving inward through the screen. This mixing of water during low-flow sampling can substantially increase equilibration times, can cause false stabilization of indicator parameters, can give false indication of redox state, and can provide biological data that are not representative of the aquifer conditions" (Vroblesky 2007).

Failure to calibrate or perform proper maintenance on the sampling equipment and measurement instruments (e.g., dissolved oxygen meter, etc.) can result in faulty data being collected.

Interferences may result from using contaminated equipment, cleaning materials, sample containers, or uncontrolled ambient/surrounding air conditions (e.g., truck/vehicle exhaust nearby).

Cross contamination problems can be eliminated or minimized through the use of dedicated sampling equipment and/or proper planning to avoid ambient air interferences. Note that the use of dedicated sampling equipment can also significantly reduce the time needed to complete each sampling event, will promote consistency in the sampling, and may reduce sampling bias by having the pump's intake at a constant depth.

Clean and decontaminate all sampling equipment prior to use. All sampling equipment needs to be routinely checked to be free from contaminants and equipment blanks collected to ensure that the equipment is free of contaminants. Check the previous equipment blank data for the site (if they exist) to determine if the previous cleaning procedure removed the contaminants. If contaminants were detected and they are a concern, then a more vigorous cleaning procedure will be needed.

6.0 PERSONNEL QUALIFICATIONS

All field samplers working at sites containing hazardous waste must meet the requirements of the OSHA regulations. OSHA regulations may require the sampler to take the 40 hour OSHA health and safety training course and a refresher course prior to engaging in any field activities, depending upon the site and field conditions.

The field samplers must be trained prior to the use of the sampling equipment, field instruments, and procedures. Training is to be conducted by an experienced sampler before initiating any sampling procedure.

The entire sampling team needs to read, and be familiar with, the site Health and Safety Plan, all relevant SOPs, and SAP/QAPP (and the most recent amendments) before going onsite for the sampling event. It is recommended that the field sampling leader attest to the understanding of these site documents and that it is recorded.

7.0 EQUIPMENT AND SUPPLIES

A. Informational materials for sampling event

A copy of the current Health and Safety Plan, SAP/QAPP, monitoring well construction data, location map(s), field data from last sampling event, manuals for sampling, and the monitoring instruments' operation, maintenance, and calibration manuals should be brought to the site.

B. Well keys.

C. Extraction device

Adjustable rate, submersible pumps (e.g., centrifugal, bladder, etc.) which are constructed of stainless steel or polytetrafluoroethylene (PTFE, i.e. Teflon®) are preferred. PTFE, however, should not be used when sampling for per- and polyfluoroalkyl substances (PFAS) as it is likely to contain these substances.

Note: If extraction devices constructed of other materials are to be used, adequate information must be provided to show that the substituted materials do not leach contaminants nor cause interferences to the analytical procedures to be used. Acceptance of these materials must be obtained before the sampling event.

If bladder pumps are selected for the collection of VOCs and dissolved gases, the pump setting should be set so that one pulse will deliver a water volume that is sufficient to fill a 40 mL VOC vial. This is not mandatory, but is considered a "best practice". For the proper operation, the bladder pump will need a minimum amount of water above the pump; consult the manufacturer for the recommended submergence. The pump's recommended submergence value should be determined during the planning stage, since it may influence well construction and placement of dedicated pumps where water-level fluctuations are significant.

Adjustable rate, peristaltic pumps (suction) are to be used with caution when collecting samples for VOCs and dissolved gases (e.g., methane, carbon dioxide, etc.) analyses. Additional information on the use of peristaltic pumps can be found in Appendix A. If peristaltic pumps are used, the inside diameter of the rotor head tubing needs to match the inside diameter of the tubing installed in the monitoring well.

Inertial pumping devices (motor driven or manual) are not recommended. These devices frequently cause greater disturbance during purging and sampling, and are less easily controlled than submersible pumps (potentially increasing turbidity and sampling variability, etc.). This can lead to sampling results that are adversely affected by purging and sampling operations, and a higher degree of data variability.

D. Tubing

PTFE (Teflon®) or PTFE-lined polyethylene tubing are preferred when sampling is to include VOCs, SVOCs, pesticides, PCBs and inorganics. As discussed in the previous section, PTFE tubing should not be used when sampling for PFAS. In this case, a suitable alternative such as high-density polyethylene tubing should be used.

PVC, polypropylene or polyethylene tubing may be used when collecting samples for metal and other inorganics analyses.

Note: If tubing constructed of other materials is to be used, adequate information must be provided to show that the substituted materials do not leach contaminants nor cause interferences to the analytical procedures to be used. Acceptance of these materials must be obtained before the sampling event.

The use of 1/4 inch or 3/8 inch (inside diameter) tubing is recommended. This will help ensure that the tubing remains liquid filled when operating at very low pumping rates when using centrifugal and peristaltic pumps.

Silastic tubing should be used for the section around the rotor head of a peristaltic pump. It should be less than a foot in length. The inside diameter of the tubing used at the pump rotor head must be the same as the inside diameter of tubing placed in the well. A tubing connector is used to connect the pump rotor head tubing to the well tubing. Alternatively, the two pieces of tubing can be connected to each other by placing the one end of the tubing inside the end of the other tubing. The tubing must not be reused.

E. The water level measuring device

Electronic ”tape”, pressure transducer, water level sounder/level indicator, etc. should be capable of measuring to 0.01 foot accuracy. Recording pressure transducers, mounted above the pump, are especially helpful in tracking water levels during pumping operations, but their use must include check measurements with a water level “tape” at the start and end of each sampling event.

F. Flow measurement supplies

Graduated cylinder (size according to flow rate) and stopwatch usually will suffice.

Large graduated bucket used to record total water purged from the well.

G. Interface probe

To be used to check on the presence of free phase liquids (LNAPL, or DNAPL) before purging begins (as needed).

H. Power source (generator, nitrogen tank, battery, etc.)

When a gasoline generator is used, locate it downwind and at least 30 feet from the well so that the exhaust fumes do not contaminate samples.

I. Indicator field parameter monitoring instruments

Use of a multi-parameter instrument capable of measuring pH, oxidation/reduction potential (ORP), dissolved oxygen (DO), specific conductance, temperature, and coupled with a flow-through-cell is required when measuring all indicator field parameters, except turbidity. Turbidity is collected using a separate instrument. Record equipment/instrument identification (manufacturer, and model number).

Transparent, small volume flow-through-cells (e.g., 250 mLs or less) are preferred. This allows observation of air bubbles and sediment buildup in the cell, which can interfere with the operation of the monitoring instrument probes, to be easily detected. A small volume

cell facilitates rapid turnover of water in the cell between measurements of the indicator field parameters.

It is recommended to use a flow-through-cell and monitoring probes from the same manufacturer and model to avoid incompatibility between the probes and flow-through-cell.

Turbidity samples are collected before the flow-through-cell. A "T" connector coupled with a valve is connected between the pump's tubing and flow-through-cell. When a turbidity measurement is required, the valve is opened to allow the groundwater to flow into a container. The valve is closed and the container sample is then placed in the turbidimeter.

Standards are necessary to perform field calibration of instruments. A minimum of two standards are needed to bracket the instrument measurement range for all parameters except ORP which use a Zobell solution as a standard. For dissolved oxygen, a wet sponge used for the 100% saturation and a zero dissolved oxygen solution are used for the calibration.

Barometer (used in the calibration of the Dissolved Oxygen probe) and the conversion formula to convert the barometric pressure into the units of measure used by the Dissolved Oxygen meter are needed.

J. Decontamination supplies

Includes (for example) non-phosphate detergent, distilled/deionized water, isopropyl alcohol, etc.

K. Record keeping supplies

Logbook(s), well purging forms, chain-of-custody forms, field instrument calibration forms, etc.

L. Sample bottles

M. Sample preservation supplies (as required by the analytical methods)

N. Sample tags or labels

O. PID or FID instrument

If appropriate, to detect VOCs for health and safety purposes, and provide qualitative field evaluations.

P. Miscellaneous Equipment

Equipment to keep the sampling apparatus shaded in the summer (e.g., umbrella) and from freezing in the winter. If the pump's tubing is allowed to heat up in the warm weather, the cold groundwater may degas as it is warmed in the tubing.

8.0 EQUIPMENT/INSTRUMENT CALIBRATION

Prior to the sampling event, perform maintenance checks on the equipment and instruments according to the manufacturer's manual and/or applicable SOP. This will ensure that the equipment/instruments are working properly before they are used in the field.

Prior to sampling, the monitoring instruments must be calibrated and the calibration documented. The instruments are calibrated using U.S Environmental Protection Agency Region 1 *Calibration of Field Instruments (temperature, pH, dissolved oxygen, conductivity/specific conductance, oxidation/reduction [ORP], and turbidity),* March 23, 2017, or latest version or from one of the methods listed in 40CFR136, 40CFR141 and SW-846.

The instruments shall be calibrated at the beginning of each day. If the field measurement falls outside the calibration range, the instrument must be re-calibrated so that all measurements fall within the calibration range. At the end of each day, a calibration check is performed to verify that instruments remained in calibration throughout the day. This check is performed while the instrument is in measurement mode, not calibration mode. If the field instruments are being used to monitor the natural attenuation parameters, then a calibration check at mid-day is highly recommended to ensure that the instruments did not drift out of calibration. Note: during the day if the instrument reads zero or a negative number for dissolved oxygen, pH, specific conductance, or turbidity (negative value only), this indicates that the instrument drifted out of calibration or the instrument is malfunctioning. If this situation occurs the data from this instrument will need to be qualified or rejected.

9.0 PRELIMINARY SITE ACTIVITIES (as applicable)

Check the well for security (damage, evidence of tampering, missing lock, etc.) and record pertinent observations (include photograph as warranted).

If needed, lay out a sheet of clean polyethylene for monitoring and sampling equipment, unless equipment is elevated above the ground (e.g., on a table, etc.).

Remove well cap and if appropriate measure VOCs at the rim of the well with a PID or FID instrument and record reading in field logbook or on the well purge form.

If the well casing does not have an established reference point (usually a V-cut or indelible mark in the well casing), make one. Describe its location and record the date of the mark in the logbook (consider a photographic record as well). All water level measurements must be recorded relative to this reference point (and the altitude of this point should be determined using techniques that are appropriate to site's DQOs.

If water-table or potentiometric surface map(s) are to be constructed for the sampling event, perform synoptic water level measurement round (in the shortest possible time) before any purging and sampling activities begin. If possible, measure water level depth (to 0.01 ft.) and total well depth (to 0.1 ft.) the day before sampling begins, in order to allow for re-settlement of any particulates in the water column. This is especially important for those wells that have not been recently sampled because sediment buildup in the well may require the well to be redeveloped. If measurement of total well depth is not made the day before, it should be measured after sampling of the well is complete. All measurements must be taken from the established referenced point. Care should be taken to minimize water column disturbance.

Check newly constructed wells for the presence of LNAPLs or DNAPLs before the initial sampling round. If none are encountered, subsequent check measurements with an interface probe may not be necessary unless analytical data or field analysis signal a worsening situation. This SOP cannot be used in the presence of LNAPLs or DNAPLs. If NAPLs are present, the project team must decide upon an alternate sampling method. All project modifications must be approved and documented prior to implementation.

If available check intake depth and drawdown information from previous sampling event(s) for each well. Duplicate, to the extent practicable, the intake depth and extraction rate (use final pump dial setting information) from previous event(s). If changes are made in the intake depth or extraction rate(s) used during previous sampling event(s), for either portable or dedicated extraction devices, record new values, and explain reasons for the changes in the field logbook.

10.0 PURGING AND SAMPLING PROCEDURE

Purging and sampling wells in order of increasing chemical concentrations (known or anticipated) are preferred.

The use of dedicated pumps is recommended to minimize artificial mobilization and entrainment of particulates each time the well is sampled. Note that the use of dedicated sampling equipment can also significantly reduce the time needed to complete each sampling event, will promote consistency in the sampling, and may reduce sampling bias by having the pump's intake at a constant depth.

A. Initial Water Level

Measure the water level in the well before installing the pump if a non-dedicated pump is being used. The initial water level is recorded on the purge form or in the field logbook.

B. Install Pump

Lower pump, safety cable, tubing and electrical lines slowly (to minimize disturbance) into the well to the appropriate depth (may not be the mid-point of the screen/open interval). The Sampling and Analysis Plan/Quality Assurance Project Plan should specify the sampling depth (used previously), or provide criteria for selection of intake depth for each new well. If possible keep the pump intake at least two feet above the bottom of the well, to minimize mobilization of particulates present in the bottom of the well.

Pump tubing lengths, above the top of well casing should be kept as short as possible to minimize heating the groundwater in the tubing by exposure to sun light and ambient air temperatures. Heating may cause the groundwater to degas, which is unacceptable for the collection of samples for VOC and dissolved gases analyses.

C. Measure Water Level

Before starting pump, measure water level. Install recording pressure transducer, if used to track drawdowns, to initialize starting condition.

D. Purge Well

From the time the pump starts purging and until the time the samples are collected, the purged water is discharged into a graduated bucket to determine the total volume of groundwater purged. This information is recorded on the purge form or in the field logbook.

Start the pump at low speed and slowly increase the speed until discharge occurs. Check water level. Check equipment for water leaks and if present fix or replace the affected equipment. Try to match pumping rate used during previous sampling event(s). Otherwise, adjust pump speed until there is little or no water level drawdown. If the

minimal drawdown that can be achieved exceeds 0.3 feet, but remains stable, continue purging.

Monitor and record the water level and pumping rate every five minutes (or as appropriate) during purging. Record any pumping rate adjustments (both time and flow rate). Pumping rates should, as needed, be reduced to the minimum capabilities of the pump to ensure stabilization of the water level. Adjustments are best made in the first fifteen minutes of pumping in order to help minimize purging time. During pump start-up, drawdown may exceed the 0.3 feet target and then "recover" somewhat as pump flow adjustments are made. Purge volume calculations should utilize stabilized drawdown value, not the initial drawdown. If the initial water level is above the top of the screen do not allow the water level to fall into the well screen. The final purge volume must be greater than the stabilized drawdown volume plus the pump's tubing volume. If the drawdown has exceeded 0.3 feet and stabilizes, calculate the volume of water between the initial water level and the stabilized water level. Add the volume of the water which occupies the pump's tubing to this calculation. This combined volume of water needs to be purged from the well after the water level has stabilized before samples are collected.

Avoid the use of constriction devices on the tubing to decrease the flow rate because the constrictor will cause a pressure difference in the water column. This will cause the groundwater to degas and result in a loss of VOCs and dissolved gasses in the groundwater samples.

Note: the flow rate used to achieve a stable pumping level should remain constant while monitoring the indicator parameters for stabilization and while collecting the samples.

Wells with low recharge rates may require the use of special pumps capable of attaining very low pumping rates (e.g., bladder, peristaltic), and/or the use of dedicated equipment. For new monitoring wells, or wells where the following situation has not occurred before, if the recovery rate to the well is less than 50 mL/min., or the well is being essentially dewatered during purging, the well should be sampled as soon as the water level has recovered sufficiently to collect the volume needed for all anticipated samples. The project manager or field team leader will need to make the decision when samples should be collected, how the sample is to be collected, and the reasons recorded on the purge form or in the field logbook. A water level measurement needs to be performed and recorded before samples are collected. If the project manager decides to collect the samples using the pump, it is best during this recovery period that the pump intake tubing not be removed, since this will aggravate any turbidity problems. Samples in this specific situation may be collected without stabilization of indicator field parameters. Note that field conditions and efforts to overcome problematic situations must be recorded in order to support field decisions to deviate from normal procedures described in this SOP. If this type of problematic situation persists in a well, then water sample collection should be

changed to a passive or no-purge method, if consistent with the site's DQOs, or have a new well installed.

E. Monitor Indicator Field Parameters

After the water level has stabilized, connect the "T" connector with a valve and the flow-through-cell to monitor the indicator field parameters. If excessive turbidity is anticipated or encountered with the pump startup, the well may be purged for a while without connecting up the flow-through-cell, in order to minimize particulate buildup in the cell (This is a judgment call made by the sampler). Water level drawdown measurements should be made as usual. If possible, the pump may be installed the day before purging to allow particulates that were disturbed during pump insertion to settle.

During well purging, monitor indicator field parameters (turbidity, temperature, specific conductance, pH, ORP, DO) at a frequency of five minute intervals or greater. The pump's flow rate must be able to "turn over" at least one flow-through-cell volume between measurements (for a 250 mL flow-through-cell with a flow rate of 50 mLs/min., the monitoring frequency would be every five minutes; for a 500 mL flow-through-cell it would be every ten minutes). If the cell volume cannot be replaced in the five minute interval, then the time between measurements must be increased accordingly. Note: during the early phase of purging, emphasis should be put on minimizing and stabilizing pumping stress, and recording those adjustments followed by stabilization of indicator parameters. Purging is considered complete and sampling may begin when all the above indicator field parameters have stabilized. Stabilization is considered to be achieved when three consecutive readings are within the following limits:

Turbidity (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized),
Dissolved Oxygen (10% for values greater than 0.5 mg/L, if three Dissolved Oxygen values are less than 0.5 mg/L, consider the values as stabilized),
Specific Conductance (3%),
Temperature (3%),
pH (± 0.1 unit),
Oxidation/Reduction Potential (±10 millivolts).

All measurements, except turbidity, must be obtained using a flow-through-cell. Samples for turbidity measurements are obtained before water enters the flow-through-cell. Transparent flow-through-cells are preferred, because they allow field personnel to watch for particulate build-up within the cell. This build-up may affect indicator field parameter values measured within the cell. If the cell needs to be cleaned during purging operations, continue pumping and disconnect cell for cleaning, then reconnect after cleaning and

continue monitoring activities. Record start and stop times and give a brief description of cleaning activities.

The flow-through-cell must be designed in a way that prevents gas bubble entrapment in the cell. Placing the flow-through-cell at a 45 degree angle with the port facing upward can help remove bubbles from the flow-through-cell (see Appendix B Low-Flow Setup Diagram). Throughout the measurement process, the flow-through-cell must remain free of any gas bubbles. Otherwise, the monitoring probes may act erratically. When the pump is turned off or cycling on/off (when using a bladder pump), water in the cell must not drain out. Monitoring probes must remain submerged in water at all times.

F. Collect Water Samples

When samples are collected for laboratory analyses, the pump's tubing is disconnected from the "T" connector with a valve and the flow-through-cell. The samples are collected directly from the pump's tubing. Samples must not be collected from the flow-through-cell or from the "T" connector with a valve.

VOC samples are normally collected first and directly into pre-preserved sample containers. However, this may not be the case for all sampling locations; the SAP/QAPP should list the order in which the samples are to be collected based on the project's objective(s). Fill all sample containers by allowing the pump discharge to flow gently down the inside of the container with minimal turbulence.

If the pump's flow rate is too high to collect the VOC/dissolved gases samples, collect the other samples first. Lower the pump's flow rate to a reasonable rate and collect the VOC/dissolved gases samples and record the new flow rate.

During purging and sampling, the centrifugal/peristaltic pump tubing must remain filled with water to avoid aeration of the groundwater. It is recommended that 1/4 inch or 3/8 inch (inside diameter) tubing be used to help ensure that the sample tubing remains water filled. If the pump tubing is not completely filled to the sampling point, use the following procedure to collect samples: collect non-VOC/dissolved gases samples first, then increase flow rate slightly until the water completely fills the tubing, collect the VOC/dissolved gases samples, and record new drawdown depth and flow rate.

For bladder pumps that will be used to collect VOC or dissolved gas samples, it is recommended that the pump be set to deliver long pulses of water so that one pulse will fill a 40 mL VOC vial.

Use pre-preserved sample containers or add preservative, as required by analytical methods, to the samples immediately after they are collected. Check the analytical methods

(e.g. EPA SW-846, 40 CFR 136, water supply, etc.) for additional information on preservation.

If determination of filtered metal concentrations is a sampling objective, collect filtered water samples using the same low flow procedures. The use of an in-line filter (transparent housing preferred) is required, and the filter size (0.45 μm is commonly used) should be based on the sampling objective. Pre-rinse the filter with groundwater prior to sample collection. Make sure the filter is free of air bubbles before samples are collected. Preserve the filtered water sample immediately. Note: filtered water samples are not an acceptable substitute for unfiltered samples when the monitoring objective is to obtain chemical concentrations of total mobile contaminants in groundwater for human health or ecological risk calculations.

Label each sample as collected. Samples requiring cooling will be placed into a cooler with ice or refrigerant for delivery to the laboratory. Metal samples after acidification to a pH less than 2 do not need to be cooled.

G. Post Sampling Activities

If a recording pressure transducer is used to track drawdown, re-measure water level with tape.

After collection of samples, the pump tubing may be dedicated to the well for re-sampling (by hanging the tubing inside the well), decontaminated, or properly discarded.

Before securing the well, measure and record the well depth (to 0.1 ft.), if not measured the day before purging began. Note: measurement of total well depth annually is usually sufficient after the initial low stress sampling event. However, a greater frequency may be needed if the well has a “silting” problem or if confirmation of well identity is needed.

Secure the well.

11.0 DECONTAMINATION

Decontaminate sampling equipment prior to use in the first well, and then following sampling of each subsequent well. Pumps should not be removed between purging and sampling operations. The pump, tubing, support cable and electrical wires which were in contact with the well should be decontaminated by one of the procedures listed below.

The use of dedicated pumps and tubing will reduce the amount of time spent on decontamination of the equipment. If dedicated pumps and tubing are used, only the initial sampling event will require decontamination of the pump and tubing.

Note if the previous equipment blank data showed that contaminant(s) were present after using the below procedure or the one described in the SAP/QAPP, a more vigorous procedure may be needed.

Procedure 1

Decontaminating solutions can be pumped from either buckets or short PVC casing sections through the pump and tubing. The pump may be disassembled and flushed with the decontaminating solutions. It is recommended that detergent and alcohol be used sparingly in the decontamination process and water flushing steps be extended to ensure that any sediment trapped in the pump is removed. The pump exterior and electrical wires must be rinsed with the decontaminating solutions, as well. The procedure is as follows:

Flush the equipment/pump with potable water.

Flush with non-phosphate detergent solution. If the solution is recycled, the solution must be changed periodically.

Flush with potable or distilled/deionized water to remove all of the detergent solution. If the water is recycled, the water must be changed periodically.

Optional - flush with isopropyl alcohol (pesticide grade; must be free of ketones {e.g., acetone}) or with methanol. This step may be required if the well is highly contaminated or if the equipment blank data from the previous sampling event show that the level of contaminants is significant.

Flush with distilled/deionized water. This step must remove all traces of alcohol (if used) from the equipment. The final water rinse must not be recycled.

Procedure 2

Steam clean the outside of the submersible pump.

Pump hot potable water from the steam cleaner through the inside of the pump. This can be accomplished by placing the pump inside a three or four inch diameter PVC pipe with end cap. Hot water from the steam cleaner jet will be directed inside the PVC pipe and the pump exterior will be cleaned. The hot water from the steam cleaner will then be pumped from the PVC pipe through the pump and collected into another container. Note: additives or solutions should not be added to the steam cleaner.

Pump non-phosphate detergent solution through the inside of the pump. If the solution is recycled, the solution must be changed periodically.

Pump potable water through the inside of the pump to remove all of the detergent solution. If the solution is recycled, the solution must be changed periodically.

Pump distilled/deionized water through the pump. The final water rinse must not be recycled.

12.0 FIELD QUALITY CONTROL

Quality control samples are required to verify that the sample collection and handling process has not compromised the quality of the groundwater samples. All field quality control samples must be prepared the same as regular investigation samples with regard to sample volume, containers, and preservation. Quality control samples include field duplicates, equipment blanks, matrix spike/matrix spike duplicates, trip blanks (VOCs), and temperature blanks.

13.0 FIELD LOGBOOK

A field log shall be kept to document all groundwater field monitoring activities (see Appendix C, example table), and record the following for each well:

Site name, municipality, state.

Well identifier, latitude-longitude or state grid coordinates.

Measuring point description (e.g., north side of PVC pipe).

Well depth, and measurement technique.

Well screen length.

Pump depth.

Static water level depth, date, time and measurement technique.

Presence and thickness of immiscible liquid (NAPL) layers and detection method.

Pumping rate, drawdown, indicator parameters values, calculated or measured total volume pumped, and clock time of each set of measurements.

Type of tubing used and its length.

Type of pump used.

Clock time of start and end of purging and sampling activity.

Types of sample bottles used and sample identification numbers.

Preservatives used.

Parameters requested for analyses.

Field observations during sampling event.

Name of sample collector(s).

Weather conditions, including approximate ambient air temperature.

QA/QC data for field instruments.

Any problems encountered should be highlighted.

Description of all sampling/monitoring equipment used, including trade names, model number, instrument identification number, diameters, material composition, etc.

14.0 DATA REPORT

Data reports are to include laboratory analytical results, QA/QC information, field indicator parameters measured during purging, field instrument calibration information, and whatever other field logbook information is needed to allow for a full evaluation of data usability.

Note: the use of trade, product, or firm names in this sampling procedure is for descriptive purposes only and does not constitute endorsement by the U.S. EPA.

15.0 REFERENCES

Cohen, R.M. and J.W. Mercer, 1993, *DNAPL Site Evaluation*; C.K. Smoley (CRC Press), Boca Raton, Florida.

Robert W. Puls and Michael J. Barcelona, *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures*, April 1996 (EPA/540/S-95/504).

U.S. Environmental Protection Agency, 1992, *RCRA Ground-Water Monitoring: Draft Technical Guidance*; Washington, DC (EPA/530-R-93-001).

U.S. Environmental Protection Agency, 1987, *A Compendium of Superfund Field Operations Methods*; Washington, DC (EPA/540/P-87/001).

U.S Environmental Protection Agency, Region 1, *Calibration of Field Instruments (temperature, pH, dissolved oxygen, conductivity/specific conductance, oxidation/reduction [ORP], and turbidity),* March 23, 2017 or latest version.

U.S Environmental Protection Agency, EPA SW-846.

U.S Environmental Protection Agency, 40 CFR 136.

U.S Environmental Protection Agency, 40 CFR 141.

Vroblesky, Don A., Clifton C. Casey, and Mark A. Lowery, Summer 2007, Influence of Dissolved Oxygen Convection on Well Sampling, *Ground Water Monitoring & Remediation* 27, no. 3: 49-58.

APPENDIX A

PERISTALTIC PUMPS

Before selecting a peristaltic pump to collect groundwater samples for VOCs and/or dissolved gases, (e.g., methane, carbon dioxide, etc.) consideration should be given to the following:

- The decision of whether or not to use a peristaltic pump is dependent on the intended use of the data.
- If the additional sampling error that may be introduced by this device is NOT of concern for the VOC/dissolved gases data's intended use, then this device may be acceptable.
- If minor differences in the groundwater concentrations could affect the decision, such as to continue or terminate groundwater cleanup or whether the cleanup goals have been reached, then this device should NOT be used for VOC/dissolved gases sampling. In these cases, centrifugal or bladder pumps are a better choice for more accurate results.

EPA and USGS have documented their concerns with the use of the peristaltic pumps to collect water sample in the below documents.

- "Suction Pumps are not recommended because they may cause degassing, pH modification, and loss of volatile compounds" *A Compendium of Superfund Field Operations Methods*, EPA/540/P-87/001, December 1987.
- "The agency does not recommend the use of peristaltic pumps to sample ground water particularly for volatile organic analytes" *RCRA Ground-Water Monitoring Draft Technical Guidance*, EPA Office of Solid Waste, November 1992.
- "The peristaltic pump is limited to shallow applications and can cause degassing resulting in alteration of pH, alkalinity, and volatiles loss", *Low-flow (Minimal drawdown) Ground-Water Sampling Procedures*, by Robert Puls & Michael Barcelona, April 1996, EPA/540/S-95/504.
- "Suction-lift pumps, such as peristaltic pumps, can operate at a very low pumping rate; however, using negative pressure to lift the sample can result in the loss of volatile analytes", USGS Book 9 Techniques of Water-Resources Investigation, Chapter A4. (Version 2.0, 9/2006).

APPENDIX B

SUMMARY OF SAMPLING INSTRUCTIONS

These instructions are for using an adjustable rate, submersible pump or a peristaltic pump with the pump's intake placed at the midpoint of a 10 foot or less well screen or an open interval. The water level in the monitoring well is above the top of the well screen or open interval, the ambient temperature is above 32°F, and the equipment is not dedicated. Field instruments are already calibrated. The equipment is setup according to the diagram at the end of these instructions.

1. Review well installation information. Record well depth, length of screen or open interval, and depth to top of the well screen. Determine the pump's intake depth (e.g., mid-point of screen/open interval).

2. On the day of sampling, check security of the well casing, perform any safety checks needed for the site, lay out a sheet of polyethylene around the well (if necessary), and setup the equipment. If necessary a canopy or an equivalent item can be setup to shade the pump's tubing and flow-through-cell from the sun light to prevent the sun light from heating the groundwater.

3. Check well casing for a reference mark. If missing, make a reference mark. Measure the water level (initial) to 0.01 ft. and record this information.

4. Install the pump's intake to the appropriate depth (e.g., midpoint) of the well screen or open interval. Do not turn-on the pump at this time.

5. Measure water level and record this information.

6. Turn-on the pump and discharge the groundwater into a graduated waste bucket. Slowly increase the flow rate until the water level starts to drop. Reduce the flow rate slightly so the water level stabilizes. Record the pump's settings. Calculate the flow rate using a graduated container and a stop watch. Record the flow rate. Do not let the water level drop below the top of the well screen.

If the groundwater is highly turbid or discolored, continue to discharge the water into the bucket until the water clears (visual observation); this usually takes a few minutes. The turbid or discolored water is usually from the well-being disturbed during the pump installation. If the water does not clear, then you need to make a choice whether to continue purging the well (hoping that it will clear after a reasonable time) or continue to

the next step. Note, it is sometimes helpful to install the pump the day before the sampling event so that the disturbed materials in the well can settle out.

If the water level drops to the top of the well screen during the purging of the well, stop purging the well, and do the following:

> Wait for the well to recharge to a sufficient volume so samples can be collected. This may take a while (pump may be removed from well, if turbidity is not a problem). The project manager will need to make the decision when samples should be collected and the reasons recorded in the site's log book. A water level measurement needs to be performed and recorded before samples are collected. When samples are being collected, the water level must not drop below the top of the screen or open interval. Collect the samples from the pump's tubing. Always collect the VOCs and dissolved gases samples first. Normally, the samples requiring a small volume are collected before the large volume samples are collected just in case there is not sufficient water in the well to fill all the sample containers. All samples must be collected, preserved, and stored according to the analytical method. Remove the pump from the well and decontaminate the sampling equipment.

