January 31, 2025

Subject:

2024 Annual Groundwater Monitoring and Corrective Action Report
Former JR Whiting Power Plant
Pond 1 & 2 and Pond 6

Enclosures:

Document	Date
CCR Annual Groundwater Report Requirements: § 257.90(e). Checklist for the JR Whiting Pond 1 & 2 CCR Unit	January 31, 2025
CCR Annual Groundwater Report Requirements: § 257.90(e). Checklist for the JR Whiting Pond 6 CCR Unit	January 31, 2025
2024 Annual Groundwater Monitoring and Corrective Action Report, Former JR Whiting Power Plant, Pond 1 & 2 and Pond 6. (TRC, January 31, 2025)	January 31, 2025

The attached document(s) are prepared in conformance with:

Document	Date
§ 257.90(e) of 40 CFR Part 257, Disposal of Coal Combustion Residuals from Electric Utilities, under Subpart D of the Resource Conservation and Recovery Act (RCRA)	April 17, 2015

Consumers Energy
1945 W. Parnall Road
Jackson, MI 49201
www.consumersenergy.com

CCR Annual Groundwater Report Requirements: § 257.90(e)
Checklist for the JR Whiting Pond 1 & 2 CCR Unit
2024 Annual Report

Requirement	Reference
At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available: (1) A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit;	Figure 2[(1)(2)]
(2) Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;	Section 2.1[(1)(2)], Section 2.0[(3)] Note: No monitoring wells were installed or decomissioned during 2024.
(3) In addition to all the monitoring data obtained under §§ 257.90 through 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs;	Section 2.2[(1)(2)], Table 3[(1)(2)]
(4) A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels); and	Section 1.0[(1)(2)(3)] Note: CCR unit remains in Detection Monitoring
(5) Other information required to be included in the annual report as specified in §§ 257.90 through 257.98.	Section 3.0[(1)(2)], Section 3.0[(3)]
(6) A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit. At a minimum, the summary must specify all of the following: (i) At the start of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95;	Section 1.0[(1)(2)(3)], Section 3.0[(3)]
(ii) At the end of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95;	Section 3.2[(1)(2)], Section 3.0[(3)], Section 4.0[(1)(2)]
(iii) If it was determined that there was a statistically significant increase over background for one or more constituents listed in appendix III to this part pursuant to § 257.94(e):	Not Applicable; remaining in Detection Monitoring
(A) Identify those constituents listed in appendix III to this part and the names of the monitoring wells associated with such an increase; and	
(B) Provide the date when the assessment monitoring program was initiated for the CCR unit.	Not Applicable; Detection Monitoring
(iv) If it was determined that there was a statistically significant level above the groundwater protection standard for one or more constituents listed in appendix IV to this part pursuant to § 257.95(g) include all of the following:	Not Applicable; Detection Monitoring
(A) Identify those constituents listed in appendix IV to this part and the names of the monitoring wells associated with such an increase;	Not Applicable; Detection Monitoring
(B) Provide the date when the assessment of corrective measures was initiated for the CCR unit;	Not Applicable; Detection Monitoring
(C) Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit; and	Not Applicable; Detection Monitoring
(D) Provide the date when the assessment of corrective measures was completed for the CCR unit.	Not Applicable; Detection Monitoring
(v) Whether a remedy was selected pursuant to § 257.97 during the current annual reporting period, and if so, the date of remedy selection; and	Not Applicable; Detection Monitoring
(vi) Whether remedial activities were initiated or are ongoing pursuant to § 257.98 during the current annual reporting period.	Not Applicable; Detection Monitoring

Notes:

(1) *First Semiannual 2024 Groundwater Monitoring Report Former JR Whiting Power Plant Pond 1 & 2 and Pond 6.* TRC. July 29, 2024. (Appendix A of the Annual Report)

(2) *Second Semiannual 2024 Groundwater Monitoring Report Former JR Whiting Power Plant Pond 1 & 2 and Pond 6.* TRC. January 30, 2025. (Appendix B of the Annual Report)

(3) *2024 Annual Groundwater Monitoring and Corrective Action Report Former JR Whiting Power Plant Pond 1 & 2 and Pond 6.* TRC. January 31, 2025.

CCR Annual Groundwater Report Requirements: § 257.90(e)
Checklist for the JR Whiting Pond 6 CCR Unit
2024 Annual Report

Requirement	Reference
At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available: (1) A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit;	Figure 2[(1)(2)]
(2) Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;	Section 2.1[(1)(2)], Section 2.0[(3)] Note: No monitoring wells were installed or decomissioned during 2024.
(3) In addition to all the monitoring data obtained under §§ 257.90 through 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs;	Section 2.2[(1)(2)], Table 4[(1)(2)]
(4) A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels); and	Section 1.0[(1)(2)(3)] Note: CCR unit remains in Detection Monitoring
(5) Other information required to be included in the annual report as specified in §§ 257.90 through 257.98.	Section 3.0[(1)(2)], Section 3.0[(3)]
(6) A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit. At a minimum, the summary must specify all of the following: (i) At the start of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95;	Section 1.0[(1)(2)(3)], Section 3.0[(3)]
(ii) At the end of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95;	Section 3.3[(1)(2)], Section 3.0[(3)], Section 4.0[(1)(2)]
(iii) If it was determined that there was a statistically significant increase over background for one or more constituents listed in appendix III to this part pursuant to § 257.94(e):	Not Applicable; remaining in Detection Monitoring
(A) Identify those constituents listed in appendix III to this part and the names of the monitoring wells associated with such an increase; and	
(B) Provide the date when the assessment monitoring program was initiated for the CCR unit.	Not Applicable; Detection Monitoring
(iv) If it was determined that there was a statistically significant level above the groundwater protection standard for one or more constituents listed in appendix IV to this part pursuant to § 257.95(g) include all of the following:	Not Applicable; Detection Monitoring
(A) Identify those constituents listed in appendix IV to this part and the names of the monitoring wells associated with such an increase;	Not Applicable; Detection Monitoring
(B) Provide the date when the assessment of corrective measures was initiated for the CCR unit;	Not Applicable; Detection Monitoring
(C) Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit; and	Not Applicable; Detection Monitoring
(D) Provide the date when the assessment of corrective measures was completed for the CCR unit.	Not Applicable; Detection Monitoring
(v) Whether a remedy was selected pursuant to § 257.97 during the current annual reporting period, and if so, the date of remedy selection; and	Not Applicable; Detection Monitoring
(vi) Whether remedial activities were initiated or are ongoing pursuant to § 257.98 during the current annual reporting period.	Not Applicable; Detection Monitoring

Notes:

(1) *First Semiannual 2024 Groundwater Monitoring Report Former JR Whiting Power Plant Pond 1 & 2 and Pond 6.* TRC. July 29, 2024. (Appendix A of the Annual Report)

(2) *Second Semiannual 2024 Groundwater Monitoring Report Former JR Whiting Power Plant Pond 1 & 2 and Pond 6.* TRC. January 30, 2025. (Appendix B of the Annual Report)

(3) *2024 Annual Groundwater Monitoring and Corrective Action Report Former JR Whiting Power Plant Pond 1 & 2 and Pond 6.* TRC. January 31, 2025.

2024 Annual Groundwater Monitoring and Corrective Action Report

Former JR Whiting Power Plant
Pond 1 & 2 and Pond 6

Erie, Michigan

January 2025

Prepared For:

Consumers Energy

Prepared By:

TRC
1540 Eisenhower Place
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APPENDICES

1.0 Program Summary

Coal Combustion Residuals (CCR) are regulated under the Resource Conservation and Recovery Act (RCRA) (the CCR Rule) (USEPA, April 2015, as amended). Standards for groundwater monitoring and corrective action codified in the CCR Rule (40 CFR 257.90-98), apply to the Consumers Energy Company (Consumers Energy) Pond 1 & 2 and Pond 6 at the former JR Whiting (JRW) Power Plant Site. Pursuant to the CCR Rule, the owner or operator of a CCR unit must prepare an annual groundwater monitoring and corrective action report for the CCR unit documenting the status of groundwater monitoring and corrective action for the preceding year in accordance with §257.90(e). On behalf of Consumers Energy, TRC has prepared this Annual Groundwater Monitoring Report for JRW Pond 1 & 2 and Pond 6 to cover the period of January 1, 2024 to December 31, 2024. The reporting schedules for Pond 1 & 2 and Pond 6 have been aligned to be due no later than January 31 of each year.

This 2024 Pond 1 & 2 and Pond 6 Annual Report was prepared in accordance with the requirements of §257.90(e) and presents the monitoring results and the statistical evaluation of the detection monitoring constituents (Appendix III to Part 257 of the CCR Rule) for the April and October 2024 semiannual groundwater monitoring events for Pond 1 & 2 and Pond 6. As part of the statistical evaluation, the data collected during detection monitoring events are evaluated to identify statistically significant increases (SSIs) in detection monitoring constituents to determine if concentrations in detection monitoring well samples exceed background levels.

No SSIs over background limits attributable to Pond 1 & 2 or Pond 6 were identified for any of the Appendix III constituents during the 2024 monitoring events. Pond 1 & 2 and Pond 6 remained in detection monitoring through the period covered by this report. As such, Consumers Energy will continue with the detection monitoring program at the JRW Pond 1 & 2 and Pond 6 in conformance with §257.90 - §257.94.

2.0 Groundwater Monitoring

The semiannual monitoring events were completed in April and October 2024 to comply with both the CCR Rule and the Michigan Department of Environment, Great Lakes, and Energy (EGLE)-approved monitoring program established for Pond 1 & 2 and Pond 6 in early 2020. Given the congruencies between the two programs, data collected and evaluated under both programs are presented together in two semiannual reports to document the 2024 monitoring activities.

No monitoring wells were installed or decommissioned in 2024. Key actions in the 2024 reporting period included performing detection monitoring for Pond 1 & 2 and Pond 6. No problems were encountered and thus no actions were needed to resolve problems. Key activities projected for 2025 include semi-annual detection monitoring.

2.1 First Semiannual Monitoring Event

A summary of the first semiannual groundwater monitoring event is provided in Appendix A.

2.2 Second Semiannual Monitoring Event

A summary of the second semiannual groundwater monitoring event is provided in Appendix B.

3.0 Corrective Action

There were no corrective actions needed or performed for either Pond 1 & 2 or Pond 6 within the calendar year 2024. No SSIs were recorded for the monitoring period that were attributable to either Pond 1 & 2 or Pond 6; therefore, Consumers Energy will continue with the detection monitoring program at the JRW Pond 1 & 2 and Pond 6 CCR unit in conformance with §257.90 - §257.94.

Appendix A
First Semiannual Monitoring Report

July 29, 2024

Brett Coulter, CPG, District Geologist
EGLE, Materials Management Division
State Office Building
301 East Louis Glick Highway
Jackson, MI 49201

via email: CoulterB1@michigan.gov

TRANSMITTAL OF GROUNDWATER MONITORING RESULTS FOR JR WHITING SOLID WASTE DISPOSAL AREA

Dear Mr. Coulter,

Please find attached the First Semiannual 2024 Groundwater Monitoring Report for the JR Whiting Solid Waste Disposal Area, Facility ID 397664, prepared pursuant to the May 2020 Hydrogeological Monitoring Plan.

JR Whiting was following the groundwater monitoring waiver approved on September 2, 2009 until the federal Resource Conservation and Recovery Act (RCRA) coal combustion residuals (CCR) rule required groundwater monitoring at JR Whiting Pond 1&2 and then at Pond 6, beginning around 2016. Since then, in December 2018, the State of Michigan enacted Public Act No. 640 of 2018 (PA 640) to amend the Natural Resources and Environmental Project Act, also known as Part 115 of PA 451 of 1994, as amended, to incorporate requirements of the federal CCR Rule. In 2019, Consumers Energy submitted a revised JR Whiting Hydrogeological Monitoring Plan, former JR Whiting Plant, Erie, Michigan (2020 HMP) (TRC, May 2020 Revision) that was finalized and approved by the Michigan Department of Environment, Great Lakes, and Energy in May 2020. The revised HMP harmonizes both the CCR Rule and state of Michigan requirements. This submittal was prepared in accordance with the July 5, 2013 OWMRP-115-29 communication under the revised HMP.

Please contact me if you have any questions regarding this transmittal.

Sincerely,

Harold D. Register

Harold D. Register, Jr., P.E.
Sr. Principal Environmental Engineer
Phone: (517) 788-2982
Email: harold.registerjr@cmsenergy.com

cc Gary Schwerin, EGLE (via email)

First Semiannual 2024 Groundwater Monitoring Report

Former JR Whiting Power Plant Pond 1 & 2 and Pond 6

Erie, Michigan

July 2024

Prepared For:

Consumers Energy

Prepared By:

TRC
1540 Eisenhower Place
Ann Arbor, Michigan 48108

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Project Manager

Vincent E. Buening, C.P.G.
Sr. Hydrogeologist

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APPENDICES

1.0 Introduction

On April 17, 2015, the United States Environmental Protection Agency (USEPA) published the final rule for the regulation and management of Coal Combustion Residuals (CCR) under the Resource Conservation and Recovery Act (RCRA) (the CCR Rule), as amended. Standards for groundwater monitoring and corrective action codified in the CCR Rule (40 CFR 257.90-98) apply to the Consumers Energy Company (Consumers Energy) Ponds 1 and 2 (closed surface impoundment monitored as Pond 1 & 2 using a multiunit groundwater monitoring system) and Pond 6 (closed inactive surface impoundment) at the former JR Whiting (JRW) Power Plant Site (the Site). Prior to the CCR Rule, from about 2009 to 2016, JR Whiting followed the approved groundwater monitoring waiver.

On December 28, 2018, the State of Michigan enacted Public Act No. 640 of 2018 (PA 640) to amend the Natural Resources and Environmental Protection Act, also known as Part 115 of PA 451 of 1994, as amended (a.k.a., Michigan Part 115 Solid Waste Management). The December 2018 amendments to Part 115 were developed to provide the State of Michigan oversight of CCR impoundments and landfills and to better align existing state solid waste management rules and statutes with the CCR Rule. On August 8, 2019 Consumers Energy submitted a revised *JR Whiting Hydrogeological Monitoring Plan, former JR Whiting Power Plant, Erie, Michigan* (2020 HMP) (TRC, May 2020 Revision) to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) to comply with the requirements of Part 115, Rule 299.4905, and the CCR Rule. The HMP was approved by the EGLE on May 11, 2020.

1.1 Statement of Adherence to Approved Hydrogeological Monitoring Plan

This JR Whiting First Semiannual 2024 Hydrogeological Monitoring Report (Report) has been prepared by TRC on behalf of Consumers Energy to present groundwater monitoring data collected from the JR Whiting Pond 1 & 2 and Pond 6 during the second calendar quarter of 2024. This report was prepared in accordance with the items listed in Appendix A (Solid Waste Monitoring Submittal Components) of the July 5, 2013 Michigan Department of Environmental Quality – Office of Waste Management and Radiological Protection (MDEQ-OWMRP), now the EGLE Materials Management Division (MMD), communication prescribing the format for solid waste disposal facility monitoring submittals as published in OWMRP-115-29, Format for Solid Waste Disposal Monitoring Submittals. All references herein to the EGLE are inclusive of the MDEQ. Groundwater sampling, analysis, and information contained in this report was prepared in adherence to the 2020 HMP.

1.2 Program Summary

Historically groundwater monitoring at JRW was performed under the HMP last revised on November 26, 1997 until the groundwater monitoring waiver was approved on September 2, 2009. It was then again performed pursuant to the CCR Rule beginning in 2016 until implementation of the 2020 HMP, at which time monitoring began to be conducted in accordance with both regulatory programs. In the *Second Semiannual 2023 Groundwater Monitoring Report* for the JRW Pond 1 & 2 and Pond 6 (Second Semiannual 2023 Report) (TRC, October 2023), Consumers Energy reported that no potential statistically significant increases (SSIs) were noted during the second 2023 semiannual detection monitoring event.

Therefore, Consumers Energy continued detection monitoring in the first half of 2024 at Pond 1 & 2 and Pond 6 pursuant to §257.94 of the CCR Rule and the HMP.

This First Semiannual 2024 Report presents the monitoring results and the statistical evaluation of the detection monitoring constituents (Section 11511a(3)(c) of Part 115) for the April 2024 semiannual groundwater monitoring event for Pond 1 & 2 and Pond 6. Detection monitoring was performed in accordance with the 2020 HMP. As part of the statistical evaluation, the data collected during detection monitoring events are evaluated to identify SSIs of detection monitoring constituents compared to background levels.

1.3 Site Overview

The JR Whiting Plant was a coal-fired power generation facility located in Erie, Michigan, on the western shore of Lake Erie (Figure 1). The plant began producing electricity in 1952 from Units 1 and 2, with Unit 3 beginning operation in 1953. The plant ceased operation in April 2016. Figure 1 is the site location map showing the facility and the surrounding area. Site features are shown on Figure 2.

The JR Whiting Ash Disposal Area is licensed under Michigan Part 115 of the Natural Resources and Environmental Protection Act (NREPA), PA 451 of 1994, as amended.

Pond 1 & 2 is located to the east of the plant, north of the discharge canal, south of Erie Road, and west of Lake Erie and constructed in native clay soil. It was historically used for wet ash sluicing. In 2019, it received its final cover system constructed pursuant to 40 CFR 257.102(a); the Pond 1 & 2 Closure Construction Quality Assurance (CQA) Plan dated August 31, 2017; the Part 115 Administrative Rules; and Pond 1 & 2 Closure Plan submitted to the EGLE on December 18, 2017. The closure of Pond 1 & 2 was certified by the EGLE in a letter dated August 27, 2020.

Pond 6 is located to the north of the plant and was constructed in native clay soil. It was an inactive surface impoundment at the time the CCR Rule became effective on October 19, 2015, and was capped with a final cover certified pursuant to the CCR Rule on December 5, 2017, and certified by the EGLE on August 24, 2018.

1.4 Geology/Hydrogeology

Pond 1 & 2 and Pond 6 are located adjacent to Lake Erie. The subsurface materials encountered at the JR Whiting site are predominately clay-rich till. The surficial CCR fill material is underlain by approximately 40 to 50 feet of laterally extensive clay-rich till that acts as a natural hydraulic barrier across the Site. Limestone bedrock is present beneath the till and is considered the uppermost aquifer at the Site.