If the water level has dropped 0.3 feet or less from the initial water level (water level measure before the pump was installed); proceed to Step 7. If the water level has dropped more than 0.3 feet, calculate the volume of water between the initial water level and the stabilized water level. Add the volume of the water which occupies the pump's tubing to this calculation. This combined volume of water needs to be purged from the well after the water level has stabilized before samples are be collected.

7. Attach the pump's tubing to the "T" connector with a valve (or a three-way stop cock). The pump's tubing from the well casing to the "T" connector must be as short as possible to prevent the groundwater in the tubing from heating up from the sun light or from the ambient air. Attach a short piece of tubing to the other end of the end of the "T" connector to serve as a sampling port for the turbidity samples. Attach the remaining end of the "T" connector to a short piece of tubing and connect the tubing to the flow-through-cell bottom port. To the top port, attach a small piece of tubing to direct the water into a calibrated waste bucket. Fill the cell with the groundwater and remove all gas bubbles from the cell. Position the flow-through-cell in such a way that if gas bubbles enter the cell they can easily exit the cell. If the ports are on the same side of the cell and the cell is cylindrical shape, the cell can be placed at a 45-degree angle with the ports facing upwards; this position should keep any gas bubbles entering the cell away from the monitoring probes and allow the gas bubbles to exit the cell easily (see Low-Flow Setup Diagram). Note:

make sure there are no gas bubbles caught in the probes' protective guard; you may need to shake the cell to remove these bubbles.

8. Turn-on the monitoring probes and turbidity meter.

9. Record the temperature, pH, dissolved oxygen, specific conductance, and oxidation/reduction potential measurements. Open the valve on the "T" connector to collect a sample for the turbidity measurement, close the valve, do the measurement, and record this measurement. Calculate the pump's flow rate from the water exiting the flow-through-cell using a graduated container and a stop watch, and record the measurement. Measure and record the water level. Check flow-through-cell for gas bubbles and sediment; if present, remove them.

10. Repeat Step 9 every 5 minutes or as appropriate until monitoring parameters stabilized. Note: at least one flow-through-cell volume must be exchanged between readings. If not, the time interval between readings will need to be increased. Stabilization is achieved when three consecutive measurements are within the following limits:

Turbidity (10% for values greater than 5 NTUs; if three Turbidity values are less than 5 NTUs, consider the values as stabilized),
Dissolved Oxygen (10% for values greater than 0.5 mg/L, if three Dissolved Oxygen values are less than 0.5 mg/L, consider the values as stabilized),
Specific Conductance (3%),
Temperature (3%),
pH (± 0.1 unit),
Oxidation/Reduction Potential (±10 millivolts).

If these stabilization requirements do not stabilize in a reasonable time, the probes may have been coated from the materials in the groundwater, from a buildup of sediment in the flow-through-cell, or a gas bubble is lodged in the probe. The cell and the probes will need to be cleaned. Turn-off the probes (not the pump), disconnect the cell from the "T" connector and continue to purge the well. Disassemble the cell, remove the sediment, and clean the probes according to the manufacturer's instructions. Reassemble the cell and connect the cell to the "T" connector. Remove all gas bubbles from the cell, turn-on the probes, and continue the measurements. Record the time the cell was cleaned.

11. When it is time to collect the groundwater samples, turn-off the monitoring probes, and disconnect the pump's tubing from the "T" connector. If you are using a centrifugal or peristaltic pump check the pump's tubing to determine if the tubing is completely filled with water (no air space).

All samples must be collected and preserved according to the analytical method. VOCs and dissolved gases samples are normally collected first and directly into pre-preserved sample containers. However, this may not be the case for all sampling locations; the SAP/QAPP should list the order in which the samples are to be collected based on the project's objective(s). Fill all sample containers by allowing the pump discharge to flow gently down the inside of the container with minimal turbulence.

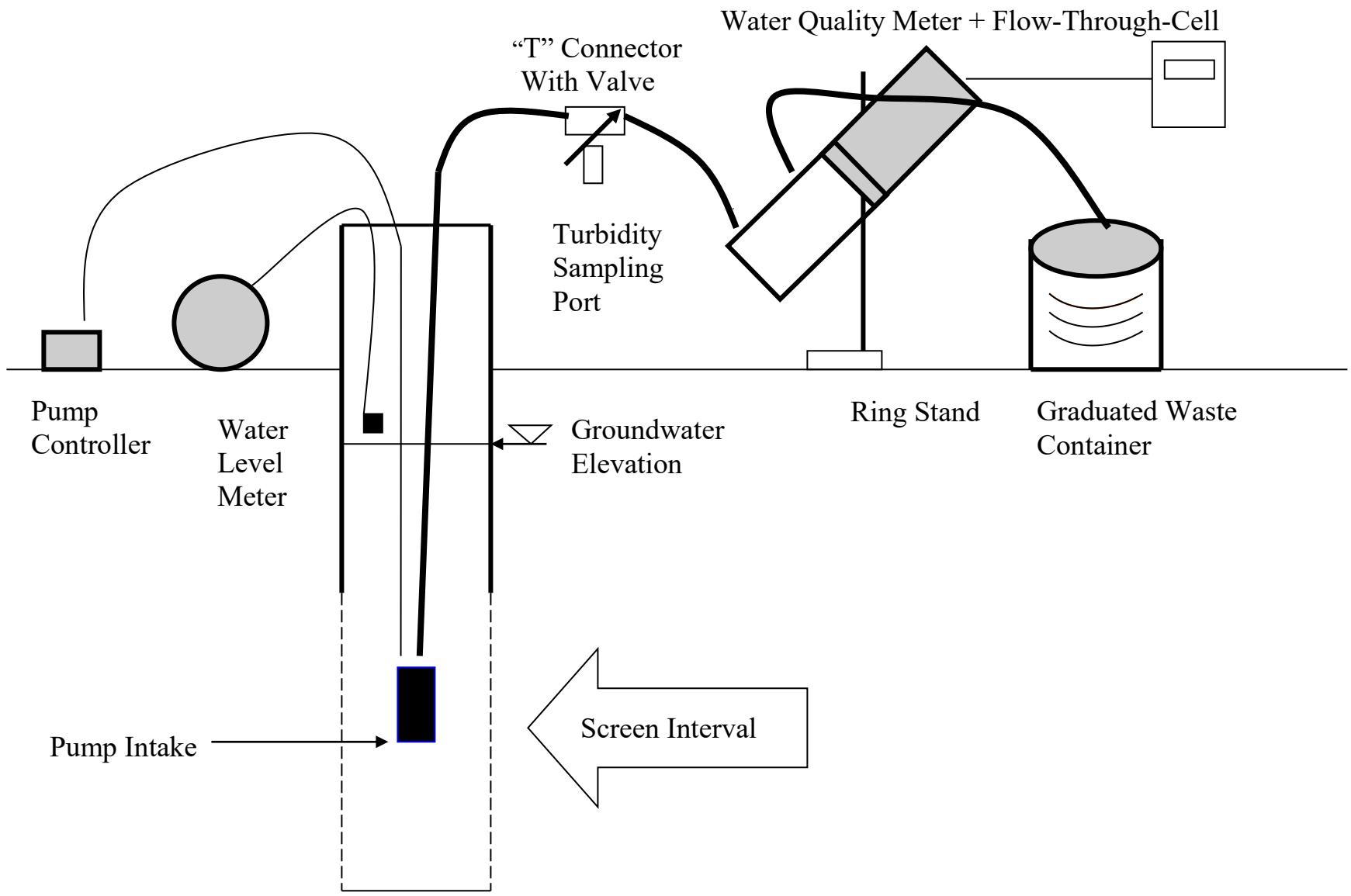
If the pump's tubing is not completely filled with water and the samples are being collected for VOCs and/or dissolved gases analyses using a centrifugal or peristaltic pump, do the following:

> All samples must be collected and preserved according to the analytical method. The VOCs and the dissolved gases (e.g., methane, ethane, ethene, and carbon dioxide) samples are collected last. When it becomes time to collect these samples increase the pump's flow rate until the tubing is completely filled. Collect the samples and record the new flow rate.

12. Store the samples according to the analytical method.

13. Record the total purged volume (graduated waste bucket). Remove the pump from the well and decontaminate the sampling equipment.

Low-Flow Setup Diagram



APPENDIX C

EXAMPLE (Minimum Requirements)

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name)_____ Depth to _____/_____ of screen
Well Number_____ Date_____ (below MP) top bottom
Field Personnel_____ Pump Intake at (ft. below MP)_____
Sampling Organization_____ Purging Device; (pump type)_____
Identify MP_____ Total Volume Purged _____

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. "C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Tur-bidity NTU	Comments
Stabilization Criteria					3%	3%	±0.1	±10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

APPENDIX G

Example Laboratory Data Evaluation Checklist

LABORATORY DATA EVALUATION CHECKLIST (WATER)

Evaluated by:	Reviewed By:

GREAT RIVER ENERGY

Project Name: _____ Project Number: _____

Evaluator: _____ Validation Date: _____

Laboratory: _____ SDG #: _____ Sample Event/ Date(s): _____

Locations Sampled: _____

*******For any NO response further explanation and/or action is required (when in doubt ask the PM or lab)*******

General	**YES**	**NO**	**NA**
1. Were results received for all samples?	☐	☐	☐
2. Were all the requested parameters analyzed?	☐	☐	☐
3. Were the requested methods used?	☐	☐	☐
4. Were the requested detection limits used (MDLs and/or PQLs)?	☐	☐	☐
5. Were the samples received by the laboratory below 6 deg C?	☐	☐	☐
6. Were the samples preserved correctly?	☐	☐	☐
7. Are the field parameters on file?	☐	☐	☐
8. Did field parameters stabilize, following collection of at least 3 readings?	☐	☐	☐
9. Was drawdown minimized (less than 6" to 1' in depth)?	☐	☐	☐
10. Is the lab narrative free from problems that require further explanation or affect sample results?	☐	☐	☐
11. Were samples analyzed within appropriate hold times (other than pH)?	☐	☐	☐
Analytical Results (use digital data for 20 and 21)			
12. Is the ratio of TDS (mg/L) to conductivity (µmhos/cm) between 0.54 and 0.96?	☐	☐	☐
13. Are the charge balances below 5%?	☐	☐	☐
14. Are field and lab pH within 0.5 units?	☐	☐	☐
15. Are field and lab conductivity within 500 µS/cm?	☐	☐	☐
16. Have total concentrations been measured and reported?	☐	☐	☐
17. Are calculated results correct (for example Nitrate)?	☐	☐	☐
18. Are sample results free of flags or qualifiers that require further action (ignore J and U)?	☐	☐	☐
19. Are all non-detect results reported without dilutions?	☐	☐	☐
20. Are all concentrations below site specific and/or EPA standards?	☐	☐	☐
21. Are reported concentrations within the range of historical values? (time series graphs/EQuIS)	☐	☐	☐
Field QC samples			
22. What field QC samples were analyzed (blanks, duplicates & rinsates)?_____			
23. Are all field and equipment blank(s) concentrations non-detects?	☐	☐	☐
24. Are duplicate concentrations comparable to their parent?	☐	☐	☐
Laboratory QC samples			
25. What lab QC samples were analyzed? _____			
26. Was MS/MSD, %R and RPD accuracy criteria met (criteria should be listed on report)?	☐	☐	☐
27. Are all laboratory and trip blank concentrations non-detect?	☐	☐	☐
28. Are lab QC results free of flags or qualifiers that require further action?	☐	☐	☐
Electronic data (EQuIS or other EDD)			
29. Was electronic data received in the requested format?	☐	☐	☐
30. If applicable, was the field and laboratory data uploaded to the project's database?	☐	☐	☐
31. Do the electronic data match the paper report (results and detection limits)?	☐	☐	☐

DRAFT

This data evaluation is a verification for completeness and confirmation through objective evidence that the specified sampling and analytical requirements have generally been met. This checklist is not an EPA equivalent validation to definitively assess the performance of the sample and analytical process.



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ATTACHMENT B

Example Field Data Sheet

Field Datasheet - General Groundwater Assessment

Weather:	Temperature: °F / °C	Wind:	Precipitation:	Sunny / Partly Cloudy / Cloudy (circle one)

General Information	
Sampling Personnel:	
Program Name:	
Location/Sample ID:	

Purging and Sampling Information		
Purge Date:		**Time Purging Began:**
Well Purged Dry?	Yes / No	Time Purged Dry:
Sample Date:		**Time of Sampling:**

Bottle List:

Well Information		
Well Locked?	Yes	No
Well Labeled?	Yes	No
Casing Straight?	Yes	No
Necessary Repairs:		
Casing Diameter:		

Water Level	
Static Water Level Before Purge:	(±0.01 ft)
Depth to Top of Pump:	(±0.01 ft)
Depth to Bottom of Well:	(±0.01 ft)
Water Level After Sampling:	(±0.01 ft)

Notes:

Purging Method:		Control Settings	
Sampling Method:		Purge:	sec
Dedicated Equipment?	Yes / No	Recover:	sec.
QC Sample?	Yes / No	PSI:	
QC Sample ID:		Pumping Rate:	mL/min

Notes:

Field Measurements and Purge Parameters

Stabilization (Minimum: 3 consecutive)		Water Temp (°C)	Spec. Cond. (__S/cm)	pH (S.U.)	Turbidity (NTU)	DO (mg/L)	ORP (mv)	Water Level (ft)	Volume Purged (mL)	Description: Clarity - Clear, Slightly Turbid, Turbid Color - Brown, Grey, Yellow, Orange Odor, Etc.
Reading #	Time	±3%	±3%	±0.1						

Stabilized: Yes No (circle one)

Total Volume Removed: _____ mL

Minimum volume of stagnant water to purge prior to collection of field parameters: 500 mL

Measurements should be recorded with precision of ±0.5° (temp), ±5% (SC), and ±0.1 S.U. (pH)

Comments:

APPENDIX G

Phase 1 Chemical Injection Testing

January 21, 2025

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TERRA SYSTEMS FINAL REPORT FOR WSP FOR GREAT RIVER ENERGY COAL ASH RESIDUE TREATABILITY STUDY VERSION 2

1.0 INTRODUCTION

This bench-scale treatability evaluated conditions to precipitate arsenic for two groundwaters, MW-103 and MW-211.

2.0 BENCH-SCALE STUDY SCOPE

The objective of the bench-scale study was to evaluate the appropriate in situ remediation technology for arsenic:

- Identify the feasibility of As in-situ remediation by oxygen addition.
- Identify the feasibility of As in-situ remediation by ferrous sulfate heptahydrate addition.
- Determine Identify the feasibility of As in-situ remediation by Redox Solutions Ferroblack ferrous sulfide addition.
- the design parameters including reagent dosage and demand.

2.1 Bench-scale Groundwater Collection

Groundwater and soil samples were collected from the two locations, MW-103 and MW-211. The groundwater samples, 28.3 kg of MW-103 and 28.4 kg of MW-211 including the jugs, were shipped on 11/18/24 and received on 11/19/24. The samples were delivered on ice to the TS under a chain of custody.

2.2 Baseline characterization

At the beginning of the bench-scale treatability test, the baseline characterization was performed to verify contaminant concentrations in the samples. The groundwater samples were homogenized to the extent possible. The homogenized groundwater samples were analyzed for:

- total arsenic and iron by SW 6020B
- dissolved arsenic and iron SW 6020B
- alkalinity by SM20 2320B-2011
- sulfide by SM4500 S2 D-2011

Eurofins Lancaster Laboratories Environmental (ELLE) conducted the analyses. TS measured pH, ORP, dissolved oxygen (DO), bicarbonate alkalinity, total hardness, ferrous iron, and sulfide by using calibrated meters and Hach procedures.

2.3 Initial Characterization

Table 1 presents the results of the initial characterization. TS determined MW-103 was alkaline with a pH of 8.8 SU, 4.8 mg/L dissolved oxygen, a positive ORP or 229 mL, specific conductivity of 2,680 µS/cm, bicarbonate alkalinity of 540 mg/L as calcium carbonate, hardness of 240 mg/L as calcium carbonate, ferrous iron of 1.35 mg/L, total iron of 1.28 mg/L, and no detectable sulfide. ELLE reported a total alkalinity of 613 mg/L, sulfide of <0.1 mg/L, dissolved arsenic of 0.0144 mg/L, total arsenic of 0.0140 mg/L, dissolved iron of 0.144 mg/L, and total iron of 0.126 mg/L. Both dissolved and total arsenic were above the groundwater protection standards of 0.010 mg/L.

TS determined MW-211 was alkaline with a pH of 8.1 SU, 4.8 mg/L dissolved oxygen, a positive ORP or 263 mL, specific conductivity of 2,600 µS/cm, bicarbonate alkalinity of 520 mg/L as calcium carbonate, hardness of 480 mg/L as calcium carbonate, ferrous iron of 0.15 mg/L, total iron of 0.12 mg/L, and no detectable sulfide. ELLE reported a total alkalinity of 555 mg/L, sulfide of <0.1 mg/L, dissolved arsenic of 0.0113 mg/L, total arsenic of 0.0110 mg/L, dissolved iron of 0.0343 mg/L, and total iron of 0.0906 mg/L. Both dissolved and total arsenic were above the groundwater protection standards of 0.010 mg/L.

Table 1. Initial Characterization

Terra Systems		MW-103	MW-211
pH	SU	8.8	8.1
ORP	mV	229	263
DO	mg/L	4.8	3.8
Specific Conductivity	µS/cm	2,680	2,600
Bicarbonate Alkalinity	mg/L as CaCO3	540	520
Hardness	mg/L as CaCO3	240	480
Ferrous iron	mg/L	1.35	0.15
Total Iron	mg/L	1.28	0.12
Sulfide	mg/L	<0.01	<0.01
ELLE			
Total Alkalinity	mg/L as CaCO3	613	555
Sulfide	mg/L	<0.1	<0.1
Dissolved Arsenic	mg/L	**0.0144**	**0.0113**
Total Arsenic	mg/L	**0.0140**	**0.0110**
Dissolved Iron	mg/L	0.144	0.0343
Total Iron	mg/L	0.126	0.0906
0.0343	J Value, compound detected above method detection limit but below method calibration levels		
0.0144	Arsenic exceeds the Groundwater Protection Standards of 0.010 mg/L		

2.4 MW-103 Screening

Deaerated groundwater (sparged with nitrogen for 15 minutes) was added to 65 mL bottles with rubber septa (Table 2). Then oxygen gas was introduced through the septa in the amounts shown in Tables 2 and 3 to provide 1, 5, and 10 mg/L DO. The dissolved oxygen levels, pH, and ORP were measured using calibrated dissolved oxygen, pH, and ORP meters after 5 and 24 hours. The withdrawn volume was replaced with glass marbles so there was no headspace.

2.4.1 Controls and Oxygen Demand Screening

The control treatment at the time of setup had a DO of 7.8 mg/L, pH of 7.8 SU, ORP of 224 mV, and specific conductivity of 2,700 µS/cm. The DO in the Control dropped to 7.2 mg/L after 24

hours. The pH increased from 7.8 to 9.0 SU, ORP decreased from 224 to 207 mV, and specific conductivity ranged from 1,814 to 2,700 µS/cm (the results at 24 hours appears to be anomalous).

The treatment with a target of 1 mg/L DO had dissolved oxygen levels of 7.5 mg/L, the treatment with a target of 5 mg/L DO had DO levels of 7.6 mg/L, and the treatment with the target of 10 mg/L DO had DO levels of 7.4 to 7.8 mg/L. The dearation procedure was not effective and the oxygen gas introduction had little impact on the DO. The pH in oxygenated treatments ranged from 8.8 to 8.9 SU, the ORP from 213 to 235 mV, and the specific conductivity from 1,817 to 2,780 µS/cm.

2.4.2 Ferrous Sulfate Heptahydrate Screening

Ferrous sulfate heptahydrate was introduced at target loadings of 0.5, 1.0, and 2.0 g/L. The treatments with ferrous sulfate heptahydrate had DO levels of 0.8 to 1.5 mg/L which indicated consumption of the oxygen compared to the control or oxygenated treatments. The pH in ferrous sulfate heptahydrate treatments ranged from 6.8 to 7.4 SU which was lower than the Control or aerated treatments. The ORP ranged from 224 to 239 mV, and the specific conductivity from 1,829 to 3,290 µS/cm.

2.4.3 Ferroblack Screening

Ferroblack was introduced at target loadings of 1.1, 3.3, 6.6, and 10. 0 g/L at the recommendation of Redox Solutions. The treatments with Ferroblack ferrous sulfide had DO levels of 1.7 to 4.7 mg/L which indicated limited consumption of oxygen compared to control or oxygenated treatments. The pH in Ferroblack treatments ranged from 7.8 to 9.2 SU which was similar to the Control or aerated treatments. The ORP ranged from 211 to 242 mV, and the specific conductivity from 1,813 to 3,750 µS/cm with higher specific conductivities at the higher Ferroblack loadings.

2.5 MW-211 Screening

2.5.1 MW-211 Controls and Oxygen Demand Screening

The control treatment at the time of setup had a DO of 2.2 mg/L, pH of 7.7 SU, ORP of 232 mV, and specific conductivity of 1,700 mS/cm. The DO in the Control increased to 2.8 mg/L after 24 hours. The pH increased from 7.7 to 8.7 SU, ORP decreased from 232 to 210 mV, and specific conductivity ranged 1,697 µS/cm to 1,728 µS/cm.

The treatment with a target of 1 mg/L DO had dissolved oxygen levels of 2.6-3.3 mg/L, the treatment with a target of 5 mg/L DO had DO levels of 2.8-3.4 mg/L, and the treatment with the target of 10 mg/L DO had DO levels of 2.3 to 3.8 mg/L. The dearation procedure was effective for the MW-211 groundwater but the oxygen gas introduction increased the DO only slightly. The pH in oxygenated treatments ranged from 8.2 to 8.5 SU, the ORP from 218 to 240 mV, and the specific conductivity from 1,564 to 1,708 µS/cm.

2.5.2 Ferrous Sulfate

The treatments with ferrous sulfate heptahydrate had DO levels of 0.8 to 1.0 mg/L which indicated consumption of oxygen compared to the control or oxygenated treatments. The pH in

ferrous sulfate heptahydrate treatments ranged from 6.8 to 7.4 SU which was lower than the Control or aerated treatments. The ORP ranged from 184 to 217 mV, and the specific conductivity from 1,586 to 1,765 µS/cm.

2.5.3 Ferroblack

The treatments with Ferroblack ferrous sulfide had DO levels of 1.0 to 1.6 mg/L which indicated limited consumption of the oxygen compared to the control or oxygenated treatments. The pH in Ferroblack treatments ranged from 7.7 to 8.9 SU which was similar to the Control or aerated treatments. The ORP ranged from 182 to 224 mV, and the specific conductivity from 1,590 to 3,570 µS/cm with higher specific conductivities at the higher Ferroblack loadings.

terrasystems

Table 2. MW-103 Titrations with Oxygen, Ferrous Sulfate Heptahydrate, and Ferroblack

Treatment	Groundwater	O2	FeSO4-7H2O	Ferroblack	O2	FeSO4-7H2O	Ferroblack	Time	DO	pH	ORP	Spec. Cond.
	g	mL	g	g	mg/L	g/L	g/L	Hrs	mg/L	SU	mV	µS/cm
Control	65.1							0	7.8	7.8	224	2700
								5	7.8	8.9	214	2680
								24	7.2	9.0	207	1814
1 mg/L DO	65.2	0.05			1.0			5	7.5	8.9	230	2780
								24	7.5	8.8	213	1836
5 mg/L DO	64.6	0.25			5.1			5	7.6	8.9	234	2700
								24	7.6	8.8	221	1836
10 mg/L DO	65.0	0.50			10.2			5	7.4	8.9	235	2720
								24	7.8	8.8	224	1817
0.5 g/L FeSO4	65.3		0.0325			0.5		5	1.5	7.4	234	2810
								24	1.5	7.4	224	1829
1.0 g/L FeSO4	65.0		0.065			1.0		5	1.4	7.0	239	3000
								24	1.0	6.9	224	1882
2.0 g/L FeSO4	64.6		0.13			2.0		5	0.9	6.9	235	3290
								24	0.8	6.8	224	3210
1.1 g/L FB	65.0			0.075			1.2	5	3.5	7.8	242	2790
								24	1.8	8.1	226	1813
3.3 g/L FB	65.1			0.219			3.4	5	4.7	8.8	238	3020
								24	2.4	8.7	228	2990
6.6 g/L FB	65.1			0.425			6.5	5	4.1	9.0	234	3380
								24	1.7	9.0	219	3350
10 g/L FB	64.1			0.650			10.1	5	3.7	9.2	226	3740
								24	2.3	9.2	211	3750

terrasystems

Table 3. MW-211 Titrations with Oxygen, Ferrous Sulfate Heptahydrate, and Ferroblack

Treatment	Groundwater	O2	FeSO4-7H2O	Ferroblack	O2	FeSO4-7H2O	Ferroblack	Time	DO	pH	ORP	Spec. Cond.
	g	mL	g	g	mg/L	g/L	mg/L	Hrs	mg/L	SU	mV	µS/cm
Control	64.7							0	2.2	7.7	232	1700
								5	2.6	7.7	221	1697
								24	2.8	8.7	210	1728
1 mg/L DO	64.8	0.05			1.0			5	2.6	8.2	231	1708
								24	3.3	8.5	218	1663
5 mg/L DO	65.5	0.25			5.1			5	2.8	8.3	238	1699
								24	3.4	8.5	222	1564
10 mg/L DO	65.4	0.50			10.2			5	2.3	8.4	240	1694
								24	3.8	8.5	223	1567
0.5 g/L FeSO4	65.2		0.033			0.5		5	1.0	7.4	217	1725
								24	1.0	7.4	194	1586
1.0 g/L FeSO4	65.2		0.065			1.0		5	0.9	7.1	212	1765
								24	0.8	7.0	187	1640
2.0 g/L FeSO4	65.5		0.133			2.0		5	1.0	7.2	213	1663
								24	0.8	6.8	184	1747
1.1 g/L FB	64.7			0.071			1.1	5	1.4	8.1	218	1708
								24	1.0	7.7	182	1590
3.3 g/L FB	64.5			0.23			3.6	5	1.6	8.5	224	1875
								24	1.4	8.2	195	1776
6.6 g/L FB	64.3			0.431			6.7	5	1.6	8.9	222	3150
								24	1.6	8.6	199	1984
10 g/L FB	64.6			0.662			10.2	5	1.6	8.9	216	3430
								24	1.6	8.8	200	3570

3.0 BATCH TESTS

Deaerated groundwater (sparged with nitrogen for 15 minutes) was added to 710 mL bottles with rubber septa (Tables 4 and 5). Two loadings of oxygen (5 and 10 mg/L, two loadings of ferrous sulfate heptahydrate (1 and 5 g/L), two loadings of Ferroblack (2 and 10 g/L), and control were prepared for each groundwater. Three replicates were prepared for each treatment and sacrificed after 2, 8, and 24 hours. The reagent loadings were based upon the screening tests and chosen by WSP. The dissolved oxygen levels, pH, and ORP were measured using a calibrated dissolved oxygen, pH, and ORP meters in 10 mL samples collected through the septa after two, eight, and 24 hours. The bottles were sacrificed and the bicarbonate alkalinity, total hardness, ferrous iron, and sulfide were conducted by TS using calibrated meters and Hach procedures for the samples at 24 hours. In addition, aqueous samples for following parameters were collected to be analyzed by ELLE:

- dissolved arsenic and iron
- total arsenic and iron

3.1 MW-103 Batch Test Results

Table 4 presents the results for the MW-103 batch studies.

3.1.1 Control Batch Testing

The control treatments at the time of setup had DO of 1.5-2.2 mg/L, pH of 8.9-9.0 SU, ORP of 216-317 mV, and specific conductivity of 1,443-1,624 µS/cm. The DO in the Control ranged from 3.6-4.1 mg/L over the 24 hour period. The pH was 8.7-9.0 SU, ORP decreased from 226 to as low as 199 mV, and specific conductivity ranged from 1,442 µS/cm to 1,529 µS/cm. There was an orange precipitate. At 24 hours, the field methods showed 2.0 mg/L ferrous iron, 4.49 mg/L total iron, <0.01 mg/L sulfide, 240 mg/L as CaCO3 hardness, and 600 mg/L as CaCO3 alkalinity. Dissolved arsenic ranged from 0.0132 to 0.0137 mg/L and total arsenic from 0.0145 to 0.0146 mg/L. Both dissolved and total arsenic remained above the GWPS. Dissolved iron ranged from 0.0709 to 0.104 mg/L. Total iron ranged from 0.472 to 0.774 mg/L.

3.1.2 Oxygen Batch Testing

The DO in the 5 mg/L DO treatments ranged from 4.1-5.4 mg/L over the 24 hour period which was above the Control. The pH was 8.5-8.6 SU, ORP decreased from 235 to 212 mV, and specific conductivity ranged from 1,194 µS/cm to 1,784 µS/cm. There was an orange precipitate. At 24 hours, the field methods showed 2.05 mg/L ferrous iron, 1.25 mg/L total iron, <0.01 mg/L sulfide, 600 mg/L as CaCO3 hardness, and 600 mg/L as CaCO3 alkalinity. Dissolved arsenic ranged from 0.0104 to 0.0126 mg/L and total arsenic from 0.0116 to 0.0120 mg/L. Both dissolved and total arsenic remained above the GWPS. Dissolved iron decreased from 0.0283 mg/L at 2 hours to non-detect at 8 and 24 hours. Total iron ranged from 0.110 to 1.24 mg/L.

The DO in the 10 mg/L DO treatments ranged from 4.1-8.2 mg/L over the 24 hour period which was above the Control but below the target. The pH was 8.9 SU, ORP ranged from 207 to 227 mV, and specific conductivity ranged from 1,428 µS/cm to 1,550 µS/cm. There was an orange precipitate. At 24 hours, the field methods showed 1.75 mg/L ferrous iron, 2.5 mg/L total iron, <0.01 mg/L sulfide, 240 mg/L as CaCO3 hardness, and 600 mg/L as CaCO3 alkalinity.

Dissolved arsenic ranged from 0.0134 to 0.0141 mg/L and total arsenic from 0.0144 to 0.0149 mg/L. Both dissolved and total arsenic remained above the GWPS. Dissolved iron ranged from 0.0588 to 0.116 mg/L. Total iron ranged from 0.674 to 1.07 mg/L.

3.1.3 Ferrous Sulfate Heptahydrate Batch Testing

The DO in the 1 g/L ferrous sulfate heptahydrate treatments ranged from 0.6-0.7 mg/L over the 24 hour period which was below the Control. The pH was 7.3-7.4 SU which was below the control but in a neutral range, ORP ranged from 140 to 211 mV, and specific conductivity ranged from 1,311 µS/cm to 1,529 µS/cm. There was a green to gray or black precipitate. At 24 hours, the field methods showed 178 mg/L ferrous iron, 582 mg/L total iron, <0.01 mg/L sulfide, 240 mg/L as CaCO3 hardness, and 420 mg/L as CaCO3 alkalinity. Dissolved arsenic was less than 0.00070 mg/L and total arsenic ranged from 0.00185 to 0.0103 mg/L. Dissolved arsenic was below the GWPS. The total arsenic at 8 and 24 hours were below the GWPS. Dissolved iron increased from 60.4 mg/L at 2 hours to a maximum of 80.6 mg/L at 8 hours. Total iron ranged from 104 to 124 mg/L.