Groundwater present within the uppermost aquifer is typically encountered at Pond 1 & 2 and Pond 6 around 70 to 80 feet below ground surface (ft bgs), approximately 510 to 520 feet above mean sea level (AMSL), in the limestone (beneath the till). The uppermost aquifer is confined and protected from CCR constituents by the 40- to 50-foot-thick overlying clay-rich aquitard that interfaces with the limestone at the elevation range of 510 to 520 ft. Potentiometric surface

elevation data from groundwater within the CCR monitoring wells represents the levels in which groundwater rises under hydrostatic pressure within each well and exhibit an extremely low hydraulic gradient across the Site with no consistent or discernible flow direction.

2.0 Groundwater Monitoring

2.1 Monitoring Well Network

A groundwater monitoring system has been established for Pond 1 & 2 and Pond 6 for the purpose of detection monitoring. The detection monitoring well network for Pond 1 & 2 and Pond 6 currently consists of six monitoring wells for each CCR unit that are screened in the uppermost aquifer. Monitoring well locations are shown on Figure 2.

As discussed in the HMP, intrawell statistical methods for JR Whiting were selected based on the geology and hydrogeology at the Site (primarily the presence of clay/hydraulic barrier, no apparent flow direction and lack of flow potential across the aquifer), in addition to other supporting lines of evidence that the aquifer is unaffected by the CCR unit (such as the consistency in concentrations of water quality data and similarities in concentrations in wells JRW-MW-16007 through JRW-MW-16009 and the Pond 1 & 2 and Pond 6 monitoring wells).

An intrawell statistical approach requires that each of the downgradient wells double as the background and compliance well, where data from each individual well during a detection monitoring event is compared to a statistical limit developed using the background dataset from that same well. Monitoring wells JRW-MW-15001 through JRW-MW-15006 are located around the perimeter of Pond 1 & 2 and monitoring wells JRW-MW-16001 through JRW-MW-16006 are located around the perimeter of Pond 6. These monitoring wells provide data on both background and downgradient groundwater quality that has not been affected by the CCR unit (a total of six background/downgradient monitoring wells for each pond).

As shown on Figure 2, monitoring wells JRW-MW-16007 through JRW-MW-16009 are used for water level measurements only. These wells were initially installed as potential background monitoring wells during the initial stages of characterizing the Site. However, based on further hydrogeological characterization of the uppermost aquifer, an intrawell statistical approach was selected, which does not rely on JRW-MW-16007 through JRW-MW-16009 for statistical evaluation.

No monitoring wells have been installed or decommissioned since the previous monitoring event.

2.2 April 2024 Groundwater Monitoring

Consumers Energy Laboratory Services personnel performed gauging and sampling of monitoring wells associated with Pond 1 & 2 and Pond 6 on April 9, 2024. Groundwater monitoring was performed in accordance with the HMP. Groundwater samples collected during the April 2024 event were submitted to Consumers Energy Laboratory Services in Jackson, Michigan, for analysis of the following metals and inorganic indicator constituents:

Section 11511a(3)(c) – Detection Monitoring Constituents
Boron
Calcium
Chloride
Fluoride
Iron
pH
Sulfate
Total Dissolved Solids (TDS)

Static water level measurements that represent the potentiometric surface were collected at all locations after equilibration to atmospheric pressure. The depth to water was measured according to ASTM D 4750, "Standard Test Method for Determining Subsurface Liquid Levels in a Borehole or Monitoring Well" and recorded to the nearest 0.01 foot. Static water elevation data are summarized in Table 1.

Groundwater samples were collected using a peristaltic pump or submersible pump in accordance with low flow sampling protocol and were not field filtered to allow for total metals analysis. Groundwater field parameters included dissolved oxygen, oxidation reduction potential, pH, specific conductivity, temperature, and turbidity and are summarized on Table 2. All samples were collected in vendor-provided, nitric acid pre-preserved (metals only) and unpreserved sample containers and submitted to the laboratory for analysis. Consumers Energy followed chain of custody procedures to document the sample handling.

Consumers Energy collected quality assurance/quality control (QA/QC) samples from both CCR units, Pond 1 & 2 and Pond 6, during the April 2024 groundwater sampling event. The QA/QC samples per CCR unit consisted of one field blank, one equipment blank, one field duplicate (JRW-MW-15003 at Pond 1 & 2 and JHC-MW-16006 at Pond 6), and one field matrix spike/matrix spike duplicate (MS/MSD) sample collected from JRW-MW-15006 at Pond 1 & 2, and JHC-MW-16003 at Pond 6.

Groundwater analytical results from the semiannual monitoring event are summarized in Table 3 (Pond 1 & 2) and Table 4 (Pond 6). The laboratory analytical reports are included in Appendix B. Field records are included in Appendix C.

2.2.1 Data Quality Review

Data from each round were evaluated for completeness, overall quality and usability, method-specified sample holding times, precision and accuracy, and potential sample contamination. The data were found to be complete and usable for the purposes of the CCR monitoring program. Data quality reviews are summarized in Appendix A.

2.2.2 Groundwater Flow Rate and Direction

Groundwater elevation data collected during the background sampling events showed that the hydraulic gradient for groundwater within the uppermost aquifer is often so low that groundwater flow across Pond 1 & 2 and Pond 6 is frequently incalculable and often stagnant.

There are minor differences in hydraulic head across the monitoring wells (ranging from zero up to 0.15 feet across Pond 1 & 2 and up to 0.24 feet across Pond 6 from event to event from November 2016 through April 2024), indicating that the potentiometric surface is flat the majority of the time. In the few instances since November 2016 where a slight gradient was observed and calculable, the direction of the flow potential was highly variable event to event with flow directions slightly to the northwest, east, and northeast from Pond 1 & 2 and slightly to the south, west, and northeast from Pond 6.

The most pronounced groundwater gradient between November 2016 and April 2024 at Pond 1 & 2 was observed on December 19, 2016, which showed a slight horizontal gradient of approximately 0.00016 ft/ft to the northwest across Pond 1 & 2. For Pond 6, the most pronounced potentiometric head differential of 0.24 feet was observed on February 28, 2018 between JRW-MW-16001 on the north edge of Pond 6 and JRW-MW-16004 on the south edge of the Pond 6 CCR unit. Although, when considering the potentiometric surface elevation data from all of the Pond 6 CCR unit wells, the general groundwater flow direction inferred across the pond at that time is to the southwest, in order to be conservative, the maximum head difference was used to calculate the maximum groundwater flow velocity at the Pond 6 CCR unit throughout the background monitoring period. This results in a very slight horizontal gradient of approximately 0.000099 ft/ft to the south.

2.2.2.1 Pond 1 & 2

Although there was no clear flow direction when looking at water levels across the Pond 1 & 2 well network, the maximum groundwater gradient inferred on April 9, 2024, was calculated using well pair JRW-MW-15005/JRW-MW-15006 and JRW-MW-15002/JRW-MW-15006 to conservatively demonstrate the low groundwater flow rate potential. The head difference across Pond 1 & 2 ranged from 0.00 to 0.09 feet between monitoring wells, with a low calculated horizontal gradient of approximately 0.00014 ft/ft using the maximum head differential. Since both well pairs exhibited the same maximum head differential, the average of the two gradients was used in the calculation. Using the highest hydraulic conductivity measured at the Pond 1 & 2 monitoring wells of 20 feet/day (ARCADIS, 2016), and an assumed effective porosity of 0.1, this results in a maximum inferred groundwater flow rate of approximately 0.028 feet/day (approximately 10 feet/year). However, the actual gradient is much lower when considering the low head difference in the rest of the monitoring wells across Pond 1 & 2 and the lack of discernable flow direction. The Pond 1 & 2 groundwater potentiometric surface elevations measured during the April 2024 sampling event are provided on Table 1 and are summarized in plan view on Figure 3.

The extremely low gradient and lack of general flow direction is similar to that identified in previous monitoring rounds (since the background sampling events commenced in December 2016) and continues to demonstrate that the downgradient compliance wells are appropriately

positioned to detect the presence of detection monitoring constituents that could potentially migrate from Pond 1 & 2.

2.2.2.2 Pond 6

Although there was no clear flow direction when looking at water levels across the Pond 6 well network, the maximum groundwater gradient inferred on April 9, 2024, was calculated using well pair JRW-MW-16006/JRW-MW-16002 and JRW-MW-16003/JRW-MW-16002 to conservatively demonstrate the low groundwater flow rate potential. The head difference across Pond 6 ranged from 0.00 to 0.05 feet between monitoring wells, with a low calculated horizontal gradient of approximately 0.000055 ft/ft using the maximum head differential. Since both well pairs exhibited the same maximum head differential, the average of the two gradients was used in the calculation. Using the highest hydraulic conductivity measured at the Pond 6 CCR unit monitoring wells (11.9 feet/day from the 2016 TRC well installation report) and an assumed effective porosity of 0.1, this results in a maximum inferred groundwater flow rate of approximately 0.0065 feet/day (approximately 2.4 feet/year). Groundwater potentiometric surface elevations measured during the April 2024 sampling event are provided on Table 1 and are summarized in plan view on Figure 3.

The extremely low gradient and/or lack of a consistent or discernable general flow direction is similar to that identified in previous monitoring rounds since the background sampling events commenced in November 2016 and continues to demonstrate that the downgradient compliance wells are appropriately positioned to detect the presence of detection monitoring constituents that could potentially migrate from the JRW Pond 6.

3.0 Statistical Evaluation

Detection monitoring is continuing at JR Whiting Pond 1 & 2 and Pond 6 in accordance with the HMP. The following section summarizes the statistical approach applied to assess the semiannual groundwater data in accordance with the detection monitoring program.

3.1 Establishing Background Limits

3.1.1 Pond 1 & 2

Per the HMP, background limits were established for the detection monitoring constituents using data collected from each of the six established detection monitoring wells (JRW-MW-15001 through JRW-MW-15006). The background limits for each monitoring well have been calculated using thirteen rounds of data collected from November 2016 through March 2019 as presented in detail in the 2019 Annual Report. These background limits will continue to be used throughout the detection monitoring program to determine whether groundwater has been impacted from Pond 1 & 2 by comparing concentrations in the detection monitoring wells to their respective background limits for each detection monitoring constituent, with the exception of iron.

Iron was incorporated into the monitoring program as part of the 2020 HMP. The initial background limits for iron have been calculated using data collected through the October 2023 event as presented in detail in the Second Semiannual 2023 Report. These iron background limits are used to compare to iron groundwater results beginning with the first semiannual 2024 detection monitoring event.

3.1.2 Pond 6

Per the HMP, background limits were established for the detection monitoring constituents using data collected from each of the six established detection monitoring wells (JRW-MW-16001 through JRW-MW-16006). The statistical evaluation of the background data is presented in the Pond 6 July 2019 Annual Report. The detection monitoring background limits for each monitoring well will continue to be used throughout the detection monitoring period to determine whether groundwater has been impacted from Pond 6 by comparing concentrations in the detection monitoring wells to their respective background limits for each detection monitoring constituent, with the exception of iron.

Iron was incorporated into the monitoring program as part of the 2020 HMP. The initial background limits for iron have been calculated using data collected through the October 2023 event as presented in detail in the Second Semiannual 2023 Report. These iron background limits will be used to compare to iron groundwater results beginning with the first semiannual 2024 detection monitoring event.

3.2 Data Comparison to Background Limits – Pond 1 & 2 Semiannual Event (April 2024)

The concentrations of the constituents in each of the detection monitoring wells (JRW-MW-15001 through JRW-MW-15006) were compared to their respective statistical background limits

calculated from the background data collected from each individual well (i.e., monitoring data from JRW-MW-15001 is compared to the background limit developed using the background dataset from JRW-MW-15001, and so forth). The comparisons are presented on Table 3.

There were no exceedances relative to the statistical limits; therefore, there are no SSIs compared to background for any of the constituents. As no SSIs were identified, detection monitoring will be continued in accordance with the HMP. Per the EGLE prescribed submittal format, a statistical exceedances summary is included as Table 5 that reflects the four most recent monitoring events.

3.3 Data Comparison to Background Limits – Pond 6 Semiannual Event (April 2024)

The data comparisons of monitoring wells JRW-MW-16001 through JRW-MW-16006 for the April 2024 groundwater monitoring event are presented on Table 4.

There were no exceedances relative to the statistical limits; therefore, there are no SSIs compared to background for any of the constituents. As no SSIs were found, detection monitoring will be continued at the Pond 6 CCR unit in accordance with the HMP. Per the EGLE prescribed submittal format, a statistical exceedances summary is included as Table 5 that reflects the four most recent monitoring events.

4.0 Conclusions and Recommendations

No SSIs occurred at Pond 1 & 2 or Pond 6 during the April 2024 monitoring event; therefore, Consumers Energy will continue with the detection monitoring program in conformance with the HMP. No corrective actions were needed or performed for either Pond 1 & 2 or Pond 6. The next semiannual monitoring event at the JR Whiting Pond 1 & 2 and Pond 6 CCR units is scheduled for the fourth calendar quarter of 2024.

5.0 References

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Tables

Table 1
Potentiometric Groundwater Elevation Summary – April 2024
JR Whiting Pond 1 & 2 and Pond 6
Erie, Michigan

Well Location	Ground Surface Elevation (ft)	TOC Elevation (ft)	Geologic Unit of Screen Interval	Screen Interval Depth (ft BGS)	Screen Interval Elevation (ft)	April 9, 2024	
						Depth to Water (ft BTOC)	Groundwater Elevation (ft)
Static Water Level Monitoring Wells							
JRW-MW-16007	579.47	582.31	Limestone	68.0 to 78.0	511.5 to 501.5	5.43	576.88
JRW-MW-16008	579.95	582.83	Limestone	68.0 to 73.0	512.0 to 507.0	5.95	576.88
JRW-MW-16009	579.90	582.60	Limestone	69.0 to 79.0	510.9 to 500.9	5.71	576.89
Pond 1 & 2							
JRW-MW-15001(1)	590	581.39	Limestone	78.0 to 88.0	512.7 to 502.7	4.53	576.86
JRW-MW-15002(1)	590	590.17	Limestone	81.0 to 91.0	511.3 to 501.3	13.27	576.90
JRW-MW-15003(1)	590	587.23	Limestone	81.0 to 91.0	510.4 to 500.4	10.35	576.88
JRW-MW-15004(1)	590	589.32	Limestone	86.0 to 96.0	506.5 to 496.5	12.45	576.87
JRW-MW-15005(1)	590	588.28	Limestone	86.0 to 96.0	508.3 to 498.3	11.38	576.90
JRW-MW-15006(1)	590	580.48	Limestone	81.0 to 91.0	511.0 to 501.0	3.67	576.81
Pond 6							
JRW-MW-16001	589.19	592.33	Limestone	71.0 to 81.0	518.2 to 508.2	15.45	576.88
JRW-MW-16002	585.78	588.69	Limestone	81.0 to 91.0	504.8 to 494.8	11.85	576.84
JRW-MW-16003	586.19	589.01	Limestone	73.0 to 83.0	513.2 to 503.2	12.12	576.89
JRW-MW-16004	586.48	589.34	Limestone	75.0 to 85.0	511.5 to 501.5	12.47	576.87
JRW-MW-16005	589.29	592.14	Limestone	78.0 to 88.0	511.3 to 501.3	15.26	576.88
JRW-MW-16006	588.26	591.04	Limestone	79.0 to 89.0	509.3 to 499.3	14.15	576.89

Notes:

Top of casing elevation survey was conducted by Rowe Professional Services Company in July 2020.

Elevation in feet relative to North American Vertical Datum 1988 (NAVD 88).

TOC: Top of well casing.

ft BTOC: Feet below top of well casing.

ft BGS: Feet below ground surface.

(1) Screen interval depth below ground surface for Pond 1&2 monitoring wells approximated using an estimated final capped ground surface elevation of 590 feet above mean sea level. Screen interval elevations were measured using the original survey conducted by Sheridan Surveying Co. November 2015 at the time of monitoring well installation.

Table 2
Summary of Field Parameters
JR Whiting Pond 1 & 2 and Pond 6
Erie, Michigan

Sample Location	Sample Date	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	pH (SU)	Specific Conductivity (umhos/cm)	Temperature (°C)	Turbidity (NTU)
JR Whiting Pond 6							
JRW-MW-16001	4/9/2024	0.47	-148.4	8.1	760	14.3	3.7
JRW-MW-16002	4/9/2024	0.40	-158.7	7.7	997	13.6	2.3
JRW-MW-16003	4/9/2024	0.40	-167.5	7.7	986	15.7	1.7
JRW-MW-16004	4/9/2024	0.39	-211.2	7.7	1,171	14.5	2.0
JRW-MW-16005	4/9/2024	0.64	91.5	7.6	843	13.7	5.4
JRW-MW-16006	4/9/2024	0.47	-142.9	7.7	815	13.7	6.9
JR Whiting Pond 1 & 2							
JRW-MW-15001	4/9/2024	0.38	-113.8	7.6	1,079	13.5	8.4
JRW-MW-15002	4/9/2024	0.42	-145.3	7.6	1,128	13.8	3.1
JRW-MW-15003	4/9/2024	0.57	-25.2	7.6	1,008	13.8	1.9
JRW-MW-15004	4/9/2024	3.32	60.8	7.5	966	15.0	2.1
JRW-MW-15005	4/9/2024	2.56	58.9	7.7	887	14.6	1.3
JRW-MW-15006	4/9/2024	0.57	103.1	7.6	977	13.4	4.4

Notes:
mg/L -Milligrams per Liter.
mV - Millivolts.
SU - Standard Units.
umhos/cm - Micromhos per centimeter.
°C - Degrees Celsius.
NTU - Nephelometric Turbidity Unit

Table 3
Comparison of Detection Monitoring Parameter Results to Background Limits – April 2024
JR Whiting Pond 1 & 2
Erie, Michigan

Sample Location:		JRW-MW-15001		JRW-MW-15002		JRW-MW-15003		JRW-MW-15004		JRW-MW-15005		JRW-MW-15006	
Sample Date:		4/9/2024	PL	4/9/2024	PL	4/9/2024	PL	4/9/2024	PL	4/9/2024	PL	4/9/2024	PL
Constituent	Unit	Data		Data		Data		Data		Data		Data	
Appendix III													
Boron	ug/L	191	240	199	220	210	230	221	270	189	270	195	250
Calcium	mg/L	141	180	136	180	123	160	117	140	113	120	126	140
Chloride	mg/L	48.5	55	48.2	56	46.3	55	48.1	56	33.4	46	44.7	53
Fluoride	ug/L	1,330	1,600	1,480	1,900	1,490	1,800	1,350	1,800	1,320	1,700	1,310	1,700
pH, Field	su	7.6	6.8 - 8.2	7.6	7.2 - 7.9	7.6	7.3 - 8.3	7.5	7.0 - 8.0	7.7	7.3 - 8.6	7.6	7.0 - 9.0
Sulfate	mg/L	407	470	414	500	353	440	331	390	301	350	344	410
Total Dissolved Solids	mg/L	870	1,000	840	1,100	752	940	730	880	656	840	772	920
Part 115 Parameters													
Iron	ug/L	1,020	1,800	718	1,200	126	820	103	490	59	660	631	1,900

Notes:
ug/L - micrograms per liter.
mg/L - milligrams per liter.
SU - standard units; pH is a field parameter.
All metals were analyzed as total unless otherwise specified.
Bold font indicates an exceedance of the Prediction Limit (PL).