The DO in the 5 g/L ferrous sulfate heptahydrate treatments was 0.6 mg/L over the 24 hour period which was below the Control. The pH was 6.9-7.3 SU, ORP ranged from 122 to 176 mV, and specific conductivity ranged from 1,374 µS/cm to 1,645 µS/cm. There was a green to gray or black precipitate. At 24 hours, the field methods showed 470 mg/L ferrous iron, 816 mg/L total iron, <0.01 mg/L sulfide, <24 mg/L as CaCO3 hardness, and 360 mg/L as CaCO3 alkalinity. Dissolved arsenic ranged from <0.00070 to 0.00101 mg/L and total arsenic from 0.00437 to 0.00765 mg/L. Both dissolved and total arsenic were below the GWPS. Dissolved iron ranged from 462 to 624 mg/L. Total iron ranged from 611 to 649 mg/L.

3.1.4 Ferroblack Batch Testing

The DO in the 2 g/L Ferroblack treatments ranged from 0.9-1.3 mg/L over the 24 hour period which was below the Control. The pH was 7.7-7.9 SU which was below the control but in a neutral range, ORP ranged from 115 to 172 mV, and specific conductivity ranged from 1,420 µS/cm to 1,524 µS/cm. There was a black precipitate. At 24 hours, the field methods showed 3.7 mg/L ferrous iron, 3.8 mg/L total iron, <0.01 mg/L sulfide, 240 mg/L as CaCO3 hardness, and 600 mg/L as CaCO3 alkalinity. Dissolved arsenic ranged from 0.0070 to 0.010 mg/L and total arsenic from 0.0121 to 0.0138 mg/L. Dissolved arsenic was below the GWPS except at 2 hours. The total arsenic was above the GWPS. Dissolved iron decreased from 2.08 mg/L at 2 hours to a minimum of 0.0939 mg/L at 8 hours. Total iron ranged from 14.6 to 34.6 mg/L.

The DO in the 10 g/L Ferroblack treatments ranged from 1.0-2.0 mg/L over the 24 hour period, which was below the Control. The pH was 8.7-8.8 SU, ORP ranged from 137 to 176 mV, and specific conductivity ranged from 1,627 µS/cm to 3,710 µS/cm. There was a black precipitate. At 24 hours, the field methods showed 6.7 mg/L ferrous iron, 3.4 mg/L total iron, <0.01 mg/L sulfide, 240 mg/L as CaCO3 hardness, and 600 mg/L as CaCO3 alkalinity. Dissolved arsenic ranged from 0.00628 to 0.00952 mg/L and total arsenic from 0.00765 to 0.0129 mg/L. Dissolved arsenic was below the GWPS and total arsenic except at 8 hours. Dissolved iron ranged from 0.0216 to 0.262 mg/L. Total iron ranged from 10.6 to 25.8 mg/L.

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Table 4. MW-103 Batch Tests with Control, Oxygen, Ferrous Sulfate Heptahydrate, and Ferroblack

Batch	MW-103 GW	Oxygen	FeSO4-7H2O	Ferroblack	Time	DO	SC	pH	ORP	Color	Fe2+	Total Fe	S	Hardness	Alkalinity	Dis. As	Total As	Dis Fe	Total Fe
	g	mL	g	g	Hours	mg/L	µS/cm	SU	mV		mg/L	mg/L	mg/L	mg/L as CaCO3	mg/L as CaCO3	mg/L	mg/L	mg/L	mg/L
GWPS																0.010	0.010		
IC						4.8	2680	8.8	229		1.35	1.28	<0.01	240	540	**0.0144**	**0.014**	0.144	0.126
Control A					0	2.0	1624	9.0	216										
Control B					0	2.2	1605	8.9	229										
Control C					0	1.5	1599	8.9	234										
Control D					0	1.8	1443	8.9	223										
Control E					0	2.0	1498	8.9	317										
Control Av					0	1.9	1554	8.9	244										
Control 2	710				2	4.1	1529	8.7	226	orange						**0.0137**	**0.0145**	0.0709	0.472
Control 8	710				8	3.8	1465	8.8	199	orange						**0.0134**	**0.0146**	0.104	0.774
Control 24	710				24	3.6	1442	9.0	208	orange	2.0	4.49	<0.01	240	600	**0.0132**	**0.0145**	0.0912	0.496
5 mg/L DO 2	710	2.7			2	5.6	1546	8.9	224	orange						**0.0139**	**0.0152**	0.0509	0.776
5 mg/L DO 8	710	2.7			8	8.2	1484	8.9	205	orange						**0.0139**	**0.0146**	0.104	0.823
5 mg/L DO 24	710	2.7			24	4.1	1437	8.9	217	orange	0.6	2.1	<0.01	240	600	**0.0151**	**0.0149**	0.0781	1.04
10 mg/L DO 2	710	5.3			2	3.7	1550	8.9	227	orange						**0.0134**	**0.0144**	0.116	1.07
10 mg/L DO 8	710	5.3			8	5.8	1475	8.9	207	orange						**0.0141**	**0.0149**	0.0698	0.696
10 mg/L DO 24	710	5.3			24	4.7	1428	8.9	222	orange	1.75	2.5	<0.01	240	600	**0.0141**	**0.0148**	0.0588	0.674
1 g/L FeSO4-7H2O 2	710		0.71		2	0.6	1529	7.4	211	green, gray						<0.00070	**0.0103**	60.4	124
1 g/L FeSO4-7H2O 8	710		0.71		8	0.7	1425	7.3	140	black sludge						<0.00070	0.00494	80.6	104
1 g/L FeSO4-7H2O 24	710		0.71		24	0.7	1311	7.3	202	black sludge	178	582	<0.1	240	420	<0.00070	0.00185	79.5	109
5 g/L FeSO4-7H2O 2	710		3.55		2	0.6	1645	7.3	162	green, gray						0.00101	0.00765	462	613
5 g/L FeSO4-7H2O 8	710		3.55		8	0.6	1407	6.9	122	black sludge						<0.00070	0.00437	537	611
5 g/L FeSO4-7H2O 24	710		3.55		24	0.6	1374	6.9	176	black sludge	470	816	<0.1	<24	360	<0.00070	0.00559	624	649
2 g/L FB 2	710			1.42	2	1.3	1524	7.9	172	black sludge						**0.010**	**0.0138**	2.08	14.6
2 g/L FB 8	710			1.42	8	1.2	1484	7.7	115	black sludge						0.0070	**0.0121**	0.0939	31.4
2 g/L FB 24	710			1.42	24	0.9	1420	7.8	169	black sludge	3.7	3.8	<0.1	240	600	0.00785	**0.0131**	0.12	34.6
10 g/L FB 2	710			7.1	2	1.1	3710	8.8	160	black sludge						0.00678	0.00881	0.262	18.8
10 g/L FB 8	710			7.1	8	2.0	1627	8.7	137	black sludge						0.00952	**0.0129**	0.184	10.6
10 g/L FB 24	710			7.1	24	1.0	1905	8.8	176	black sludge	6.7	3.4	<0.1	240	600	0.00628	0.00765	0.0216	25.8

0.0144	Compound exceeds GWPS
0.0509	Compound detected above method detection limits, but below method calibration limits

3.2 MW-211 Batch Test Results

Table 5 presents the results for the MW-211 batch studies.

3.2.1 Control Batch Testing

The control treatments at the time of setup had DO of 1.7-2.3 mg/L, pH of 8.7-8.8 SU, ORP of 209-250 mV, and specific conductivity of 1,195-1,217 mS/cm. The DO in the Control ranged from 2.9-3.2 mg/L over the 24 hour period. The pH was 8.8 SU, ORP decreased from 217 to 198 mV, and specific conductivity ranged from 1,181 µS/cm to 1,748 µS/cm. There was an orange precipitate. At 24 hours, the field methods showed 0.35 mg/L ferrous iron, 1.55 mg/L total iron, 0.01 mg/L sulfide, 480 mg/L as CaCO3 hardness, and 600 mg/L as CaCO3 alkalinity. Dissolved arsenic ranged from 0.0107 to 0.0124 mg/L and total arsenic from 0.0116 to 0.0123 mg/L. Both dissolved and total arsenic remained above the GWPS. Dissolved iron decreased from 0.189 mg/L at 2 hours to non-detect at 8 and 24 hours. Total iron ranged from 0.161 to 0.215 mg/L.

3.2.2 Oxygen Batch Testing

The DO in the 5 mg/L DO treatments ranged from 4.1-5.4 mg/L over the 24 hour period which was above the Control. The pH was 8.5-8.6 SU, ORP decreased from 235 to 212 mV, and specific conductivity ranged from 1,194 µS/cm to 1,784 µS/cm. There was an orange precipitate. At 24 hours, the field methods showed 2.05 mg/L ferrous iron, 1.25 mg/L total iron, <0.01 mg/L sulfide, 600 mg/L as CaCO3 hardness, and 600 mg/L as CaCO3 alkalinity. Dissolved arsenic ranged from 0.0104 to 0.0126 mg/L and total arsenic from 0.0112 to 0.0120 mg/L. Both dissolved and total arsenic remained above the GWPS. Dissolved iron decreased from 0.0283 mg/L at 2 hours to non-detect at 8 and 24 hours. Total iron ranged from 0.110 to 1.24 mg/L.

The DO in the 10 mg/L DO treatments ranged from 4.4-4.8 mg/L over the 24 hour period which was above the Control but below the target. The pH was 8.5-8.7 SU, ORP decreased from 245 to 224 mV, and specific conductivity ranged from 1,192 µS/cm to 1,774 µS/cm. There was an orange precipitate. At 24 hours, the field methods showed <0.05 mg/L ferrous iron, 1.3 mg/L total iron, <0.01 mg/L sulfide, 480 mg/L as CaCO3 hardness, and 600 mg/L as CaCO3 alkalinity. Dissolved arsenic ranged from 0.0105 to 0.0116 mg/L and total arsenic from 0.0110 to 0.0115 mg/L. Both dissolved and total arsenic remained above the GWPS. Dissolved iron was non-detect at 2, 8 ,and 24 hours. Total iron ranged from 0.222 to 0.493 mg/L.

3.2.3 Ferrous Sulfate Heptahydrate Batch Testing

The DO in the 1 g/L ferrous sulfate heptahydrate treatments ranged from 0.8-1.1 mg/L over the 24 hour period which was below the Control. The pH was 7.0-7.2 SU which was below the control but still within a neutral range, ORP decreased from 216 to 201 mV, and specific conductivity ranged from 1,089 µS/cm to 1,600 µS/cm. There was a green to gray or black precipitate. At 24 hours, the field methods showed 68 mg/L ferrous iron, 378 mg/L total iron, <0.01 mg/L sulfide, 480 mg/L as CaCO3 hardness, and 480 mg/L as CaCO3 alkalinity. Dissolved arsenic ranged from 0.000955 to 0.0012 mg/L and total arsenic from 0.00982 to 0.0112 mg/L. Dissolved arsenic was below the GWPS. Only the total arsenic at 24 hours was below the GWPS. Dissolved iron increased from 108 mg/L at 2 hours to a maximum of 181 mg/L at 8 hours. Total iron ranged from 174 to 191 mg/L.

The DO in the 5 g/L ferrous sulfate heptahydrate treatments was 0.6 mg/L over the 24 hour period which was below the Control. The pH was 6.7-6.8 SU, ORP decreased from 189 to 157 mV, and specific conductivity ranged from 1,174 µS/cm to 1,757 µS/cm. There was a green to gray or black precipitate. At 24 hours, the field methods showed 840 mg/L ferrous iron, 986 mg/L total iron, <0.01 mg/L sulfide, <20 mg/L as CaCO3 hardness, and 480 mg/L as CaCO3 alkalinity. Dissolved arsenic ranged from 0.00113 to 0.00304 mg/L and total arsenic from 0.00795 to 0.00949 mg/L. Both dissolved and total arsenic were below the GWPS. Dissolved iron ranged from 643 to 1,050 mg/L. Total iron ranged from 812 to 873 mg/L.

3.2.4 Ferroblack Batch Testing

The DO in the 2 g/L Ferroblack treatments ranged from 0.8-0.9 mg/L over the 24 hour period which was below the Control. The pH was 7.2-7.7 SU which was below the control but in a neutral range, ORP ranged from 157 to 190 mV, and specific conductivity ranged from 1,169 µS/cm to 1,691 µS/cm. There was a black precipitate. At 24 hours, the field methods showed 0.6 mg/L ferrous iron, 9.2 mg/L total iron, <0.01 mg/L sulfide, 480 mg/L as CaCO3 hardness, and 600 mg/L as CaCO3 alkalinity. Dissolved arsenic ranged from 0.00548 to 0.00649 mg/L and total arsenic from 0.00793 to 0.0112 mg/L. Dissolved arsenic was below the GWPS. The total arsenic was above the GWPS at 24 hours. Dissolved iron ranged from 0.0541 mg/L to 0.0762 mg/L. Total iron ranged from 31.8 to 49.5 mg/L.

The DO in the 10 g/L Ferroblack treatments ranged from 1.2-2.8 mg/L over the 24 hour period which was below the Control. The pH was 8.6 SU, ORP ranged from 180 to 195 mV, and specific conductivity ranged from 1,638 µS/cm to 3,430 µS/cm. There was a black precipitate. The bottle at 24 hours broke. The remaining treated groundwater from the 2 and 8 hour samples were combined and submitted for dissolved and total arsenic and dissolved and total iron analyses. Dissolved arsenic ranged from 0.000817 to 0.00626 mg/L and total arsenic from 0.00678 to 0.0364 mg/L. Dissolved arsenic was below the GWPS and total arsenic except at 24 hours. More of the precipitated arsenic was likely carried over the combined 2 and 8 hour samples which contributed to the elevated total arsenic at 24 hours. Dissolved iron ranged from 0.0235 to 0.0566 mg/L. Total iron ranged from 118 to 1,880 mg/L.

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Table 5. MW-211 Batch Tests with Control, Oxygen, Ferrous Sulfate Heptahydrate, and Ferroblack

Batch	MW-211 GW	Oxygen	FeSO4-7H2O	Ferroblack	Time	DO	SC	pH	ORP	Color	Fe2+	Total Fe	S	Hardness	Alkalinity	Dis. As	Total As	Dis Fe	Total Fe
	g	mL	g	g	Hours	mg/L	µS/cm	SU	mV		mg/L	mg/L	mg/L	mg/L as CaCO3	mg/L as CaCO3	mg/L	mg/L	mg/L	mg/L
GWPS																0.010	0.010		
IC						3.8	2600	8.1	263		0.15	0.12	<0.01	480	520	**0.0113**	**0.0110**	0.0343	0.0906
Control A					0	2.0	1212	8.8	209										
Control B					0	2.2	1215	8.7	230										
Control C					0	2.3	1214	8.7	243										
Control D					0	1.7	1217	8.7	246										
Control E					0	1.7	1195	8.7	250										
Control Av					0	2.0	1211	8.7	236										
Control 2	710				2	2.9	1201	8.8	217	orange						**0.0107**	**0.0116**	0.189	0.161
Control 8	710				8	3.2	1181	8.8	206	orange						**0.0111**	**0.0123**	<0.0206	0.165
Control 24	710				24	2.9	1748	8.8	198	orange	0.35	1.55	0.01	480	600	**0.0124**	**0.0118**	<0.0206	0.215
5 mg/L DO 2	710	2.7			2	4.1	1210	8.6	235	orange						**0.0126**	**0.0120**	0.0283	1.24
5 mg/L DO 8	710	2.7			8	5.4	1194	8.6	216	orange						**0.0105**	**0.0116**	<0.0206	0.652
5 mg/L DO 24	710	2.7			24	5.0	1784	8.5	212	orange	2.05	1.25	<0.01	600	600	**0.0104**	**0.0112**	<0.0206	0.110
10 mg/L DO 2	710	5.3			2	4.4	1214	8.7	245	orange						**0.0116**	**0.0111**	<0.0206	0.493
10 mg/L DO 8	710	5.3			8	4.8	1192	8.6	226	orange						**0.0105**	**0.0115**	<0.0206	0.278
10 mg/L DO 24	710	5.3			24	4.5	1774	8.5	224	orange	<0.05	1.3	<0.01	480	600	**0.0108**	**0.0110**	<0.0206	0.222
1 g/L FeSO4-7H2O 2	710		0.71		2	0.8	1123	7.2	216	green, gray						0.00109	**0.0112**	108	191
1 g/L FeSO4-7H2O 8	710		0.71		8	0.9	1089	7.2	206	black sludge						0.0012	**0.0110**	181	174
1 g/L FeSO4-7H2O 24	710		0.71		24	1.1	1600	7.0	201	black sludge	68	378	<0.01	480	482	0.000955	0.00982	147	180
5 g/L FeSO4-7H2O 2	710		3.55		2	0.6	1253	6.8	189	green, gray						0.00113	0.00949	643	856
5 g/L FeSO4-7H2O 8	710		3.55		8	0.6	1174	6.8	180	black sludge						0.00148	0.00795	668	873
5 g/L FeSO4-7H2O 24	710		3.55		24	0.6	1757	6.7	157	black sludge	840	986	<0.01	<20	480	0.00304	0.00942	1050	812
2 g/L FB 2	710			1.42	2	0.9	1189	7.6	190	black sludge						0.00649	0.00793	0.0713	31.8
2 g/L FB 8	710			1.42	8	0.9	1169	7.7	180	black sludge						0.00577	0.00999	0.0541	33.8
2 g/L FB 24	710			1.42	24	0.8	1691	7.2	157	black sludge	0.6	9.2	<0.01	480	600	0.00548	**0.0112**	0.0762	49.5
10 g/L FB 2	710			7.1	2	1.4	1664	8.6	195	black sludge						0.00626	0.00678	0.0404	118
10 g/L FB 8	710			7.1	8	1.2	1638	8.6	186	black sludge						0.00531	0.0071	0.0235	146
10 g/L FB 24	710			7.1	24	2.8	3430	8.6	180	black sludge						0.000817	**0.0364**	0.0566	1880

0.0144	Compound exceeds GWPS
0.0509	Compound detected above method detection limits, but below method calibration limits

4.0 CONCLUSIONS

The following conclusions can be reached from these treatability studies:

1. Dissolved oxygen introduction did not result in the treatment of dissolved or total arsenic in either the MW-103 or MW-211 groundwaters.
2. Ferrous sulfate heptahydrate reduced dissolved arsenic below the GWPS in MW-103 and and MW-211. Total arsenic was above the GWPS at 2 hours in the 1 g/L FeSO4-7HO in MW-103 groundwater and after 2 and 8 hours in MW-211 groundwater.
3. Ferroblack ferrous sulfide reduced dissolved arsenic in MW-103 and MW-211 groundwaters but not as much as the ferrous sulfate heptahydrate. Only the 2 g/L Ferroblack at 2 hours in the MW-103 groundwater had dissolved arsenic above the GWPS. Total arsenic treatment with Ferroblack was less effective than the ferrous sulfate heptahydrate in MW-103 and MW-211 groundwaters.

Please let me know if you have any questions about this final report.

Sincerely,
TERRA SYSTEMS

Michael D Lee, PhD.

Michael D. Lee, Ph.D.
Vice-President Research and Development

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Authorized for release by
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Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.



Table of Contents

Cover Page 1
Table of Contents 4
Definitions/Glossary 5
Case Narrative 6
Detection Summary 7
Client Sample Results 8
QC Sample Results 9
QC Association Summary 11
Lab Chronicle 12
Certification Summary 13
Method Summary 14
Sample Summary 15
Chain of Custody 16
Receipt Checklists 17

Definitions/Glossary

Client: Terra Systems Inc
Job ID: 410-197532-1
Project/Site: WSP GRE Stanton SD CCR TS

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 410-197532-1 — Eurofins Lancaster Laboratories Environment

Job Narrative
410-197532-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 11/20/2024 3:45 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.6°C.

Metals
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Terra Systems Inc
Job ID: 410-197532-1
Project/Site: WSP GRE Stanton SD CCR TS

Client Sample ID: MW-103 IC
Lab Sample ID: 410-197532-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0140		0.00200	0.000680	mg/L	1		6020B	Total Recoverable
Iron	0.126		0.0500	0.0200	mg/L	1		6020B	Total Recoverable
Arsenic	0.0144		0.00200	0.000680	mg/L	1		6020B	Dissolved
Iron	0.144		0.0500	0.0200	mg/L	1		6020B	Dissolved
Total Alkalinity as CaCO3 to pH 4.5	613		8.00	2.60	mg/L	1		2320B-2011	Total/NA

Client Sample ID: MW-211 IC
Lab Sample ID: 410-197532-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0110		0.00200	0.000680	mg/L	1		6020B	Total Recoverable
Iron	0.0906		0.0500	0.0200	mg/L	1		6020B	Total Recoverable
Arsenic	0.0113		0.00200	0.000680	mg/L	1		6020B	Dissolved
Iron	0.0343	J	0.0500	0.0200	mg/L	1		6020B	Dissolved
Total Alkalinity as CaCO3 to pH 4.5	555		8.00	2.60	mg/L	1		2320B-2011	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-103 IC
Lab Sample ID: 410-197532-1

Date Collected: 11/20/24 08:00
Matrix: Water
Date Received: 11/20/24 15:45

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0140		0.00200	0.000680	mg/L		12/02/24 03:24	12/02/24 16:53	1
Iron	0.126		0.0500	0.0200	mg/L		12/02/24 03:24	12/02/24 16:53	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0144		0.00200	0.000680	mg/L		12/05/24 22:00	12/06/24 12:41	1
Iron	0.144		0.0500	0.0200	mg/L		12/05/24 22:00	12/06/24 12:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B-2011)	613		8.00	2.60	mg/L			11/23/24 23:01	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide (SM 4500 S2 D-2011)	<0.100		0.300	0.100	mg/L		11/25/24 11:21	11/25/24 11:42	1

Client Sample ID: MW-211 IC
Lab Sample ID: 410-197532-2

Date Collected: 11/20/24 08:30
Matrix: Water
Date Received: 11/20/24 15:45

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0110		0.00200	0.000680	mg/L		12/02/24 03:24	12/02/24 16:56	1
Iron	0.0906		0.0500	0.0200	mg/L		12/02/24 03:24	12/02/24 16:56	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0113		0.00200	0.000680	mg/L		12/05/24 22:00	12/06/24 12:39	1
Iron	0.0343	J	0.0500	0.0200	mg/L		12/05/24 22:00	12/06/24 12:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B-2011)	555		8.00	2.60	mg/L			11/23/24 23:09	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide (SM 4500 S2 D-2011)	<0.100		0.300	0.100	mg/L		11/25/24 11:21	11/25/24 11:42	1

Client: Terra Systems Inc
Job ID: 410-197532-1
Project/Site: WSP GRE Stanton SD CCR TS

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 410-580505/1-A
Matrix: Water
Analysis Batch: 581278

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 580505

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.000680		0.00200	0.000680	mg/L		12/02/24 03:24	12/02/24 16:28	1
Iron	<0.0200		0.0500	0.0200	mg/L		12/02/24 03:24	12/02/24 16:28	1

Lab Sample ID: LCS 410-580505/2-A
Matrix: Water
Analysis Batch: 581278

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 580505

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.500	0.4882		mg/L		98	90 - 109
Iron	5.00	4.969		mg/L		99	90 - 111

Lab Sample ID: MB 410-582469/1-A
Matrix: Water
Analysis Batch: 583071

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 582469

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.000680		0.00200	0.000680	mg/L		12/05/24 22:00	12/06/24 12:13	1
Iron	<0.0200		0.0500	0.0200	mg/L		12/05/24 22:00	12/06/24 12:13	1

Lab Sample ID: LCS 410-582469/2-A
Matrix: Water
Analysis Batch: 583071

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 582469

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.500	0.4785		mg/L		96	90 - 109
Iron	5.00	4.731		mg/L		95	90 - 111

Method: 2320B-2011 - Alkalinity, Total

Lab Sample ID: MB 410-579266/72
Matrix: Water
Analysis Batch: 579266

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	<2.60		8.00	2.60	mg/L			11/23/24 20:44	1

Lab Sample ID: LCS 410-579266/73
Matrix: Water
Analysis Batch: 579266

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity as CaCO3 to pH 4.5	189	182.3		mg/L		97	80 - 110

QC Sample Results

Client: Terra Systems Inc
Job ID: 410-197532-1
Project/Site: WSP GRE Stanton SD CCR TS

Method: 4500 S2 D-2011 - Sulfide, Total

Lab Sample ID: MRL 410-579207/6
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 579207

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfide			0.300	0.3217		mg/L		107			

QC Association Summary

Client: Terra Systems Inc
Job ID: 410-197532-1
Project/Site: WSP GRE Stanton SD CCR TS

Metals

Prep Batch: 580505

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-197532-1	MW-103 IC	Total Recoverable	Water	3005A	
410-197532-2	MW-211 IC	Total Recoverable	Water	3005A	
MB 410-580505/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 410-580505/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 581278

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-197532-1	MW-103 IC	Total Recoverable	Water	6020B	580505
410-197532-2	MW-211 IC	Total Recoverable	Water	6020B	580505
MB 410-580505/1-A	Method Blank	Total Recoverable	Water	6020B	580505
LCS 410-580505/2-A	Lab Control Sample	Total Recoverable	Water	6020B	580505

Prep Batch: 582469

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-197532-1	MW-103 IC	Dissolved	Water	3005A	
410-197532-2	MW-211 IC	Dissolved	Water	3005A	
MB 410-582469/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 410-582469/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 583071

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-197532-1	MW-103 IC	Dissolved	Water	6020B	582469
410-197532-2	MW-211 IC	Dissolved	Water	6020B	582469
MB 410-582469/1-A	Method Blank	Total Recoverable	Water	6020B	582469
LCS 410-582469/2-A	Lab Control Sample	Total Recoverable	Water	6020B	582469

General Chemistry

Prep Batch: 579203

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-197532-1	MW-103 IC	Dissolved	Water	SM 4500 S2 B	
410-197532-2	MW-211 IC	Dissolved	Water	SM 4500 S2 B	

Analysis Batch: 579207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-197532-1	MW-103 IC	Dissolved	Water	4500 S2 D-2011	579203
410-197532-2	MW-211 IC	Dissolved	Water	4500 S2 D-2011	579203
MRL 410-579207/6	Lab Control Sample	Total/NA	Water	4500 S2 D-2011	

Analysis Batch: 579266

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-197532-1	MW-103 IC	Total/NA	Water	2320B-2011	
410-197532-2	MW-211 IC	Total/NA	Water	2320B-2011	
MB 410-579266/72	Method Blank	Total/NA	Water	2320B-2011	
LCS 410-579266/73	Lab Control Sample	Total/NA	Water	2320B-2011	

Lab Chronicle

Client: Terra Systems Inc
Job ID: 410-197532-1
Project/Site: WSP GRE Stanton SD CCR TS

Client Sample ID: MW-103 IC
Lab Sample ID: 410-197532-1
Date Collected: 11/20/24 08:00
Matrix: Water
Date Received: 11/20/24 15:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	3005A			582469	UAMX	ELLE	12/05/24 22:00
Dissolved	Analysis	6020B		1	583071	F7JF	ELLE	12/06/24 12:41
Total Recoverable	Prep	3005A			580505	UJL8	ELLE	12/02/24 03:24
Total Recoverable	Analysis	6020B		1	581278	F7JF	ELLE	12/02/24 16:53
Total/NA	Analysis	2320B-2011		1	579266	DI9Q	ELLE	11/23/24 23:01
Dissolved	Prep	SM 4500 S2 B			579203	USE1	ELLE	11/25/24 11:21
Dissolved	Analysis	4500 S2 D-2011		1	579207	USE1	ELLE	11/25/24 11:42

Client Sample ID: MW-211 IC
Lab Sample ID: 410-197532-2
Date Collected: 11/20/24 08:30
Matrix: Water
Date Received: 11/20/24 15:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	3005A			582469	UAMX	ELLE	12/05/24 22:00
Dissolved	Analysis	6020B		1	583071	F7JF	ELLE	12/06/24 12:39
Total Recoverable	Prep	3005A			580505	UJL8	ELLE	12/02/24 03:24
Total Recoverable	Analysis	6020B		1	581278	F7JF	ELLE	12/02/24 16:56
Total/NA	Analysis	2320B-2011		1	579266	DI9Q	ELLE	11/23/24 23:09
Dissolved	Prep	SM 4500 S2 B			579203	USE1	ELLE	11/25/24 11:21
Dissolved	Analysis	4500 S2 D-2011		1	579207	USE1	ELLE	11/25/24 11:42

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Terra Systems Inc
Job ID: 410-197532-1
Project/Site: WSP GRE Stanton SD CCR TS

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Georgia (DW)	State	C048	01-31-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
2320B-2011		Water	Total Alkalinity as CaCO3 to pH 4.5
4500 S2 D-2011	SM 4500 S2 B	Water	Sulfide
6020B	3005A	Water	Arsenic
6020B	3005A	Water	Iron

Method Summary

Client: Terra Systems Inc
Job ID: 410-197532-1
Project/Site: WSP GRE Stanton SD CCR TS

Method	Method Description	Protocol	Laboratory
6020B	Metals (ICP/MS)	SW846	ELLE
2320B-2011	Alkalinity, Total	SM	ELLE
4500 S2 D-2011	Sulfide, Total	SM	ELLE
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	ELLE
SM 4500 S2 B	Sulfide, Separation of Soluble and Insoluble	SM	ELLE

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Terra Systems Inc
Job ID: 410-197532-1
Project/Site: WSP GRE Stanton SD CCR TS

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-197532-1	MW-103 IC	Water	11/20/24 08:00	11/20/24 15:45
410-197532-2	MW-211 IC	Water	11/20/24 08:30	11/20/24 15:45

410-197532 Chain of Custody

Environmental Analysis Request/Chain of Custody

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Acct. # _____ Group # _____ Sample # _____

Client: **Terra Systems, Inc.**			
Project Name/#: WSP GRE Stanton SD CCR TS	Site ID #: Stanton SD		
Project Manager: Michael D. Lee	P.O. #: 242214 11-20-24		
Sampler: Michael D. Lee	PWSID #:		
Phone #: 302-798-9553	Quote #: 41022082		
State where samples were collected: ___ KY	For Compliance: Yes ☐ No ☑		

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Sediment	Tissue	Water: Potable	Ground	Surface	NPDES	Other:	Total # of Containers	Dis (ff) As Fe by 6020B ICP/MS	Total As, Fe by 6020B ICP/MS	Alkalinity 2320B-2011	Total Sulfide 4500 S2 D-2011	Remarks
Preservation Codes														N	N	-	B	
MW-103 IC	11/20/2024	8:00		X				X					4	X	X	X	X	ff= field filtered
MW-211 IC	11/20/2024	8:30		X				X					4	X	X	X	X	

For Lab Use Only

SF #: _____

SCR #: _____

Preservation Codes

H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Turnaround Time Requested (TAT) (please check): Standard ☑ Rush ☐

(Rush TAT is subject to laboratory approval and surcharges.)