Table 4
Comparison of Detection Monitoring Parameter Results to Background Limits – April 2024
JR Whiting Pond 6
Erie, Michigan

Sample Location:		JRW-MW-16001		JRW-MW-16002		JRW-MW-16003		JRW-MW-16004		JRW-MW-16005		JRW-MW-16006	
Sample Date:		4/9/2024	PL	4/9/2024	PL	4/9/2024	PL	4/9/2024	PL	4/9/2024	PL	4/9/2024	PL
Constituent	Unit	Data		Data		Data		Data		Data		Data	
Appendix III													
Boron	ug/L	158	203	162	209	204	257	192	262	199	244	163	226
Calcium	mg/L	88.7	111	140	149	120	156	149	181	97.7	182	102	117
Chloride	mg/L	19.2	23.6	21.7	25.4	28.2	32.4	38.2	43.7	24.6	29.4	24.8	38.6
Fluoride	ug/L	1,480	2,300	1,120	1,400	1,460	1,600	1,270	1,700	1,510	1,800	1,480	2,200
pH, Field	su	8.1	7.5 - 8.9	7.7	7.5 - 8.3	7.7	7.4 - 7.9	7.7	7.4 - 8.2	7.6	7.0 - 8.0	7.7	7.5 - 8.2
Sulfate	mg/L	254	278	398	426	384	470	464	507	293	498	293	399
Total Dissolved Solids	mg/L	532	770	752	832	732	1,040	918	1,110	612	1,030	596	904
Part 115 Parameters													
Iron	ug/L	130	230	339	510	401	630	391	750	54	940	287	400

Notes:
ug/L - micrograms per liter.
mg/L - milligrams per liter.
SU - standard units; pH is a field parameter.
All metals were analyzed as total unless otherwise specified.
Bold font indicates an exceedance of the Prediction Limit (PL).

Table 5
Summary of Statistical Exceedances – April 2024
JR Whiting Pond 1 & 2 and Pond 6
Erie, Michigan

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
SUMMARY OF STATISTICAL EXCEEDANCES

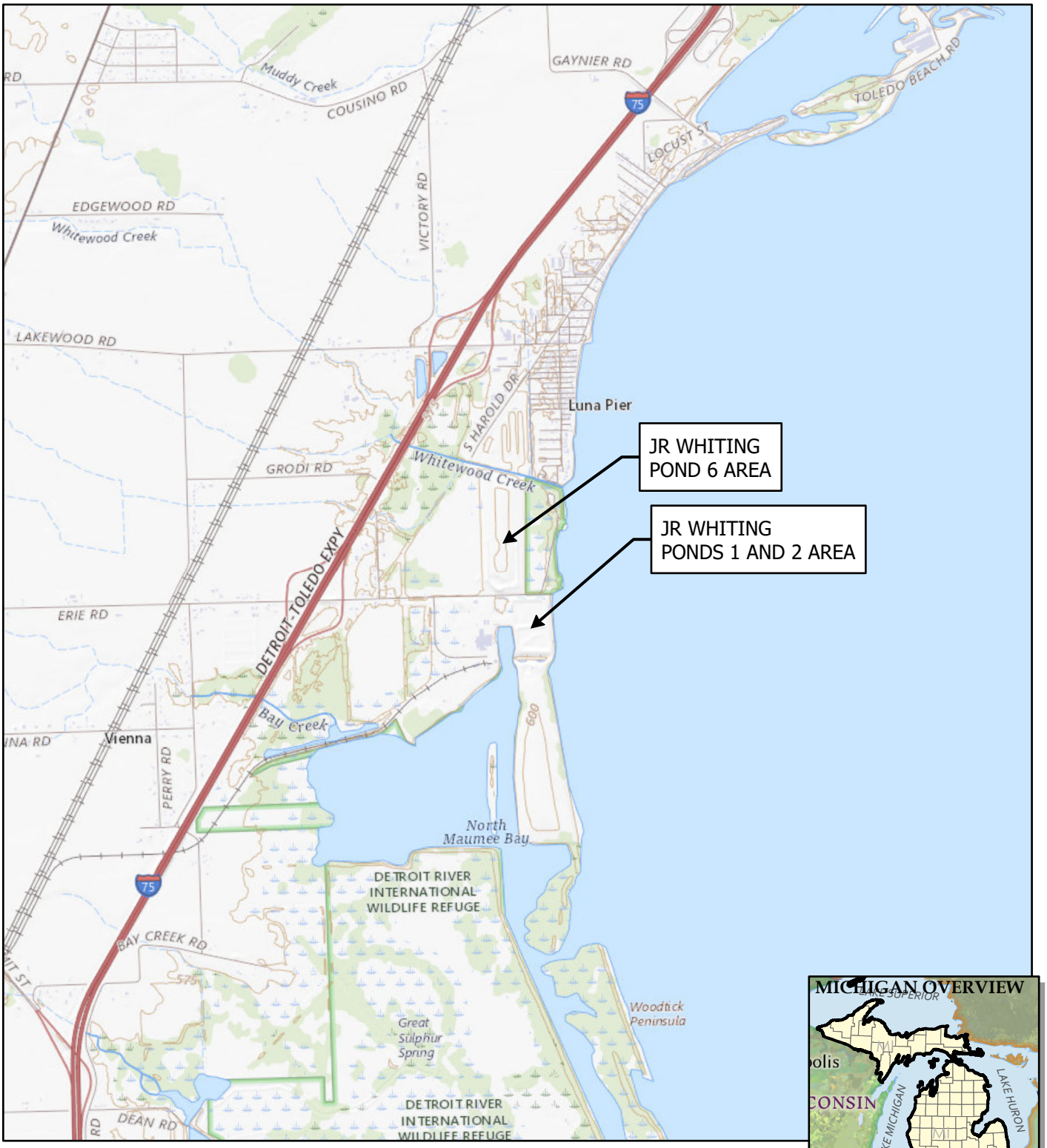
Data is in (X) ug/L or ( ) mg/L unless otherwise stated

Facility: JR Whiting – WDS# 397664

Well #	Location	Parameter	Part 201 GRCC	Statistical Limit (or 'CC' for Control Charts)	2 Qtr. 2024 (**bold** >201)	4 Qtr. 2023 (**bold** >201)	2 Qtr. 2023 (**bold** >201)	4 Qtr. 2022 (**bold** >201)
JRW-MW-15002	JR Whiting Pond 1 & 2	Boron	500	220	199	202	193	225(1)
JRW-MW-15003	JR Whiting Pond 1 & 2	Boron	500	230	210	226	208	241(1)
JRW-MW-15005	JR Whiting Pond 1 & 2	Calcium	NC	120	113	114	121(2)	117

NOTES:
NC = No Criteria
(1) Exceedance was determined to be from natural variability as detailed in the Alternate Source Demonstration: April 2022 Detection Monitoring Event, Former JR Whiting Power Plant Ponds 1 and 2, Erie, Michigan dated July 28, 2022.
(2) Exceedance was determined to be from natural variability as detailed in the Alternate Source Demonstration: April 2023 Detection Monitoring Event, Former JR Whiting Power Plant Ponds 1 and 2, Erie, Michigan dated July 14, 2023.

Figures



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.

1"=3,000'
1:36,000

0 3,000 6,000
FEET

TRC
1540 Eisenhower Place
Ann Arbor, MI 48108-3284
Phone: 734.971.7080

PROJECT:

CONSUMERS ENERGY COMPANY
JR WHITING POWER PLANT
ERIE, MICHIGAN

TITLE:

SITE LOCATION MAP

DRAWN BY:	A. ADAIR
CHECKED BY:	V. BUENING
APPROVED BY:	S. HOLMSTROM
DATE:	JANUARY 2024
PROJ. NO.:	514397
FILE:	JRWhiting.mxd

FIGURE 1

-- Saved By: AADAIR on 1/2/2024, 09:53:02 AM

LEGEND

- MONITORING WELL (STATIC WATER LEVEL ONLY)
- CCR UNIT MONITORING WELL

NOTES:

1: BASE MAP IMAGERY FROM GOOGLE EARTH PRO AND PARTNERS, (4/17/2024).
2. STATIC WATER ONLY WELL LOCATIONS SURVEYED BY SHERIDAN SURVEYING CO. ON 11/19/2015.
3. PONDS 1 AND 2 WELL LOCATIONS SURVEYED BY ROWE PROFESSIONAL SERVICES CO. ON 11/27/2019.

N

1:6,000
1" = 500'

0 500 1,000 FEET

PROJECT:
CONSUMERS ENERGY COMPANY
JR WHITING POWER PLANT
ERIE, MICHIGAN

TITLE:
SITE PLAN
WITH CCR MONITORING WELL LOCATIONS

DRAWN BY:	A. ADAIR	PROJ. NO.:	517397
CHECKED BY:	V. BUENING		
APPROVED BY:	S. HOLMSTROM		**FIGURE 2**
DATE:	JULY 2024		

TRC
1540 EISENHOWER PLACE
ANN ARBOR, MI 48108-3284
PHONE: 734.971.7080

FILE: JRWhiting.aprx

Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl; Map Rotation: 0
Stored By: AADAIR on 7/15/2024 09:47:02 AM - File Path: T:\1_PROJECTS\Consumers_Energy\517397_JRWhiting\2_APRX\JRWhiting.aprx; Layout Name: 2024_02 Figure 2

LEGEND

- MONITORING WELL (STATIC WATER LEVEL ONLY)
- CCR UNIT MONITORING WELL

LABEL FORMAT

MONITORING WELL ID
GROUNDWATER ELEVATION FT (MEASUREMENT DATE)

NOTES:

1: BASE MAP IMAGERY FROM GOOGLE EARTH PRO AND PARTNERS, (4/17/2024).
2. WELL LOCATIONS SURVEYED BY SHERIDAN SURVEYING CO. ON 11/19/2015.
3. PONDS 1 AND 2 WELL LOCATIONS SURVEYED BY ROWE PROFESSIONAL SERVICES CO. ON 11/27/2019.
4. MONITORING WELL TOP OF CASING SURVEYED BY ROWE PROFESSIONAL SERVICES CO. ON 7/14/2020. VERTICAL DATUM IS NAVD88.

N

1:6,000
1" = 500'

0 500 1,000 FEET

PROJECT:
CONSUMERS ENERGY COMPANY
JR WHITING POWER PLANT
ERIE, MICHIGAN

TITLE:
GROUNDWATER
POTENTIOMETRIC ELEVATION SUMMARY
APRIL 2024

DRAWN BY:	A. ADAIR	PROJ. NO.:	553810
CHECKED BY:	R. PAALANEN		
APPROVED BY:	S. HOLMSTROM		FIGURE 3
DATE:	JULY 2024		

TRC
1540 EISENHOWER PLACE
ANN ARBOR, MI 48108-3284
PHONE: 734.971.7080

FILE: JRWhiting.aprx

Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl; Map Rotation: 0
Saved By: AADAIR on 7/12/2024 09:44:16 AM; File Path: T:\PROJECTS\Consumers Energy\514397 - JRWhiting\2-APRX\JRWhiting.aprx; Layout Name: 2024_02 Figure 3

Appendix A
Data Quality Reviews

Pond 1 & 2

Laboratory Data Quality Review
Groundwater Sampling Event April 2024
Consumers Energy JR Whiting Pond 1 & 2

Groundwater samples were collected by Consumers Energy (CE) Laboratory Services for the April 2024 groundwater monitoring sampling event. Samples were analyzed for anions, total metals, and total dissolved solids by CE Laboratory Services, located in Jackson, Michigan. The laboratory analytical results were reported in laboratory project number 24-0255.

During the April 2024 sampling event, a groundwater sample was collected from each of the following wells:

- JRW-MW-15001
- JRW-MW-15002
- JRW-MW-15003
- JRW-MW-15004
- JRW-MW-15005
- JRW-MW-15006

Each sample was analyzed for the following constituents:

Analyte Group	Method
Anions (Chloride, Fluoride, Sulfate)	EPA 300.0
Total Dissolved Solids (TDS)	SM 2540C
Total Metals (Boron, Calcium, Iron)	SW-846 6020B

TRC reviewed the laboratory data to assess data usability. The following sections summarize the data review procedure and the results of the review.

Data Quality Review Procedure

The analytical data were reviewed using the USEPA National Functional Guidelines for Inorganic Superfund Data Review (USEPA, 2020). The following items were included in the evaluation of the data:

- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;
- Reporting limits (RLs) compared to project-required RLs;
- Data for equipment blanks and field blanks. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Percent recoveries for matrix spike (MS) and matrix spike duplicates (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;

- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and

- Overall usability of the data.

- It should be noted that results for method blanks and laboratory control samples were not provided for review by the laboratory. Therefore, potential contamination arising from laboratory sample preparation and/or analytical procedures and the accuracy of the analytical method using a clean matrix could not be evaluated.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;

- Actions regarding specific QC criteria exceedances.

Review Summary

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances and issues identified in this evaluation, are noted below.

- The reviewed Appendix III constituents as well as iron will be utilized for the purposes of a detection monitoring program.

- Data are usable for the purposes of the detection monitoring program.

- When the data are evaluated through a detection monitoring statistical program, findings below may be used to support the removal of outliers.

QA/QC Sample Summary

- One equipment blank (EB-01) and one field blank (FB-01) were collected. Target analytes were not detected in these blank samples.

- MS and MSD analyses were performed on sample JRW-MW-15006 for total metals and anions. The recoveries were within the acceptance limits. Relative percent differences (RPDs) were not provided by the laboratory and therefore were not evaluated; further, MS/MSD concentrations were not provided by the laboratory. However, since all MS/MSD recoveries were within the acceptance limits, there is no impact on data usability due to this issue.

- A laboratory duplicate analysis was not performed on a sample from this data set.

- Samples DUP-01/JRW-MW-15003 were submitted as the field duplicate pair with this data set; all criteria were met.

- The nondetect RL for TDS (10 mg/L) in samples EB-01 and FB-01 was above the RL specified in the Sample and Analysis Plan (SAP) (1.0 mg/L). No adverse impact on data usability since TDS was detected >10x the blank RLs in the associated groundwater samples.

- The nondetect RL for sulfate (1,000 µg/L) in samples EB-01 and FB-01 was below the RL specified in the SAP (2,000 µg/L). No adverse impact on data usability since reported RL is lower than SAP RL.

Pond 6

Laboratory Data Quality Review
Groundwater Sampling Event April 2024
Consumers Energy JR Whiting Pond 6

Groundwater samples were collected by Consumers Energy (CE) Laboratory Services for the April 2024 groundwater monitoring sampling event. Samples were analyzed for anions, total metals, and total dissolved solids by CE Laboratory Services, located in Jackson, Michigan. The laboratory analytical results were reported in laboratory project number 24-0256.

During the April 2024 sampling event, a groundwater sample was collected from each of the following wells:

- JRW-MW-16001
- JRW-MW-16002
- JRW-MW-16003
- JRW-MW-16004
- JRW-MW-16005
- JRW-MW-16006

Each sample was analyzed for the following constituents:

Analyte Group	Method
Anions (Chloride, Fluoride, Sulfate)	EPA 300.0
Total Dissolved Solids (TDS)	SM 2540C
Total Metals (Boron, Calcium, Iron)	SW-846 6020B

TRC reviewed the laboratory data to assess data usability. The following sections summarize the data review procedure and the results of the review.

Data Quality Review Procedure

The analytical data were reviewed using the USEPA National Functional Guidelines for Inorganic Superfund Data Review (USEPA, 2020). The following items were included in the evaluation of the data:

- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;
- Reporting limits (RLs) compared to project-required RLs;
- Data for equipment blanks and field blanks. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Percent recoveries for matrix spike (MS) and matrix spike duplicates (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and

- Overall usability of the data.
- It should be noted that results for method blanks and laboratory control samples were not provided for review by the laboratory. Therefore, potential contamination arising from laboratory sample preparation and/or analytical procedures and the accuracy of the analytical method using a clean matrix could not be evaluated.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

Review Summary

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances and issues identified in this evaluation, are noted below.

- The reviewed Appendix III constituents as well as iron will be utilized for the purposes of a detection monitoring program.
- Data are usable for the purposes of the detection monitoring program.
- When the data are evaluated through a detection monitoring statistical program, findings below may be used to support the removal of outliers.

QA/QC Sample Summary

- One equipment blank (EB-02) and one field blank (FB-02) were collected. Target analytes were not detected in these blank samples.
- MS/MSD analyses were performed on sample JRW-MW-16003 for total metals and anions. The recoveries were within the acceptance limits. Relative percent differences were not provided by the laboratory and therefore were not evaluated; further, MS/MSD concentrations were not provided by the laboratory. However, since MS/MSD recoveries were within the acceptance limits, there is no impact on data usability due to this issue.
- A laboratory duplicate analysis was not performed on a sample from this data set.
- Samples DUP-02/JRW-MW-16006 were submitted as the field duplicate pair with this data set; all criteria were met.
- The nondetect RL for TDS (10 mg/L) in samples EB-02 and FB-02 was above the RL specified in the Sample and Analysis Plan (SAP) (1 mg/L). No adverse impact on data usability since TDS was detected >10x the blank RLs in the associated groundwater samples.
- The nondetect RL for sulfate (1,000 µg/L) in samples EB-02 and FB-02 was below the RL specified in the SAP (2,000 µg/L). No adverse impact on data usability since reported RL is lower than SAP RL.

Appendix B
Laboratory Reports

Pond 1 & 2

Consumers Energy
Count on Us®
Laboratory Services
A CENTURY OF EXCELLENCE

135 W. Trail St.
Jackson, MI 49201

phone 517-788-1251
fax 517-788-2533

To: HDRegister, P22-521

From: EBlaj, T-258

Date: April 21, 2024

Subject: RCRA GROUNDWATER MONITORING – JR WHITING POND 1 & 2 – 2024 Q2

CC: Sarah Holmstrom, Project Manager
TRC Environmental Corporation
1540 Eisenhower Place
Ann Arbor, MI 48108

Chemistry Project: 24-0255

CE Laboratory Services conducted groundwater monitoring at JR Whiting, Pond 1 & 2 on 04/09/2024, for the 1st Semiannual monitoring requirement, and as specified in the Sampling and Analysis Plan for the site. The samples were received for analysis by the Chemistry department of Laboratory Services on 04/09/2024.