Date results are needed: 12/4/24

Rush results requested by (please check): E-Mail ☑ Phone ☐

E-mail Address: mlee@terrasystems.net

Phone: 302-798-9553

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☐ MA MCP ☐

Type III (Reduced non-CLP) ☐ CT RCP ☐

Type VI (Raw Data Only) ☐ TX TRRP-13 ☐

NJ DKQP ☐ NYSDEC Category ☐ A or ☐ B

EDD Required? Yes ☐ No ☑ If yes, format: _____

Relinquished by:	Date	Time	Received by:	Date	Time
Michael D Lee	11/20/24	10:48	[signature]	11/20/24	1048
[signature]	11/20/24	1545			
			Steven Fuehrer	11/20/24	1545

Relinquished by Commercial Carrier: UPS _____ FedEx _____ Other X

Temperature upon receipt 2.8 °C cor: 2.6 °C

KF

Eurofins Lancaster Laboratories Environmental, LLC • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300

7045 0216

MF

Login Sample Receipt Checklist

Client: Terra Systems Inc

Job Number: 410-197532-1

Login Number: 197532

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Foreman, Kai

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

ANALYTICAL REPORT

PREPARED FOR

Attn: Dr. Michael D Lee
Terra Systems Inc
130 Hickman Road
Suite 1
Claymont, Delaware 19703

Generated 1/2/2025 4:43:08 PM

JOB DESCRIPTION

WSP GRE Stanton SD CCR TS

JOB NUMBER

410-201245-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

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Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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1/2/2025 4:43:08 PM

Authorized for release by
Stephen Gordon, Senior Project Manager
Stephen.Gordon@et.eurofinsus.com
(412)525-0071

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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Table of Contents

Cover Page 1
Table of Contents 4
Definitions/Glossary 5
Case Narrative 6
Detection Summary 7
Client Sample Results 9
QC Sample Results 11
QC Association Summary 13
Lab Chronicle 15
Certification Summary 17
Method Summary 19
Sample Summary 20
Chain of Custody 21
Receipt Checklists 22

Definitions/Glossary

Client: Terra Systems Inc
Job ID: 410-201245-1
Project/Site: WSP GRE Stanton SD CCR TS

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 410-201245-1 — Eurofins Lancaster Laboratories Environment

Job Narrative
410-201245-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 12/18/2024 3:40 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.4°C.

Receipt Exceptions
The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): MW-103 10 g/L FeS 2 (410-201245-7). The container labels list 09:00, while the COC lists 11:00. The client was contacted, and the lab was instructed to use a collection time of 11:00.

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): MW-103 2 g/L FeS 2 (410-201245-6). The container labels list 08:50, while the COC lists 10:50. The client was contacted, and the lab was instructed to use a collection time of 10:50.

Metals
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Terra Systems Inc
Project/Site: WSP GRE Stanton SD CCR TS

Job ID: 410-201245-1

Client Sample ID: MW-103 Control 2 — Lab Sample ID: 410-201245-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	14.5		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	472		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	13.7		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	70.9		51.5	20.6	ug/L	1		6020B	Dissolved

Client Sample ID: MW-103 5 mg/L DO 2 — Lab Sample ID: 410-201245-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	15.2		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	776		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	13.9		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	50.9	J	51.5	20.6	ug/L	1		6020B	Dissolved

Client Sample ID: MW-103 10 mg/L DO 2 — Lab Sample ID: 410-201245-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	14.4		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	1070		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	13.4		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	116		51.5	20.6	ug/L	1		6020B	Dissolved

Client Sample ID: MW-103 1 g/L FeSO4 2 — Lab Sample ID: 410-201245-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	10.3		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	124000		50.0	20.0	ug/L	1		6020B	Total Recoverable
Iron	60400		51.5	20.6	ug/L	1		6020B	Dissolved

Client Sample ID: MW-103 5 g/L FeSO4 2 — Lab Sample ID: 410-201245-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	7.65		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	613000		250	100	ug/L	5		6020B	Total Recoverable
Arsenic	1.01	J	2.06	0.700	ug/L	1		6020B	Dissolved
Iron	462000		515	206	ug/L	10		6020B	Dissolved

Client Sample ID: MW-103 2 g/L FeS 2 — Lab Sample ID: 410-201245-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	13.8		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	14600		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	10.0		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	2080		51.5	20.6	ug/L	1		6020B	Dissolved

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Terra Systems Inc
Job ID: 410-201245-1
Project/Site: WSP GRE Stanton SD CCR TS

Client Sample ID: MW-103 10 g/L FeS 2
Lab Sample ID: 410-201245-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	8.81		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	18800		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	6.78		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	262		51.5	20.6	ug/L	1		6020B	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-103 Control 2
Lab Sample ID: 410-201245-1
Date Collected: 12/17/24 10:00
Matrix: Water
Date Received: 12/18/24 15:40

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	14.5		2.00	0.680	ug/L		01/02/25 01:43	01/02/25 11:38	1
Iron	472		50.0	20.0	ug/L		01/02/25 01:43	01/02/25 11:38	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	13.7		2.06	0.700	ug/L		12/23/24 12:17	12/23/24 21:42	1
Iron	70.9		51.5	20.6	ug/L		12/23/24 12:17	12/23/24 21:42	1

Client Sample ID: MW-103 5 mg/L DO 2
Lab Sample ID: 410-201245-2
Date Collected: 12/17/24 10:10
Matrix: Water
Date Received: 12/18/24 15:40

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	15.2		2.00	0.680	ug/L		01/02/25 01:43	01/02/25 11:36	1
Iron	776		50.0	20.0	ug/L		01/02/25 01:43	01/02/25 11:36	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	13.9		2.06	0.700	ug/L		12/23/24 12:17	12/23/24 21:39	1
Iron	50.9	J	51.5	20.6	ug/L		12/23/24 12:17	12/23/24 21:39	1

Client Sample ID: MW-103 10 mg/L DO 2
Lab Sample ID: 410-201245-3
Date Collected: 12/17/24 10:20
Matrix: Water
Date Received: 12/18/24 15:40

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	14.4		2.00	0.680	ug/L		01/02/25 01:43	01/02/25 12:02	1
Iron	1070		50.0	20.0	ug/L		01/02/25 01:43	01/02/25 12:02	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	13.4		2.06	0.700	ug/L		12/23/24 12:17	12/23/24 21:25	1
Iron	116		51.5	20.6	ug/L		12/23/24 12:17	12/23/24 21:25	1

Client Sample ID: MW-103 1 g/L FeSO4 2
Lab Sample ID: 410-201245-4
Date Collected: 12/17/24 10:30
Matrix: Water
Date Received: 12/18/24 15:40

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	10.3		2.00	0.680	ug/L		01/02/25 01:43	01/02/25 11:46	1
Iron	124000		50.0	20.0	ug/L		01/02/25 01:43	01/02/25 11:46	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.700		2.06	0.700	ug/L		12/23/24 12:17	12/23/24 21:16	1
Iron	60400		51.5	20.6	ug/L		12/23/24 12:17	12/23/24 21:16	1

Client Sample ID: MW-103 5 g/L FeSO4 2
Lab Sample ID: 410-201245-5

Date Collected: 12/17/24 10:40
Matrix: Water
Date Received: 12/18/24 15:40

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	7.65		2.00	0.680	ug/L		12/27/24 21:00	12/31/24 13:19	1
Iron	613000		250	100	ug/L		12/27/24 21:00	12/30/24 23:55	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.01	J	2.06	0.700	ug/L		12/23/24 12:17	12/23/24 21:13	1
Iron	462000		515	206	ug/L		12/23/24 12:17	12/26/24 12:15	10

Client Sample ID: MW-103 2 g/L FeS 2
Lab Sample ID: 410-201245-6

Date Collected: 12/17/24 10:50
Matrix: Water
Date Received: 12/18/24 15:40

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	13.8		2.00	0.680	ug/L		01/02/25 01:43	01/02/25 12:23	1
Iron	14600		50.0	20.0	ug/L		01/02/25 01:43	01/02/25 12:23	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	10.0		2.06	0.700	ug/L		12/23/24 12:17	12/23/24 21:27	1
Iron	2080		51.5	20.6	ug/L		12/23/24 12:17	12/23/24 21:27	1

Client Sample ID: MW-103 10 g/L FeS 2
Lab Sample ID: 410-201245-7

Date Collected: 12/17/24 11:00
Matrix: Water
Date Received: 12/18/24 15:40

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	8.81		2.00	0.680	ug/L		12/27/24 21:00	12/30/24 18:30	1
Iron	18800		50.0	20.0	ug/L		12/27/24 21:00	12/30/24 18:30	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.78		2.06	0.700	ug/L		12/23/24 12:17	12/23/24 21:49	1
Iron	262		51.5	20.6	ug/L		12/23/24 12:17	12/23/24 21:49	1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 410-589501/1-A
Matrix: Water
Analysis Batch: 589706

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589501

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.700		2.06	0.700	ug/L		12/23/24 12:17	12/23/24 20:48	1
Iron	<20.6		51.5	20.6	ug/L		12/23/24 12:17	12/23/24 20:48	1

Lab Sample ID: LCS 410-589501/2-A
Matrix: Water
Analysis Batch: 589706

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 589501

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	467.9		ug/L		94	90 - 109
Iron	5000	4719		ug/L		94	90 - 111

Lab Sample ID: MB 410-589357/1-A
Matrix: Water
Analysis Batch: 591076

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 589357

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.680		2.00	0.680	ug/L		12/27/24 21:00	12/30/24 18:01	1
Iron	<20.0		50.0	20.0	ug/L		12/27/24 21:00	12/30/24 18:01	1

Lab Sample ID: LCS 410-589357/2-A
Matrix: Water
Analysis Batch: 591076

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 589357

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	492.6		ug/L		99	90 - 109
Iron	5000	4986		ug/L		100	90 - 111

Lab Sample ID: MB 410-589375/1-A
Matrix: Water
Analysis Batch: 591085

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 589375

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.680		2.00	0.680	ug/L		12/27/24 21:00	12/30/24 22:39	1
Iron	<20.0		50.0	20.0	ug/L		12/27/24 21:00	12/30/24 22:39	1

Lab Sample ID: LCS 410-589375/2-A
Matrix: Water
Analysis Batch: 591085

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 589375

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	502.0		ug/L		100	90 - 109
Iron	5000	4806		ug/L		96	90 - 111

Lab Sample ID: MB 410-589377/1-A
Matrix: Water
Analysis Batch: 591802

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 589377

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.680		2.00	0.680	ug/L		01/02/25 01:43	01/02/25 11:19	1
Iron	<20.0		50.0	20.0	ug/L		01/02/25 01:43	01/02/25 11:19	1

Client: Terra Systems Inc
Job ID: 410-201245-1
Project/Site: WSP GRE Stanton SD CCR TS

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: LCS 410-589377/2-A
Matrix: Water
Analysis Batch: 591802

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 589377

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Arsenic			500	494.2		ug/L		99	90 - 109		
Iron			5000	5031		ug/L		101	90 - 111		

Lab Sample ID: 410-201245-7 MS
Matrix: Water
Analysis Batch: 589706

Client Sample ID: MW-103 10 g/L FeS 2
Prep Type: Dissolved
Prep Batch: 589501

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Arsenic	6.78		500	438.6		ug/L		86	75 - 125		
Iron	262		5000	4863		ug/L		92	75 - 125		

Lab Sample ID: 410-201245-7 MSD
Matrix: Water
Analysis Batch: 589706

Client Sample ID: MW-103 10 g/L FeS 2
Prep Type: Dissolved
Prep Batch: 589501

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	6.78		500	441.8		ug/L		87	75 - 125	1	20
Iron	262		5000	4882		ug/L		92	75 - 125	0	20

Lab Sample ID: 410-201245-7 DU
Matrix: Water
Analysis Batch: 589706

Client Sample ID: MW-103 10 g/L FeS 2
Prep Type: Dissolved
Prep Batch: 589501

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Arsenic	6.78			7.297		ug/L				7	20
Iron	262			249.9		ug/L				5	20

Metals

Prep Batch: 589357

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201245-7	MW-103 10 g/L FeS 2	Total Recoverable	Water	3005A	
MB 410-589357/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 410-589357/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 589375

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201245-5	MW-103 5 g/L FeSO4 2	Total Recoverable	Water	3005A	
MB 410-589375/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 410-589375/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 589377

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201245-1	MW-103 Control 2	Total Recoverable	Water	3005A	
410-201245-2	MW-103 5 mg/L DO 2	Total Recoverable	Water	3005A	
410-201245-3	MW-103 10 mg/L DO 2	Total Recoverable	Water	3005A	
410-201245-4	MW-103 1 g/L FeSO4 2	Total Recoverable	Water	3005A	
410-201245-6	MW-103 2 g/L FeS 2	Total Recoverable	Water	3005A	
MB 410-589377/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 410-589377/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 589501

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201245-1	MW-103 Control 2	Dissolved	Water	Non-Digest Prep	
410-201245-2	MW-103 5 mg/L DO 2	Dissolved	Water	Non-Digest Prep	
410-201245-3	MW-103 10 mg/L DO 2	Dissolved	Water	Non-Digest Prep	
410-201245-4	MW-103 1 g/L FeSO4 2	Dissolved	Water	Non-Digest Prep	
410-201245-5	MW-103 5 g/L FeSO4 2	Dissolved	Water	Non-Digest Prep	
410-201245-6	MW-103 2 g/L FeS 2	Dissolved	Water	Non-Digest Prep	
410-201245-7	MW-103 10 g/L FeS 2	Dissolved	Water	Non-Digest Prep	
MB 410-589501/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-589501/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	
410-201245-7 MS	MW-103 10 g/L FeS 2	Dissolved	Water	Non-Digest Prep	
410-201245-7 MSD	MW-103 10 g/L FeS 2	Dissolved	Water	Non-Digest Prep	
410-201245-7 DU	MW-103 10 g/L FeS 2	Dissolved	Water	Non-Digest Prep	

Analysis Batch: 589706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201245-1	MW-103 Control 2	Dissolved	Water	6020B	589501
410-201245-2	MW-103 5 mg/L DO 2	Dissolved	Water	6020B	589501
410-201245-3	MW-103 10 mg/L DO 2	Dissolved	Water	6020B	589501
410-201245-4	MW-103 1 g/L FeSO4 2	Dissolved	Water	6020B	589501
410-201245-5	MW-103 5 g/L FeSO4 2	Dissolved	Water	6020B	589501
410-201245-6	MW-103 2 g/L FeS 2	Dissolved	Water	6020B	589501
410-201245-7	MW-103 10 g/L FeS 2	Dissolved	Water	6020B	589501
MB 410-589501/1-A	Method Blank	Total/NA	Water	6020B	589501
LCS 410-589501/2-A	Lab Control Sample	Total/NA	Water	6020B	589501
410-201245-7 MS	MW-103 10 g/L FeS 2	Dissolved	Water	6020B	589501
410-201245-7 MSD	MW-103 10 g/L FeS 2	Dissolved	Water	6020B	589501
410-201245-7 DU	MW-103 10 g/L FeS 2	Dissolved	Water	6020B	589501

QC Association Summary

Client: Terra Systems Inc
Job ID: 410-201245-1
Project/Site: WSP GRE Stanton SD CCR TS

Metals

Analysis Batch: 590057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201245-5	MW-103 5 g/L FeSO4 2	Dissolved	Water	6020B	589501

Analysis Batch: 591076

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201245-7	MW-103 10 g/L FeS 2	Total Recoverable	Water	6020B	589357
MB 410-589357/1-A	Method Blank	Total Recoverable	Water	6020B	589357
LCS 410-589357/2-A	Lab Control Sample	Total Recoverable	Water	6020B	589357

Analysis Batch: 591085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201245-5	MW-103 5 g/L FeSO4 2	Total Recoverable	Water	6020B	589375
MB 410-589375/1-A	Method Blank	Total Recoverable	Water	6020B	589375
LCS 410-589375/2-A	Lab Control Sample	Total Recoverable	Water	6020B	589375

Analysis Batch: 591347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201245-5	MW-103 5 g/L FeSO4 2	Total Recoverable	Water	6020B	589375

Analysis Batch: 591802

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201245-1	MW-103 Control 2	Total Recoverable	Water	6020B	589377
410-201245-2	MW-103 5 mg/L DO 2	Total Recoverable	Water	6020B	589377
410-201245-3	MW-103 10 mg/L DO 2	Total Recoverable	Water	6020B	589377
410-201245-4	MW-103 1 g/L FeSO4 2	Total Recoverable	Water	6020B	589377
410-201245-6	MW-103 2 g/L FeS 2	Total Recoverable	Water	6020B	589377
MB 410-589377/1-A	Method Blank	Total Recoverable	Water	6020B	589377
LCS 410-589377/2-A	Lab Control Sample	Total Recoverable	Water	6020B	589377

Client Sample ID: MW-103 Control 2
Lab Sample ID: 410-201245-1

Date Collected: 12/17/24 10:00
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			589501	UJL8	ELLE	12/23/24 12:17
Dissolved	Analysis	6020B		1	589706	LHF4	ELLE	12/23/24 21:42
Total Recoverable	Prep	3005A			589377	UJL8	ELLE	01/02/25 01:43
Total Recoverable	Analysis	6020B		1	591802	F7JF	ELLE	01/02/25 11:38

Client Sample ID: MW-103 5 mg/L DO 2
Lab Sample ID: 410-201245-2

Date Collected: 12/17/24 10:10
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			589501	UJL8	ELLE	12/23/24 12:17
Dissolved	Analysis	6020B		1	589706	LHF4	ELLE	12/23/24 21:39
Total Recoverable	Prep	3005A			589377	UJL8	ELLE	01/02/25 01:43
Total Recoverable	Analysis	6020B		1	591802	F7JF	ELLE	01/02/25 11:36

Client Sample ID: MW-103 10 mg/L DO 2
Lab Sample ID: 410-201245-3

Date Collected: 12/17/24 10:20
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			589501	UJL8	ELLE	12/23/24 12:17
Dissolved	Analysis	6020B		1	589706	LHF4	ELLE	12/23/24 21:25
Total Recoverable	Prep	3005A			589377	UJL8	ELLE	01/02/25 01:43
Total Recoverable	Analysis	6020B		1	591802	F7JF	ELLE	01/02/25 12:02

Client Sample ID: MW-103 1 g/L FeSO4 2
Lab Sample ID: 410-201245-4

Date Collected: 12/17/24 10:30
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			589501	UJL8	ELLE	12/23/24 12:17
Dissolved	Analysis	6020B		1	589706	LHF4	ELLE	12/23/24 21:16
Total Recoverable	Prep	3005A			589377	UJL8	ELLE	01/02/25 01:43
Total Recoverable	Analysis	6020B		1	591802	F7JF	ELLE	01/02/25 11:46

Client Sample ID: MW-103 5 g/L FeSO4 2
Lab Sample ID: 410-201245-5

Date Collected: 12/17/24 10:40
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			589501	UJL8	ELLE	12/23/24 12:17
Dissolved	Analysis	6020B		1	589706	LHF4	ELLE	12/23/24 21:13
Dissolved	Prep	Non-Digest Prep			589501	UJL8	ELLE	12/23/24 12:17
Dissolved	Analysis	6020B		10	590057	SAM2	ELLE	12/26/24 12:15
Total Recoverable	Prep	3005A			589375	UAMX	ELLE	12/27/24 21:00
Total Recoverable	Analysis	6020B		5	591085	LHF4	ELLE	12/30/24 23:55

Lab Chronicle

Client: Terra Systems Inc
Job ID: 410-201245-1
Project/Site: WSP GRE Stanton SD CCR TS

Client Sample ID: MW-103 5 g/L FeSO4 2
Lab Sample ID: 410-201245-5

Date Collected: 12/17/24 10:40
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			589375	UAMX	ELLE	12/27/24 21:00
Total Recoverable	Analysis	6020B		1	591347	SAM2	ELLE	12/31/24 13:19

Client Sample ID: MW-103 2 g/L FeS 2
Lab Sample ID: 410-201245-6

Date Collected: 12/17/24 10:50
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			589501	UJL8	ELLE	12/23/24 12:17
Dissolved	Analysis	6020B		1	589706	LHF4	ELLE	12/23/24 21:27
Total Recoverable	Prep	3005A			589377	UJL8	ELLE	01/02/25 01:43
Total Recoverable	Analysis	6020B		1	591802	F7JF	ELLE	01/02/25 12:23

Client Sample ID: MW-103 10 g/L FeS 2
Lab Sample ID: 410-201245-7

Date Collected: 12/17/24 11:00
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			589501	UJL8	ELLE	12/23/24 12:17
Dissolved	Analysis	6020B		1	589706	LHF4	ELLE	12/23/24 21:49
Total Recoverable	Prep	3005A			589357	UAMX	ELLE	12/27/24 21:00
Total Recoverable	Analysis	6020B		1	591076	LHF4	ELLE	12/30/24 18:30

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Terra Systems Inc
Job ID: 410-201245-1
Project/Site: WSP GRE Stanton SD CCR TS

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-26
A2LA	Dept. of Energy	0001.01	11-30-26
A2LA	ISO/IEC 17025	0001.01	11-30-26
Alabama	State	43200	01-31-25
Alaska	State	PA00009	06-30-25
Alaska (UST)	State	17-027	02-28-25
Arizona	State	AZ0780	03-12-25
Arkansas DEQ	State	88-00660	08-09-25
California	State	2792	01-31-25
Colorado	State	PA00009	06-30-25
Connecticut	State	PH-0746	06-30-25
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-25
Delaware (DW)	State	N/A	01-31-25
Florida	NELAP	E87997	06-30-25
Georgia (DW)	State	C048	01-31-25
Hawaii	State	N/A	01-31-25
Illinois	NELAP	200027	01-31-26
Iowa	State	361	03-01-26
Kansas	NELAP	E-10151	10-31-25
Kentucky (UST)	State	0001.01	11-30-26
Kentucky (WW)	State	KY90088	12-31-25
Louisiana (All)	NELAP	02055	06-30-25
Maine	State	2019012	03-12-25
Maryland	State	100	06-30-25
Massachusetts	State	M-PA009	06-30-25
Michigan	State	9930	01-31-25
Minnesota	NELAP	042-999-487	12-31-25
Mississippi	State	023	01-31-25
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-26
Nebraska	State	NE-OS-32-17	01-31-25
New Hampshire	NELAP	2730	01-10-25
New Jersey	NELAP	PA011	06-30-25
New York	NELAP	10670	04-01-25
North Carolina (DW)	State	42705	07-31-25
North Carolina (WW/SW)	State	521	12-31-25
North Dakota	State	R-205	01-31-24 *
Oklahoma	NELAP	9804	08-31-24 *
Oregon	NELAP	PA200001	09-11-25
Pennsylvania	NELAP	36-00037	01-31-26
Quebec Ministry of Environment and Fight against Climate Change	PALA	507	09-16-29
Rhode Island	State	LAO00338	12-30-25
South Carolina	State	89002	01-31-25
Tennessee	State	02838	01-31-25
Texas	NELAP	T104704194-23-46	08-31-25
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-25
Virginia	NELAP	460182	06-14-25
Washington	State	C457	04-11-25

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Terra Systems Inc
Job ID: 410-201245-1
Project/Site: WSP GRE Stanton SD CCR TS

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
West Virginia (DW)	State	9906 C	01-31-25
West Virginia DEP	State	055	07-31-25
Wyoming	State	8TMS-L	01-31-25
Wyoming (UST)	A2LA	0001.01	11-30-26

Method Summary

Client: Terra Systems Inc
Job ID: 410-201245-1
Project/Site: WSP GRE Stanton SD CCR TS

Method	Method Description	Protocol	Laboratory
6020B	Metals (ICP/MS)	SW846	ELLE
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Terra Systems Inc
Job ID: 410-201245-1
Project/Site: WSP GRE Stanton SD CCR TS

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-201245-1	MW-103 Control 2	Water	12/17/24 10:00	12/18/24 15:40
410-201245-2	MW-103 5 mg/L DO 2	Water	12/17/24 10:10	12/18/24 15:40
410-201245-3	MW-103 10 mg/L DO 2	Water	12/17/24 10:20	12/18/24 15:40
410-201245-4	MW-103 1 g/L FeSO4 2	Water	12/17/24 10:30	12/18/24 15:40
410-201245-5	MW-103 5 g/L FeSO4 2	Water	12/17/24 10:40	12/18/24 15:40
410-201245-6	MW-103 2 g/L FeS 2	Water	12/17/24 10:50	12/18/24 15:40
410-201245-7	MW-103 10 g/L FeS 2	Water	12/17/24 11:00	12/18/24 15:40

Environmental Analysis Request/Chain of Custody

410-201245 Chain of Custody ories

Acct. # _____ Group # _____ Sample # _____

Client: Terra Systems, Inc.			
Project Name/#: WSP GRE Stanton SD CCR TS	Site ID #: Stanton SD		
Project Manager: Michael D. Lee	P.O. #: 242214 12-18-24		
Sampler: Michael D. Lee	PWSID #:		
Phone #: 302-798-9553	Quote #: 41022082		
State where samples were collected: ___ SD	For Compliance: Yes ☐ No ☑		

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Sediment	Tissue	Water: Potable	Ground	Surface	NPDES	Other:	Total # of Containers	Analyses Requested: Dis (ff) As Fe by 6020B ICP/MS	Total As, Fe by 6020B ICP/MS
														Preservation Codes: N	N
														-	B
MW-103 Control 2	12/17/2024	10:00		X				X					2	X	X
MW-103 5 mg/L DO 2	12/17/2024	10:10		X				X					2	X	X
MW-103 10 mg/L DO 2	12/17/2024	10:20		X				X					2	X	X
MW-103 1 g/L FeSO4 2	12/17/2024	10:30		X				X					2	X	X
MW-103 5 g/L FeSO4 2	12/17/2024	10:40		X				X					2	X	X
MW-103 2 g/L FeS 2	12/17/2024	10:50		X				X					2	X	X
MW-103 10 g/L FeS 2	12/17/2024	11:00		X				X					2	X	X

For Lab Use Only
SF #: _____
SCR #: _____

Preservation Codes
H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 P = H_3PO_4
O = Other

Remarks
ff= field filtered

Turnaround Time Requested (TAT) (please check): Standard ☑ Rush ☐
(Rush TAT is subject to laboratory approval and surcharges.)

Date results are needed: 1/1/25

Rush results requested by (please check): E-Mail ☑ Phone ☐

E-mail Address: mlee@terrasystems.net

Phone: 302-798-9553

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☐	MA MCP	☐
Type III (Reduced non-CLP)	☐	CT RCP	☐
Type VI (Raw Data Only)	☐	TX TRRP-13	☐
NJ DKQP	☐	NYSDEC Category	☐ A or ☐ B

EDD Required? Yes ☐ No ☑ If yes, format: _____

	Relinquished by:	Date	Time	Received by:	Date	Time
1	Michael Lee	12/18/24	10:15	[illegible]	12/18/24	1015
2	[illegible]	12/18/24	1540			
3						
4						
5				[illegible]	12/18/24	1540

Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other X

Temperature upon receipt _____ °C

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7045 0216

Login Sample Receipt Checklist

Client: Terra Systems Inc

Job Number: 410-201245-1

Login Number: 201245

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Santiago, Nathaniel

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Dr. Michael D Lee
Terra Systems Inc
130 Hickman Road
Suite 1
Claymont, Delaware 19703

Generated 1/2/2025 4:48:16 PM

JOB DESCRIPTION

WSP GRE Stanton SD CCR TS

JOB NUMBER

410-201247-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

myEOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



Generated
1/2/2025 4:48:16 PM

Authorized for release by
Stephen Gordon, Senior Project Manager
Stephen.Gordon@et.eurofinsus.com
(412)525-0071

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.



Table of Contents

Cover Page 1
Table of Contents 4
Definitions/Glossary 5
Case Narrative 6
Detection Summary 7
Client Sample Results 9
QC Sample Results 11
QC Association Summary 13
Lab Chronicle 15
Certification Summary 17
Method Summary 19
Sample Summary 20
Chain of Custody 21
Receipt Checklists 22

Definitions/Glossary

Client: Terra Systems Inc
Job ID: 410-201247-1
Project/Site: WSP GRE Stanton SD CCR TS

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 410-201247-1 — Eurofins Lancaster Laboratories Environment

Job Narrative
410-201247-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 12/18/2024 3:40 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.4°C.

Receipt Exceptions
The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): MW-103 5 g/L FeSO4 8 (410-201247-5). The container labels list 14:40, while the COC lists 14:50. The client was contacted, and the lab was instructed to use a collection time of 16:40.

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): MW-103 2 g/L FeS 8 (410-201247-6). The container labels list 14:50, while the COC lists 16:50. The client was contacted, and the lab was instructed to use a collection time of 16:50.

Metals
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Terra Systems Inc
Project/Site: WSP GRE Stanton SD CCR TS

Job ID: 410-201247-1

Client Sample ID: MW-103 Control 8 — Lab Sample ID: 410-201247-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	14.6		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	774		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	13.4		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	104		51.5	20.6	ug/L	1		6020B	Dissolved

Client Sample ID: MW-103 5 mg/L DO 8 — Lab Sample ID: 410-201247-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	14.6		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	823		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	13.9		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	104		51.5	20.6	ug/L	1		6020B	Dissolved

Client Sample ID: MW-103 10 mg/L DO 8 — Lab Sample ID: 410-201247-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	14.9		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	696		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	14.1		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	69.8		51.5	20.6	ug/L	1		6020B	Dissolved

Client Sample ID: MW-103 1 g/L FeSO4 8 — Lab Sample ID: 410-201247-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	4.94		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	104000		50.0	20.0	ug/L	1		6020B	Total Recoverable
Iron	80600		51.5	20.6	ug/L	1		6020B	Dissolved

Client Sample ID: MW-103 5 g/L FeSO4 8 — Lab Sample ID: 410-201247-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	4.37		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	611000		250	100	ug/L	5		6020B	Total Recoverable
Iron	537000		515	206	ug/L	10		6020B	Dissolved

Client Sample ID: MW-103 2 g/L FeS 8 — Lab Sample ID: 410-201247-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	12.1		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	31400		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	7.00		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	93.9		51.5	20.6	ug/L	1		6020B	Dissolved

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Terra Systems Inc
Project/Site: WSP GRE Stanton SD CCR TS

Job ID: 410-201247-1

Client Sample ID: MW-103 10 g/L FeS 8

Lab Sample ID: 410-201247-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	12.9		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	10600		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	9.52		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	184		51.5	20.6	ug/L	1		6020B	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-103 Control 8
Lab Sample ID: 410-201247-1
Date Collected: 12/17/24 16:00
Matrix: Water
Date Received: 12/18/24 15:40

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	14.6		2.00	0.680	ug/L		01/02/25 01:43	01/02/25 11:53	1
Iron	774		50.0	20.0	ug/L		01/02/25 01:43	01/02/25 11:53	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	13.4		2.06	0.700	ug/L		12/23/24 12:17	12/23/24 21:23	1
Iron	104		51.5	20.6	ug/L		12/23/24 12:17	12/23/24 21:23	1

Client Sample ID: MW-103 5 mg/L DO 8
Lab Sample ID: 410-201247-2
Date Collected: 12/17/24 16:10
Matrix: Water
Date Received: 12/18/24 15:40

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	14.6		2.00	0.680	ug/L		01/02/25 01:43	01/02/25 12:25	1
Iron	823		50.0	20.0	ug/L		01/02/25 01:43	01/02/25 12:25	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	13.9		2.06	0.700	ug/L		12/23/24 12:17	12/23/24 21:18	1
Iron	104		51.5	20.6	ug/L		12/23/24 12:17	12/26/24 12:17	1

Client Sample ID: MW-103 10 mg/L DO 8
Lab Sample ID: 410-201247-3
Date Collected: 12/17/24 16:20
Matrix: Water
Date Received: 12/18/24 15:40

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	14.9		2.00	0.680	ug/L		01/02/25 01:43	01/02/25 12:19	1
Iron	696		50.0	20.0	ug/L		01/02/25 01:43	01/02/25 12:19	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	14.1		2.06	0.700	ug/L		12/23/24 01:50	12/26/24 19:13	1
Iron	69.8		51.5	20.6	ug/L		12/23/24 01:50	12/26/24 19:13	1

Client Sample ID: MW-103 1 g/L FeSO4 8
Lab Sample ID: 410-201247-4
Date Collected: 12/17/24 16:30
Matrix: Water
Date Received: 12/18/24 15:40

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.94		2.00	0.680	ug/L		12/27/24 21:00	12/31/24 13:15	1
Iron	104000		50.0	20.0	ug/L		12/27/24 21:00	12/30/24 23:38	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.700		2.06	0.700	ug/L		12/23/24 12:17	12/23/24 21:20	1
Iron	80600		51.5	20.6	ug/L		12/23/24 12:17	12/23/24 21:20	1

Client Sample ID: MW-103 5 g/L FeSO4 8
Lab Sample ID: 410-201247-5
Date Collected: 12/17/24 16:40
Matrix: Water
Date Received: 12/18/24 15:40

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**4.37**		2.00	0.680	ug/L		01/02/25 01:43	01/02/25 11:57	1
Iron	**611000**		250	100	ug/L		01/02/25 01:43	01/02/25 12:00	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.700		2.06	0.700	ug/L		12/23/24 01:50	12/26/24 19:21	1
Iron	**537000**		515	206	ug/L		12/23/24 01:50	12/27/24 10:40	10

Client Sample ID: MW-103 2 g/L FeS 8
Lab Sample ID: 410-201247-6
Date Collected: 12/17/24 16:50
Matrix: Water
Date Received: 12/18/24 15:40

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**12.1**		2.00	0.680	ug/L		01/02/25 01:43	01/02/25 12:06	1
Iron	**31400**		50.0	20.0	ug/L		01/02/25 01:43	01/02/25 12:06	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**7.00**		2.06	0.700	ug/L		12/23/24 01:50	12/26/24 19:39	1
Iron	**93.9**		51.5	20.6	ug/L		12/23/24 01:50	12/26/24 19:39	1

Client Sample ID: MW-103 10 g/L FeS 8
Lab Sample ID: 410-201247-7
Date Collected: 12/17/24 17:00
Matrix: Water
Date Received: 12/18/24 15:40

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**12.9**		2.00	0.680	ug/L		01/02/25 01:43	01/02/25 11:51	1
Iron	**10600**		50.0	20.0	ug/L		01/02/25 01:43	01/02/25 11:51	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**9.52**		2.06	0.700	ug/L		12/23/24 01:50	12/26/24 19:37	1
Iron	**184**		51.5	20.6	ug/L		12/23/24 01:50	12/26/24 19:37	1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 410-589137/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 590184
Prep Batch: 589137

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.700		2.06	0.700	ug/L		12/23/24 01:50	12/26/24 18:13	1
Iron	<20.6		51.5	20.6	ug/L		12/23/24 01:50	12/26/24 18:13	1

Lab Sample ID: MB 410-589137/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 590437
Prep Batch: 589137

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.700		2.06	0.700	ug/L		12/23/24 01:50	12/27/24 10:28	1
Iron	<20.6		51.5	20.6	ug/L		12/23/24 01:50	12/27/24 10:28	1

Lab Sample ID: LCS 410-589137/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 590184
Prep Batch: 589137

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	525.3		ug/L		105	90 - 109
Iron	5000	5253		ug/L		105	90 - 111

Lab Sample ID: LCS 410-589137/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 590437
Prep Batch: 589137

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	520.2		ug/L		104	90 - 109
Iron	5000	5444		ug/L		109	90 - 111

Lab Sample ID: MB 410-589501/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 589706
Prep Batch: 589501

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.700		2.06	0.700	ug/L		12/23/24 12:17	12/23/24 20:48	1
Iron	<20.6		51.5	20.6	ug/L		12/23/24 12:17	12/23/24 20:48	1

Lab Sample ID: LCS 410-589501/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 589706
Prep Batch: 589501

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	467.9		ug/L		94	90 - 109
Iron	5000	4719		ug/L		94	90 - 111

Lab Sample ID: MB 410-589375/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total Recoverable
Analysis Batch: 591085
Prep Batch: 589375

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.680		2.00	0.680	ug/L		12/27/24 21:00	12/30/24 22:39	1
Iron	<20.0		50.0	20.0	ug/L		12/27/24 21:00	12/30/24 22:39	1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 410-589375/1-A
Matrix: Water
Analysis Batch: 591347

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 589375

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.680		2.00	0.680	ug/L		12/27/24 21:00	12/31/24 12:32	1

Lab Sample ID: LCS 410-589375/2-A
Matrix: Water
Analysis Batch: 591085

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 589375

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	502.0		ug/L		100	90 - 109
Iron	5000	4806		ug/L		96	90 - 111

Lab Sample ID: LCS 410-589375/2-A
Matrix: Water
Analysis Batch: 591347

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 589375

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	503.2		ug/L		101	90 - 109

Lab Sample ID: MB 410-589377/1-A
Matrix: Water
Analysis Batch: 591802

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 589377

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.680		2.00	0.680	ug/L		01/02/25 01:43	01/02/25 11:19	1
Iron	<20.0		50.0	20.0	ug/L		01/02/25 01:43	01/02/25 11:19	1

Lab Sample ID: LCS 410-589377/2-A
Matrix: Water
Analysis Batch: 591802

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 589377

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	494.2		ug/L		99	90 - 109
Iron	5000	5031		ug/L		101	90 - 111

Metals

Prep Batch: 589137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201247-3	MW-103 10 mg/L DO 8	Dissolved	Water	Non-Digest Prep	
410-201247-5	MW-103 5 g/L FeSO4 8	Dissolved	Water	Non-Digest Prep	
410-201247-6	MW-103 2 g/L FeS 8	Dissolved	Water	Non-Digest Prep	
410-201247-7	MW-103 10 g/L FeS 8	Dissolved	Water	Non-Digest Prep	
MB 410-589137/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-589137/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

Prep Batch: 589375

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201247-4	MW-103 1 g/L FeSO4 8	Total Recoverable	Water	3005A	
MB 410-589375/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 410-589375/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 589377

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201247-1	MW-103 Control 8	Total Recoverable	Water	3005A	
410-201247-2	MW-103 5 mg/L DO 8	Total Recoverable	Water	3005A	
410-201247-3	MW-103 10 mg/L DO 8	Total Recoverable	Water	3005A	
410-201247-5	MW-103 5 g/L FeSO4 8	Total Recoverable	Water	3005A	
410-201247-6	MW-103 2 g/L FeS 8	Total Recoverable	Water	3005A	
410-201247-7	MW-103 10 g/L FeS 8	Total Recoverable	Water	3005A	
MB 410-589377/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 410-589377/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 589501

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201247-1	MW-103 Control 8	Dissolved	Water	Non-Digest Prep	
410-201247-2	MW-103 5 mg/L DO 8	Dissolved	Water	Non-Digest Prep	
410-201247-4	MW-103 1 g/L FeSO4 8	Dissolved	Water	Non-Digest Prep	
MB 410-589501/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-589501/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

Analysis Batch: 589706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201247-1	MW-103 Control 8	Dissolved	Water	6020B	589501
410-201247-2	MW-103 5 mg/L DO 8	Dissolved	Water	6020B	589501
410-201247-4	MW-103 1 g/L FeSO4 8	Dissolved	Water	6020B	589501
MB 410-589501/1-A	Method Blank	Total/NA	Water	6020B	589501
LCS 410-589501/2-A	Lab Control Sample	Total/NA	Water	6020B	589501

Analysis Batch: 590057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201247-2	MW-103 5 mg/L DO 8	Dissolved	Water	6020B	589501

Analysis Batch: 590184

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201247-3	MW-103 10 mg/L DO 8	Dissolved	Water	6020B	589137
410-201247-5	MW-103 5 g/L FeSO4 8	Dissolved	Water	6020B	589137
410-201247-6	MW-103 2 g/L FeS 8	Dissolved	Water	6020B	589137
410-201247-7	MW-103 10 g/L FeS 8	Dissolved	Water	6020B	589137
MB 410-589137/1-A	Method Blank	Total/NA	Water	6020B	589137

Metals (Continued)

Analysis Batch: 590184 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 410-589137/2-A	Lab Control Sample	Total/NA	Water	6020B	589137

Analysis Batch: 590437

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201247-5	MW-103 5 g/L FeSO4 8	Dissolved	Water	6020B	589137
MB 410-589137/1-A	Method Blank	Total/NA	Water	6020B	589137
LCS 410-589137/2-A	Lab Control Sample	Total/NA	Water	6020B	589137

Analysis Batch: 591085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201247-4	MW-103 1 g/L FeSO4 8	Total Recoverable	Water	6020B	589375
MB 410-589375/1-A	Method Blank	Total Recoverable	Water	6020B	589375
LCS 410-589375/2-A	Lab Control Sample	Total Recoverable	Water	6020B	589375

Analysis Batch: 591347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201247-4	MW-103 1 g/L FeSO4 8	Total Recoverable	Water	6020B	589375
MB 410-589375/1-A	Method Blank	Total Recoverable	Water	6020B	589375
LCS 410-589375/2-A	Lab Control Sample	Total Recoverable	Water	6020B	589375

Analysis Batch: 591802

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201247-1	MW-103 Control 8	Total Recoverable	Water	6020B	589377
410-201247-2	MW-103 5 mg/L DO 8	Total Recoverable	Water	6020B	589377
410-201247-3	MW-103 10 mg/L DO 8	Total Recoverable	Water	6020B	589377
410-201247-5	MW-103 5 g/L FeSO4 8	Total Recoverable	Water	6020B	589377
410-201247-5	MW-103 5 g/L FeSO4 8	Total Recoverable	Water	6020B	589377
410-201247-6	MW-103 2 g/L FeS 8	Total Recoverable	Water	6020B	589377
410-201247-7	MW-103 10 g/L FeS 8	Total Recoverable	Water	6020B	589377
MB 410-589377/1-A	Method Blank	Total Recoverable	Water	6020B	589377
LCS 410-589377/2-A	Lab Control Sample	Total Recoverable	Water	6020B	589377

Lab Chronicle

Client: Terra Systems Inc
Job ID: 410-201247-1
Project/Site: WSP GRE Stanton SD CCR TS

Client Sample ID: MW-103 Control 8
Lab Sample ID: 410-201247-1
Date Collected: 12/17/24 16:00
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			589501	UJL8	ELLE	12/23/24 12:17
Dissolved	Analysis	6020B		1	589706	LHF4	ELLE	12/23/24 21:23
Total Recoverable	Prep	3005A			589377	UJL8	ELLE	01/02/25 01:43
Total Recoverable	Analysis	6020B		1	591802	F7JF	ELLE	01/02/25 11:53

Client Sample ID: MW-103 5 mg/L DO 8
Lab Sample ID: 410-201247-2
Date Collected: 12/17/24 16:10
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			589501	UJL8	ELLE	12/23/24 12:17
Dissolved	Analysis	6020B		1	589706	LHF4	ELLE	12/23/24 21:18
Dissolved	Prep	Non-Digest Prep			589501	UJL8	ELLE	12/23/24 12:17
Dissolved	Analysis	6020B		1	590057	SAM2	ELLE	12/26/24 12:17
Total Recoverable	Prep	3005A			589377	UJL8	ELLE	01/02/25 01:43
Total Recoverable	Analysis	6020B		1	591802	F7JF	ELLE	01/02/25 12:25

Client Sample ID: MW-103 10 mg/L DO 8
Lab Sample ID: 410-201247-3
Date Collected: 12/17/24 16:20
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			589137	UAMX	ELLE	12/23/24 01:50
Dissolved	Analysis	6020B		1	590184	LHF4	ELLE	12/26/24 19:13
Total Recoverable	Prep	3005A			589377	UJL8	ELLE	01/02/25 01:43
Total Recoverable	Analysis	6020B		1	591802	F7JF	ELLE	01/02/25 12:19

Client Sample ID: MW-103 1 g/L FeSO4 8
Lab Sample ID: 410-201247-4
Date Collected: 12/17/24 16:30
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			589501	UJL8	ELLE	12/23/24 12:17
Dissolved	Analysis	6020B		1	589706	LHF4	ELLE	12/23/24 21:20
Total Recoverable	Prep	3005A			589375	UAMX	ELLE	12/27/24 21:00
Total Recoverable	Analysis	6020B		1	591085	LHF4	ELLE	12/30/24 23:38
Total Recoverable	Prep	3005A			589375	UAMX	ELLE	12/27/24 21:00
Total Recoverable	Analysis	6020B		1	591347	SAM2	ELLE	12/31/24 13:15

Client Sample ID: MW-103 5 g/L FeSO4 8
Lab Sample ID: 410-201247-5
Date Collected: 12/17/24 16:40
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			589137	UAMX	ELLE	12/23/24 01:50
Dissolved	Analysis	6020B		1	590184	LHF4	ELLE	12/26/24 19:21

Lab Chronicle

Client: Terra Systems Inc
Job ID: 410-201247-1
Project/Site: WSP GRE Stanton SD CCR TS

Client Sample ID: MW-103 5 g/L FeSO4 8
Lab Sample ID: 410-201247-5
Date Collected: 12/17/24 16:40
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			589137	UAMX	ELLE	12/23/24 01:50
Dissolved	Analysis	6020B		10	590437	SAM2	ELLE	12/27/24 10:40
Total Recoverable	Prep	3005A			589377	UJL8	ELLE	01/02/25 01:43
Total Recoverable	Analysis	6020B		1	591802	F7JF	ELLE	01/02/25 11:57
Total Recoverable	Prep	3005A			589377	UJL8	ELLE	01/02/25 01:43
Total Recoverable	Analysis	6020B		5	591802	F7JF	ELLE	01/02/25 12:00

Client Sample ID: MW-103 2 g/L FeS 8
Lab Sample ID: 410-201247-6
Date Collected: 12/17/24 16:50
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			589137	UAMX	ELLE	12/23/24 01:50
Dissolved	Analysis	6020B		1	590184	LHF4	ELLE	12/26/24 19:39
Total Recoverable	Prep	3005A			589377	UJL8	ELLE	01/02/25 01:43
Total Recoverable	Analysis	6020B		1	591802	F7JF	ELLE	01/02/25 12:06

Client Sample ID: MW-103 10 g/L FeS 8
Lab Sample ID: 410-201247-7
Date Collected: 12/17/24 17:00
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			589137	UAMX	ELLE	12/23/24 01:50
Dissolved	Analysis	6020B		1	590184	LHF4	ELLE	12/26/24 19:37
Total Recoverable	Prep	3005A			589377	UJL8	ELLE	01/02/25 01:43
Total Recoverable	Analysis	6020B		1	591802	F7JF	ELLE	01/02/25 11:51

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Terra Systems Inc
Job ID: 410-201247-1
Project/Site: WSP GRE Stanton SD CCR TS

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-26
A2LA	Dept. of Energy	0001.01	11-30-26
A2LA	ISO/IEC 17025	0001.01	11-30-26
Alabama	State	43200	01-31-25
Alaska	State	PA00009	06-30-25
Alaska (UST)	State	17-027	02-28-25
Arizona	State	AZ0780	03-12-25
Arkansas DEQ	State	88-00660	08-09-25
California	State	2792	01-31-25
Colorado	State	PA00009	06-30-25
Connecticut	State	PH-0746	06-30-25
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-25
Delaware (DW)	State	N/A	01-31-25
Florida	NELAP	E87997	06-30-25
Georgia (DW)	State	C048	01-31-25
Hawaii	State	N/A	01-31-25
Illinois	NELAP	200027	01-31-26
Iowa	State	361	03-01-26
Kansas	NELAP	E-10151	10-31-25
Kentucky (UST)	State	0001.01	11-30-26
Kentucky (WW)	State	KY90088	12-31-25
Louisiana (All)	NELAP	02055	06-30-25
Maine	State	2019012	03-12-25
Maryland	State	100	06-30-25
Massachusetts	State	M-PA009	06-30-25
Michigan	State	9930	01-31-25
Minnesota	NELAP	042-999-487	12-31-25
Mississippi	State	023	01-31-25
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-26
Nebraska	State	NE-OS-32-17	01-31-25
New Hampshire	NELAP	2730	01-10-25
New Jersey	NELAP	PA011	06-30-25
New York	NELAP	10670	04-01-25
North Carolina (DW)	State	42705	07-31-25
North Carolina (WW/SW)	State	521	12-31-25
North Dakota	State	R-205	01-31-24 *
Oklahoma	NELAP	9804	08-31-24 *
Oregon	NELAP	PA200001	09-11-25
Pennsylvania	NELAP	36-00037	01-31-26
Quebec Ministry of Environment and Fight against Climate Change	PALA	507	09-16-29
Rhode Island	State	LAO00338	12-30-25
South Carolina	State	89002	01-31-25
Tennessee	State	02838	01-31-25
Texas	NELAP	T104704194-23-46	08-31-25
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-25
Virginia	NELAP	460182	06-14-25
Washington	State	C457	04-11-25

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Terra Systems Inc
Job ID: 410-201247-1
Project/Site: WSP GRE Stanton SD CCR TS

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
West Virginia (DW)	State	9906 C	01-31-25
West Virginia DEP	State	055	07-31-25
Wyoming	State	8TMS-L	01-31-25
Wyoming (UST)	A2LA	0001.01	11-30-26

Method Summary

Client: Terra Systems Inc
Job ID: 410-201247-1
Project/Site: WSP GRE Stanton SD CCR TS

Method	Method Description	Protocol	Laboratory
6020B	Metals (ICP/MS)	SW846	ELLE
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Terra Systems Inc
Job ID: 410-201247-1
Project/Site: WSP GRE Stanton SD CCR TS

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-201247-1	MW-103 Control 8	Water	12/17/24 16:00	12/18/24 15:40
410-201247-2	MW-103 5 mg/L DO 8	Water	12/17/24 16:10	12/18/24 15:40
410-201247-3	MW-103 10 mg/L DO 8	Water	12/17/24 16:20	12/18/24 15:40
410-201247-4	MW-103 1 g/L FeSO4 8	Water	12/17/24 16:30	12/18/24 15:40
410-201247-5	MW-103 5 g/L FeSO4 8	Water	12/17/24 16:40	12/18/24 15:40
410-201247-6	MW-103 2 g/L FeS 8	Water	12/17/24 16:50	12/18/24 15:40
410-201247-7	MW-103 10 g/L FeS 8	Water	12/17/24 17:00	12/18/24 15:40

410-201247 Chain of Custody

Environmental Analysis Request/Chain of Custody

tories

Acct. # _____ Group # _____ Sample # _____

Client: Terra Systems, Inc.			
Project Name/#: WSP GRE Stanton SD CCR TS	Site ID #: Stanton SD		
Project Manager: Michael D. Lee	P.O. #: 242214 12-18-24		
Sampler: Michael D. Lee	PWSID #:		
Phone #: 302-798-9553	Quote #: 41022082		
State where samples were collected: ___ SD	For Compliance: Yes ☐ No ☑		

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil ☐ Sediment ☐ Tissue	Water: Potable ☐ Ground ☑ NPDES ☐ Surface	Other:	Total # of Containers	Analyses Requested: Dis (ff) As Fe by 6020B ICP/MS	Total As, Fe by 6020B ICP/MS	Remarks
									Preservation Codes: N	N	-	B							
MW-103 Control 8	12/17/2024	16:00		X		X		2	X	X	ff= field filtered
MW-103 5 mg/L DO 8	12/17/2024	16:10		X		X		2	X	X	
MW-103 10 mg/L DO 8	12/17/2024	16:20		X		X		2	X	X	
MW-103 1 g/L FeSO4 8	12/17/2024	16:30		X		X		2	X	X	
MW-103 5 g/L FeSO4 8	12/17/2024	16:40		X		X		2	X	X	
MW-103 2 g/L FeS 8	12/17/2024	16:50		X		X		2	X	X	
MW-103 10 g/L FeS 8	12/17/2024	17:00		X		X		2	X	X	

For Lab Use Only
SF #: _____
SCR #: _____

Preservation Codes
H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 P = H_3PO_4
O = Other

Turnaround Time Requested (TAT) (please check): Standard ☑ Rush ☐
(Rush TAT is subject to laboratory approval and surcharges.)

Date results are needed: 1/1/25

Rush results requested by (please check): E-Mail ☑ Phone ☐

E-mail Address: mlee@terrasystems.net

Phone: 302-798-9553

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☐	MA MCP	☐
Type III (Reduced non-CLP)	☐	CT RCP	☐
Type VI (Raw Data Only)	☐	TX TRRP-13	☐
NJ DKQP	☐	NYSDEC Category	☐ A or ☐ B

EDD Required? Yes ☐ No ☑ If yes, format: _____

Relinquished by:	Date	Time	Received by:	Date	Time
Michael D Lee	12/18/24	10:15	[illegible]	12/18/24	10:15
[illegible]	12/18/24	1540			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
			[illegible]	12/18/24	1540

Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other X

Temperature upon receipt 1.4 / C 1.4 °C

Login Sample Receipt Checklist

Client: Terra Systems Inc

Job Number: 410-201247-1

Login Number: 201247

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Santiago, Nathaniel

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Dr. Michael D Lee
Terra Systems Inc
130 Hickman Road
Suite 1
Claymont, Delaware 19703

Generated 1/3/2025 5:49:18 PM

JOB DESCRIPTION

WSP GRE Stanton SD CCR TS

JOB NUMBER

410-201249-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

my EOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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1/3/2025 5:49:18 PM

Authorized for release by
Stephen Gordon, Senior Project Manager
Stephen.Gordon@et.eurofinsus.com
(412)525-0071

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.



Table of Contents

Cover Page 1
Table of Contents 4
Definitions/Glossary 5
Case Narrative 6
Detection Summary 7
Client Sample Results 9
QC Sample Results 11
QC Association Summary 13
Lab Chronicle 15
Certification Summary 17
Method Summary 19
Sample Summary 20
Chain of Custody 21
Receipt Checklists 22

Definitions/Glossary

Client: Terra Systems Inc
Job ID: 410-201249-1
Project/Site: WSP GRE Stanton SD CCR TS

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job Narrative
410-201249-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 12/18/2024 3:40 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.4°C.

Metals
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Terra Systems Inc
Project/Site: WSP GRE Stanton SD CCR TS

Job ID: 410-201249-1

Client Sample ID: MW-103 Control 24 — Lab Sample ID: 410-201249-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	14.5		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	496		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	13.2		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	91.2		51.5	20.6	ug/L	1		6020B	Dissolved

Client Sample ID: MW-103 5 mg/L DO 24 — Lab Sample ID: 410-201249-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	14.9		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	1040		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	15.1		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	78.1		51.5	20.6	ug/L	1		6020B	Dissolved

Client Sample ID: MW-103 10 mg/L DO 24 — Lab Sample ID: 410-201249-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	14.8		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	674		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	14.1		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	58.8		51.5	20.6	ug/L	1		6020B	Dissolved

Client Sample ID: MW-103 1 g/L FeSO4 24 — Lab Sample ID: 410-201249-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	1.85	J	2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	109000		50.0	20.0	ug/L	1		6020B	Total Recoverable
Iron	79500		51.5	20.6	ug/L	1		6020B	Dissolved

Client Sample ID: MW-103 5 g/L FeSO4 24 — Lab Sample ID: 410-201249-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	5.59		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	649000		500	200	ug/L	10		6020B	Total Recoverable
Iron	624000		5150	2060	ug/L	100		6020B	Dissolved

Client Sample ID: MW-103 2 g/L FeS 24 — Lab Sample ID: 410-201249-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	13.1		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	34600		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	7.85		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	120		51.5	20.6	ug/L	1		6020B	Dissolved

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Terra Systems Inc
Project/Site: WSP GRE Stanton SD CCR TS

Job ID: 410-201249-1

Client Sample ID: MW-103 10 g/L FeS 24

Lab Sample ID: 410-201249-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	7.65		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	25800		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	6.28		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	21.6	J	51.5	20.6	ug/L	1		6020B	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-103 Control 24
Lab Sample ID: 410-201249-1
Date Collected: 12/18/24 08:00
Matrix: Water
Date Received: 12/18/24 15:40

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	14.5		2.00	0.680	ug/L		01/02/25 01:43	01/02/25 11:49	1
Iron	496		50.0	20.0	ug/L		01/02/25 01:43	01/02/25 11:49	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	13.2		2.06	0.700	ug/L		12/23/24 01:50	12/26/24 19:19	1
Iron	91.2		51.5	20.6	ug/L		12/23/24 01:50	12/26/24 19:19	1

Client Sample ID: MW-103 5 mg/L DO 24
Lab Sample ID: 410-201249-2
Date Collected: 12/18/24 08:10
Matrix: Water
Date Received: 12/18/24 15:40

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	14.9		2.00	0.680	ug/L		01/02/25 01:43	01/02/25 11:55	1
Iron	1040		50.0	20.0	ug/L		01/02/25 01:43	01/02/25 11:55	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	15.1		2.06	0.700	ug/L		01/01/25 01:10	01/02/25 19:16	1
Iron	78.1		51.5	20.6	ug/L		01/01/25 01:10	01/03/25 13:13	1

Client Sample ID: MW-103 10 mg/L DO 24
Lab Sample ID: 410-201249-3
Date Collected: 12/18/24 08:20
Matrix: Water
Date Received: 12/18/24 15:40

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	14.8		2.00	0.680	ug/L		12/27/24 21:00	12/30/24 18:28	1
Iron	674		50.0	20.0	ug/L		12/27/24 21:00	12/30/24 18:28	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	14.1		2.06	0.700	ug/L		12/23/24 12:17	12/23/24 20:52	1
Iron	58.8		51.5	20.6	ug/L		12/23/24 12:17	12/23/24 20:52	1

Client Sample ID: MW-103 1 g/L FeSO4 24
Lab Sample ID: 410-201249-4
Date Collected: 12/18/24 08:30
Matrix: Water
Date Received: 12/18/24 15:40

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.85	J	2.00	0.680	ug/L		01/02/25 01:43	01/02/25 12:04	1
Iron	109000		50.0	20.0	ug/L		01/02/25 01:43	01/02/25 12:04	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.700		2.06	0.700	ug/L		12/23/24 01:50	12/26/24 19:34	1
Iron	79500		51.5	20.6	ug/L		12/23/24 01:50	12/26/24 19:34	1

Client Sample ID: MW-103 5 g/L FeSO4 24
Lab Sample ID: 410-201249-5

Date Collected: 12/18/24 08:40
Matrix: Water
Date Received: 12/18/24 15:40

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**5.59**		2.00	0.680	ug/L		01/02/25 01:43	01/02/25 12:14	1
Iron	**649000**		500	200	ug/L		01/02/25 01:43	01/02/25 12:17	10

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.700		2.06	0.700	ug/L		12/23/24 01:50	12/26/24 19:15	1
Iron	**624000**		5150	2060	ug/L		12/23/24 01:50	12/27/24 10:35	100

Client Sample ID: MW-103 2 g/L FeS 24
Lab Sample ID: 410-201249-6

Date Collected: 12/18/24 08:50
Matrix: Water
Date Received: 12/18/24 15:40

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**13.1**		2.00	0.680	ug/L		01/02/25 01:43	01/02/25 12:21	1
Iron	**34600**		50.0	20.0	ug/L		01/02/25 01:43	01/02/25 12:21	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**7.85**		2.06	0.700	ug/L		12/23/24 01:50	12/26/24 19:17	1
Iron	**120**		51.5	20.6	ug/L		12/23/24 01:50	12/27/24 10:38	1

Client Sample ID: MW-103 10 g/L FeS 24
Lab Sample ID: 410-201249-7

Date Collected: 12/18/24 09:00
Matrix: Water
Date Received: 12/18/24 15:40

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**7.65**		2.00	0.680	ug/L		01/02/25 01:43	01/02/25 12:28	1
Iron	**25800**		50.0	20.0	ug/L		01/02/25 01:43	01/02/25 12:28	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**6.28**		2.06	0.700	ug/L		12/23/24 01:50	12/26/24 19:24	1
Iron	**21.6**	**J**	51.5	20.6	ug/L		12/23/24 01:50	12/27/24 11:01	1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 410-589137/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 590184
Prep Batch: 589137

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.700		2.06	0.700	ug/L		12/23/24 01:50	12/26/24 18:13	1
Iron	<20.6		51.5	20.6	ug/L		12/23/24 01:50	12/26/24 18:13	1

Lab Sample ID: LCS 410-589137/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 590184
Prep Batch: 589137

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	525.3		ug/L		105	90 - 109
Iron	5000	5253		ug/L		105	90 - 111

Lab Sample ID: MB 410-589501/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 589706
Prep Batch: 589501

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.700		2.06	0.700	ug/L		12/23/24 12:17	12/23/24 20:48	1
Iron	<20.6		51.5	20.6	ug/L		12/23/24 12:17	12/23/24 20:48	1

Lab Sample ID: LCS 410-589501/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 589706
Prep Batch: 589501