The report that follows presents the results of the requested analytical testing; the results apply only to the samples as received. All samples have been analyzed in accordance with the 2016 TNI Standard and the applicable A2LA accreditation scope for Laboratory Services. Any exceptions to applicable test method criteria and standard compliance are noted in the Case Narrative or flagged with applicable qualifiers in the analytical results section.

Reviewed and approved by:

Emil Blaj
Sr. Technical Analyst
Project Lead

ilac-MRA A2LA ACCREDITED Certificate #1097.04

Testing performed in accordance with the A2LA scope of accredidation specified in the listed certificate.

CASE NARRATIVE

I. Sample Receipt

All samples were received within hold time and in good conditions; no anomalies were noted on the attached Sample Log-In Shipment Inspection Form during sample check-in. Identification of all samples included in the work order/project is provided in the sample summary section. All sample preservation and temperature upon receipt was verified by the sample custodian and confirmed to meet method requirements.

II. Methodology

Unless otherwise indicated, sample preparation and analysis was performed in accordance with the corresponding test methods from "Methods for the Determination of Inorganic Substances in Environmental Samples (EPA/600/R-93/100); SW-846, "Test Methods for Evaluating Solid Waste – Physical/Chemical Methods", USEPA (latest revisions), and Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WPCF, 22nd Edition, 2012.

III. Results/Quality Control

Analytical results for this report are presented by laboratory sample ID, container, & aliquot number. Results for the field blanks, field duplicates, and recoveries of the field matrix spike & matrix spike duplicate samples are included in the results section; all other quality control data is listed in the Quality Control Summary associated with the particular test method, as appropriate. Unless specifically noted in the case narrative, all method quality control requirements have been met. If any results are qualified, the corresponding data flags/qualifiers are listed on the last page of the results section. Any additional information on method performance, when applicable, is presented in this section of the case narrative. When data flags are not needed, the qualifiers text box on the last page is left blank, and a statement confirms that no exceptions occurred.

DEFINITIONS / QUALIFIERS

The following qualifiers and/or acronyms are used in the report, where applicable:

Acronym	Description
RL	Reporting Limit
ND	Result not detected or below Reporting Limit
NT	Non TNI analyte
LCS	Laboratory Control Sample
LRB	Laboratory Reagent Blank (also referred to as Method Blank)
DUP	Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
TDL	Target Detection Limit
SM	Standard Methods Compendium

Qualifier	Description
*	Generic data flag, applicable description added in the corresponding notes section
B	The analyte was detected in the LRB at a level which is significant relative to sample result
D	Reporting limit elevated due to dilution
E	Estimated due to result exceeding the linear range of the analyzer
H	The maximum recommended hold time was exceeded
I	Dilution required due to matrix interference; reporting limit elevated
J	Estimated due to result found above MDL but below PQL (or RL)
K	Reporting limit raised due to matrix interference
M	The precision for duplicate analysis was not met; RPD outside acceptance criteria
N	Non-homogeneous sample made analysis questionable
PI	Possible interference may have affected the accuracy of the laboratory result
Q	Matrix Spike or Matrix Spike Duplicate recovery outside acceptance criteria
R	Result confirmed by new sample preparation and reanalysis
X	Other notation required; comment listed in sample notes and/or case narrative

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Work Order Sample Summary

Customer Name: JR Whiting Complex
Work Order ID: JRW RCRA GW Monitoring - Pond 1&2 - April 2024
Date Received: 4/09/2024
Chemistry Project: 24-0255

Sample #	Field Sample ID	Matrix	Sample Date	Site
24-0255-01	JRW-MW-15001	Groundwater	04/09/2024 14:05	JRW RCRA GW Monitoring - Pond 1&2
24-0255-02	JRW-MW-15002	Groundwater	04/09/2024 16:07	JRW RCRA GW Monitoring - Pond 1&2
24-0255-03	JRW-MW-15003	Groundwater	04/09/2024 14:31	JRW RCRA GW Monitoring - Pond 1&2
24-0255-04	JRW-MW-15004	Groundwater	04/09/2024 12:51	JRW RCRA GW Monitoring - Pond 1&2
24-0255-05	JRW-MW-15005	Groundwater	04/09/2024 16:06	JRW RCRA GW Monitoring - Pond 1&2
24-0255-06	JRW-MW-15006	Groundwater	04/09/2024 15:17	JRW RCRA GW Monitoring - Pond 1&2
24-0255-07	DUP-01	Groundwater	04/09/2024 00:00	JRW RCRA GW Monitoring - Pond 1&2
24-0255-08	EB-01	Water	04/09/2024 16:25	JRW RCRA GW Monitoring - Pond 1&2
24-0255-09	FB-01	Water	04/09/2024 16:18	JRW RCRA GW Monitoring - Pond 1&2
24-0255-10	JRW-MW-15006 Field MS	Groundwater	04/09/2024 15:17	JRW RCRA GW Monitoring - Pond 1&2
24-0255-11	JRW-MW-15006 FIeld MSD	Groundwater	04/09/2024 15:17	JRW RCRA GW Monitoring - Pond 1&2

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Analytical Report

Report Date: 04/21/24

Sample Site: **JRW RCRA GW Monitoring - Pond 1&2**
Field Sample ID: **JRW-MW-15001**
Lab Sample ID: 24-0255-01
Matrix: Groundwater

Laboratory Project: **24-0255**
Collect Date: 04/09/2024
Collect Time: 02:05 PM

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0255-01-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	191		ug/L	20	04/17/2024	AB24-0417-08
Calcium	141000		ug/L	1000	04/17/2024	AB24-0417-08
Iron	1020		ug/L	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0255-01-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	48500		ug/L	1000	04/10/2024	AB24-0410-02
Fluoride	1330		ug/L	1000	04/10/2024	AB24-0410-02
Sulfate	407000		ug/L	1000	04/10/2024	AB24-0410-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0255-01-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	870		mg/L	10	04/11/2024	AB24-0411-03

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Analytical Report

Report Date: 04/21/24

Sample Site: **JRW RCRA GW Monitoring - Pond 1&2**
Field Sample ID: **JRW-MW-15002**
Lab Sample ID: 24-0255-02
Matrix: Groundwater

Laboratory Project: **24-0255**
Collect Date: 04/09/2024
Collect Time: 04:07 PM

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0255-02-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	199		ug/L	20	04/17/2024	AB24-0417-08
Calcium	136000		ug/L	1000	04/17/2024	AB24-0417-08
Iron	718		ug/L	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0255-02-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	48200		ug/L	1000	04/10/2024	AB24-0410-02
Fluoride	1480		ug/L	1000	04/10/2024	AB24-0410-02
Sulfate	414000		ug/L	1000	04/10/2024	AB24-0410-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0255-02-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	840		mg/L	10	04/11/2024	AB24-0411-03

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Analytical Report

Report Date: 04/21/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 1&2**	Laboratory Project:	**24-0255**
Field Sample ID:	**JRW-MW-15003**	Collect Date:	04/09/2024
Lab Sample ID:	24-0255-03	Collect Time:	02:31 PM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0255-03-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	210		ug/L	20	04/17/2024	AB24-0417-08
Calcium	123000		ug/L	1000	04/17/2024	AB24-0417-08
Iron	126		ug/L	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0255-03-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	46300		ug/L	1000	04/10/2024	AB24-0410-02
Fluoride	1490		ug/L	1000	04/10/2024	AB24-0410-02
Sulfate	353000		ug/L	1000	04/10/2024	AB24-0410-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0255-03-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	752		mg/L	10	04/11/2024	AB24-0411-03

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Analytical Report

Report Date: 04/21/24

Sample Site: **JRW RCRA GW Monitoring - Pond 1&2**
Field Sample ID: **JRW-MW-15004**
Lab Sample ID: 24-0255-04
Matrix: Groundwater

Laboratory Project: **24-0255**
Collect Date: 04/09/2024
Collect Time: 12:51 PM

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0255-04-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	221		ug/L	20	04/17/2024	AB24-0417-08
Calcium	117000		ug/L	1000	04/17/2024	AB24-0417-08
Iron	103		ug/L	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0255-04-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	48100		ug/L	1000	04/10/2024	AB24-0410-02
Fluoride	1350		ug/L	1000	04/10/2024	AB24-0410-02
Sulfate	331000		ug/L	1000	04/10/2024	AB24-0410-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0255-04-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	730		mg/L	10	04/11/2024	AB24-0411-03

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Analytical Report

Report Date: 04/21/24

Sample Site: **JRW RCRA GW Monitoring - Pond 1&2**
Field Sample ID: **JRW-MW-15005**
Lab Sample ID: 24-0255-05
Matrix: Groundwater

Laboratory Project: **24-0255**
Collect Date: 04/09/2024
Collect Time: 04:06 PM

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0255-05-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	189		ug/L	20	04/17/2024	AB24-0417-08
Calcium	113000		ug/L	1000	04/17/2024	AB24-0417-08
Iron	59		ug/L	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0255-05-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	33400		ug/L	1000	04/10/2024	AB24-0410-02
Fluoride	1320		ug/L	1000	04/10/2024	AB24-0410-02
Sulfate	301000		ug/L	1000	04/10/2024	AB24-0410-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0255-05-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	656		mg/L	10	04/11/2024	AB24-0411-03

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Analytical Report

Report Date: 04/21/24

Sample Site: **JRW RCRA GW Monitoring - Pond 1&2**
Field Sample ID: **JRW-MW-15006**
Lab Sample ID: 24-0255-06
Matrix: Groundwater

Laboratory Project: **24-0255**
Collect Date: 04/09/2024
Collect Time: 03:17 PM

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0255-06-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	195		ug/L	20	04/17/2024	AB24-0417-08
Calcium	126000		ug/L	1000	04/17/2024	AB24-0417-08
Iron	631		ug/L	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0255-06-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	44700		ug/L	1000	04/10/2024	AB24-0410-02
Fluoride	1310		ug/L	1000	04/10/2024	AB24-0410-02
Sulfate	344000		ug/L	1000	04/10/2024	AB24-0410-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0255-06-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	772		mg/L	10	04/11/2024	AB24-0411-03

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Analytical Report

Report Date: 04/21/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 1&2**	Laboratory Project:	**24-0255**
Field Sample ID:	**DUP-01**	Collect Date:	04/09/2024
Lab Sample ID:	24-0255-07	Collect Time:	12:00 AM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0255-07-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	210		ug/L	20	04/17/2024	AB24-0417-08
Calcium	121000		ug/L	1000	04/17/2024	AB24-0417-08
Iron	131		ug/L	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0255-07-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	45500		ug/L	1000	04/10/2024	AB24-0410-02
Fluoride	1450		ug/L	1000	04/10/2024	AB24-0410-02
Sulfate	349000		ug/L	1000	04/11/2024	AB24-0410-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0255-07-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	762		mg/L	10	04/11/2024	AB24-0411-03

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Analytical Report

Report Date: 04/21/24

Sample Site: **JRW RCRA GW Monitoring - Pond 1&2**
Field Sample ID: **EB-01**
Lab Sample ID: 24-0255-08
Matrix: Water

Laboratory Project: **24-0255**
Collect Date: 04/09/2024
Collect Time: 04:25 PM

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0255-08-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	ND		ug/L	20	04/17/2024	AB24-0417-08
Calcium	ND		ug/L	1000	04/17/2024	AB24-0417-08
Iron	ND		ug/L	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0255-08-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	ND		ug/L	1000	04/10/2024	AB24-0410-02
Fluoride	ND		ug/L	1000	04/10/2024	AB24-0410-02
Sulfate	ND		ug/L	1000	04/10/2024	AB24-0410-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0255-08-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	ND		mg/L	10	04/11/2024	AB24-0411-03

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Analytical Report

Report Date: 04/21/24

Sample Site: **JRW RCRA GW Monitoring - Pond 1&2**
Field Sample ID: **FB-01**
Lab Sample ID: 24-0255-09
Matrix: Water

Laboratory Project: **24-0255**
Collect Date: 04/09/2024
Collect Time: 04:18 PM

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0255-09-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	ND		ug/L	20	04/17/2024	AB24-0417-08
Calcium	ND		ug/L	1000	04/17/2024	AB24-0417-08
Iron	ND		ug/L	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0255-09-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	ND		ug/L	1000	04/10/2024	AB24-0410-02
Fluoride	ND		ug/L	1000	04/10/2024	AB24-0410-02
Sulfate	ND		ug/L	1000	04/10/2024	AB24-0410-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0255-09-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	ND		mg/L	10	04/11/2024	AB24-0411-03

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Analytical Report

Report Date: 04/21/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 1&2**	Laboratory Project:	**24-0255**
Field Sample ID:	**JRW-MW-15006 Field MS**	Collect Date:	04/09/2024
Lab Sample ID:	24-0255-10	Collect Time:	03:17 PM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0255-10-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	98		%	20	04/17/2024	AB24-0417-08
Calcium	105		%	1000	04/17/2024	AB24-0417-08
Iron	115		%	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0255-10-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	117		%	1000	04/10/2024	AB24-0410-02
Fluoride	98		%	1000	04/10/2024	AB24-0410-02
Sulfate	110		%	1000	04/11/2024	AB24-0410-02

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Analytical Report

Report Date: 04/21/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 1&2**	Laboratory Project:	**24-0255**
Field Sample ID:	**JRW-MW-15006 FIeld MSD**	Collect Date:	04/09/2024
Lab Sample ID:	24-0255-11	Collect Time:	03:17 PM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0255-11-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	103		%	20	04/17/2024	AB24-0417-08
Calcium	113		%	1000	04/17/2024	AB24-0417-08
Iron	122		%	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0255-11-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	116		%	1000	04/10/2024	AB24-0410-02
Fluoride	98		%	1000	04/10/2024	AB24-0410-02
Sulfate	108		%	1000	04/11/2024	AB24-0410-02

Data Qualifiers	Exception Summary
	No exceptions occurred.

General Standard Operating Procedure

TITLE: SAMPLE LOG-IN – SHIPMENT INSPECTION FORM

Project Log-In Number: 24-0255

Inspection Date: 04-10-24 **Inspection By:** EB

Sample Origin/Project Name: JRW Pond 1 & 2

Shipment Delivered By: Enter the type of shipment carrier.

Pony _____ FedEx _____ UPS _____ USPS _____ Airborne _____

Other/Hand Carry (whom) KOR

Tracking Number:_____ Shipping Form Attached: Yes _____ No _____

Shipping Containers: Enter the type and number of shipping containers received.

Cooler ✓ Cardboard Box _____ Custom Case _____ Envelope/Mailer ____

Loose/Unpackaged Containers _____ Other _____

Condition of Shipment: Enter the as-received condition of the shipment container.

Damaged Shipment Observed: None ✓ Dented _____ Leaking _____

Other _____

Shipment Security: Enter if any of the shipping containers were opened before receipt.

Shipping Containers Received: Opened N/A Sealed N/A

Enclosed Documents: Enter the type of documents enclosed with the shipment.

CoC ✓ Work Request _____ Air Data Sheet_____ Other_____

Temperature of Containers: Measure the temperature of several sample containers.

As-Received Temperature Range 0.8 - 5.9 °C Samples Received on Ice: Yes ✓ No_____

M&TE # and Expiration 015402 / 05-23-24

Number and Type of Containers: Enter the total number of sample containers received.

pH Paper
13-640-508
lot# 205522
Exp 02/15/25

Container Type	Water	Soil	Other	Broken	Leaking
VOA (40mL or 60mL)					
Quart/Liter (g/p)					
9-oz (amber glass jar)					
2-oz (amber glass)					
125 mL (plastic)	22				
24 mL vial (glass)					
EB 041024 250 ~~500~~ mL (plastic)	9				
Other _____					

Page 2 of 2 not needed

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SAMPLING SITE / CUSTOMER: JRW Pond 1&2 GW Monitoring – April 2024

PROJECT NUMBER: 24-0255

SAP CC or WO#:

REQUESTER: Michelle Marion

SAMPLING TEAM: KDR, CLE

TURNAROUND TIME REQUIRED: ☐ 24 HR ☐ 48 HR ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____

SEND REPORT TO: Michelle Marion | email: | phone:

COPY TO: TRC

MATRIX CODES: GW = Groundwater; WW = Wastewater; W = Water / Aqueous Liquid; S = Soil / General Solid; O = Oil; OX = Other _____; SL = Sludge; A = Air; WP = Wipe; WT = General Waste

ANALYSIS REQUESTED (Attach List if More Space is Needed)

QA REQUIREMENT: ☐ NPDES ☒ TNI ☐ ISO 17025 ☐ 10 CFR 50 APP. B ☐ INTERNAL INFO ☐ OTHER _____

LAB SAMPLE ID	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	MATRIX	FIELD SAMPLE ID / LOCATION	CONTAINERS TOTAL #	PRESERVATIVE None	PRESERVATIVE HNO_3	PRESERVATIVE H_2SO_4	PRESERVATIVE NaOH	PRESERVATIVE HCl	PRESERVATIVE MeOH	PRESERVATIVE Other	Total Metals	Anions	TDS	REMARKS
24-0255-01	4.9.24	14:05	GW	JRW-MW-15001	3	2	1						x	x	x	
-02		16:07	GW	JRW-MW-15002	3	2	1						x	x	x	
-03		14:31	GW	JRW-MW-15003	3	2	1						x	x	x	
-04		15:21	GW	JRW-MW-15004	3	2	1						x	x	x	
-05		16:06	GW	JRW-MW-15005	3	2	1						x	x	x	
-06		15:17	GW	JRW-MW-15006	3	2	1						x	x	x	
-07		—	GW	DUP-01	3	2	1						x	x	x	
-08		16:25	W	EB-01	3	2	1						x	x	x	
-09		16:18	W	FB-01	3	2	1						x	x	x	
-10		15:17	GW	JRW-MW-15006 MS	2	1	1						x	x		
-11		15:17	GW	JRW-MW-15006 MSD	2	1	1						x	x		

RELINQUISHED BY: KDR DATE/TIME: 4.9.24 | 18:56 RECEIVED BY:

RELINQUISHED BY: DATE/TIME: RECEIVED BY:

COMMENTS:

Received on Ice? ☑ Yes ☐ No M&TE #: 015402

Temperature: 0.8-5.9 °C Cal. Due Date: 5.23.24

Pond 6

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135 W. Trail St.
Jackson, MI 49201

phone 517-788-1251
fax 517-788-2533

To: HDRegister, P22-521

From: EBlaj, T-258

Date: April 21, 2024

Subject: RCRA GROUNDWATER MONITORING – JR WHITING POND 6 – 2024 Q1

CC: Sarah Holmstrom, Project Manager
TRC Environmental Corporation
1540 Eisenhower Place
Ann Arbor, MI 48108

Chemistry Project: 24-0256

CE Laboratory Services conducted groundwater monitoring at JR Whiting, Pond 6 on 04/09/2024, for the 1st Semiannual monitoring requirement, and as specified in the Sampling and Analysis Plan for the site. The samples were received for analysis in the Chemistry department of Laboratory Services on 04/09/2024.