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	467.9		ug/L		94	90 - 109
Iron	5000	4719		ug/L		94	90 - 111

Lab Sample ID: MB 410-591273/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 591956
Prep Batch: 591273

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.700		2.06	0.700	ug/L		01/01/25 01:10	01/02/25 19:04	1
Iron	<20.6		51.5	20.6	ug/L		01/01/25 01:10	01/02/25 19:04	1

Lab Sample ID: LCS 410-591273/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 591956
Prep Batch: 591273

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	545.0		ug/L		109	90 - 109

Lab Sample ID: LCS 410-591273/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 592208
Prep Batch: 591273

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	5000	5031		ug/L		101	90 - 111

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 410-589357/1-A
Matrix: Water
Analysis Batch: 591076

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 589357

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.680		2.00	0.680	ug/L		12/27/24 21:00	12/30/24 18:01	1
Iron	<20.0		50.0	20.0	ug/L		12/27/24 21:00	12/30/24 18:01	1

Lab Sample ID: LCS 410-589357/2-A
Matrix: Water
Analysis Batch: 591076

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 589357

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	492.6		ug/L		99	90 - 109
Iron	5000	4986		ug/L		100	90 - 111

Lab Sample ID: MB 410-589377/1-A
Matrix: Water
Analysis Batch: 591802

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 589377

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.680		2.00	0.680	ug/L		01/02/25 01:43	01/02/25 11:19	1
Iron	<20.0		50.0	20.0	ug/L		01/02/25 01:43	01/02/25 11:19	1

Lab Sample ID: LCS 410-589377/2-A
Matrix: Water
Analysis Batch: 591802

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 589377

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	494.2		ug/L		99	90 - 109
Iron	5000	5031		ug/L		101	90 - 111

Lab Sample ID: 410-201249-3 MS
Matrix: Water
Analysis Batch: 589706

Client Sample ID: MW-103 10 mg/L DO 24
Prep Type: Dissolved
Prep Batch: 589501

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	14.1		500	513.8		ug/L		100	75 - 125
Iron	58.8		5000	4785		ug/L		95	75 - 125

Lab Sample ID: 410-201249-3 MSD
Matrix: Water
Analysis Batch: 589706

Client Sample ID: MW-103 10 mg/L DO 24
Prep Type: Dissolved
Prep Batch: 589501

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	14.1		500	493.7		ug/L		96	75 - 125	4	20
Iron	58.8		5000	4726		ug/L		93	75 - 125	1	20

Lab Sample ID: 410-201249-3 DU
Matrix: Water
Analysis Batch: 589706

Client Sample ID: MW-103 10 mg/L DO 24
Prep Type: Dissolved
Prep Batch: 589501

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	14.1		13.99		ug/L		0.4	20
Iron	58.8		65.28		ug/L		11	20

Metals

Prep Batch: 589137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201249-1	MW-103 Control 24	Dissolved	Water	Non-Digest Prep	
410-201249-4	MW-103 1 g/L FeSO4 24	Dissolved	Water	Non-Digest Prep	
410-201249-5	MW-103 5 g/L FeSO4 24	Dissolved	Water	Non-Digest Prep	
410-201249-6	MW-103 2 g/L FeS 24	Dissolved	Water	Non-Digest Prep	
410-201249-7	MW-103 10 g/L FeS 24	Dissolved	Water	Non-Digest Prep	
MB 410-589137/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-589137/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

Prep Batch: 589357

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201249-3	MW-103 10 mg/L DO 24	Total Recoverable	Water	3005A	
MB 410-589357/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 410-589357/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 589377

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201249-1	MW-103 Control 24	Total Recoverable	Water	3005A	
410-201249-2	MW-103 5 mg/L DO 24	Total Recoverable	Water	3005A	
410-201249-4	MW-103 1 g/L FeSO4 24	Total Recoverable	Water	3005A	
410-201249-5	MW-103 5 g/L FeSO4 24	Total Recoverable	Water	3005A	
410-201249-6	MW-103 2 g/L FeS 24	Total Recoverable	Water	3005A	
410-201249-7	MW-103 10 g/L FeS 24	Total Recoverable	Water	3005A	
MB 410-589377/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 410-589377/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 589501

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201249-3	MW-103 10 mg/L DO 24	Dissolved	Water	Non-Digest Prep	
MB 410-589501/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-589501/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	
410-201249-3 MS	MW-103 10 mg/L DO 24	Dissolved	Water	Non-Digest Prep	
410-201249-3 MSD	MW-103 10 mg/L DO 24	Dissolved	Water	Non-Digest Prep	
410-201249-3 DU	MW-103 10 mg/L DO 24	Dissolved	Water	Non-Digest Prep	

Analysis Batch: 589706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201249-3	MW-103 10 mg/L DO 24	Dissolved	Water	6020B	589501
MB 410-589501/1-A	Method Blank	Total/NA	Water	6020B	589501
LCS 410-589501/2-A	Lab Control Sample	Total/NA	Water	6020B	589501
410-201249-3 MS	MW-103 10 mg/L DO 24	Dissolved	Water	6020B	589501
410-201249-3 MSD	MW-103 10 mg/L DO 24	Dissolved	Water	6020B	589501
410-201249-3 DU	MW-103 10 mg/L DO 24	Dissolved	Water	6020B	589501

Analysis Batch: 590184

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201249-1	MW-103 Control 24	Dissolved	Water	6020B	589137
410-201249-4	MW-103 1 g/L FeSO4 24	Dissolved	Water	6020B	589137
410-201249-5	MW-103 5 g/L FeSO4 24	Dissolved	Water	6020B	589137
410-201249-6	MW-103 2 g/L FeS 24	Dissolved	Water	6020B	589137
410-201249-7	MW-103 10 g/L FeS 24	Dissolved	Water	6020B	589137
MB 410-589137/1-A	Method Blank	Total/NA	Water	6020B	589137

Metals (Continued)

Analysis Batch: 590184 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 410-589137/2-A	Lab Control Sample	Total/NA	Water	6020B	589137

Analysis Batch: 590437

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201249-5	MW-103 5 g/L FeSO4 24	Dissolved	Water	6020B	589137
410-201249-6	MW-103 2 g/L FeS 24	Dissolved	Water	6020B	589137
410-201249-7	MW-103 10 g/L FeS 24	Dissolved	Water	6020B	589137

Analysis Batch: 591076

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201249-3	MW-103 10 mg/L DO 24	Total Recoverable	Water	6020B	589357
MB 410-589357/1-A	Method Blank	Total Recoverable	Water	6020B	589357
LCS 410-589357/2-A	Lab Control Sample	Total Recoverable	Water	6020B	589357

Prep Batch: 591273

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201249-2	MW-103 5 mg/L DO 24	Dissolved	Water	Non-Digest Prep	
MB 410-591273/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-591273/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

Analysis Batch: 591802

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201249-1	MW-103 Control 24	Total Recoverable	Water	6020B	589377
410-201249-2	MW-103 5 mg/L DO 24	Total Recoverable	Water	6020B	589377
410-201249-4	MW-103 1 g/L FeSO4 24	Total Recoverable	Water	6020B	589377
410-201249-5	MW-103 5 g/L FeSO4 24	Total Recoverable	Water	6020B	589377
410-201249-5	MW-103 5 g/L FeSO4 24	Total Recoverable	Water	6020B	589377
410-201249-6	MW-103 2 g/L FeS 24	Total Recoverable	Water	6020B	589377
410-201249-7	MW-103 10 g/L FeS 24	Total Recoverable	Water	6020B	589377
MB 410-589377/1-A	Method Blank	Total Recoverable	Water	6020B	589377
LCS 410-589377/2-A	Lab Control Sample	Total Recoverable	Water	6020B	589377

Analysis Batch: 591956

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201249-2	MW-103 5 mg/L DO 24	Dissolved	Water	6020B	591273
MB 410-591273/1-A	Method Blank	Total/NA	Water	6020B	591273
LCS 410-591273/2-A	Lab Control Sample	Total/NA	Water	6020B	591273

Analysis Batch: 592208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201249-2	MW-103 5 mg/L DO 24	Dissolved	Water	6020B	591273
LCS 410-591273/2-A	Lab Control Sample	Total/NA	Water	6020B	591273

Lab Chronicle

Client: Terra Systems Inc
Job ID: 410-201249-1
Project/Site: WSP GRE Stanton SD CCR TS

Client Sample ID: MW-103 Control 24
Lab Sample ID: 410-201249-1
Date Collected: 12/18/24 08:00
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			589137	UAMX	ELLE	12/23/24 01:50
Dissolved	Analysis	6020B		1	590184	LHF4	ELLE	12/26/24 19:19
Total Recoverable	Prep	3005A			589377	UJL8	ELLE	01/02/25 01:43
Total Recoverable	Analysis	6020B		1	591802	F7JF	ELLE	01/02/25 11:49

Client Sample ID: MW-103 5 mg/L DO 24
Lab Sample ID: 410-201249-2
Date Collected: 12/18/24 08:10
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591273	UJL8	ELLE	01/01/25 01:10
Dissolved	Analysis	6020B		1	591956	LHF4	ELLE	01/02/25 19:16
Dissolved	Prep	Non-Digest Prep			591273	UJL8	ELLE	01/01/25 01:10
Dissolved	Analysis	6020B		1	592208	F7JF	ELLE	01/03/25 13:13
Total Recoverable	Prep	3005A			589377	UJL8	ELLE	01/02/25 01:43
Total Recoverable	Analysis	6020B		1	591802	F7JF	ELLE	01/02/25 11:55

Client Sample ID: MW-103 10 mg/L DO 24
Lab Sample ID: 410-201249-3
Date Collected: 12/18/24 08:20
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			589501	UJL8	ELLE	12/23/24 12:17
Dissolved	Analysis	6020B		1	589706	LHF4	ELLE	12/23/24 20:52
Total Recoverable	Prep	3005A			589357	UAMX	ELLE	12/27/24 21:00
Total Recoverable	Analysis	6020B		1	591076	LHF4	ELLE	12/30/24 18:28

Client Sample ID: MW-103 1 g/L FeSO4 24
Lab Sample ID: 410-201249-4
Date Collected: 12/18/24 08:30
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			589137	UAMX	ELLE	12/23/24 01:50
Dissolved	Analysis	6020B		1	590184	LHF4	ELLE	12/26/24 19:34
Total Recoverable	Prep	3005A			589377	UJL8	ELLE	01/02/25 01:43
Total Recoverable	Analysis	6020B		1	591802	F7JF	ELLE	01/02/25 12:04

Client Sample ID: MW-103 5 g/L FeSO4 24
Lab Sample ID: 410-201249-5
Date Collected: 12/18/24 08:40
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			589137	UAMX	ELLE	12/23/24 01:50
Dissolved	Analysis	6020B		1	590184	LHF4	ELLE	12/26/24 19:15
Dissolved	Prep	Non-Digest Prep			589137	UAMX	ELLE	12/23/24 01:50
Dissolved	Analysis	6020B		100	590437	SAM2	ELLE	12/27/24 10:35

Lab Chronicle

Client: Terra Systems Inc
Job ID: 410-201249-1
Project/Site: WSP GRE Stanton SD CCR TS

Client Sample ID: MW-103 5 g/L FeSO4 24
Lab Sample ID: 410-201249-5
Date Collected: 12/18/24 08:40
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			589377	UJL8	ELLE	01/02/25 01:43
Total Recoverable	Analysis	6020B		1	591802	F7JF	ELLE	01/02/25 12:14
Total Recoverable	Prep	3005A			589377	UJL8	ELLE	01/02/25 01:43
Total Recoverable	Analysis	6020B		10	591802	F7JF	ELLE	01/02/25 12:17

Client Sample ID: MW-103 2 g/L FeS 24
Lab Sample ID: 410-201249-6
Date Collected: 12/18/24 08:50
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			589137	UAMX	ELLE	12/23/24 01:50
Dissolved	Analysis	6020B		1	590184	LHF4	ELLE	12/26/24 19:17
Dissolved	Prep	Non-Digest Prep			589137	UAMX	ELLE	12/23/24 01:50
Dissolved	Analysis	6020B		1	590437	SAM2	ELLE	12/27/24 10:38
Total Recoverable	Prep	3005A			589377	UJL8	ELLE	01/02/25 01:43
Total Recoverable	Analysis	6020B		1	591802	F7JF	ELLE	01/02/25 12:21

Client Sample ID: MW-103 10 g/L FeS 24
Lab Sample ID: 410-201249-7
Date Collected: 12/18/24 09:00
Matrix: Water
Date Received: 12/18/24 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			589137	UAMX	ELLE	12/23/24 01:50
Dissolved	Analysis	6020B		1	590184	LHF4	ELLE	12/26/24 19:24
Dissolved	Prep	Non-Digest Prep			589137	UAMX	ELLE	12/23/24 01:50
Dissolved	Analysis	6020B		1	590437	SAM2	ELLE	12/27/24 11:01
Total Recoverable	Prep	3005A			589377	UJL8	ELLE	01/02/25 01:43
Total Recoverable	Analysis	6020B		1	591802	F7JF	ELLE	01/02/25 12:28

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Terra Systems Inc
Job ID: 410-201249-1
Project/Site: WSP GRE Stanton SD CCR TS

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-26
A2LA	Dept. of Energy	0001.01	11-30-26
A2LA	ISO/IEC 17025	0001.01	11-30-26
Alabama	State	43200	01-31-25
Alaska	State	PA00009	06-30-25
Alaska (UST)	State	17-027	02-28-25
Arizona	State	AZ0780	03-12-25
Arkansas DEQ	State	88-00660	08-09-25
California	State	2792	01-31-25
Colorado	State	PA00009	06-30-25
Connecticut	State	PH-0746	06-30-25
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-25
Delaware (DW)	State	N/A	01-31-25
Florida	NELAP	E87997	06-30-25
Georgia (DW)	State	C048	01-31-25
Hawaii	State	N/A	01-31-25
Illinois	NELAP	200027	01-31-26
Iowa	State	361	03-01-26
Kansas	NELAP	E-10151	10-31-25
Kentucky (UST)	State	0001.01	11-30-26
Kentucky (WW)	State	KY90088	12-31-25
Louisiana (All)	NELAP	02055	06-30-25
Maine	State	2019012	03-12-25
Maryland	State	100	06-30-25
Massachusetts	State	M-PA009	06-30-25
Michigan	State	9930	01-31-25
Minnesota	NELAP	042-999-487	12-31-25
Mississippi	State	023	01-31-25
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-26
Nebraska	State	NE-OS-32-17	01-31-25
New Hampshire	NELAP	2730	01-10-25
New Jersey	NELAP	PA011	06-30-25
New York	NELAP	10670	04-01-25
North Carolina (DW)	State	42705	07-31-25
North Carolina (WW/SW)	State	521	12-31-25
North Dakota	State	R-205	01-31-24 *
Oklahoma	NELAP	9804	08-31-24 *
Oregon	NELAP	PA200001	09-11-25
Pennsylvania	NELAP	36-00037	01-31-26
Quebec Ministry of Environment and Fight against Climate Change	PALA	507	09-16-29
Rhode Island	State	LAO00338	12-30-25
South Carolina	State	89002	01-31-25
Tennessee	State	02838	01-31-25
Texas	NELAP	T104704194-23-46	08-31-25
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-25
Virginia	NELAP	460182	06-14-25
Washington	State	C457	04-11-25

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Terra Systems Inc
Job ID: 410-201249-1
Project/Site: WSP GRE Stanton SD CCR TS

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
West Virginia (DW)	State	9906 C	01-31-25
West Virginia DEP	State	055	07-31-25
Wyoming	State	8TMS-L	01-31-25
Wyoming (UST)	A2LA	0001.01	11-30-26

Method Summary

Client: Terra Systems Inc
Job ID: 410-201249-1
Project/Site: WSP GRE Stanton SD CCR TS

Method	Method Description	Protocol	Laboratory
6020B	Metals (ICP/MS)	SW846	ELLE
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Terra Systems Inc
Job ID: 410-201249-1
Project/Site: WSP GRE Stanton SD CCR TS

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-201249-1	MW-103 Control 24	Water	12/18/24 08:00	12/18/24 15:40
410-201249-2	MW-103 5 mg/L DO 24	Water	12/18/24 08:10	12/18/24 15:40
410-201249-3	MW-103 10 mg/L DO 24	Water	12/18/24 08:20	12/18/24 15:40
410-201249-4	MW-103 1 g/L FeSO4 24	Water	12/18/24 08:30	12/18/24 15:40
410-201249-5	MW-103 5 g/L FeSO4 24	Water	12/18/24 08:40	12/18/24 15:40
410-201249-6	MW-103 2 g/L FeS 24	Water	12/18/24 08:50	12/18/24 15:40
410-201249-7	MW-103 10 g/L FeS 24	Water	12/18/24 09:00	12/18/24 15:40

Environmental Analysis Request/Chain of Custody

410-201249 Chain of Custody

ories

Acct. # _____ Group # _____ Sample # _____

| | | |

Login Sample Receipt Checklist

Client: Terra Systems Inc

Job Number: 410-201249-1

Login Number: 201249

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Santiago, Nathaniel

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Dr. Michael D Lee
Terra Systems Inc
130 Hickman Road
Suite 1
Claymont, Delaware 19703

Generated 1/7/2025 5:14:58 PM

JOB DESCRIPTION

WSP GRE Stanton SD CCR TS

JOB NUMBER

410-201760-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

my EOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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1/7/2025 5:14:58 PM

Authorized for release by
Stephen Gordon, Senior Project Manager
Stephen.Gordon@et.eurofinsus.com
(412)525-0071

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.



Table of Contents

Cover Page 1
Table of Contents 4
Definitions/Glossary 5
Case Narrative 6
Detection Summary 7
Client Sample Results 9
QC Sample Results 11
QC Association Summary 13
Lab Chronicle 15
Certification Summary 17
Method Summary 19
Sample Summary 20
Chain of Custody 21
Receipt Checklists 22

Definitions/Glossary

Client: Terra Systems Inc
Job ID: 410-201760-1
Project/Site: WSP GRE Stanton SD CCR TS

Qualifiers

Metals

Qualifier	Qualifier Description
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL, and the absolute difference between results is < the upper reporting limits for both.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 410-201760-1 — Eurofins Lancaster Laboratories Environment

Job Narrative
410-201760-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 12/20/2024 4:16 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.8°C.

Metals
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Terra Systems Inc
Project/Site: WSP GRE Stanton SD CCR TS

Job ID: 410-201760-1

Client Sample ID: MW-211 Control 2 — Lab Sample ID: 410-201760-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	11.6		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	161		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	10.7		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	189		51.5	20.6	ug/L	1		6020B	Dissolved

Client Sample ID: MW-211 5 mg/L DO 2 — Lab Sample ID: 410-201760-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	12.0		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	1240		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	12.6		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	28.3	J	51.5	20.6	ug/L	1		6020B	Dissolved

Client Sample ID: MW-211 10 mg/L DO 2 — Lab Sample ID: 410-201760-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	11.1		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	493		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	11.6		2.06	0.700	ug/L	1		6020B	Dissolved

Client Sample ID: MW-211 1 g/L FeSO4 2 — Lab Sample ID: 410-201760-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	11.2		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	191000		500	200	ug/L	10		6020B	Total Recoverable
Arsenic	1.09	J	2.06	0.700	ug/L	1		6020B	Dissolved
Iron	108000		51.5	20.6	ug/L	1		6020B	Dissolved

Client Sample ID: MW-211 5 g/L FeSO4 2 — Lab Sample ID: 410-201760-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	9.49		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	856000		5000	2000	ug/L	100		6020B	Total Recoverable
Arsenic	1.13	J	2.06	0.700	ug/L	1		6020B	Dissolved
Iron	643000		515	206	ug/L	10		6020B	Dissolved

Client Sample ID: MW-211 2 g/L FeS 2 — Lab Sample ID: 410-201760-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	7.93		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	31800		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	6.49		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	71.3		51.5	20.6	ug/L	1		6020B	Dissolved

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Terra Systems Inc
Job ID: 410-201760-1
Project/Site: WSP GRE Stanton SD CCR TS

Client Sample ID: MW-211 10 g/L FeS 2
Lab Sample ID: 410-201760-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	6.78		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	118000		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	6.26		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	40.4	J	51.5	20.6	ug/L	1		6020B	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-211 Control 2
Lab Sample ID: 410-201760-1
Date Collected: 12/19/24 10:00
Matrix: Water
Date Received: 12/20/24 16:16

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	11.6		2.00	0.680	ug/L		01/06/25 06:32	01/06/25 13:50	1
Iron	161		50.0	20.0	ug/L		01/06/25 06:32	01/06/25 13:50	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	10.7		2.06	0.700	ug/L		01/06/25 03:15	01/06/25 16:30	1
Iron	189		51.5	20.6	ug/L		01/06/25 03:15	01/06/25 16:30	1

Client Sample ID: MW-211 5 mg/L DO 2
Lab Sample ID: 410-201760-2
Date Collected: 12/19/24 10:10
Matrix: Water
Date Received: 12/20/24 16:16

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	12.0		2.00	0.680	ug/L		01/06/25 06:32	01/06/25 13:39	1
Iron	1240		50.0	20.0	ug/L		01/06/25 06:32	01/06/25 13:39	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	12.6		2.06	0.700	ug/L		01/01/25 01:20	01/02/25 17:43	1
Iron	28.3	J	51.5	20.6	ug/L		01/01/25 01:20	01/02/25 17:43	1

Client Sample ID: MW-211 10 mg/L DO 2
Lab Sample ID: 410-201760-3
Date Collected: 12/19/24 10:20
Matrix: Water
Date Received: 12/20/24 16:16

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	11.1		2.00	0.680	ug/L		01/06/25 06:32	01/06/25 13:46	1
Iron	493		50.0	20.0	ug/L		01/06/25 06:32	01/06/25 13:46	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	11.6		2.06	0.700	ug/L		01/06/25 03:15	01/06/25 16:25	1
Iron	<20.6		51.5	20.6	ug/L		01/06/25 03:15	01/06/25 16:25	1

Client Sample ID: MW-211 1 g/L FeSO4 2
Lab Sample ID: 410-201760-4
Date Collected: 12/19/24 10:30
Matrix: Water
Date Received: 12/20/24 16:16

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	11.2		2.00	0.680	ug/L		01/06/25 06:32	01/06/25 13:43	1
Iron	191000		500	200	ug/L		01/06/25 06:32	01/06/25 20:14	10

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.09	J	2.06	0.700	ug/L		01/01/25 01:20	01/02/25 17:41	1
Iron	108000		51.5	20.6	ug/L		01/01/25 01:20	01/02/25 17:41	1

Client Sample ID: MW-211 5 g/L FeSO4 2

Lab Sample ID: 410-201760-5

Date Collected: 12/19/24 10:40

Matrix: Water

Date Received: 12/20/24 16:16

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	9.49		2.00	0.680	ug/L		01/06/25 06:32	01/06/25 13:36	1
Iron	856000		5000	2000	ug/L		01/06/25 06:32	01/06/25 14:20	100

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.13	J	2.06	0.700	ug/L		01/06/25 03:15	01/06/25 16:32	1
Iron	643000		515	206	ug/L		01/06/25 03:15	01/07/25 11:51	10

Client Sample ID: MW-211 2 g/L FeS 2

Lab Sample ID: 410-201760-6

Date Collected: 12/19/24 10:50

Matrix: Water

Date Received: 12/20/24 16:16

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	7.93		2.00	0.680	ug/L		01/06/25 06:32	01/06/25 13:34	1
Iron	31800		50.0	20.0	ug/L		01/06/25 06:32	01/06/25 13:34	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.49		2.06	0.700	ug/L		01/06/25 03:15	01/06/25 15:52	1
Iron	71.3		51.5	20.6	ug/L		01/06/25 03:15	01/06/25 15:52	1

Client Sample ID: MW-211 10 g/L FeS 2

Lab Sample ID: 410-201760-7

Date Collected: 12/19/24 11:00

Matrix: Water

Date Received: 12/20/24 16:16

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.78		2.00	0.680	ug/L		01/06/25 06:32	01/06/25 13:19	1
Iron	118000		50.0	20.0	ug/L		01/06/25 06:32	01/06/25 13:19	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.26		2.06	0.700	ug/L		01/01/25 01:20	01/02/25 17:45	1
Iron	40.4	J	51.5	20.6	ug/L		01/01/25 01:20	01/02/25 17:45	1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 410-591251/1-A
Matrix: Water
Analysis Batch: 592751

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 591251

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.700		2.06	0.700	ug/L		01/06/25 03:15	01/06/25 15:47	1
Iron	<20.6		51.5	20.6	ug/L		01/06/25 03:15	01/06/25 15:47	1

Lab Sample ID: LCS 410-591251/2-A
Matrix: Water
Analysis Batch: 592751

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 591251

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	478.4		ug/L		96	90 - 109
Iron	5000	4861		ug/L		97	90 - 111

Lab Sample ID: MB 410-591277/1-A
Matrix: Water
Analysis Batch: 591956

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 591277

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.700		2.06	0.700	ug/L		01/01/25 01:20	01/02/25 17:26	1
Iron	<20.6		51.5	20.6	ug/L		01/01/25 01:20	01/02/25 17:26	1

Lab Sample ID: LCS 410-591277/2-A
Matrix: Water
Analysis Batch: 591956

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 591277

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	522.5		ug/L		104	90 - 109
Iron	5000	4975		ug/L		100	90 - 111

Lab Sample ID: MB 410-591329/1-A
Matrix: Water
Analysis Batch: 592682

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 591329

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.680		2.00	0.680	ug/L		01/06/25 06:32	01/06/25 13:00	1
Iron	<20.0		50.0	20.0	ug/L		01/06/25 06:32	01/06/25 13:00	1

Lab Sample ID: LCS 410-591329/2-A
Matrix: Water
Analysis Batch: 592682

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 591329

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	476.8		ug/L		95	90 - 109
Iron	5000	4931		ug/L		99	90 - 111

Lab Sample ID: LCSD 410-591329/3-A
Matrix: Water
Analysis Batch: 592682

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 591329

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	500	468.5		ug/L		94	90 - 109	2	20
Iron	5000	4872		ug/L		97	90 - 111	1	20

Client: Terra Systems Inc
Job ID: 410-201760-1
Project/Site: WSP GRE Stanton SD CCR TS

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: 410-201760-6 MS
Client Sample ID: MW-211 2 g/L FeS 2
Matrix: Water
Prep Type: Dissolved
Analysis Batch: 592751
Prep Batch: 591251

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Arsenic	6.49		500	515.6		ug/L		102	75 - 125		
Iron	71.3		5000	4683		ug/L		92	75 - 125		

Lab Sample ID: 410-201760-6 MSD
Client Sample ID: MW-211 2 g/L FeS 2
Matrix: Water
Prep Type: Dissolved
Analysis Batch: 592751
Prep Batch: 591251

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	6.49		500	493.5		ug/L		97	75 - 125	4	20
Iron	71.3		5000	5043		ug/L		99	75 - 125	7	20

Lab Sample ID: 410-201760-6 DU
Client Sample ID: MW-211 2 g/L FeS 2
Matrix: Water
Prep Type: Dissolved
Analysis Batch: 592751
Prep Batch: 591251

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Arsenic	6.49			5.851		ug/L				10	20
Iron	71.3			50.72	J F5	ug/L				34	20

Metals

Prep Batch: 591251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201760-1	MW-211 Control 2	Dissolved	Water	Non-Digest Prep	
410-201760-3	MW-211 10 mg/L DO 2	Dissolved	Water	Non-Digest Prep	
410-201760-5	MW-211 5 g/L FeSO4 2	Dissolved	Water	Non-Digest Prep	
410-201760-6	MW-211 2 g/L FeS 2	Dissolved	Water	Non-Digest Prep	
MB 410-591251/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-591251/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	
410-201760-6 MS	MW-211 2 g/L FeS 2	Dissolved	Water	Non-Digest Prep	
410-201760-6 MSD	MW-211 2 g/L FeS 2	Dissolved	Water	Non-Digest Prep	
410-201760-6 DU	MW-211 2 g/L FeS 2	Dissolved	Water	Non-Digest Prep	

Prep Batch: 591277

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201760-2	MW-211 5 mg/L DO 2	Dissolved	Water	Non-Digest Prep	
410-201760-4	MW-211 1 g/L FeSO4 2	Dissolved	Water	Non-Digest Prep	
410-201760-7	MW-211 10 g/L FeS 2	Dissolved	Water	Non-Digest Prep	
MB 410-591277/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-591277/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

Prep Batch: 591329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201760-1	MW-211 Control 2	Total Recoverable	Water	3005A	
410-201760-2	MW-211 5 mg/L DO 2	Total Recoverable	Water	3005A	
410-201760-3	MW-211 10 mg/L DO 2	Total Recoverable	Water	3005A	
410-201760-4	MW-211 1 g/L FeSO4 2	Total Recoverable	Water	3005A	
410-201760-5	MW-211 5 g/L FeSO4 2	Total Recoverable	Water	3005A	
410-201760-6	MW-211 2 g/L FeS 2	Total Recoverable	Water	3005A	
410-201760-7	MW-211 10 g/L FeS 2	Total Recoverable	Water	3005A	
MB 410-591329/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 410-591329/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 410-591329/3-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	

Analysis Batch: 591956

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201760-2	MW-211 5 mg/L DO 2	Dissolved	Water	6020B	591277
410-201760-4	MW-211 1 g/L FeSO4 2	Dissolved	Water	6020B	591277
410-201760-7	MW-211 10 g/L FeS 2	Dissolved	Water	6020B	591277
MB 410-591277/1-A	Method Blank	Total/NA	Water	6020B	591277
LCS 410-591277/2-A	Lab Control Sample	Total/NA	Water	6020B	591277

Analysis Batch: 592682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201760-1	MW-211 Control 2	Total Recoverable	Water	6020B	591329
410-201760-2	MW-211 5 mg/L DO 2	Total Recoverable	Water	6020B	591329
410-201760-3	MW-211 10 mg/L DO 2	Total Recoverable	Water	6020B	591329
410-201760-4	MW-211 1 g/L FeSO4 2	Total Recoverable	Water	6020B	591329
410-201760-5	MW-211 5 g/L FeSO4 2	Total Recoverable	Water	6020B	591329
410-201760-5	MW-211 5 g/L FeSO4 2	Total Recoverable	Water	6020B	591329
410-201760-6	MW-211 2 g/L FeS 2	Total Recoverable	Water	6020B	591329
410-201760-7	MW-211 10 g/L FeS 2	Total Recoverable	Water	6020B	591329
MB 410-591329/1-A	Method Blank	Total Recoverable	Water	6020B	591329
LCS 410-591329/2-A	Lab Control Sample	Total Recoverable	Water	6020B	591329

Metals (Continued)

Analysis Batch: 592682 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 410-591329/3-A	Lab Control Sample Dup	Total Recoverable	Water	6020B	591329

Analysis Batch: 592751

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201760-1	MW-211 Control 2	Dissolved	Water	6020B	591251
410-201760-3	MW-211 10 mg/L DO 2	Dissolved	Water	6020B	591251
410-201760-5	MW-211 5 g/L FeSO4 2	Dissolved	Water	6020B	591251
410-201760-6	MW-211 2 g/L FeS 2	Dissolved	Water	6020B	591251
MB 410-591251/1-A	Method Blank	Total/NA	Water	6020B	591251
LCS 410-591251/2-A	Lab Control Sample	Total/NA	Water	6020B	591251
410-201760-6 MS	MW-211 2 g/L FeS 2	Dissolved	Water	6020B	591251
410-201760-6 MSD	MW-211 2 g/L FeS 2	Dissolved	Water	6020B	591251
410-201760-6 DU	MW-211 2 g/L FeS 2	Dissolved	Water	6020B	591251

Analysis Batch: 592757

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201760-4	MW-211 1 g/L FeSO4 2	Total Recoverable	Water	6020B	591329

Analysis Batch: 592969

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201760-5	MW-211 5 g/L FeSO4 2	Dissolved	Water	6020B	591251

Client Sample ID: MW-211 Control 2
Lab Sample ID: 410-201760-1
Date Collected: 12/19/24 10:00
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591251	UAMX	ELLE	01/06/25 03:15
Dissolved	Analysis	6020B		1	592751	LHF4	ELLE	01/06/25 16:30
Total Recoverable	Prep	3005A			591329	UJL8	ELLE	01/06/25 06:32
Total Recoverable	Analysis	6020B		1	592682	SAM2	ELLE	01/06/25 13:50

Client Sample ID: MW-211 5 mg/L DO 2
Lab Sample ID: 410-201760-2
Date Collected: 12/19/24 10:10
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591277	UJL8	ELLE	01/01/25 01:20
Dissolved	Analysis	6020B		1	591956	LHF4	ELLE	01/02/25 17:43
Total Recoverable	Prep	3005A			591329	UJL8	ELLE	01/06/25 06:32
Total Recoverable	Analysis	6020B		1	592682	SAM2	ELLE	01/06/25 13:39

Client Sample ID: MW-211 10 mg/L DO 2
Lab Sample ID: 410-201760-3
Date Collected: 12/19/24 10:20
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591251	UAMX	ELLE	01/06/25 03:15
Dissolved	Analysis	6020B		1	592751	LHF4	ELLE	01/06/25 16:25
Total Recoverable	Prep	3005A			591329	UJL8	ELLE	01/06/25 06:32
Total Recoverable	Analysis	6020B		1	592682	SAM2	ELLE	01/06/25 13:46

Client Sample ID: MW-211 1 g/L FeSO4 2
Lab Sample ID: 410-201760-4
Date Collected: 12/19/24 10:30
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591277	UJL8	ELLE	01/01/25 01:20
Dissolved	Analysis	6020B		1	591956	LHF4	ELLE	01/02/25 17:41
Total Recoverable	Prep	3005A			591329	UJL8	ELLE	01/06/25 06:32
Total Recoverable	Analysis	6020B		10	592757	LHF4	ELLE	01/06/25 20:14
Total Recoverable	Prep	3005A			591329	UJL8	ELLE	01/06/25 06:32
Total Recoverable	Analysis	6020B		1	592682	SAM2	ELLE	01/06/25 13:43

Client Sample ID: MW-211 5 g/L FeSO4 2
Lab Sample ID: 410-201760-5
Date Collected: 12/19/24 10:40
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591251	UAMX	ELLE	01/06/25 03:15
Dissolved	Analysis	6020B		1	592751	LHF4	ELLE	01/06/25 16:32
Dissolved	Prep	Non-Digest Prep			591251	UAMX	ELLE	01/06/25 03:15
Dissolved	Analysis	6020B		10	592969	SAM2	ELLE	01/07/25 11:51

Lab Chronicle

Client: Terra Systems Inc
Job ID: 410-201760-1
Project/Site: WSP GRE Stanton SD CCR TS

Client Sample ID: MW-211 5 g/L FeSO4 2
Lab Sample ID: 410-201760-5
Date Collected: 12/19/24 10:40
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			591329	UJL8	ELLE	01/06/25 06:32
Total Recoverable	Analysis	6020B		1	592682	SAM2	ELLE	01/06/25 13:36
Total Recoverable	Prep	3005A			591329	UJL8	ELLE	01/06/25 06:32
Total Recoverable	Analysis	6020B		100	592682	SAM2	ELLE	01/06/25 14:20

Client Sample ID: MW-211 2 g/L FeS 2
Lab Sample ID: 410-201760-6
Date Collected: 12/19/24 10:50
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591251	UAMX	ELLE	01/06/25 03:15
Dissolved	Analysis	6020B		1	592751	LHF4	ELLE	01/06/25 15:52
Total Recoverable	Prep	3005A			591329	UJL8	ELLE	01/06/25 06:32
Total Recoverable	Analysis	6020B		1	592682	SAM2	ELLE	01/06/25 13:34

Client Sample ID: MW-211 10 g/L FeS 2
Lab Sample ID: 410-201760-7
Date Collected: 12/19/24 11:00
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591277	UJL8	ELLE	01/01/25 01:20
Dissolved	Analysis	6020B		1	591956	LHF4	ELLE	01/02/25 17:45
Total Recoverable	Prep	3005A			591329	UJL8	ELLE	01/06/25 06:32
Total Recoverable	Analysis	6020B		1	592682	SAM2	ELLE	01/06/25 13:19

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Terra Systems Inc
Job ID: 410-201760-1
Project/Site: WSP GRE Stanton SD CCR TS

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-26
A2LA	Dept. of Energy	0001.01	11-30-26
A2LA	ISO/IEC 17025	0001.01	11-30-26
Alabama	State	43200	01-31-25
Alaska	State	PA00009	06-30-25
Alaska (UST)	State	17-027	02-28-25
Arizona	State	AZ0780	03-12-25
Arkansas DEQ	State	88-00660	08-09-25
California	State	2792	01-31-25
Colorado	State	PA00009	06-30-25
Connecticut	State	PH-0746	06-30-25
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-25
Delaware (DW)	State	N/A	01-31-25
Florida	NELAP	E87997	06-30-25
Georgia (DW)	State	C048	01-31-25
Hawaii	State	N/A	01-31-25
Illinois	NELAP	200027	01-31-26
Iowa	State	361	03-01-26
Kansas	NELAP	E-10151	10-31-25
Kentucky (UST)	State	0001.01	11-30-26
Kentucky (WW)	State	KY90088	12-31-25
Louisiana (All)	NELAP	02055	06-30-25
Maine	State	2019012	03-12-25
Maryland	State	100	06-30-25
Massachusetts	State	M-PA009	06-30-25
Michigan	State	9930	01-31-25
Minnesota	NELAP	042-999-487	12-31-25
Mississippi	State	023	01-31-25
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-26
Nebraska	State	NE-OS-32-17	01-31-25
New Hampshire	NELAP	2730	01-10-25
New Jersey	NELAP	PA011	06-30-25
New York	NELAP	10670	04-01-25
North Carolina (DW)	State	42705	07-31-25
North Carolina (WW/SW)	State	521	12-31-25
North Dakota	State	R-205	01-31-24 *
Oklahoma	NELAP	9804	08-31-24 *
Oregon	NELAP	PA200001	09-11-25
Pennsylvania	NELAP	36-00037	01-31-26
Quebec Ministry of Environment and Fight against Climate Change	PALA	507	09-16-29
Rhode Island	State	LAO00338	12-30-25
South Carolina	State	89002	01-31-25
Tennessee	State	02838	01-31-25
Texas	NELAP	T104704194-23-46	08-31-25
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-25
Virginia	NELAP	460182	06-14-25
Washington	State	C457	04-11-25

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Terra Systems Inc
Job ID: 410-201760-1
Project/Site: WSP GRE Stanton SD CCR TS

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
West Virginia (DW)	State	9906 C	01-31-25
West Virginia DEP	State	055	07-31-25
Wyoming	State	8TMS-L	01-31-25
Wyoming (UST)	A2LA	0001.01	11-30-26

Method Summary

Client: Terra Systems Inc
Job ID: 410-201760-1
Project/Site: WSP GRE Stanton SD CCR TS

Method	Method Description	Protocol	Laboratory
6020B	Metals (ICP/MS)	SW846	ELLE
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Terra Systems Inc
Job ID: 410-201760-1
Project/Site: WSP GRE Stanton SD CCR TS

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-201760-1	MW-211 Control 2	Water	12/19/24 10:00	12/20/24 16:16
410-201760-2	MW-211 5 mg/L DO 2	Water	12/19/24 10:10	12/20/24 16:16
410-201760-3	MW-211 10 mg/L DO 2	Water	12/19/24 10:20	12/20/24 16:16
410-201760-4	MW-211 1 g/L FeSO4 2	Water	12/19/24 10:30	12/20/24 16:16
410-201760-5	MW-211 5 g/L FeSO4 2	Water	12/19/24 10:40	12/20/24 16:16
410-201760-6	MW-211 2 g/L FeS 2	Water	12/19/24 10:50	12/20/24 16:16
410-201760-7	MW-211 10 g/L FeS 2	Water	12/19/24 11:00	12/20/24 16:16

Environmental Analysis Request/Chain of Custody

410-201760 Chain of Custody

tories

Acct. # _____ Group # _____ Sample # _____

Client: Terra Systems, Inc.			
Project Name/#: WSP GRE Stanton SD CCR TS	Site ID #: Stanton SD		
Project Manager: Michael D. Lee	P.O. #: 242214 12-20-24		
Sampler: Michael D. Lee	PWSID #:		
Phone #: 302-798-9553	Quote #: 41022082		
State where samples were collected: ___ SD	For Compliance: Yes ☐ No ☑		

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil ☐ Sediment ☐ Tissue ☐	Water: Potable ☐ Ground ☑ NPDES ☐ Surface ☐	Other:	Total # of Containers	Analyses Requested: Dis (f) As Fe by 6020B ICP/MS (Preservation Code N)	Total As, Fe by 6020B ICP/MS (Preservation Code N)	-	B									Remarks
MW-211 Control 2	12/19/2024	10:00		X		X		2	X	X											ff= field filtered
MW-211 5 mg/L DO 2	12/19/2024	10:10		X		X		2	X	X											
MW-211 10 mg/L DO 2	12/19/2024	10:20		X		X		2	X	X											
MW-211 1 g/L FeSO4 2	12/19/2024	10:30		X		X		2	X	X											
MW-211 5 g/L FeSO4 2	12/19/2024	10:40		X		X		2	X	X											
MW-211 2 g/L FeS 2	12/19/2024	10:50		X		X		2	X	X											
MW-211 10 g/L FeS 2	12/19/2024	11:00		X		X		2	X	X											

For Lab Use Only

SF #: _____

SCR #: _____

Preservation Codes

H = HCl T = Thiosulfate

N = HNO_3 B = NaOH

S = H_2SO_4 P = H_3PO_4

O = Other

Turnaround Time Requested (TAT) (please check): Standard ☑ Rush ☐

(Rush TAT is subject to laboratory approval and surcharges.)

Date results are needed: 1/3/25

Rush results requested by (please check): E-Mail ☑ Phone ☐

E-mail Address: mlee@terrasystems.net

Phone: 302-798-9553

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☐ MA MCP ☐

Type III (Reduced non-CLP) ☐ CT RCP ☐

Type VI (Raw Data Only) ☐ TX TRRP-13 ☐

NJ DKQP ☐ NYSDEC Category ☐ A or ☐ B

EDD Required? Yes ☐ No ☑ If yes, format: _____

Relinquished by:	Date	Time	Received by:	Date	Time
Michael D Lee	12/20/24	10:40	BR-LC	12/20/24	1040
BR-LC	12/20/24	1616			
			Jon Fuller	12/20/24	1616

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other X

Temperature upon receipt _____ °C

Login Sample Receipt Checklist

Client: Terra Systems Inc

Job Number: 410-201760-1

Login Number: 201760

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Reynolds, Benjamin

Question	Answer	Comment
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Dr. Michael D Lee
Terra Systems Inc
130 Hickman Road
Suite 1
Claymont, Delaware 19703

Generated 1/7/2025 5:13:49 PM

JOB DESCRIPTION

WSP GRE Stanton SD CCR TS

JOB NUMBER

410-201755-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

myEOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



Generated
1/7/2025 5:13:49 PM

Authorized for release by
Stephen Gordon, Senior Project Manager
Stephen.Gordon@et.eurofinsus.com
(412)525-0071

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.



Table of Contents

Cover Page 1
Table of Contents 4
Definitions/Glossary 5
Case Narrative 6
Detection Summary 7
Client Sample Results 9
QC Sample Results 11
QC Association Summary 13
Lab Chronicle 15
Certification Summary 17
Method Summary 19
Sample Summary 20
Chain of Custody 21
Receipt Checklists 22

Definitions/Glossary

Client: Terra Systems Inc
Job ID: 410-201755-1
Project/Site: WSP GRE Stanton SD CCR TS

Qualifiers

Metals

Qualifier	Qualifier Description
^2	Calibration Blank (ICB and/or CCB) is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 410-201755-1 — Eurofins Lancaster Laboratories Environment

Job Narrative
410-201755-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 12/20/2024 4:16 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.8°C.

Metals
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Terra Systems Inc
Project/Site: WSP GRE Stanton SD CCR TS

Job ID: 410-201755-1

Client Sample ID: MW-211 Control 8 — Lab Sample ID: 410-201755-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	12.3		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	165		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	11.1		2.06	0.700	ug/L	1		6020B	Dissolved

Client Sample ID: MW-211 5 mg/L DO 8 — Lab Sample ID: 410-201755-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	11.6		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	652		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	10.5		2.06	0.700	ug/L	1		6020B	Dissolved

Client Sample ID: MW-211 10 mg/L DO 8 — Lab Sample ID: 410-201755-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	11.5		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	278		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	10.5		2.06	0.700	ug/L	1		6020B	Dissolved

Client Sample ID: MW-211 1 g/L FeSO4 8 — Lab Sample ID: 410-201755-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	11.0		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	174000		250	100	ug/L	5		6020B	Total Recoverable
Arsenic	1.20	J	2.06	0.700	ug/L	1		6020B	Dissolved
Iron	181000		515	206	ug/L	10		6020B	Dissolved

Client Sample ID: MW-211 5 g/L FeSO4 8 — Lab Sample ID: 410-201755-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	7.95		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	873000	^2	500	200	ug/L	10		6020B	Total Recoverable
Arsenic	1.48	J	2.06	0.700	ug/L	1		6020B	Dissolved
Iron	668000		5150	2060	ug/L	100		6020B	Dissolved

Client Sample ID: MW-211 2 g/L FeS 8 — Lab Sample ID: 410-201755-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	9.99		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	33800		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	5.77		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	54.1		51.5	20.6	ug/L	1		6020B	Dissolved

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Terra Systems Inc
Job ID: 410-201755-1
Project/Site: WSP GRE Stanton SD CCR TS

Client Sample ID: MW-211 10 g/L FeS 8
Lab Sample ID: 410-201755-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	7.10		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	146000		500	200	ug/L	10		6020B	Total Recoverable
Arsenic	5.31		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	23.5	J	51.5	20.6	ug/L	1		6020B	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-211 Control 8
Lab Sample ID: 410-201755-1
Date Collected: 12/19/24 16:00
Matrix: Water
Date Received: 12/20/24 16:16

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	12.3		2.00	0.680	ug/L		01/06/25 06:44	01/06/25 18:11	1
Iron	165		50.0	20.0	ug/L		01/06/25 06:44	01/06/25 18:11	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	11.1		2.06	0.700	ug/L		01/06/25 03:15	01/06/25 16:01	1
Iron	<20.6		51.5	20.6	ug/L		01/06/25 03:15	01/06/25 16:01	1

Client Sample ID: MW-211 5 mg/L DO 8
Lab Sample ID: 410-201755-2
Date Collected: 12/19/24 16:10
Matrix: Water
Date Received: 12/20/24 16:16

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	11.6		2.00	0.680	ug/L		01/06/25 06:44	01/06/25 18:16	1
Iron	652		50.0	20.0	ug/L		01/06/25 06:44	01/06/25 18:16	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	10.5		2.06	0.700	ug/L		01/06/25 03:15	01/06/25 16:18	1
Iron	<20.6		51.5	20.6	ug/L		01/06/25 03:15	01/06/25 16:18	1

Client Sample ID: MW-211 10 mg/L DO 8
Lab Sample ID: 410-201755-3
Date Collected: 12/19/24 16:20
Matrix: Water
Date Received: 12/20/24 16:16

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	11.5		2.00	0.680	ug/L		01/06/25 06:44	01/06/25 18:14	1
Iron	278		50.0	20.0	ug/L		01/06/25 06:44	01/06/25 18:14	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	10.5		2.06	0.700	ug/L		01/06/25 03:15	01/06/25 16:16	1
Iron	<20.6		51.5	20.6	ug/L		01/06/25 03:15	01/06/25 16:16	1

Client Sample ID: MW-211 1 g/L FeSO4 8
Lab Sample ID: 410-201755-4
Date Collected: 12/19/24 16:30
Matrix: Water
Date Received: 12/20/24 16:16

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	11.0		2.00	0.680	ug/L		01/06/25 06:44	01/06/25 18:30	1
Iron	174000		250	100	ug/L		01/06/25 06:44	01/06/25 18:33	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.20	J	2.06	0.700	ug/L		01/06/25 03:15	01/06/25 16:27	1
Iron	181000		515	206	ug/L		01/06/25 03:15	01/07/25 11:49	10

Client Sample ID: MW-211 5 g/L FeSO4 8

Lab Sample ID: 410-201755-5
Date Collected: 12/19/24 16:40
Matrix: Water
Date Received: 12/20/24 16:16

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	7.95		2.00	0.680	ug/L		01/06/25 06:17	01/06/25 22:43	1
Iron	873000	^2	500	200	ug/L		01/06/25 06:17	01/06/25 22:45	10

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.48	J	2.06	0.700	ug/L		01/06/25 03:15	01/06/25 10:56	1
Iron	668000		5150	2060	ug/L		01/06/25 03:15	01/06/25 11:06	100

Client Sample ID: MW-211 2 g/L FeS 8

Lab Sample ID: 410-201755-6
Date Collected: 12/19/24 16:50
Matrix: Water
Date Received: 12/20/24 16:16

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	9.99		2.00	0.680	ug/L		01/06/25 06:44	01/06/25 18:20	1
Iron	33800		50.0	20.0	ug/L		01/06/25 06:44	01/06/25 18:20	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.77		2.06	0.700	ug/L		01/06/25 03:15	01/06/25 11:26	1
Iron	54.1		51.5	20.6	ug/L		01/06/25 03:15	01/06/25 11:26	1

Client Sample ID: MW-211 10 g/L FeS 8

Lab Sample ID: 410-201755-7
Date Collected: 12/19/24 17:00
Matrix: Water
Date Received: 12/20/24 16:16

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	7.10		2.00	0.680	ug/L		01/06/25 06:44	01/06/25 18:18	1
Iron	146000		500	200	ug/L		01/06/25 06:44	01/07/25 11:37	10

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.31		2.06	0.700	ug/L		01/06/25 03:15	01/06/25 16:04	1
Iron	23.5	J	51.5	20.6	ug/L		01/06/25 03:15	01/06/25 16:04	1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 410-591251/1-A
Matrix: Water
Analysis Batch: 592751

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 591251

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.700		2.06	0.700	ug/L		01/06/25 03:15	01/06/25 15:47	1
Iron	<20.6		51.5	20.6	ug/L		01/06/25 03:15	01/06/25 15:47	1

Lab Sample ID: LCS 410-591251/2-A
Matrix: Water
Analysis Batch: 592751

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 591251

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	478.4		ug/L		96	90 - 109
Iron	5000	4861		ug/L		97	90 - 111

Lab Sample ID: MB 410-591254/1-A
Matrix: Water
Analysis Batch: 592682

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 591254

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.700		2.06	0.700	ug/L		01/06/25 03:15	01/06/25 10:51	1
Iron	<20.6		51.5	20.6	ug/L		01/06/25 03:15	01/06/25 10:51	1

Lab Sample ID: LCS 410-591254/2-A
Matrix: Water
Analysis Batch: 592682

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 591254

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	470.0		ug/L		94	90 - 109
Iron	5000	4800		ug/L		96	90 - 111

Lab Sample ID: MB 410-590864/1-A
Matrix: Water
Analysis Batch: 592757

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 590864

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.680		2.00	0.680	ug/L		01/06/25 06:17	01/06/25 16:02	1
Iron	<20.0		50.0	20.0	ug/L		01/06/25 06:17	01/06/25 16:02	1

Lab Sample ID: LCS 410-590864/2-A
Matrix: Water
Analysis Batch: 592757

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 590864

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	483.6		ug/L		97	90 - 109
Iron	5000	4964		ug/L		99	90 - 111

Lab Sample ID: MB 410-590866/1-A
Matrix: Water
Analysis Batch: 592757

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 590866

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.680		2.00	0.680	ug/L		01/06/25 06:44	01/06/25 17:31	1
Iron	<20.0		50.0	20.0	ug/L		01/06/25 06:44	01/06/25 17:31	1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: LCS 410-590866/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total Recoverable
Analysis Batch: 592757
Prep Batch: 590866

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	489.2		ug/L		98	90 - 109
Iron	5000	4984		ug/L		100	90 - 111

Lab Sample ID: 410-201755-5 MS
Client Sample ID: MW-211 5 g/L FeSO4 8
Matrix: Water
Prep Type: Dissolved
Analysis Batch: 592682
Prep Batch: 591254

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.48	J	500	488.8		ug/L		97	75 - 125

Lab Sample ID: 410-201755-5 MS
Client Sample ID: MW-211 5 g/L FeSO4 8
Matrix: Water
Prep Type: Dissolved
Analysis Batch: 592682
Prep Batch: 591254

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	668000		5000	665700	4	ug/L		-41	75 - 125

Lab Sample ID: 410-201755-5 MSD
Client Sample ID: MW-211 5 g/L FeSO4 8
Matrix: Water
Prep Type: Dissolved
Analysis Batch: 592682
Prep Batch: 591254

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	1.48	J	500	488.7		ug/L		97	75 - 125	0	20

Lab Sample ID: 410-201755-5 MSD
Client Sample ID: MW-211 5 g/L FeSO4 8
Matrix: Water
Prep Type: Dissolved
Analysis Batch: 592682
Prep Batch: 591254

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Iron	668000		5000	597700	4	ug/L		-1400	75 - 125	11	20

Lab Sample ID: 410-201755-5 DU
Client Sample ID: MW-211 5 g/L FeSO4 8
Matrix: Water
Prep Type: Dissolved
Analysis Batch: 592682
Prep Batch: 591254

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	1.48	J	1.384	J	ug/L		7	20

Lab Sample ID: 410-201755-5 DU
Client Sample ID: MW-211 5 g/L FeSO4 8
Matrix: Water
Prep Type: Dissolved
Analysis Batch: 592682
Prep Batch: 591254

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Iron	668000		646400		ug/L		3	20

Metals

Prep Batch: 590864

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201755-5	MW-211 5 g/L FeSO4 8	Total Recoverable	Water	3005A	
MB 410-590864/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 410-590864/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 590866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201755-1	MW-211 Control 8	Total Recoverable	Water	3005A	
410-201755-2	MW-211 5 mg/L DO 8	Total Recoverable	Water	3005A	
410-201755-3	MW-211 10 mg/L DO 8	Total Recoverable	Water	3005A	
410-201755-4	MW-211 1 g/L FeSO4 8	Total Recoverable	Water	3005A	
410-201755-6	MW-211 2 g/L FeS 8	Total Recoverable	Water	3005A	
410-201755-7	MW-211 10 g/L FeS 8	Total Recoverable	Water	3005A	
MB 410-590866/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 410-590866/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 591251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201755-1	MW-211 Control 8	Dissolved	Water	Non-Digest Prep	
410-201755-2	MW-211 5 mg/L DO 8	Dissolved	Water	Non-Digest Prep	
410-201755-3	MW-211 10 mg/L DO 8	Dissolved	Water	Non-Digest Prep	
410-201755-4	MW-211 1 g/L FeSO4 8	Dissolved	Water	Non-Digest Prep	
410-201755-7	MW-211 10 g/L FeS 8	Dissolved	Water	Non-Digest Prep	
MB 410-591251/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-591251/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

Prep Batch: 591254

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201755-5	MW-211 5 g/L FeSO4 8	Dissolved	Water	Non-Digest Prep	
410-201755-6	MW-211 2 g/L FeS 8	Dissolved	Water	Non-Digest Prep	
MB 410-591254/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-591254/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	
410-201755-5 MS	MW-211 5 g/L FeSO4 8	Dissolved	Water	Non-Digest Prep	
410-201755-5 MSD	MW-211 5 g/L FeSO4 8	Dissolved	Water	Non-Digest Prep	
410-201755-5 DU	MW-211 5 g/L FeSO4 8	Dissolved	Water	Non-Digest Prep	

Analysis Batch: 592682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201755-5	MW-211 5 g/L FeSO4 8	Dissolved	Water	6020B	591254
410-201755-5	MW-211 5 g/L FeSO4 8	Dissolved	Water	6020B	591254
410-201755-6	MW-211 2 g/L FeS 8	Dissolved	Water	6020B	591254
MB 410-591254/1-A	Method Blank	Total/NA	Water	6020B	591254
LCS 410-591254/2-A	Lab Control Sample	Total/NA	Water	6020B	591254
410-201755-5 MS	MW-211 5 g/L FeSO4 8	Dissolved	Water	6020B	591254
410-201755-5 MS	MW-211 5 g/L FeSO4 8	Dissolved	Water	6020B	591254
410-201755-5 MSD	MW-211 5 g/L FeSO4 8	Dissolved	Water	6020B	591254
410-201755-5 MSD	MW-211 5 g/L FeSO4 8	Dissolved	Water	6020B	591254
410-201755-5 DU	MW-211 5 g/L FeSO4 8	Dissolved	Water	6020B	591254
410-201755-5 DU	MW-211 5 g/L FeSO4 8	Dissolved	Water	6020B	591254

QC Association Summary

Client: Terra Systems Inc
Job ID: 410-201755-1
Project/Site: WSP GRE Stanton SD CCR TS

Metals

Analysis Batch: 592751

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201755-1	MW-211 Control 8	Dissolved	Water	6020B	591251
410-201755-2	MW-211 5 mg/L DO 8	Dissolved	Water	6020B	591251
410-201755-3	MW-211 10 mg/L DO 8	Dissolved	Water	6020B	591251
410-201755-4	MW-211 1 g/L FeSO4 8	Dissolved	Water	6020B	591251
410-201755-7	MW-211 10 g/L FeS 8	Dissolved	Water	6020B	591251
MB 410-591251/1-A	Method Blank	Total/NA	Water	6020B	591251
LCS 410-591251/2-A	Lab Control Sample	Total/NA	Water	6020B	591251

Analysis Batch: 592757

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201755-1	MW-211 Control 8	Total Recoverable	Water	6020B	590866
410-201755-2	MW-211 5 mg/L DO 8	Total Recoverable	Water	6020B	590866
410-201755-3	MW-211 10 mg/L DO 8	Total Recoverable	Water	6020B	590866
410-201755-4	MW-211 1 g/L FeSO4 8	Total Recoverable	Water	6020B	590866
410-201755-4	MW-211 1 g/L FeSO4 8	Total Recoverable	Water	6020B	590866
410-201755-5	MW-211 5 g/L FeSO4 8	Total Recoverable	Water	6020B	590864
410-201755-5	MW-211 5 g/L FeSO4 8	Total Recoverable	Water	6020B	590864
410-201755-6	MW-211 2 g/L FeS 8	Total Recoverable	Water	6020B	590866
410-201755-7	MW-211 10 g/L FeS 8	Total Recoverable	Water	6020B	590866
MB 410-590864/1-A	Method Blank	Total Recoverable	Water	6020B	590864
MB 410-590866/1-A	Method Blank	Total Recoverable	Water	6020B	590866
LCS 410-590864/2-A	Lab Control Sample	Total Recoverable	Water	6020B	590864
LCS 410-590866/2-A	Lab Control Sample	Total Recoverable	Water	6020B	590866

Analysis Batch: 592969

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201755-4	MW-211 1 g/L FeSO4 8	Dissolved	Water	6020B	591251
410-201755-7	MW-211 10 g/L FeS 8	Total Recoverable	Water	6020B	590866

Client Sample ID: MW-211 Control 8
Lab Sample ID: 410-201755-1
Date Collected: 12/19/24 16:00
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591251	UAMX	ELLE	01/06/25 03:15
Dissolved	Analysis	6020B		1	592751	LHF4	ELLE	01/06/25 16:01
Total Recoverable	Prep	3005A			590866	UJL8	ELLE	01/06/25 06:44
Total Recoverable	Analysis	6020B		1	592757	LHF4	ELLE	01/06/25 18:11

Client Sample ID: MW-211 5 mg/L DO 8
Lab Sample ID: 410-201755-2
Date Collected: 12/19/24 16:10
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591251	UAMX	ELLE	01/06/25 03:15
Dissolved	Analysis	6020B		1	592751	LHF4	ELLE	01/06/25 16:18
Total Recoverable	Prep	3005A			590866	UJL8	ELLE	01/06/25 06:44
Total Recoverable	Analysis	6020B		1	592757	LHF4	ELLE	01/06/25 18:16

Client Sample ID: MW-211 10 mg/L DO 8
Lab Sample ID: 410-201755-3
Date Collected: 12/19/24 16:20
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591251	UAMX	ELLE	01/06/25 03:15
Dissolved	Analysis	6020B		1	592751	LHF4	ELLE	01/06/25 16:16
Total Recoverable	Prep	3005A			590866	UJL8	ELLE	01/06/25 06:44
Total Recoverable	Analysis	6020B		1	592757	LHF4	ELLE	01/06/25 18:14

Client Sample ID: MW-211 1 g/L FeSO4 8
Lab Sample ID: 410-201755-4
Date Collected: 12/19/24 16:30
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591251	UAMX	ELLE	01/06/25 03:15
Dissolved	Analysis	6020B		1	592751	LHF4	ELLE	01/06/25 16:27
Dissolved	Prep	Non-Digest Prep			591251	UAMX	ELLE	01/06/25 03:15
Dissolved	Analysis	6020B		10	592969	SAM2	ELLE	01/07/25 11:49
Total Recoverable	Prep	3005A			590866	UJL8	ELLE	01/06/25 06:44
Total Recoverable	Analysis	6020B		1	592757	LHF4	ELLE	01/06/25 18:30
Total Recoverable	Prep	3005A			590866	UJL8	ELLE	01/06/25 06:44
Total Recoverable	Analysis	6020B		5	592757	LHF4	ELLE	01/06/25 18:33