The report that follows presents the results of the requested analytical testing; the results apply only to the samples as received. All samples have been analyzed in accordance with the 2016 TNI Standard and the applicable A2LA accreditation scope for Laboratory Services. Any exceptions to applicable test method criteria and standard compliance are noted in the Case Narrative or flagged with applicable qualifiers in the analytical results section.

Reviewed and approved by:

Emil Blaj
Sr. Technical Analyst
Project Lead

ilac-MRA A2LA ACCREDITED Certificate #1097.04

CASE NARRATIVE

I. Sample Receipt

All samples were received within hold time and in good conditions; no anomalies were noted on the attached Sample Log-In Shipment Inspection Form during sample check-in. Identification of all samples included in the work order/project is provided in the sample summary section. All sample preservation and temperature upon receipt was verified by the sample custodian and confirmed to meet method requirements.

II. Methodology

Unless otherwise indicated, sample preparation and analysis was performed in accordance with the corresponding test methods from "Methods for the Determination of Inorganic Substances in Environmental Samples (EPA/600/R-93/100); SW-846, "Test Methods for Evaluating Solid Waste – Physical/Chemical Methods", USEPA (latest revisions), and Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WPCF, 22nd Edition, 2012.

III. Results/Quality Control

Analytical results for this report are presented by laboratory sample ID, container, & aliquot number. Results for the field blanks, field duplicates, and recoveries of the field matrix spike & matrix spike duplicate samples are included in the results section; all other quality control data is listed in the Quality Control Summary associated with the particular test method, as appropriate. Unless specifically noted in the case narrative, all method quality control requirements have been met. If any results are qualified, the corresponding data flags/qualifiers are listed on the last page of the results section. Any additional information on method performance, when applicable, is presented in this section of the case narrative. When data flags are not needed, the qualifiers text box on the last page is left blank, and a statement confirms that no exceptions occurred.

DEFINITIONS / QUALIFIERS

The following qualifiers and/or acronyms are used in the report, where applicable:

Acronym	Description
RL	Reporting Limit
ND	Result not detected or below Reporting Limit
NT	Non TNI analyte
LCS	Laboratory Control Sample
LRB	Laboratory Reagent Blank (also referred to as Method Blank)
DUP	Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
TDL	Target Detection Limit
SM	Standard Methods Compendium

Qualifier	Description
*	Generic data flag, applicable description added in the corresponding notes section
B	The analyte was detected in the LRB at a level which is significant relative to sample result
D	Reporting limit elevated due to dilution
E	Estimated due to result exceeding the linear range of the analyzer
H	The maximum recommended hold time was exceeded
I	Dilution required due to matrix interference; reporting limit elevated
J	Estimated due to result found above MDL but below PQL (or RL)
K	Reporting limit raised due to matrix interference
M	The precision for duplicate analysis was not met; RPD outside acceptance criteria
N	Non-homogeneous sample made analysis questionable
PI	Possible interference may have affected the accuracy of the laboratory result
Q	Matrix Spike or Matrix Spike Duplicate recovery outside acceptance criteria
R	Result confirmed by new sample preparation and reanalysis
X	Other notation required; comment listed in sample notes and/or case narrative

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Work Order Sample Summary

Customer Name: JR Whiting Complex
Work Order ID: JRW RCRA GW Monitoring - Pond 6 - April 2024
Date Received: 4/09/2024
Chemistry Project: 24-0256

Sample #	Field Sample ID	Matrix	Sample Date	Site
24-0256-01	JRW-MW-16001	Groundwater	04/09/2024 11:51	JRW RCRA GW Monitoring - Pond 6
24-0256-02	JRW-MW-16002	Groundwater	04/09/2024 11:16	JRW RCRA GW Monitoring - Pond 6
24-0256-03	JRW-MW-16003	Groundwater	04/09/2024 12:21	JRW RCRA GW Monitoring - Pond 6
24-0256-04	JRW-MW-16004	Groundwater	04/09/2024 13:21	JRW RCRA GW Monitoring - Pond 6
24-0256-05	JRW-MW-16005	Groundwater	04/09/2024 12:08	JRW RCRA GW Monitoring - Pond 6
24-0256-06	JRW-MW-16006	Groundwater	04/09/2024 11:00	JRW RCRA GW Monitoring - Pond 6
24-0256-07	DUP-02	Groundwater	04/09/2024 00:00	JRW RCRA GW Monitoring - Pond 6
24-0256-08	EB-02	Water	04/09/2024 13:30	JRW RCRA GW Monitoring - Pond 6
24-0256-09	FB-02	Water	04/09/2024 13:35	JRW RCRA GW Monitoring - Pond 6
24-0256-10	JRW-MW-16003 Field MS	Groundwater	04/09/2024 12:21	JRW RCRA GW Monitoring - Pond 6
24-0256-11	JRW-MW-16003 FIeld MSD	Groundwater	04/09/2024 12:21	JRW RCRA GW Monitoring - Pond 6

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Analytical Report

Report Date: 04/21/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 6**	Laboratory Project:	**24-0256**
Field Sample ID:	**JRW-MW-16001**	Collect Date:	04/09/2024
Lab Sample ID:	24-0256-01	Collect Time:	11:51 AM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0256-01-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	158		ug/L	20	04/17/2024	AB24-0417-08
Calcium	88700		ug/L	1000	04/17/2024	AB24-0417-08
Iron	130		ug/L	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0256-01-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	19200		ug/L	1000	04/10/2024	AB24-0410-02
Fluoride	1480		ug/L	1000	04/10/2024	AB24-0410-02
Sulfate	254000		ug/L	1000	04/11/2024	AB24-0410-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0256-01-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	532		mg/L	10	04/11/2024	AB24-0411-03

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Analytical Report

Report Date: 04/21/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 6**	Laboratory Project:	**24-0256**
Field Sample ID:	**JRW-MW-16002**	Collect Date:	04/09/2024
Lab Sample ID:	24-0256-02	Collect Time:	11:16 AM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0256-02-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	162		ug/L	20	04/17/2024	AB24-0417-08
Calcium	140000		ug/L	1000	04/17/2024	AB24-0417-08
Iron	339		ug/L	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0256-02-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	21700		ug/L	1000	04/10/2024	AB24-0410-02
Fluoride	1120		ug/L	1000	04/10/2024	AB24-0410-02
Sulfate	398000		ug/L	1000	04/11/2024	AB24-0410-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0256-02-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	752		mg/L	10	04/11/2024	AB24-0411-03

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Analytical Report

Report Date: 04/21/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 6**	Laboratory Project:	**24-0256**
Field Sample ID:	**JRW-MW-16003**	Collect Date:	04/09/2024
Lab Sample ID:	24-0256-03	Collect Time:	12:21 PM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0256-03-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	204		ug/L	20	04/17/2024	AB24-0417-08
Calcium	120000		ug/L	1000	04/17/2024	AB24-0417-08
Iron	401		ug/L	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0256-03-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	28200		ug/L	1000	04/10/2024	AB24-0410-02
Fluoride	1460		ug/L	1000	04/10/2024	AB24-0410-02
Sulfate	384000		ug/L	1000	04/11/2024	AB24-0410-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0256-03-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	732		mg/L	10	04/11/2024	AB24-0411-03

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Analytical Report

Report Date: 04/21/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 6**	Laboratory Project:	**24-0256**
Field Sample ID:	**JRW-MW-16004**	Collect Date:	04/09/2024
Lab Sample ID:	24-0256-04	Collect Time:	01:21 PM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0256-04-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	192		ug/L	20	04/17/2024	AB24-0417-08
Calcium	149000		ug/L	1000	04/17/2024	AB24-0417-08
Iron	391		ug/L	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0256-04-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	38200		ug/L	1000	04/10/2024	AB24-0410-02
Fluoride	1270		ug/L	1000	04/10/2024	AB24-0410-02
Sulfate	464000		ug/L	1000	04/11/2024	AB24-0410-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0256-04-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	918		mg/L	10	04/11/2024	AB24-0411-03

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Analytical Report

Report Date: 04/21/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 6**	Laboratory Project:	**24-0256**
Field Sample ID:	**JRW-MW-16005**	Collect Date:	04/09/2024
Lab Sample ID:	24-0256-05	Collect Time:	12:08 PM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0256-05-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	199		ug/L	20	04/17/2024	AB24-0417-08
Calcium	97700		ug/L	1000	04/17/2024	AB24-0417-08
Iron	54		ug/L	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0256-05-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	24600		ug/L	1000	04/10/2024	AB24-0410-02
Fluoride	1510		ug/L	1000	04/10/2024	AB24-0410-02
Sulfate	293000		ug/L	1000	04/11/2024	AB24-0410-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0256-05-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	612		mg/L	10	04/11/2024	AB24-0411-03

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Analytical Report

Report Date: 04/21/24

Sample Site: **JRW RCRA GW Monitoring - Pond 6**
Field Sample ID: **JRW-MW-16006**
Lab Sample ID: 24-0256-06
Matrix: Groundwater

Laboratory Project: **24-0256**
Collect Date: 04/09/2024
Collect Time: 11:00 AM

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0256-06-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	163		ug/L	20	04/17/2024	AB24-0417-08
Calcium	102000		ug/L	1000	04/17/2024	AB24-0417-08
Iron	287		ug/L	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0256-06-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	24800		ug/L	1000	04/10/2024	AB24-0410-02
Fluoride	1480		ug/L	1000	04/10/2024	AB24-0410-02
Sulfate	293000		ug/L	1000	04/11/2024	AB24-0410-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0256-06-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	596		mg/L	10	04/11/2024	AB24-0411-03

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Analytical Report

Report Date: 04/21/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 6**	Laboratory Project:	**24-0256**
Field Sample ID:	**DUP-02**	Collect Date:	04/09/2024
Lab Sample ID:	24-0256-07	Collect Time:	12:00 AM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0256-07-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	161		ug/L	20	04/17/2024	AB24-0417-08
Calcium	100000		ug/L	1000	04/17/2024	AB24-0417-08
Iron	300		ug/L	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0256-07-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	25000		ug/L	1000	04/10/2024	AB24-0410-02
Fluoride	1470		ug/L	1000	04/10/2024	AB24-0410-02
Sulfate	291000		ug/L	1000	04/11/2024	AB24-0410-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0256-07-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	598		mg/L	10	04/11/2024	AB24-0411-03

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Analytical Report

Report Date: 04/21/24

Sample Site: **JRW RCRA GW Monitoring - Pond 6**
Field Sample ID: **EB-02**
Lab Sample ID: 24-0256-08
Matrix: Water

Laboratory Project: **24-0256**
Collect Date: 04/09/2024
Collect Time: 01:30 PM

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0256-08-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	ND		ug/L	20	04/17/2024	AB24-0417-08
Calcium	ND		ug/L	1000	04/17/2024	AB24-0417-08
Iron	ND		ug/L	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0256-08-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	ND		ug/L	1000	04/10/2024	AB24-0410-02
Fluoride	ND		ug/L	1000	04/10/2024	AB24-0410-02
Sulfate	ND		ug/L	1000	04/10/2024	AB24-0410-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0256-08-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	ND		mg/L	10	04/11/2024	AB24-0411-03

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Analytical Report

Report Date: 04/21/24

Sample Site: **JRW RCRA GW Monitoring - Pond 6**
Field Sample ID: **FB-02**
Lab Sample ID: 24-0256-09
Matrix: Water

Laboratory Project: **24-0256**
Collect Date: 04/09/2024
Collect Time: 01:35 PM

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0256-09-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	ND		ug/L	20	04/17/2024	AB24-0417-08
Calcium	ND		ug/L	1000	04/17/2024	AB24-0417-08
Iron	ND		ug/L	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0256-09-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	ND		ug/L	1000	04/10/2024	AB24-0410-02
Fluoride	ND		ug/L	1000	04/10/2024	AB24-0410-02
Sulfate	ND		ug/L	1000	04/10/2024	AB24-0410-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0256-09-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	ND		mg/L	10	04/11/2024	AB24-0411-03

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Analytical Report

Report Date: 04/21/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 6**	Laboratory Project:	**24-0256**
Field Sample ID:	**JRW-MW-16003 Field MS**	Collect Date:	04/09/2024
Lab Sample ID:	24-0256-10	Collect Time:	12:21 PM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0256-10-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	99		%	20	04/17/2024	AB24-0417-08
Calcium	123		%	1000	04/17/2024	AB24-0417-08
Iron	112		%	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0256-10-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	106		%	1000	04/10/2024	AB24-0410-02
Fluoride	96		%	1000	04/10/2024	AB24-0410-02
Sulfate	110		%	1000	04/11/2024	AB24-0410-02

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Analytical Report

Report Date: 04/21/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 6**	Laboratory Project:	**24-0256**
Field Sample ID:	**JRW-MW-16003 FIeld MSD**	Collect Date:	04/09/2024
Lab Sample ID:	24-0256-11	Collect Time:	12:21 PM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0256-11-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	101		%	20	04/17/2024	AB24-0417-08
Calcium	113		%	1000	04/17/2024	AB24-0417-08
Iron	119		%	20	04/17/2024	AB24-0417-08

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0256-11-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	108		%	1000	04/10/2024	AB24-0410-02
Fluoride	99		%	1000	04/10/2024	AB24-0410-02
Sulfate	111		%	1000	04/11/2024	AB24-0410-02

Data Qualifiers	Exception Summary
	No exceptions occurred.

General Standard Operating Procedure

TITLE: SAMPLE LOG-IN – SHIPMENT INSPECTION FORM

Project Log-In Number: 24-0256

Inspection Date: 04-10-24 **Inspection By:** EB

Sample Origin/Project Name: _____

Shipment Delivered By: Enter the type of shipment carrier.

Pony _____ FedEx _____ UPS _____ USPS _____ Airborne _____

Other/Hand Carry (whom) CLE

Tracking Number:_____ Shipping Form Attached: Yes _____ No _____

Shipping Containers: Enter the type and number of shipping containers received.

Cooler ✓ Cardboard Box _____ Custom Case _____ Envelope/Mailer _____

Loose/Unpackaged Containers _____ Other _____

Condition of Shipment: Enter the as-received condition of the shipment container.

Damaged Shipment Observed: None ✓ Dented _____ Leaking _____

Other _____

Shipment Security: Enter if any of the shipping containers were opened before receipt.

Shipping Containers Received: Opened N/A . Sealed N/A

Enclosed Documents: Enter the type of documents enclosed with the shipment.

CoC ✓ Work Request _____ Air Data Sheet_____ Other_____

Temperature of Containers: Measure the temperature of several sample containers.

As-Received Temperature Range 1.8-4.9 °C Samples Received on Ice: Yes ✓ No_____

M&TE # and Expiration 015402 / 05-23-24

Number and Type of Containers: Enter the total number of sample containers received.

Container Type	Water	Soil	Other	Broken	Leaking
VOA (40mL or 60mL)					
Quart/Liter (g/p)					
9-oz (amber glass jar)					
2-oz (amber glass)					
125 mL (plastic)	22				
24 mL vial (glass)					
250 ~~500~~ mL (plastic)	9				
Other					

pH Paper
13.640-508
Lot # 205522
Exp 02/25/25

EB 04/10/24

Page 2 of 2 Not needed

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CONSUMERS ENERGY COMPANY – LABORATORY SERVICES

135 WEST TRAIL ST., JACKSON, MI 49201 • (517) 788-1251

SAMPLING SITE / CUSTOMER: JRW Pond 6 GW Monitoring – April 2024

PROJECT NUMBER: **24-0256**

SAP CC or WO#:

REQUESTER: Michelle Marion

SAMPLING TEAM: CLE + KDR

TURNAROUND TIME REQUIRED: ☐ 24 HR ☐ 48 HR ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____

SEND REPORT TO: Michelle Marion — email: — phone:

COPY TO: TRC

MATRIX CODES: GW = Groundwater; WW = Wastewater; W = Water / Aqueous Liquid; S = Soil / General Solid; O = Oil; OX = Other _____; SL = Sludge; A = Air; WP = Wipe; WT = General Waste

ANALYSIS REQUESTED (Attach List if More Space is Needed)

QA REQUIREMENT: ☐ NPDES ☒ TNI ☐ ISO 17025 ☐ 10 CFR 50 APP. B ☐ INTERNAL INFO ☐ OTHER _____

LAB SAMPLE ID	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	MATRIX	FIELD SAMPLE ID / LOCATION	CONTAINERS TOTAL #	PRESERVATIVE None	PRESERVATIVE HNO_3	PRESERVATIVE H_2SO_4	PRESERVATIVE NaOH	PRESERVATIVE HCl	PRESERVATIVE MeOH	PRESERVATIVE Other	Total Metals	Anions	TDS	REMARKS
24-0256-01	4.9.24	1151	GW	JRW-MW-16001	3	2	1						x	x	x	
-02	4.9.24	1116	GW	JRW-MW-16002	3	2	1						x	x	x	
-03	4.9.24	1221	GW	JRW-MW-16003	3	2	1						x	x	x	
-04	4.9.24	1321	GW	JRW-MW-16004	3	2	1						x	x	x	
-05	4.9.24	1209	GW	JRW-MW-16005	3	2	1						x	x	x	
-06	4.9.24	1100	GW	JRW-MW-16006	3	2	1						x	x	x	
-07	4.9.24	—	GW	DUP-02	3	2	1						x	x	x	
-08	4.9.24	1330	W	EB-02	3	2	1						x	x	x	
-09	4.9.24	1335	W	FB-02	3	2	1						x	x	x	
-10	4.9.24	1221	GW	JRW-MW-16003 MS	2	1	1						x	x		
-11	4.9.24	1221	GW	JRW-MW-16003 MSD	2	1	1						x	x		

RELINQUISHED BY: CASUBAGHERT — DATE/TIME: 4.9.24 1830 — RECEIVED BY:

RELINQUISHED BY: — DATE/TIME: — RECEIVED BY:

COMMENTS:

Received on Ice? ☑ Yes ☐ No — M&TE #: 015402

Temperature: 1.8-4.9 °C — Cal. Due Date: 5.23.24

Appendix C
Field Notes

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WATER LEVEL DATA

Site: JR Whiting

Project No: 24-0255, -0256 **Reviewed by:** JF

Analyst: KDR **Review Date:** 04-17-24

Date: 4.9.24

Method: Electronic Tape

Tape ID: Solinst 101 P7 **S/N:** LS030624

Well ID	Time	DTW Trial 1 (ft)	DTW Trial 2 (ft)	DTB (ft)	Remarks
JRW MW-15001	13:18	4.53	4.53	81.95	Good locked
JRW MW-15002	12:58	13.27	13.27	92.25	Good locked
JRW MW-15003	13:02	10.35	10.35	90.27	Good Locked
JRW MW-15004	13:05	12.45	12.45	96.43	Good Locked
JRW MW-15005	13:10	11.38	11.38	93.62	Good Locked
JRW MW-15006	13:15	3.67	3.67	82.97	
JRW MW-16001	09:32	15.45	15.45	83.98	marked TOC
JRW MW-16002	09:35	11.85	11.85	94.36	marked TOC
JRW MW-16003	09:38	12.12	12.12	86.01	marked TOC
JRW MW-16004	09:41	12.47	12.47	88.85	marked TOC
JRW MW-16005	09:23	15.26	15.26	91.40	marked TOC
JRW MW-16006	09:19	14.15	14.15	91.68	marked TOC
JRW MW-16007	08:22	5.43	5.43	80.95	marked TOC
JRW MW-16008	08:28	5.95	5.95	76.27	marked TOC
JRW MW-16009	08:33	5.71	5.71	81.91	marked TOC

NOTES: *TOC reference point*
DTW = Depth to Water
DTB = Depth to Bottom

Pond 1 & 2

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Monitoring Well Sampling Worksheet

Well ID JRW MW-15001 Date 4.9.24 Control Number 24-0255-01
Location JRW Well Material: ✓ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ✓ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: Solinst 101 P7 S/N: LS030624

QC SAMPLE: ☐ MS/MSD ☐ DUP____ Sonde ID: ___15M ___19H ___20M ✓21G ___22J

Depth-to-water T/PVC (ft) 4.52 Depth-To-Bottom T/PVC (ft) 81.95 Completed by ICDR

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
13:29	Started pump						300	4.65	
13:32	7.53	14.1	1094	17.5	1.75	+91.7	300	4.65	7.24
13:36	7.53	13.5	1089	6.1	0.63	+98.2	300	4.65	9.55
13:40	7.54	13.4	1087	5.0	0.52	+57.8	300	4.65	9.08
13:44	7.56	13.3	1087	4.4	0.46	-47.9	300	4.65	9.44
13:48	7.59	13.4	1089	4.2	0.43	-88.5	300	4.65	9.20
13:52	7.60	13.5	1089	3.9	0.41	-105.1	300	4.65	9.00
13:56	7.61	13.6	1086	3.8	0.39	-108.5	300	4.65	8.59
14:00	7.61	13.6	1083	3.7	0.39	-111.3	300	4.65	8.67
14:04	7.61	13.5	1079	3.7	0.38	-113.8	300	4.65	8.44
14:05	Collected sample								
14:10	End sample collection								

Total Pump Time (min): 36 Total Purge Volume (gal) : ≈ 3.0 Review Date: 04-17-24

Weather: 55°F, Sunny, Windy Review By:

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	HDPE	B	N					
1	125mL	↓	A	↓					
1	250mL	↓	A	↓					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

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Monitoring Well Sampling Worksheet

Well ID JRW MW-15002 Date 4.9.24 Control Number 24-0255-02
Location JRW Well Material: ☑ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☑ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: Solinst 101 P7 S/N: LS0306624

QC SAMPLE: ☐ MS/MSD ☐ DUP____ Sonde ID: ___15M ___19H ___20M ☑21G ___22J

Depth-to-water T/PVC (ft) 13.28 Depth-To-Bottom T/PVC (ft) 92.25 Completed by KDR

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
15:42	Started pump						304	13.31	
15:46	7.69	14.3	1131	14.6	1.46	-120.9	304	13.31	2.39
15:50	7.61	13.8	1126	4.8	0.50	-138.7	304	13.31	2.51
15:54	7.61	13.9	1127	4.3	0.44	-140.2	304	13.31	2.76
15:58	7.61	13.7	1130	4.0	0.42	-145.9	304	13.31	2.99
16:02	7.61	13.7	1126	3.8	0.39	-149.3	304	13.31	3.10
16:06	7.61	13.8	1128	4.1	0.42	-145.3	304	13.31	3.13
16:07	Collected sample								
16:13	End sample collection								

Total Pump Time (min): 25 Total Purge Volume (gal) : ≈ 2.0 Review Date: 04-17-24

Weather: 55°F, sunny, windy Review By: JF

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	HDPE	B	N					
1	125mL	↓	A	↓					
1	250mL	↓	A	↓					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

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Monitoring Well Sampling Worksheet

Well ID JRW-MW-15003 Date 4.9.24 Control Number 24-0255-03, -07
Location JR Whiting Well Material: [✓] PVC [ ] SS [ ] Iron [ ] Galv. Steel

Purge Method: [✓] Peristaltic [ ] Submersible [ ] Bladder [ ] Fultz [ ] Bailer

Depth to Water Tape: Geotech S/N: 7371

QC SAMPLE: [ ] MS/MSD [✓] DUP-01 Sonde ID: [✓]15M [ ]19H [ ]20M [ ]21G [ ]22J

Depth-to-water T/PVC (ft) 10.37 Depth-To-Bottom T/PVC (ft) 90.27 Completed by CLE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1347	Started pump						180	10.37	
1355	7.58	14.2	1008	32.7	3.43	-20.2	180	10.37	4.39
1400	7.55	14.2	1005	17.0	1.73	-15.9	180	10.37	3.74
1405	7.55	14.0	1007	11.3	1.14	-17.8	180	10.37	2.24
1410	7.56	14.1	1007	8.7	0.89	-20.6	180	10.37	2.55
1415	7.57	13.9	1008	6.6	0.68	-23.3	180	10.37	2.28
1420	7.57	13.9	1008	5.5	0.56	-25.8	180	10.37	2.11
1425	7.58	14.0	1007	5.4	0.55	-25.8	180	10.37	2.06
1430	7.58	13.8	1008	5.5	0.57	-25.2	180	10.37	1.89
1431	Collected Samples								
1436	end								

Total Pump Time (min): 54 Total Purge Volume (gal) : 22.5 Review Date: 04-17-24

Weather: 70°F, Sunny, windy Review By:

Comments: pH = 7.3-8.3 Collected Field Dup

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
2	125mL	HDPE	B	N					
2	125mL	↓	A						
2	250mL	↓	A	↓					

* Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.

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Monitoring Well Sampling Worksheet

Well ID JRW-MW-15004 Date 4.9.24 Control Number 24-0255-04
Location JR Whiting Well Material: [✓] PVC [ ] SS [ ] Iron [ ] Galv. Steel

Purge Method: [✓] Peristaltic [ ] Submersible [ ] Bladder [ ] Fultz [ ] Bailer

Depth to Water Tape: Geotech S/N: 7371

QC SAMPLE: [ ] MS/MSD [ ] DUP____ Sonde ID: [✓] 15M [ ] 19H [ ] 20M [ ] 21G [ ] 22J

Depth-to-water T/PVC (ft) 12.50 Depth-To-Bottom T/PVC (ft) 96.43 Completed by CLE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1450	Started pump						180	12.52	
1455	7.53	15.5	969	37.6	3.75	+36.2	180	12.52	2.66
1500	7.53	15.0	967	36.7	3.69	+43.8	180	12.52	2.70
1505	7.52	15.4	970	35.8	3.58	+52.2	180	12.52	2.40
1510	7.52	15.3	967	35.6	3.56	+55.8	180	12.52	2.05
1515	7.52	15.4	966	34.9	3.48	+57.3	180	12.52	2.16
1520	7.51	15.0	966	32.9	3.32	+60.8	180	12.52	2.12
1521	Collected Sample								
1523	End								

Total Pump Time (min): 31 Total Purge Volume (gal) : ~1.5 Review Date: 04-17-24

Weather: 70°F, Sunny, windy Review By:

Comments: pH = 7.2 - 8.0

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	HDPE	B	N					
1	125mL	↓	A	↓					
1	250mL	↓	A	↓					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Laboratory Services

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Monitoring Well Sampling Worksheet

Well ID JRW-MW-1500S Date 4-9-24 Control Number 24-0255-05

Location JR whiting Well Material: ☑ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☑ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: Geotech S/N: 7371

QC SAMPLE: ☐ MS/MSD ☐ DUP____ Sonde ID: ✓15M ___19H ___20M ___21G ___22J

Depth-to-water T/PVC (ft) 11.40 Depth-To-Bottom T/PVC (ft) 93.62 Completed by CLE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1535	Starting Pump						220	11.43	
1540	7.70	14.8	892	30.3	3.06	+58.8	220	11.43	1.67
1545	7.70	14.5	890	28.6	2.90	+60.8	220	11.43	1.62
1550	7.70	14.4	880	25.6	2.60	+59.6	220	11.43	1.70
1555	7.70	14.4	888	25.5	2.60	+59.7	220	11.43	1.52
1600	7.70	14.5	887	25.4	2.59	+59.7	220	11.43	1.48
1605	7.70	14.6	887	25.2	2.56	+58.9	220	11.43	1.28
1606	Collected Sample								
1609	END								

Total Pump Time (min): 31 Total Purge Volume (gal) : 12.0 Review Date: 04-17-24

Weather: 70°F, Sunny, Windy Review By:

Comments: PH=7.3-8.6

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	HDPE	B	N					
1	125mL	↓	A	↓					
1	250mL	↓	A	↓					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

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Monitoring Well Sampling Worksheet

Well ID JRW MW-15006 Date 4.9.24 Control Number 24-0255-06,-10,-11
Location JRW Well Material: [✓] PVC [ ] SS [ ] Iron [ ] Galv. Steel

Purge Method: [✓] Peristaltic [ ] Submersible [ ] Bladder [ ] Fultz [ ] Bailer

Depth to Water Tape: Solinst 101 PT S/N: LS030624

QC SAMPLE: [✓] MS/MSD [ ] DUP____ Sonde ID: ___15M ___19H ___20M ✓21G ___22J

Depth-to-water T/PVC (ft) 3.67 Depth-To-Bottom T/PVC (ft) 82.97 Completed by KDR

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
								Drawdown	
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
14:29	Started pump						312	3.71	
14:32	7.80	13.8	983	52.9	5.26	+52.3	312	3.71	3.89
14:36	7.60	13.3	981	31.1	3.22	+74.6	312	3.71	3.91
14:40	7.55	13.6	983	23.7	2.45	+90.5	312	3.71	3.86
14:44	7.56	13.8	983	20.1	2.07	+98.9	312	3.71	3.80
14:48	7.57	13.6	984	15.2	1.58	+101.7	312	3.71	3.87
14:52	7.58	13.8	982	12.0	1.23	+103.8	312	3.71	3.92
14:56	7.59	13.6	982	9.5	0.98	+105.8	312	3.71	4.03
15:00	7.59	13.9	981	8.2	0.84	+108.4	312	3.71	4.17
15:04	7.60	13.8	981	6.8	0.70	+107.5	312	3.71	4.19
15:08	7.60	13.8	979	6.2	0.64	+108.0	312	3.71	4.27
15:12	7.60	13.8	979	6.0	0.62	+107.4	312	3.71	4.31
15:16	7.61	13.4	977	5.6	0.57	+103.1	312	3.71	4.40
15:17	Collected sample								
15:26	End sample collection								

Total Pump Time (min): 48 Total Purge Volume (gal) : ≈ 4.0 Review Date: 04-17-24

Weather: 55°F, Sunny, windy Review By: [signature]

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
3	125mL	HPPE	B	N					
3	125mL	↓	A	↓					
1	250mL	↓	A	↓					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

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Monitoring Well Sampling Worksheet

Well ID EB-01 Date 4.9.24 Control Number 24-0255-08
Location JRW Well Material: ☐ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☑ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: S/N:

QC SAMPLE: ☐ MS/MSD ☐ DUP____ Sonde ID: ___15M ___19H ___20M ___21G ___22J

Depth-to-water T/PVC (ft) _____ Depth-To-Bottom T/PVC (ft) _____ Completed by KDR

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
16:25	Collected sample								

Total Pump Time (min): — Total Purge Volume (gal) : — Review Date: 04-17-24

Weather: 55°F, Sunny, windy Review By:

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	HDPE	B	N					
1	125mL	↓	A	↓					
1	250mL	↓	A	↓					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

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Monitoring Well Sampling Worksheet

Well ID FB-01 Date 4.9.24 Control Number 24-0255-09

Location JRW Well Material: ☐ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☐ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: S/N:

QC SAMPLE: ☐ **MS/MSD** ☐ **DUP**____ **Sonde ID:** ___15M ___19H ___20M ___21G ___22J

Depth-to-water T/PVC (ft) _____ Depth-To-Bottom T/PVC (ft) _____ Completed by KDR

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
16:18	Collected sample								

Total Pump Time (min): — Total Purge Volume (gal) : — Review Date: 04-17-24

Weather: 55°F, sunny, windy Review By: [signature]

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	HDPE	B	N					
1	125mL	"	A	"					
1	250mL	"	A	"					

* *Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Pond 6

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Laboratory Services

Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID JRW-MW-16001 Date 4.9.24 Control Number 24-0256-61
Location JR Whiting Well Material: ☑ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☑ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: Geotech S/N: 7371

QC SAMPLE: ☐ MS/MSD ☐ DUP____ Sonde ID: ☑ 15M ___19H ___20M ___21G ___22J

Depth-to-water T/PVC (ft) 15.45 Depth-To-Bottom T/PVC (ft) 83.98 Completed by CLE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1020	started to purge								
1023	intial readings								
	11.49	13.4	1028	52.1	5.42	+10.2		15.88	19.11
	Flow rate (2 pumps w/ larger tubing)								
	65 x 6 = 390 mL/min					912 mL/min FOR Purge			1.15 gallons purged
	87 x 6 = 522 mL/min								
1120	8.10	13.9	778	17.1	1.76	-99.9		15.89	10.95
1125	lowered pump speed to 500mL/min FOR stabilization								
1130	8.14	14.1	767	4.8	0.49	-155.4	500	15.79	8.19
1135	8.15	14.0	764	4.7	0.49	-155.1	500	15.79	5.08
1140	8.14	14.2	761	4.6	0.47	-151.1	500	15.79	4.70
1145	8.12	14.2	761	4.6	0.47	-149.1	500	15.79	3.80
1150	8.12	14.3	760	4.6	0.47	-148.4	500	15.79	3.73
1151	collected Sample								
1152	end								

Total Pump Time (min): 92 Total Purge Volume (gal) : 15+2.75=17.75 Review Date: 04-27-24

Weather: 70°F, windy, sunny Review By: [signature]

Comments: PH = 7.5-8.1

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	HDPE	B						
1	↓	↓	A						
1	250mL	↓	A						

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Consumers Energy Company
Laboratory Services
A CENTURY OF EXCELLENCE

Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID JRW-MW-16002 Date 4-9-24 Control Number 24-0256-02

Location JRWhiting Well Material: ☑ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☑ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: Geotech S/N: 7371

QC SAMPLE: ☐ MS/MSD ☐ DUP____ Sonde ID: ☑15M ☐19H ☐20M ☐21G ☐22J

Depth-to-water T/PVC (ft) 11.87 Depth-To-Bottom T/PVC (ft) 94.36 Completed by CIE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1035	Started pump						255	12.03	
1040	7.86	13.9	998	6.2	0.64	-160.9	255	12.03	12.52
1045	7.75	13.7	999	4.7	0.49	-156.5	255	12.03	10.25
1050	7.73	13.5	994	4.3	0.44	-157.4	255	12.03	9.13
1055	7.72	13.5	998	4.1	0.43	-157.6	255	12.03	8.70
1100	7.72	13.6	992	4.0	0.41	-158.2	255	12.03	7.95
1105	7.72	13.5	1001	3.9	0.41	-158.2	255	12.03	3.61
1110	7.71	13.5	999	3.9	0.40	-158.4	255	12.03	2.41
1115	7.71	13.6	997	3.9	0.40	-158.7	255	12.03	2.33
1116	Collected Sample								
1117	end								

Total Pump Time (min): 46 Total Purge Volume (gal) : ~3.0 Review Date: 04-17-24

Weather: 66°F, Wind, Sunny Review By:

Comments: pH = 7.5-8.3

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	HDPE	B	N					
1	125mL	↓	A	↓					
1	250mL	↓	A	↓					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Consumers Energy Company
Laboratory Services
A CENTURY OF EXCELLENCE

Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID JRW-MW-16003 Date 4.9.24 Control Number 24-0256-03, -19-11 MS MSD

Location JR Whiting Well Material: ☐ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☑ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: Geotech S/N: 7371

QC SAMPLE: ☑ MS/MSD ☐ DUP____ Sonde ID: ☑ 15M ___19H ___20M ___21G ___22J

Depth-to-water T/PVC (ft) 12.15 Depth-To-Bottom T/PVC (ft) 86.01 Completed by CLE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1156	Started pump						180	12.15	
1200	7.65	15.0	982	4.7	0.47	-155.5	186	12.19	2.19
1205	7.66	15.4	987	4.3	0.43	-161.6	186	12.19	2.02
1210	7.64	15.6	990	4.1	0.41	-165.2	180	12.19	2.06
1215	7.67	15.8	985	4.0	0.40	-166.7	180	12.19	1.71
1220	7.67	15.7	986	4.1	0.40	-167.5	180	12.19	1.66
1221	collected Sample								
1223	end								
cc 04/05/24									

Total Pump Time (min): 25 Total Purge Volume (gal) : ~1.25 Review Date: 04-17-24

Weather: 70°F, Sunny, Wind Review By: JF

Comments: pH = 7.4-7.9

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
3	125mL	HDPE	B	N					
3	125mL	↓	A	↓					
1	250mL	↓	A	↓					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Consumers Energy Company
Laboratory Services
A CENTURY OF EXCELLENCE

Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID JRW-MW-16004 Date 4.9.24 Control Number 24-6256-04