Client Sample ID: MW-211 5 g/L FeSO4 8
Lab Sample ID: 410-201755-5
Date Collected: 12/19/24 16:40
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591254	UAMX	ELLE	01/06/25 03:15
Dissolved	Analysis	6020B		1	592682	SAM2	ELLE	01/06/25 10:56

Lab Chronicle

Client: Terra Systems Inc
Job ID: 410-201755-1
Project/Site: WSP GRE Stanton SD CCR TS

Client Sample ID: MW-211 5 g/L FeSO4 8
Lab Sample ID: 410-201755-5
Date Collected: 12/19/24 16:40
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591254	UAMX	ELLE	01/06/25 03:15
Dissolved	Analysis	6020B		100	592682	SAM2	ELLE	01/06/25 11:06
Total Recoverable	Prep	3005A			590864	UJL8	ELLE	01/06/25 06:17
Total Recoverable	Analysis	6020B		1	592757	LHF4	ELLE	01/06/25 22:43
Total Recoverable	Prep	3005A			590864	UJL8	ELLE	01/06/25 06:17
Total Recoverable	Analysis	6020B		10	592757	LHF4	ELLE	01/06/25 22:45

Client Sample ID: MW-211 2 g/L FeS 8
Lab Sample ID: 410-201755-6
Date Collected: 12/19/24 16:50
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591254	UAMX	ELLE	01/06/25 03:15
Dissolved	Analysis	6020B		1	592682	SAM2	ELLE	01/06/25 11:26
Total Recoverable	Prep	3005A			590866	UJL8	ELLE	01/06/25 06:44
Total Recoverable	Analysis	6020B		1	592757	LHF4	ELLE	01/06/25 18:20

Client Sample ID: MW-211 10 g/L FeS 8
Lab Sample ID: 410-201755-7
Date Collected: 12/19/24 17:00
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591251	UAMX	ELLE	01/06/25 03:15
Dissolved	Analysis	6020B		1	592751	LHF4	ELLE	01/06/25 16:04
Total Recoverable	Prep	3005A			590866	UJL8	ELLE	01/06/25 06:44
Total Recoverable	Analysis	6020B		1	592757	LHF4	ELLE	01/06/25 18:18
Total Recoverable	Prep	3005A			590866	UJL8	ELLE	01/06/25 06:44
Total Recoverable	Analysis	6020B		10	592969	SAM2	ELLE	01/07/25 11:37

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Terra Systems Inc
Job ID: 410-201755-1
Project/Site: WSP GRE Stanton SD CCR TS

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-26
A2LA	Dept. of Energy	0001.01	11-30-26
A2LA	ISO/IEC 17025	0001.01	11-30-26
Alabama	State	43200	01-31-25
Alaska	State	PA00009	06-30-25
Alaska (UST)	State	17-027	02-28-25
Arizona	State	AZ0780	03-12-25
Arkansas DEQ	State	88-00660	08-09-25
California	State	2792	01-31-25
Colorado	State	PA00009	06-30-25
Connecticut	State	PH-0746	06-30-25
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-25
Delaware (DW)	State	N/A	01-31-25
Florida	NELAP	E87997	06-30-25
Georgia (DW)	State	C048	01-31-25
Hawaii	State	N/A	01-31-25
Illinois	NELAP	200027	01-31-26
Iowa	State	361	03-01-26
Kansas	NELAP	E-10151	10-31-25
Kentucky (UST)	State	0001.01	11-30-26
Kentucky (WW)	State	KY90088	12-31-25
Louisiana (All)	NELAP	02055	06-30-25
Maine	State	2019012	03-12-25
Maryland	State	100	06-30-25
Massachusetts	State	M-PA009	06-30-25
Michigan	State	9930	01-31-25
Minnesota	NELAP	042-999-487	12-31-25
Mississippi	State	023	01-31-25
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-26
Nebraska	State	NE-OS-32-17	01-31-25
New Hampshire	NELAP	2730	01-10-25
New Jersey	NELAP	PA011	06-30-25
New York	NELAP	10670	04-01-25
North Carolina (DW)	State	42705	07-31-25
North Carolina (WW/SW)	State	521	12-31-25
North Dakota	State	R-205	01-31-24 *
Oklahoma	NELAP	9804	08-31-24 *
Oregon	NELAP	PA200001	09-11-25
Pennsylvania	NELAP	36-00037	01-31-26
Quebec Ministry of Environment and Fight against Climate Change	PALA	507	09-16-29
Rhode Island	State	LAO00338	12-30-25
South Carolina	State	89002	01-31-25
Tennessee	State	02838	01-31-25
Texas	NELAP	T104704194-23-46	08-31-25
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-25
Virginia	NELAP	460182	06-14-25
Washington	State	C457	04-11-25

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Terra Systems Inc
Job ID: 410-201755-1
Project/Site: WSP GRE Stanton SD CCR TS

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
West Virginia (DW)	State	9906 C	01-31-25
West Virginia DEP	State	055	07-31-25
Wyoming	State	8TMS-L	01-31-25
Wyoming (UST)	A2LA	0001.01	11-30-26

Method Summary

Client: Terra Systems Inc
Job ID: 410-201755-1
Project/Site: WSP GRE Stanton SD CCR TS

Method	Method Description	Protocol	Laboratory
6020B	Metals (ICP/MS)	SW846	ELLE
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Terra Systems Inc
Job ID: 410-201755-1
Project/Site: WSP GRE Stanton SD CCR TS

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-201755-1	MW-211 Control 8	Water	12/19/24 16:00	12/20/24 16:16
410-201755-2	MW-211 5 mg/L DO 8	Water	12/19/24 16:10	12/20/24 16:16
410-201755-3	MW-211 10 mg/L DO 8	Water	12/19/24 16:20	12/20/24 16:16
410-201755-4	MW-211 1 g/L FeSO4 8	Water	12/19/24 16:30	12/20/24 16:16
410-201755-5	MW-211 5 g/L FeSO4 8	Water	12/19/24 16:40	12/20/24 16:16
410-201755-6	MW-211 2 g/L FeS 8	Water	12/19/24 16:50	12/20/24 16:16
410-201755-7	MW-211 10 g/L FeS 8	Water	12/19/24 17:00	12/20/24 16:16

Environmental Analysis Request/Chain of Custody

410-201755 Chain of Custody

:ories

Acct. # _____ Group # _____ Sample # _____

| Client: Terra Systems, Inc. | | |

Login Sample Receipt Checklist

Client: Terra Systems Inc

Job Number: 410-201755-1

Login Number: 201755

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Reynolds, Benjamin

Question	Answer	Comment
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Dr. Michael D Lee
Terra Systems Inc
130 Hickman Road
Suite 1
Claymont, Delaware 19703

Generated 1/7/2025 3:58:29 AM

JOB DESCRIPTION

WSP GRE Stanton SD CCR TS

JOB NUMBER

410-201758-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

myEOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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1/7/2025 3:58:29 AM

Authorized for release by
Stephen Gordon, Senior Project Manager
Stephen.Gordon@et.eurofinsus.com
(412)525-0071

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.



Table of Contents

Cover Page 1
Table of Contents 4
Definitions/Glossary 5
Case Narrative 6
Detection Summary 7
Client Sample Results 9
QC Sample Results 11
QC Association Summary 13
Lab Chronicle 15
Certification Summary 17
Method Summary 19
Sample Summary 20
Chain of Custody 21
Receipt Checklists 22

Definitions/Glossary

Client: Terra Systems Inc
Job ID: 410-201758-1
Project/Site: WSP GRE Stanton SD CCR TS

Qualifiers

Metals

Qualifier	Qualifier Description
^2	Calibration Blank (ICB and/or CCB) is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job Narrative
410-201758-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 12/20/2024 4:16 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.8°C.

Metals
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Terra Systems Inc
Project/Site: WSP GRE Stanton SD CCR TS

Job ID: 410-201758-1

Client Sample ID: MW-211 Control 24 — Lab Sample ID: 410-201758-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	11.8		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	215		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	12.4		2.06	0.700	ug/L	1		6020B	Dissolved

Client Sample ID: MW-211 5 mg/L DO 24 — Lab Sample ID: 410-201758-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	11.2		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	110		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	10.4		2.06	0.700	ug/L	1		6020B	Dissolved

Client Sample ID: MW-211 10 mg/L DO 24 — Lab Sample ID: 410-201758-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	11.0		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	222		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	10.8		2.06	0.700	ug/L	1		6020B	Dissolved

Client Sample ID: MW-211 1 g/L FeSO4 24 — Lab Sample ID: 410-201758-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	9.82		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	180000		500	200	ug/L	10		6020B	Total Recoverable
Arsenic	0.955	J	2.06	0.700	ug/L	1		6020B	Dissolved
Iron	147000		51.5	20.6	ug/L	1		6020B	Dissolved

Client Sample ID: MW-211 5 g/L FeSO4 24 — Lab Sample ID: 410-201758-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	9.42		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	812000	^2	500	200	ug/L	10		6020B	Total Recoverable
Arsenic	3.04		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	1050000		515	206	ug/L	10		6020B	Dissolved

Client Sample ID: MW-211 2 g/L FeS 24 — Lab Sample ID: 410-201758-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	11.2		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	49500		50.0	20.0	ug/L	1		6020B	Total Recoverable
Arsenic	5.48		2.06	0.700	ug/L	1		6020B	Dissolved
Iron	76.2		51.5	20.6	ug/L	1		6020B	Dissolved

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Terra Systems Inc
Job ID: 410-201758-1
Project/Site: WSP GRE Stanton SD CCR TS

Client Sample ID: MW-211 10 g/L FeS 24
Lab Sample ID: 410-201758-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	36.4		2.00	0.680	ug/L	1		6020B	Total Recoverable
Iron	1880000	^2	1000	400	ug/L	20		6020B	Total Recoverable
Arsenic	0.817	J	2.06	0.700	ug/L	1		6020B	Dissolved
Iron	56.6		51.5	20.6	ug/L	1		6020B	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-211 Control 24
Lab Sample ID: 410-201758-1
Date Collected: 12/20/24 08:00
Matrix: Water
Date Received: 12/20/24 16:16

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**11.8**		2.00	0.680	ug/L		01/06/25 06:32	01/06/25 14:08	1
Iron	**215**		50.0	20.0	ug/L		01/06/25 06:32	01/06/25 14:08	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**12.4**		2.06	0.700	ug/L		01/01/25 01:20	01/02/25 17:55	1
Iron	<20.6		51.5	20.6	ug/L		01/01/25 01:20	01/02/25 17:55	1

Client Sample ID: MW-211 5 mg/L DO 24
Lab Sample ID: 410-201758-2
Date Collected: 12/20/24 08:10
Matrix: Water
Date Received: 12/20/24 16:16

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**11.2**		2.00	0.680	ug/L		01/06/25 06:32	01/06/25 14:11	1
Iron	**110**		50.0	20.0	ug/L		01/06/25 06:32	01/06/25 14:11	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**10.4**		2.06	0.700	ug/L		01/06/25 03:15	01/06/25 16:20	1
Iron	<20.6		51.5	20.6	ug/L		01/06/25 03:15	01/06/25 16:20	1

Client Sample ID: MW-211 10 mg/L DO 24
Lab Sample ID: 410-201758-3
Date Collected: 12/20/24 08:20
Matrix: Water
Date Received: 12/20/24 16:16

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**11.0**		2.00	0.680	ug/L		01/06/25 06:32	01/06/25 13:41	1
Iron	**222**		50.0	20.0	ug/L		01/06/25 06:32	01/06/25 13:41	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**10.8**		2.06	0.700	ug/L		01/06/25 03:15	01/06/25 16:23	1
Iron	<20.6		51.5	20.6	ug/L		01/06/25 03:15	01/06/25 16:23	1

Client Sample ID: MW-211 1 g/L FeSO4 24
Lab Sample ID: 410-201758-4
Date Collected: 12/20/24 08:30
Matrix: Water
Date Received: 12/20/24 16:16

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**9.82**		2.00	0.680	ug/L		01/06/25 06:32	01/06/25 13:31	1
Iron	**180000**		500	200	ug/L		01/06/25 06:32	01/06/25 20:11	10

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.955**	**J**	2.06	0.700	ug/L		01/01/25 01:20	01/02/25 18:11	1
Iron	**147000**		51.5	20.6	ug/L		01/01/25 01:20	01/03/25 12:47	1

Client Sample ID: MW-211 5 g/L FeSO4 24
Lab Sample ID: 410-201758-5

Date Collected: 12/20/24 08:40
Matrix: Water
Date Received: 12/20/24 16:16

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	9.42		2.00	0.680	ug/L		01/06/25 06:32	01/06/25 22:38	1
Iron	812000	^2	500	200	ug/L		01/06/25 06:32	01/06/25 22:40	10

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.04		2.06	0.700	ug/L		01/01/25 01:20	01/02/25 18:02	1
Iron	1050000		515	206	ug/L		01/01/25 01:20	01/02/25 18:04	10

Client Sample ID: MW-211 2 g/L FeS 24
Lab Sample ID: 410-201758-6

Date Collected: 12/20/24 08:50
Matrix: Water
Date Received: 12/20/24 16:16

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	11.2		2.00	0.680	ug/L		01/06/25 06:32	01/06/25 13:17	1
Iron	49500		50.0	20.0	ug/L		01/06/25 06:32	01/06/25 13:17	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.48		2.06	0.700	ug/L		01/01/25 01:20	01/02/25 18:06	1
Iron	76.2		51.5	20.6	ug/L		01/01/25 01:20	01/02/25 18:06	1

Client Sample ID: MW-211 10 g/L FeS 24
Lab Sample ID: 410-201758-7

Date Collected: 12/20/24 09:00
Matrix: Water
Date Received: 12/20/24 16:16

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	36.4		2.00	0.680	ug/L		01/06/25 06:44	01/06/25 22:47	1
Iron	1880000	^2	1000	400	ug/L		01/06/25 06:44	01/06/25 22:50	20

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.817	J	2.06	0.700	ug/L		01/01/25 01:20	01/02/25 18:00	1
Iron	56.6		51.5	20.6	ug/L		01/01/25 01:20	01/02/25 18:00	1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 410-591251/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 592751
Prep Batch: 591251

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.700		2.06	0.700	ug/L		01/06/25 03:15	01/06/25 15:47	1
Iron	<20.6		51.5	20.6	ug/L		01/06/25 03:15	01/06/25 15:47	1

Lab Sample ID: LCS 410-591251/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 592751
Prep Batch: 591251

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	478.4		ug/L		96	90 - 109
Iron	5000	4861		ug/L		97	90 - 111

Lab Sample ID: MB 410-591277/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 591956
Prep Batch: 591277

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.700		2.06	0.700	ug/L		01/01/25 01:20	01/02/25 17:26	1
Iron	<20.6		51.5	20.6	ug/L		01/01/25 01:20	01/02/25 17:26	1

Lab Sample ID: LCS 410-591277/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 591956
Prep Batch: 591277

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	522.5		ug/L		104	90 - 109
Iron	5000	4975		ug/L		100	90 - 111

Lab Sample ID: MB 410-591307/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total Recoverable
Analysis Batch: 592757
Prep Batch: 591307

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.680		2.00	0.680	ug/L		01/06/25 06:44	01/06/25 20:24	1
Iron	<20.0		50.0	20.0	ug/L		01/06/25 06:44	01/06/25 20:24	1

Lab Sample ID: LCS 410-591307/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total Recoverable
Analysis Batch: 592757
Prep Batch: 591307

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	493.0		ug/L		99	90 - 109
Iron	5000	4985		ug/L		100	90 - 111

Lab Sample ID: LCSD 410-591307/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total Recoverable
Analysis Batch: 592757
Prep Batch: 591307

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	500	483.9		ug/L		97	90 - 109	2	20
Iron	5000	4872		ug/L		97	90 - 111	2	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 410-591329/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total Recoverable
Analysis Batch: 592682
Prep Batch: 591329

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.680		2.00	0.680	ug/L		01/06/25 06:32	01/06/25 13:00	1
Iron	<20.0		50.0	20.0	ug/L		01/06/25 06:32	01/06/25 13:00	1

Lab Sample ID: LCS 410-591329/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total Recoverable
Analysis Batch: 592682
Prep Batch: 591329

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	476.8		ug/L		95	90 - 109
Iron	5000	4931		ug/L		99	90 - 111

Lab Sample ID: LCSD 410-591329/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total Recoverable
Analysis Batch: 592682
Prep Batch: 591329

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	500	468.5		ug/L		94	90 - 109	2	20
Iron	5000	4872		ug/L		97	90 - 111	1	20

Lab Sample ID: MB 410-591330/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total Recoverable
Analysis Batch: 592757
Prep Batch: 591330

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<20.0		50.0	20.0	ug/L		01/06/25 06:32	01/06/25 18:48	1

Lab Sample ID: LCS 410-591330/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total Recoverable
Analysis Batch: 592757
Prep Batch: 591330

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	5000	4976		ug/L		100	90 - 111

Metals

Prep Batch: 591251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201758-2	MW-211 5 mg/L DO 24	Dissolved	Water	Non-Digest Prep	
410-201758-3	MW-211 10 mg/L DO 24	Dissolved	Water	Non-Digest Prep	
MB 410-591251/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-591251/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

Prep Batch: 591277

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201758-1	MW-211 Control 24	Dissolved	Water	Non-Digest Prep	
410-201758-4	MW-211 1 g/L FeSO4 24	Dissolved	Water	Non-Digest Prep	
410-201758-5	MW-211 5 g/L FeSO4 24	Dissolved	Water	Non-Digest Prep	
410-201758-6	MW-211 2 g/L FeS 24	Dissolved	Water	Non-Digest Prep	
410-201758-7	MW-211 10 g/L FeS 24	Dissolved	Water	Non-Digest Prep	
MB 410-591277/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-591277/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

Prep Batch: 591307

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201758-7	MW-211 10 g/L FeS 24	Total Recoverable	Water	3005A	
MB 410-591307/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 410-591307/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 410-591307/3-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	

Prep Batch: 591329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201758-1	MW-211 Control 24	Total Recoverable	Water	3005A	
410-201758-2	MW-211 5 mg/L DO 24	Total Recoverable	Water	3005A	
410-201758-3	MW-211 10 mg/L DO 24	Total Recoverable	Water	3005A	
410-201758-4	MW-211 1 g/L FeSO4 24	Total Recoverable	Water	3005A	
410-201758-6	MW-211 2 g/L FeS 24	Total Recoverable	Water	3005A	
MB 410-591329/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 410-591329/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 410-591329/3-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	

Prep Batch: 591330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201758-5	MW-211 5 g/L FeSO4 24	Total Recoverable	Water	3005A	
MB 410-591330/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 410-591330/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 591956

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201758-1	MW-211 Control 24	Dissolved	Water	6020B	591277
410-201758-4	MW-211 1 g/L FeSO4 24	Dissolved	Water	6020B	591277
410-201758-5	MW-211 5 g/L FeSO4 24	Dissolved	Water	6020B	591277
410-201758-5	MW-211 5 g/L FeSO4 24	Dissolved	Water	6020B	591277
410-201758-6	MW-211 2 g/L FeS 24	Dissolved	Water	6020B	591277
410-201758-7	MW-211 10 g/L FeS 24	Dissolved	Water	6020B	591277
MB 410-591277/1-A	Method Blank	Total/NA	Water	6020B	591277
LCS 410-591277/2-A	Lab Control Sample	Total/NA	Water	6020B	591277

QC Association Summary

Client: Terra Systems Inc
Job ID: 410-201758-1
Project/Site: WSP GRE Stanton SD CCR TS

Metals

Analysis Batch: 592208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201758-4	MW-211 1 g/L FeSO4 24	Dissolved	Water	6020B	591277

Analysis Batch: 592682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201758-1	MW-211 Control 24	Total Recoverable	Water	6020B	591329
410-201758-2	MW-211 5 mg/L DO 24	Total Recoverable	Water	6020B	591329
410-201758-3	MW-211 10 mg/L DO 24	Total Recoverable	Water	6020B	591329
410-201758-4	MW-211 1 g/L FeSO4 24	Total Recoverable	Water	6020B	591329
410-201758-6	MW-211 2 g/L FeS 24	Total Recoverable	Water	6020B	591329
MB 410-591329/1-A	Method Blank	Total Recoverable	Water	6020B	591329
LCS 410-591329/2-A	Lab Control Sample	Total Recoverable	Water	6020B	591329
LCSD 410-591329/3-A	Lab Control Sample Dup	Total Recoverable	Water	6020B	591329

Analysis Batch: 592751

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201758-2	MW-211 5 mg/L DO 24	Dissolved	Water	6020B	591251
410-201758-3	MW-211 10 mg/L DO 24	Dissolved	Water	6020B	591251
MB 410-591251/1-A	Method Blank	Total/NA	Water	6020B	591251
LCS 410-591251/2-A	Lab Control Sample	Total/NA	Water	6020B	591251

Analysis Batch: 592757

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-201758-4	MW-211 1 g/L FeSO4 24	Total Recoverable	Water	6020B	591329
410-201758-5	MW-211 5 g/L FeSO4 24	Total Recoverable	Water	6020B	591330
410-201758-5	MW-211 5 g/L FeSO4 24	Total Recoverable	Water	6020B	591330
410-201758-7	MW-211 10 g/L FeS 24	Total Recoverable	Water	6020B	591307
410-201758-7	MW-211 10 g/L FeS 24	Total Recoverable	Water	6020B	591307
MB 410-591307/1-A	Method Blank	Total Recoverable	Water	6020B	591307
MB 410-591330/1-A	Method Blank	Total Recoverable	Water	6020B	591330
LCS 410-591307/2-A	Lab Control Sample	Total Recoverable	Water	6020B	591307
LCS 410-591330/2-A	Lab Control Sample	Total Recoverable	Water	6020B	591330
LCSD 410-591307/3-A	Lab Control Sample Dup	Total Recoverable	Water	6020B	591307

Lab Chronicle

Client: Terra Systems Inc
Job ID: 410-201758-1
Project/Site: WSP GRE Stanton SD CCR TS

Client Sample ID: MW-211 Control 24
Lab Sample ID: 410-201758-1
Date Collected: 12/20/24 08:00
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591277	UJL8	ELLE	01/01/25 01:20
Dissolved	Analysis	6020B		1	591956	LHF4	ELLE	01/02/25 17:55
Total Recoverable	Prep	3005A			591329	UJL8	ELLE	01/06/25 06:32
Total Recoverable	Analysis	6020B		1	592682	SAM2	ELLE	01/06/25 14:08

Client Sample ID: MW-211 5 mg/L DO 24
Lab Sample ID: 410-201758-2
Date Collected: 12/20/24 08:10
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591251	UAMX	ELLE	01/06/25 03:15
Dissolved	Analysis	6020B		1	592751	LHF4	ELLE	01/06/25 16:20
Total Recoverable	Prep	3005A			591329	UJL8	ELLE	01/06/25 06:32
Total Recoverable	Analysis	6020B		1	592682	SAM2	ELLE	01/06/25 14:11

Client Sample ID: MW-211 10 mg/L DO 24
Lab Sample ID: 410-201758-3
Date Collected: 12/20/24 08:20
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591251	UAMX	ELLE	01/06/25 03:15
Dissolved	Analysis	6020B		1	592751	LHF4	ELLE	01/06/25 16:23
Total Recoverable	Prep	3005A			591329	UJL8	ELLE	01/06/25 06:32
Total Recoverable	Analysis	6020B		1	592682	SAM2	ELLE	01/06/25 13:41

Client Sample ID: MW-211 1 g/L FeSO4 24
Lab Sample ID: 410-201758-4
Date Collected: 12/20/24 08:30
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591277	UJL8	ELLE	01/01/25 01:20
Dissolved	Analysis	6020B		1	591956	LHF4	ELLE	01/02/25 18:11
Dissolved	Prep	Non-Digest Prep			591277	UJL8	ELLE	01/01/25 01:20
Dissolved	Analysis	6020B		1	592208	F7JF	ELLE	01/03/25 12:47
Total Recoverable	Prep	3005A			591329	UJL8	ELLE	01/06/25 06:32
Total Recoverable	Analysis	6020B		10	592757	LHF4	ELLE	01/06/25 20:11
Total Recoverable	Prep	3005A			591329	UJL8	ELLE	01/06/25 06:32
Total Recoverable	Analysis	6020B		1	592682	SAM2	ELLE	01/06/25 13:31

Client Sample ID: MW-211 5 g/L FeSO4 24
Lab Sample ID: 410-201758-5
Date Collected: 12/20/24 08:40
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591277	UJL8	ELLE	01/01/25 01:20
Dissolved	Analysis	6020B		1	591956	LHF4	ELLE	01/02/25 18:02

Lab Chronicle

Client: Terra Systems Inc
Job ID: 410-201758-1
Project/Site: WSP GRE Stanton SD CCR TS

Client Sample ID: MW-211 5 g/L FeSO4 24
Lab Sample ID: 410-201758-5
Date Collected: 12/20/24 08:40
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591277	UJL8	ELLE	01/01/25 01:20
Dissolved	Analysis	6020B		10	591956	LHF4	ELLE	01/02/25 18:04
Total Recoverable	Prep	3005A			591330	UJL8	ELLE	01/06/25 06:32
Total Recoverable	Analysis	6020B		1	592757	LHF4	ELLE	01/06/25 22:38
Total Recoverable	Prep	3005A			591330	UJL8	ELLE	01/06/25 06:32
Total Recoverable	Analysis	6020B		10	592757	LHF4	ELLE	01/06/25 22:40

Client Sample ID: MW-211 2 g/L FeS 24
Lab Sample ID: 410-201758-6
Date Collected: 12/20/24 08:50
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591277	UJL8	ELLE	01/01/25 01:20
Dissolved	Analysis	6020B		1	591956	LHF4	ELLE	01/02/25 18:06
Total Recoverable	Prep	3005A			591329	UJL8	ELLE	01/06/25 06:32
Total Recoverable	Analysis	6020B		1	592682	SAM2	ELLE	01/06/25 13:17

Client Sample ID: MW-211 10 g/L FeS 24
Lab Sample ID: 410-201758-7
Date Collected: 12/20/24 09:00
Matrix: Water
Date Received: 12/20/24 16:16

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			591277	UJL8	ELLE	01/01/25 01:20
Dissolved	Analysis	6020B		1	591956	LHF4	ELLE	01/02/25 18:00
Total Recoverable	Prep	3005A			591307	UJL8	ELLE	01/06/25 06:44
Total Recoverable	Analysis	6020B		1	592757	LHF4	ELLE	01/06/25 22:47
Total Recoverable	Prep	3005A			591307	UJL8	ELLE	01/06/25 06:44
Total Recoverable	Analysis	6020B		20	592757	LHF4	ELLE	01/06/25 22:50

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Terra Systems Inc
Job ID: 410-201758-1
Project/Site: WSP GRE Stanton SD CCR TS

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-26
A2LA	Dept. of Energy	0001.01	11-30-26
A2LA	ISO/IEC 17025	0001.01	11-30-26
Alabama	State	43200	01-31-25
Alaska	State	PA00009	06-30-25
Alaska (UST)	State	17-027	02-28-25
Arizona	State	AZ0780	03-12-25
Arkansas DEQ	State	88-00660	08-09-25
California	State	2792	01-31-25
Colorado	State	PA00009	06-30-25
Connecticut	State	PH-0746	06-30-25
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-25
Delaware (DW)	State	N/A	01-31-25
Florida	NELAP	E87997	06-30-25
Georgia (DW)	State	C048	01-31-25
Hawaii	State	N/A	01-31-25
Illinois	NELAP	200027	01-31-26
Iowa	State	361	03-01-26
Kansas	NELAP	E-10151	10-31-25
Kentucky (UST)	State	0001.01	11-30-26
Kentucky (WW)	State	KY90088	12-31-25
Louisiana (All)	NELAP	02055	06-30-25
Maine	State	2019012	03-12-25
Maryland	State	100	06-30-25
Massachusetts	State	M-PA009	06-30-25
Michigan	State	9930	01-31-25
Minnesota	NELAP	042-999-487	12-31-25
Mississippi	State	023	01-31-25
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-26
Nebraska	State	NE-OS-32-17	01-31-25
New Hampshire	NELAP	2730	01-10-25
New Jersey	NELAP	PA011	06-30-25
New York	NELAP	10670	04-01-25
North Carolina (DW)	State	42705	07-31-25
North Carolina (WW/SW)	State	521	12-31-25
North Dakota	State	R-205	01-31-24 *
Oklahoma	NELAP	9804	08-31-24 *
Oregon	NELAP	PA200001	09-11-25
Pennsylvania	NELAP	36-00037	01-31-26
Quebec Ministry of Environment and Fight against Climate Change	PALA	507	09-16-29
Rhode Island	State	LAO00338	12-30-25
South Carolina	State	89002	01-31-25
Tennessee	State	02838	01-31-25
Texas	NELAP	T104704194-23-46	08-31-25
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-25
Virginia	NELAP	460182	06-14-25
Washington	State	C457	04-11-25

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Terra Systems Inc
Job ID: 410-201758-1
Project/Site: WSP GRE Stanton SD CCR TS

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
West Virginia (DW)	State	9906 C	01-31-25
West Virginia DEP	State	055	07-31-25
Wyoming	State	8TMS-L	01-31-25
Wyoming (UST)	A2LA	0001.01	11-30-26

Method Summary

Client: Terra Systems Inc
Job ID: 410-201758-1
Project/Site: WSP GRE Stanton SD CCR TS

Method	Method Description	Protocol	Laboratory
6020B	Metals (ICP/MS)	SW846	ELLE
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Terra Systems Inc
Job ID: 410-201758-1
Project/Site: WSP GRE Stanton SD CCR TS

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-201758-1	MW-211 Control 24	Water	12/20/24 08:00	12/20/24 16:16
410-201758-2	MW-211 5 mg/L DO 24	Water	12/20/24 08:10	12/20/24 16:16
410-201758-3	MW-211 10 mg/L DO 24	Water	12/20/24 08:20	12/20/24 16:16
410-201758-4	MW-211 1 g/L FeSO4 24	Water	12/20/24 08:30	12/20/24 16:16
410-201758-5	MW-211 5 g/L FeSO4 24	Water	12/20/24 08:40	12/20/24 16:16
410-201758-6	MW-211 2 g/L FeS 24	Water	12/20/24 08:50	12/20/24 16:16
410-201758-7	MW-211 10 g/L FeS 24	Water	12/20/24 09:00	12/20/24 16:16

410-201758 Chain of Custody

Environmental Analysis Request/Chain of Custody

ies

Acct. # _____ Group # _____ Sample # _____

| Client: Terra Systems, Inc. | | |

Login Sample Receipt Checklist

Client: Terra Systems Inc

Job Number: 410-201758-1

Login Number: 201758

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Reynolds, Benjamin

Question	Answer	Comment
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	



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