Location JR Whiting Well Material: [✓] PVC [ ] SS [ ] Iron [ ] Galv. Steel

Purge Method: [✓] Peristaltic [ ] Submersible [ ] Bladder [ ] Fultz [ ] Bailer

Depth to Water Tape: Geotech S/N: 7371

QC SAMPLE: [ ] MS/MSD [ ] DUP____ Sonde ID: [✓]15M [ ]19H [ ]20M [ ]21G [ ]22J

Depth-to-water T/PVC (ft) 12.50 Depth-To-Bottom T/PVC (ft) 88.85 Completed by CLE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1240	started pump						220	12.52	
1245	9.12	14.6	1016	35.0	3.54	-156.0	220	12.52	2.17
1250	8.48	14.8	1084	17.2	1.73	-198.4	220	12.52	2.18
1255	8.00	14.7	1131	8.9	0.90	-201.4	220	12.52	2.08
1300	7.81	14.5	1159	5.3	0.54	-205.2	220	12.52	2.13
1305	7.74	14.6	1168	4.5	0.46	-206.8	220	12.52	2.08
1310	7.72	14.5	1168	4.1	0.41	-209.9	220	12.52	1.96
1315	7.70	14.5	1169	3.9	0.39	-211.1	220	12.52	2.03
1320	7.69	14.5	1171	3.8	0.39	-211.2	220	12.52	2.00
1321	collected Sample								
1323	end								

Total Pump Time (min): 41 Total Purge Volume (gal) : ~2.5 Review Date: 04-17-24

Weather: 70°F, Sunny, wind Review By:

Comments: pH = 7.4 - 8.2

Bottles Filled					Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____				
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	HDPE	B						
1	125mL	↓	A						
1	250mL	↓	A						

* *Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Laboratory Services

Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID JRW MW-16005 Date 4.9.24 Control Number 24-0256-05
Location JRW Well Material: ☑ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☑ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: Solinst 101 P7 S/N: LS030624

QC SAMPLE: ☐ MS/MSD ☐ DUP____ Sonde ID: ___15M ___19H ___20M ✓21G ___22J

Depth-to-water T/PVC (ft) 15.25 Depth-To-Bottom T/PVC (ft) 91.40 Completed by KDR

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
11:23	Started pump						300	15.29	
11:27	7.65	13.9	851	24.1	2.44	+16.0	300	15.29	2.93
11:31	7.63	13.5	845	13.7	1.42	+54.5	300	15.29	5.44
11:35	7.63	13.6	844	12.6	1.30	+66.2	300	15.29	5.21
11:39	7.63	13.6	844	11.3	1.18	+75.9	300	15.29	5.02
11:43	7.62	13.7	845	10.6	1.09	+82.9	300	15.29	4.99
11:47	7.62	13.6	844	9.5	0.99	+89.8	300	15.29	5.07
11:51	7.62	13.7	844	8.7	0.89	+95.2	300	15.29	5.15
11:55	7.62	13.7	844	8.1	0.83	+92.7	300	15.29	5.20
11:59	7.63	13.7	844	6.9	0.71	+93.2	300	15.29	5.31
12:03	7.63	13.8	843	6.3	0.65	+92.7	300	15.29	5.39
12:07	7.63	13.7	843	6.3	0.64	+91.5	300	15.29	5.40
12:08	Collected sample								
12:13	End sample collection								

Total Pump Time (min): 45 Total Purge Volume (gal) : ≈ 3.5 Review Date: 04-17-24

Weather: 55°F, Sunny, windy Review By:

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	HDPE	B	N					
1	125mL	↓	A	↓					
1	250mL	↓	A	↓					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Consumers Energy Company
Laboratory Services

Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID JRW-MW-160006 Date 4.9.24 Control Number 24-0256-06,-07

Location JRW Well Material: ☑ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☑ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: Solinst 101 P7 S/N: LS030624

QC SAMPLE: ☐ MS/MSD ☑ DUP 02 Sonde ID: ___15M ___19H ___20M ☑21G ___22J

Depth-to-water T/PVC (ft) 14.16 Depth-To-Bottom T/PVC (ft) 91.68 Completed by KDR

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
10:11	Started Pump						192	14.18	
10:15	7.43	13.5	815	39.6	4.05	+107.0	192	14.18	2.03
10:19	7.42	13.3	815	16.4	1.70	+111.3	192	14.18	2.19
10:23	7.43	13.2	814	13.2	1.38	+112.3	192	14.18	2.10
10:27	7.46	13.3	814	12.7	1.32	+111.8	192	14.18	2.16
10:31	7.50	13.3	814	11.8	1.23	+108.7	192	14.18	2.24
10:35	7.54	13.4	813	9.4	0.97	+79.1	192	14.18	2.37
10:39	7.58	13.5	814	6.9	0.72	-36.8	192	14.18	2.51
10:43	7.64	13.5	814	5.8	0.60	-96.1	192	14.18	6.52
10:47	7.69	13.5	814	5.2	0.53	-127.3	192	14.18	6.67
10:51	7.71	13.6	814	4.8	0.50	-138.2	192	14.18	6.75
10:55	7.72	13.5	814	4.6	0.48	-140.1	192	14.18	6.84
10:59	7.73	13.7	815	4.5	0.47	-142.9	192	14.18	6.91
11:00	collected sample								
11:10	End sample collection								

Total Pump Time (min): 49 Total Purge Volume (gal) : ≈2.5 Review Date: 04-17-24

Weather: 55°F, Sunny, windy Review By:

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
2	125mL	HDPE	B	N					
2	125mL	↓	A	↓					
2	250mL	↓	A	↓					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Consumers Energy
Laboratory Services

Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID EB-02 Date 4.9.24 Control Number 24-0256.08

Location JR whiting Well Material: ☐ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☐ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: S/N:

QC SAMPLE: ☐ **MS/MSD** ☐ **DUP**____ **Sonde ID:** ___15M ___19H ___20M ___21G ___22J

Depth-to-water T/PVC (ft) _____ Depth-To-Bottom T/PVC (ft) _____ Completed by CLE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1330	collected Sample								

Total Pump Time (min): — Total Purge Volume (gal) : — Review Date: 04-17-24

Weather: 70°F, Sunny, Wind Review By:

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	HDPE	B	N					
1	↓	↓	A	↓					
1	250mL	↓	A	↓					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Consumers Energy
Laboratory Services

Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID FB-02 Date 4.9.24 Control Number 24-0256-09

Location JR Whiting Well Material: ☐ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☐ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: S/N:

QC SAMPLE: ☐ MS/MSD ☐ DUP____ **Sonde ID:** ___15M ___19H ___20M ___21G ___22J

Depth-to-water T/PVC (ft) _____ Depth-To-Bottom T/PVC (ft) _____ Completed by CLE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1335	collected Sample								

Total Pump Time (min): — Total Purge Volume (gal) : — Review Date: 04-17-24

Weather: 70°F, Sunny, Wind Review By: JC

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	HDPE	B	N					
1	↓	↓	A	↓					
1	250mL	↓	A	↓					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Appendix B
Second Semiannual Monitoring Report

January 30, 2025

Brett Coulter, CPG, District Geologist
EGLE, Materials Management Division
State Office Building
301 East Louis Glick Highway
Jackson, MI 49201

via email: CoulterB1@michigan.gov

TRANSMITTAL OF GROUNDWATER MONITORING RESULTS FOR JR WHITING SOLID WASTE DISPOSAL AREA; WDS NO. 397664

Dear Mr. Coulter,

Please find attached the following:

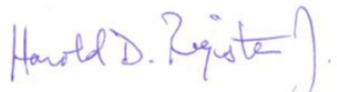
Document	Date
Second Semiannual 2024 Groundwater Monitoring Report for the JR Whiting Solid Waste Disposal Area	January 30, 2025
Second Semiannual 2024 Laboratory Analysis Data Spreadsheet	January 30, 2025

The attached document(s) are prepared in conformance with:

Document	Date
Solid Waste Disposal Area Operating License; Consumers Whiting Plant Impoundments; Waste Disposal System Number 397664; License Number 9601	May 11, 2020
Hydrogeological Monitoring Plan, Consumers Power Company, dated May 6, 2020	May 6, 2020
Michigan Department of Environment, Great Lakes, and Energy Policy Memorandum OWMRP-115-29: Format for Solid Waste Disposal Facility Monitoring Submittals	July 5, 2013

Please contact me if you have any questions regarding this transmittal.

Sincerely,



Harold D. Register, Jr., P.E.
Sr. Principal Environmental Engineer
Phone: (517) 788-2982
Email: harold.registerjr@cmsenergy.com

cc Gary Schwerin, EGLE (via email)

Second Semiannual 2024 Groundwater Monitoring Report

Former JR Whiting Power Plant Pond 1 & 2 and Pond 6

Erie, Michigan

January 2025

Prepared For:

Consumers Energy

Prepared By:

TRC
1540 Eisenhower Place
Ann Arbor, Michigan 48108

Sarah B. Holmstrom, P.G.
Sr. Project Manager

Vincent E. Buening, C.P.G.
Sr. Hydrogeologist

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1.0 Introduction

On April 17, 2015, the United States Environmental Protection Agency (USEPA) published the final rule for the regulation and management of Coal Combustion Residuals (CCR) under the Resource Conservation and Recovery Act (RCRA) (the CCR Rule), as amended. Standards for groundwater monitoring and corrective action codified in the CCR Rule (40 CFR 257.90-98) apply to the Consumers Energy Company (Consumers Energy) Ponds 1 and 2 (closed surface impoundment monitored as Pond 1 & 2 using a multiunit groundwater monitoring system) and Pond 6 (closed inactive surface impoundment) at the former JR Whiting (JRW) Power Plant Site (the Site). Prior to the CCR Rule, from about 2009 to 2016, JR Whiting followed the approved groundwater monitoring waiver.

On December 28, 2018, the State of Michigan enacted Public Act No. 640 of 2018 (PA 640) to amend the Natural Resources and Environmental Protection Act, also known as Part 115 of PA 451 of 1994, as amended (a.k.a., Michigan Part 115 Solid Waste Management). The December 2018 amendments to Part 115 were developed to provide the State of Michigan oversight of CCR impoundments and landfills and to better align existing state solid waste management rules and statutes with the CCR Rule. On August 8, 2019, Consumers Energy submitted a revised *JR Whiting Hydrogeological Monitoring Plan, former JR Whiting Power Plant, Erie, Michigan* (2020 HMP) (TRC, May 2020 Revision) to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) to comply with the requirements of Part 115, Rule 299.4905, and the CCR Rule. The HMP was approved by the EGLE on May 11, 2020.

1.1 Statement of Adherence to Approved Hydrogeological Monitoring Plan

This JR Whiting Second Semiannual 2024 Groundwater Monitoring Report (Report) has been prepared by TRC on behalf of Consumers Energy to present groundwater monitoring data collected from the JR Whiting Pond 1 & 2 and Pond 6 during the fourth calendar quarter of 2024. This report was prepared in accordance with the items listed in Appendix A (Solid Waste Monitoring Submittal Components) of the July 5, 2013 Michigan Department of Environmental Quality – Office of Waste Management and Radiological Protection (MDEQ-OWMRP), now the EGLE Materials Management Division (MMD), communication prescribing the format for solid waste disposal facility monitoring submittals as published in OWMRP-115-29, Format for Solid Waste Disposal Monitoring Submittals. All references herein to the EGLE are inclusive of the MDEQ. Groundwater sampling, analysis, and information contained in this report was prepared in adherence to the 2020 HMP.

1.2 Program Summary

Historically groundwater monitoring at JRW was performed under the HMP last revised on November 26, 1997, until the groundwater monitoring waiver was approved on September 2, 2009. It was then again performed pursuant to the CCR Rule beginning in 2016 until implementation of the 2020 HMP, at which time monitoring began to be conducted in accordance with both regulatory programs. In the *First Semiannual 2024 Groundwater Monitoring Report* for the JRW Pond 1 & 2 and Pond 6 (First Semiannual 2024 Report) (TRC, July 2024), Consumers Energy reported that no potential statistically significant increases (SSIs) were noted during the first 2024 semiannual detection monitoring event. Therefore,

Consumers Energy continued detection monitoring in the second half of 2024 at Pond 1 & 2 and Pond 6 pursuant to §257.94 of the CCR Rule and the HMP.

This Report presents the monitoring results and the statistical evaluation of the detection monitoring constituents (Section 11511a(3)(c) of Part 115) for the October 2024 semiannual groundwater monitoring event for Pond 1 & 2 and Pond 6. Detection monitoring was performed in accordance with the 2020 HMP. As part of the statistical evaluation, the data collected during detection monitoring events are evaluated to identify SSIs of detection monitoring constituents compared to background levels.

1.3 Site Overview

The JR Whiting Plant was a coal-fired power generation facility located in Erie, Michigan, on the western shore of Lake Erie (Figure 1). The plant began producing electricity in 1952 from Units 1 and 2, with Unit 3 beginning operation in 1953. The plant ceased operation in April 2016. Figure 1 is the site location map showing the facility and the surrounding area. Site features are shown on Figure 2.

The JR Whiting Ash Disposal Area is licensed under Michigan Part 115 of the Natural Resources and Environmental Protection Act (NREPA), PA 451 of 1994, as amended.

Pond 1 & 2 is located to the east of the plant, north of the discharge canal, south of Erie Road, and west of Lake Erie and constructed in native clay soil. It was historically used for wet ash sluicing. In 2019, it received its final cover system constructed pursuant to 40 CFR 257.102(a); the Pond 1 & 2 Closure Construction Quality Assurance (CQA) Plan dated August 31, 2017; the Part 115 Administrative Rules; and Pond 1 & 2 Closure Plan submitted to the EGLE on December 18, 2017. The closure of Pond 1 & 2 was certified by the EGLE in a letter dated August 27, 2020.

Pond 6 is located to the north of the plant and was constructed in native clay soil. It was an inactive surface impoundment at the time the CCR Rule became effective on October 19, 2015, and was capped with a final cover certified pursuant to the CCR Rule on December 5, 2017, and certified by the EGLE on August 24, 2018.

1.4 Geology/Hydrogeology

Pond 1 & 2 and Pond 6 are located adjacent to Lake Erie. The subsurface materials encountered at the JR Whiting site are predominately clay-rich till. The surficial CCR fill material is underlain by approximately 40 to 50 feet of laterally extensive clay-rich till that acts as a natural hydraulic barrier across the Site. Limestone bedrock is present beneath the till and is considered the uppermost aquifer at the Site.

Groundwater present within the uppermost aquifer is typically encountered at Pond 1 & 2 and Pond 6 around 70 to 80 feet below ground surface (ft bgs), approximately 510 to 520 feet above mean sea level (AMSL), in the limestone (beneath the till). The uppermost aquifer is confined and protected from CCR constituents by the 40- to 50-foot-thick overlying clay-rich aquitard that interfaces with the limestone at the elevation range of 510 to 520 feet AMSL. Potentiometric

surface elevation data from groundwater within the CCR monitoring wells represents the levels in which groundwater rises under hydrostatic pressure within each well and exhibit an extremely low hydraulic gradient across the Site with no consistent or discernible flow direction.

2.0 Groundwater Monitoring

2.1 Monitoring Well Network

A groundwater monitoring system has been established for Pond 1 & 2 and Pond 6 for the purpose of detection monitoring. The detection monitoring well network for Pond 1 & 2 and Pond 6 currently consists of six monitoring wells for each CCR unit that are screened in the uppermost aquifer. Monitoring well locations are shown on Figure 2.

As discussed in the HMP, intrawell statistical methods for JR Whiting were selected based on the geology and hydrogeology at the Site (primarily the presence of clay/hydraulic barrier, no apparent flow direction and lack of flow potential across the aquifer), in addition to other supporting lines of evidence that the aquifer is unaffected by the CCR unit (such as the consistency in concentrations of water quality data and similarities in concentrations in wells JRW-MW-16007 through JRW-MW-16009 and the Pond 1 & 2 and Pond 6 monitoring wells).

An intrawell statistical approach requires that each downgradient well doubles as the background and compliance well, where data from each individual well during a detection monitoring event is compared to a statistical limit developed using the background dataset from that same well. Monitoring wells JRW-MW-15001 through JRW-MW-15006 are located around the perimeter of Pond 1 & 2 and monitoring wells JRW-MW-16001 through JRW-MW-16006 are located around the perimeter of Pond 6. These monitoring wells provide data on both background and downgradient groundwater quality that has not been affected by the CCR unit (a total of six background/downgradient monitoring wells for each pond).

As shown on Figure 2, monitoring wells JRW-MW-16007 through JRW-MW-16009 are used for water level measurements only. These wells were initially installed as potential background monitoring wells during the initial stages of characterizing the Site. However, based on further hydrogeological characterization of the uppermost aquifer, an intrawell statistical approach was selected, which does not rely on JRW-MW-16007 through JRW-MW-16009 for statistical evaluation.

No monitoring wells have been installed or decommissioned since the previous monitoring event.

2.2 October 2024 Groundwater Monitoring

Consumers Energy Laboratory Services personnel performed gauging and sampling of monitoring wells associated with Pond 1 & 2 and Pond 6 on October 3, 2024. Groundwater monitoring was performed in accordance with the HMP. Groundwater samples collected during the October 2024 event were submitted to Consumers Energy Laboratory Services in Jackson, Michigan, for analysis of the following metals and inorganic indicator constituents:

Section 11511a(3)(c) – Detection Monitoring Constituents
Boron
Calcium
Chloride
Fluoride
Iron
pH
Sulfate
Total Dissolved Solids (TDS)

Static water level measurements that represent the potentiometric surface were collected at all locations after equilibration to atmospheric pressure. The depth to water was measured according to ASTM D 4750, "Standard Test Method for Determining Subsurface Liquid Levels in a Borehole or Monitoring Well" and recorded to the nearest 0.01 foot. Static water elevation data are summarized in Table 1.

Groundwater samples were collected using a peristaltic pump or submersible pump in accordance with low flow sampling protocol and were not field filtered to allow for total metals analysis. Groundwater field parameters included dissolved oxygen, oxidation reduction potential, pH, specific conductivity, temperature, and turbidity and are summarized on Table 2. All samples were collected in vendor-provided, nitric acid pre-preserved (metals only) and unpreserved sample containers and submitted to the laboratory for analysis. Consumers Energy followed chain of custody procedures to document the sample handling.

Consumers Energy collected quality assurance/quality control (QA/QC) samples from both CCR units, Pond 1 & 2 and Pond 6, during the October 2024 groundwater sampling event. The QA/QC samples per CCR unit consisted of one field blank, one equipment blank, one field duplicate (JRW-MW-15003 at Pond 1 & 2 and JHC-MW-16002 at Pond 6), and one field matrix spike/matrix spike duplicate (MS/MSD) sample (JRW-MW-15006 at Pond 1 & 2 and JHC-MW-16003 at Pond 6).

Groundwater analytical results from the semiannual monitoring event are summarized in Table 3 (Pond 1 & 2) and Table 4 (Pond 6). The laboratory analytical reports are included in Appendix B. Field records are included in Appendix C.

2.2.1 Data Quality Review

Data from each round were evaluated for completeness, overall quality and usability, method-specified sample holding times, precision and accuracy, and potential sample contamination. The data were found to be complete and usable for the purposes of the CCR monitoring program. Data quality reviews are summarized in Appendix A.

2.2.2 Groundwater Flow Rate and Direction

Groundwater elevation data collected during the background sampling events showed that the hydraulic gradient for groundwater within the uppermost aquifer is often so low that groundwater flow across Pond 1 & 2 and Pond 6 is frequently incalculable and often stagnant.

There are minor differences in hydraulic head across the monitoring wells (ranging from zero up to 0.15 feet across Pond 1 & 2 and up to 0.24 feet across Pond 6 from event to event from November 2016 through October 2024), indicating that the potentiometric surface is flat the majority of the time. In the few instances since November 2016 where a slight gradient was observed and calculable, the direction of the flow potential was highly variable event to event with flow directions slightly to the northwest, east, and northeast from Pond 1 & 2 and slightly to the south, west, and northeast from Pond 6.

The most pronounced groundwater gradient between November 2016 and October 2024 at Pond 1 & 2 was observed on December 19, 2016, which showed a slight horizontal gradient of approximately 0.00016 ft/ft to the northwest across Pond 1 & 2. For Pond 6, the most pronounced potentiometric head differential of 0.24 feet was observed on February 28, 2018, between JRW-MW-16001 on the north edge of Pond 6 and JRW-MW-16004 on the south edge of the Pond 6 CCR unit. Although, when considering the potentiometric surface elevation data from all of the Pond 6 CCR unit wells, the general groundwater flow direction inferred across the pond at that time is to the southwest, in order to be conservative, the maximum head difference was used to calculate the maximum groundwater flow velocity at the Pond 6 CCR unit throughout the background monitoring period. This results in a very slight horizontal gradient of approximately 0.000099 ft/ft to the south.

2.2.2.1 Pond 1 & 2

Although there was no clear flow direction when looking at water levels across the Pond 1 & 2 well network, the maximum groundwater gradient inferred on October 3, 2024, was calculated using well pair JRW-MW-15005/JRW-MW-15006 and JRW-MW-15002/JRW-MW-15006 to conservatively demonstrate the low groundwater flow rate potential. The head difference across Pond 1 & 2 ranged from 0.00 to 0.08 feet between monitoring wells, with a low calculated horizontal gradient of approximately 0.00012 ft/ft using the maximum head differential. Since both well pairs exhibited the same maximum head differential, the average of the two gradients was used in the calculation. Using the highest hydraulic conductivity measured at the Pond 1 & 2 monitoring wells of 20 feet/day (ARCADIS, 2016), and an assumed effective porosity of 0.1, this results in a maximum inferred groundwater flow rate of approximately 0.024 feet/day (approximately 9 feet/year). However, the actual gradient is much lower when considering the low head difference in the rest of the monitoring wells across Pond 1 & 2 and the lack of discernable flow direction. The Pond 1 & 2 groundwater potentiometric surface elevations measured during the October 2024 sampling event are provided on Table 1 and are summarized in plan view on Figure 3.

The extremely low gradient and lack of general flow direction is similar to that identified in previous monitoring rounds (since the background sampling events commenced in December 2016) and continues to demonstrate that the downgradient compliance wells are appropriately

positioned to detect the presence of detection monitoring constituents that could potentially migrate from Pond 1 & 2.

2.2.2.2 Pond 6

Although there was no clear flow direction when looking at water levels across the Pond 6 well network, the maximum groundwater gradient inferred on October 3, 2024, was calculated using well pair JRW-MW-16006/JRW-MW-16002 and JRW-MW-16003/JRW-MW-16004 to conservatively demonstrate the low groundwater flow rate potential. The head difference across Pond 6 ranged from 0.00 to 0.02 feet between monitoring wells, with a low calculated horizontal gradient of approximately 0.000025 ft/ft using the maximum head differential. Since both well pairs exhibited the same maximum head differential, the average of the two gradients was used in the calculation. Using the highest hydraulic conductivity measured at the Pond 6 CCR unit monitoring wells (11.9 feet/day from the 2016 TRC well installation report) and an assumed effective porosity of 0.1, this results in a maximum inferred groundwater flow rate of approximately 0.0030 feet/day (approximately 1.1 feet/year). Groundwater potentiometric surface elevations measured during the October 2024 sampling event are provided on Table 1 and are summarized in plan view on Figure 3.

The extremely low gradient and/or lack of a consistent or discernable general flow direction is similar to that identified in previous monitoring rounds since the background sampling events commenced in November 2016 and continues to demonstrate that the downgradient compliance wells are appropriately positioned to detect the presence of detection monitoring constituents that could potentially migrate from the JRW Pond 6.

3.0 Statistical Evaluation

Detection monitoring is continuing at JR Whiting Pond 1 & 2 and Pond 6 in accordance with the HMP. The following section summarizes the statistical approach applied to assess the semiannual groundwater data in accordance with the detection monitoring program.

3.1 Establishing Background Limits

3.1.1 Pond 1 & 2

Per the HMP, background limits were established for the detection monitoring constituents using data collected from each of the six established detection monitoring wells (JRW-MW-15001 through JRW-MW-15006). The background limits for each monitoring well have been calculated using thirteen rounds of data collected from November 2016 through March 2019 as presented in detail in the 2019 Annual Report (TRC, January 2020). These background limits will continue to be used throughout the detection monitoring program to determine whether groundwater has been impacted from Pond 1 & 2 by comparing concentrations in the detection monitoring wells to their respective background limits for each detection monitoring constituent, with the exception of iron.

Iron was incorporated into the monitoring program as part of the 2020 HMP. The initial background limits for iron have been calculated using data collected through the October 2023 event as presented in detail in the Second Semiannual 2023 Report (TRC, 2023). These iron background limits are used to compare to iron groundwater results beginning with the first semiannual 2024 detection monitoring event.

3.1.2 Pond 6

Per the HMP, background limits were established for the detection monitoring constituents using data collected from each of the six established detection monitoring wells (JRW-MW-16001 through JRW-MW-16006). The statistical evaluation of the background data is presented in the Pond 6 July 2019 Annual Report (TRC, 2019). The detection monitoring background limits for each monitoring well will continue to be used throughout the detection monitoring period to determine whether groundwater has been impacted from Pond 6 by comparing concentrations in the detection monitoring wells to their respective background limits for each detection monitoring constituent, with the exception of iron.

Iron was incorporated into the monitoring program as part of the 2020 HMP. The initial background limits for iron have been calculated using data collected through the October 2023 event as presented in detail in the Second Semiannual 2023 Report (TRC, 2023). These iron background limits will be used to compare to iron groundwater results beginning with the first semiannual 2024 detection monitoring event.

3.2 Data Comparison to Background Limits – Pond 1 & 2 Semiannual Event (October 2024)

The concentrations of the constituents in each of the Pond 1 & 2 detection monitoring wells (JRW-MW-15001 through JRW-MW-15006) were compared to their respective statistical

background limits calculated from the background data collected from each individual well (i.e., monitoring data from JRW-MW-15001 is compared to the background limit developed using the background dataset from JRW-MW-15001, and so forth). The comparisons are presented on Table 3.

There were no exceedances relative to the statistical limits; therefore, there are no SSIs compared to background for any of the constituents. As no SSIs were identified, detection monitoring will be continued in accordance with the HMP. Per the EGLE prescribed submittal format, a statistical exceedances summary is included as Table 5 that reflects the four most recent monitoring events.

3.3 Data Comparison to Background Limits – Pond 6 Semiannual Event (October 2024)

The data comparisons of the Pond 6 monitoring wells JRW-MW-16001 through JRW-MW-16006 to their respective statistical background limits are presented on Table 4.

There were no exceedances relative to the statistical limits; therefore, there are no SSIs compared to background for any of the constituents. As no SSIs were found, detection monitoring will be continued at the Pond 6 CCR unit in accordance with the HMP. Per the EGLE prescribed submittal format, a statistical exceedances summary is included as Table 5 that reflects the four most recent monitoring events.

4.0 Conclusions and Recommendations

No SSIs occurred at Pond 1 & 2 or Pond 6 during the October 2024 monitoring event; therefore, Consumers Energy will continue with the detection monitoring program in conformance with the HMP. No corrective actions were needed or performed for either Pond 1 & 2 or Pond 6. The next semiannual monitoring event at the JR Whiting Pond 1 & 2 and Pond 6 CCR units is scheduled for the second calendar quarter of 2025.

5.0 References

ARCADIS. May 13, 2016. Summary of Monitoring Well Design, Installation, and Development. JR Whiting Electric Generation Facility – Erie, Michigan. Prepared for Consumers Energy Company.

TRC Environmental Corporation. December 2016. 2016 Monitoring Well Design, Installation, Development, and Decommissioning. JR Whiting Electric Generation Facility – Erie, Michigan. Prepared for Consumers Energy Company.

TRC. July 2019. Annual Groundwater Monitoring Report – JR Whiting Pond 6, Erie, Michigan. Prepared for Consumers Energy Company.

TRC. January 2020. 2019 Annual Groundwater Monitoring and Corrective Action Report – Former JR Whiting Power Plant Pond 1 & 2 and Pond 6, Erie, Michigan. Prepared for Consumers Energy Company.

TRC. February 2020a. Electric Generation Facilities RCRA CCR Detection Monitoring Program for the Pond 1 & 2 and Pond 6 Areas. Sample and Analysis Plan. JR Whiting Monitoring Program – Erie, Michigan. Prepared for Consumers Energy Company.

TRC. February 2020b. Groundwater Statistical Evaluation Plan – Former JR Whiting Power Plant, Pond 1 & 2 and Pond 6, Erie, Michigan. Prepared for Consumers Energy Company.

TRC. May 2020 Revision. Consumers Energy JR Whiting Hydrogeologic Monitoring Plan (HMP). Prepared for Consumers Energy Company.

TRC. October 2023. Second Semiannual 2023 Groundwater Monitoring Report – Former JR Whiting Power Plant, Pond 1 & 2 and Pond 6 CCR Unit, Erie, Michigan. Prepared for Consumers Energy Company.

TRC. July 2024. First Semiannual 2024 Groundwater Monitoring Report – Former JR Whiting Power Plant, Pond 1 & 2 and Pond 6 CCR Unit, Erie, Michigan. Prepared for Consumers Energy Company.

USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA facilities, Unified Guidance. Office of Conservation and Recovery. EPA 530/R-09-007.

Tables

Table 1

Potentiometric Groundwater Elevation Summary – October 2024

JR Whiting Pond 1 & 2 and Pond 6

Erie, Michigan

Well Location	Ground Surface Elevation (ft)	TOC Elevation (ft)	Geologic Unit of Screen Interval	Screen Interval Depth (ft BGS)	Screen Interval Elevation (ft)	October 3, 2024	
						Depth to Water (ft BTOC)	Groundwater Elevation (ft)
Static Water Level Monitoring Wells							
JRW-MW-16007	579.47	582.31	Limestone	68.0 to 78.0	511.5 to 501.5	6.69	575.62
JRW-MW-16008	579.95	582.83	Limestone	68.0 to 73.0	512.0 to 507.0	7.23	575.60
JRW-MW-16009	579.90	582.60	Limestone	69.0 to 79.0	510.9 to 500.9	7.00	575.60
Pond 1 & 2							
JRW-MW-15001 (1)	590	581.39	Limestone	78.0 to 88.0	512.7 to 502.7	5.79	575.60
JRW-MW-15002 (1)	590	590.17	Limestone	81.0 to 91.0	511.3 to 501.3	14.56	575.61
JRW-MW-15003 (1)	590	587.23	Limestone	81.0 to 91.0	510.4 to 500.4	11.63	575.60
JRW-MW-15004 (1)	590	589.32	Limestone	86.0 to 96.0	506.5 to 496.5	13.72	575.60
JRW-MW-15005 (1)	590	588.28	Limestone	86.0 to 96.0	508.3 to 498.3	12.66	575.62
JRW-MW-15006 (1)	590	580.48	Limestone	81.0 to 91.0	511.0 to 501.0	4.94	575.54
Pond 6							
JRW-MW-16001	589.19	592.33	Limestone	71.0 to 81.0	518.2 to 508.2	16.72	575.61
JRW-MW-16002	585.78	588.69	Limestone	81.0 to 91.0	504.8 to 494.8	13.09	575.60
JRW-MW-16003	586.19	589.01	Limestone	73.0 to 83.0	513.2 to 503.2	13.39	575.62
JRW-MW-16004	586.48	589.34	Limestone	75.0 to 85.0	511.5 to 501.5	13.75	575.59
JRW-MW-16005	589.29	592.14	Limestone	78.0 to 88.0	511.3 to 501.3	16.52	575.62
JRW-MW-16006	588.26	591.04	Limestone	79.0 to 89.0	509.3 to 499.3	15.42	575.62

Notes:

Top of casing elevation survey was conducted by Rowe Professional Services Company in July 2020.

Elevation in feet relative to North American Vertical Datum 1988 (NAVD 88).

TOC: Top of well casing.

ft BTOC: Feet below top of well casing.

ft BGS: Feet below ground surface.

(1) Screen interval depth below ground surface for Pond 1&2 monitoring wells approximated using an estimated final capped ground surface elevation of 590 feet above mean sea level. Screen interval elevations were measured using the original survey conducted by Sheridan Surveying Co. November 2015 at the time of monitoring well installation.

Table 2
Summary of Field Parameters – October 2024
JR Whiting
Erie, Michigan

Sample Location	Sample Date	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	pH (SU)	Specific Conductivity (umhos/cm)	Temperature (°C)	Turbidity (NTU)
JR Whiting Pond 1 & 2							
JRW-MW-15001	10/3/2024	0.40	-127.9	7.6	1,078	15.7	7.6
JRW-MW-15002	10/3/2024	0.22	-162.6	7.6	1,111	13.4	4.3
JRW-MW-15003	10/3/2024	0.49	-17.1	7.6	984	13.9	7.9
JRW-MW-15004	10/3/2024	1.38	46.9	7.5	949	15.2	4.8
JRW-MW-15005	10/3/2024	1.01	57.8	7.7	874	15.0	3.5
JRW-MW-15006	10/3/2024	0.37	-138.9	7.7	967	16.7	7.5
JR Whiting Pond 6							
JRW-MW-16001	10/3/2024	0.50	-154.6	8.1	746	14.8	4.9
JRW-MW-16002	10/3/2024	0.44	-147.9	7.6	1,004	13.9	4.0
JRW-MW-16003	10/3/2024	0.39	-165.9	7.7	970	13.8	2.2
JRW-MW-16004	10/3/2024	0.36	-200.4	7.7	1,149	14.1	2.0
JRW-MW-16005	10/3/2024	0.50	35.2	7.3	850	14.2	1.2
JRW-MW-16006	10/3/2024	0.51	-155.6	7.8	809	14.0	1.3

Notes:
mg/L -Milligrams per Liter.
mV - Millivolts.
SU - Standard Units.
umhos/cm - Micromhos per centimeter.
°C - Degrees Celsius.
NTU - Nephelometric Turbidity Unit

Table 3
Comparison of Groundwater Detection Monitoring Parameter Results to Background Limits – October 2024
JR Whiting Pond 1 & 2
Erie, Michigan

Sample Location:		JRW-MW-15001		JRW-MW-15002		JRW-MW-15003		JRW-MW-15004		JRW-MW-15005		JRW-MW-15006	
Sample Date:		10/3/2024	PL	10/3/2024	PL	10/3/2024	PL	10/3/2024	PL	10/3/2024	PL	10/3/2024	PL
Constituent	Unit	Data		Data		Data		Data		Data		Data	
Appendix III													
Boron	ug/L	184	240	198	220	201	230	214	270	190	270	185	250
Calcium	mg/L	138	180	135	180	113	160	113	140	109	120	120	140
Chloride	mg/L	48.9	55	46.4	56	45	55	48.3	56	33.8	46	45.4	53
Fluoride	ug/L	1,130	1,600	1,250	1,900	1,270	1,800	1,210	1,800	1,150	1,700	1,180	1,700
pH, Field	su	7.6	6.8 - 8.2	7.6	7.2 - 7.9	7.6	7.3 - 8.3	7.5	7.0 - 8.0	7.7	7.3 - 8.6	7.7	7.0 - 9.0
Sulfate	mg/L	411	470	421	500	356	440	340	390	309	350	355	410
Total Dissolved Solids	mg/L	982	1,000	952	1,100	748	940	776	880	696	840	816	920
Part 115 Parameters													
Iron	ug/L	852	1,800	776	1,200	122	820	112	490	51	660	1,020	1,900

Notes:
ug/L - micrograms per liter.
mg/L - milligrams per liter.
SU - standard units; pH is a field parameter.
All metals were analyzed as total unless otherwise specified.
Bold font indicates an exceedance of the Prediction Limit (PL).
RESULT Shading and bold font indicates a confirmed exceedance of the Prediction Limit (PL).

Table 4
Comparison of Groundwater Detection Monitoring Parameter Results to Background Limits – October 2024
JR Whiting Pond 6
Erie, Michigan

Sample Location:		JRW-MW-16001		JRW-MW-16002		JRW-MW-16003		JRW-MW-16004		JRW-MW-16005		JRW-MW-16006	
Sample Date:		10/3/2024	PL	10/3/2024	PL	10/3/2024	PL	10/3/2024	PL	10/3/2024	PL	10/3/2024	PL
Constituent	Unit	Data		Data		Data		Data		Data		Data	
Appendix III													
Boron	ug/L	159	203	161	209	208	257	188	262	202	244	172	226
Calcium	mg/L	82.3	111	133	149	115	156	141	181	97.2	182	96.9	117
Chloride	mg/L	19.3	23.6	21.6	25.4	26.9	32.4	38.8	43.7	24.8	29.4	24.2	38.6
Fluoride	ug/L	1,260	2,300	< 1,000	1,400	1,140	1,600	1,180	1,700	1,310	1,800	1,270	2,200
pH, Field	su	8.1	7.5 - 8.9	7.6	7.5 - 8.3	7.7	7.4 - 7.9	7.7	7.4 - 8.2	7.3	7.0 - 8.0	7.8	7.5 - 8.2
Sulfate	mg/L	256	278	416	426	395	470	481	507	297	498	304	399
Total Dissolved Solids	mg/L	614	770	784	832	772	1,040	938	1,110	656	1,030	692	904
Part 115 Parameters													
Iron	ug/L	135	230	306	510	429	630	320	750	46	940	328	400

Notes:
ug/L - micrograms per liter.
mg/L - milligrams per liter.
SU - standard units; pH is a field parameter.
All metals were analyzed as total unless otherwise specified.
Bold font indicates an exceedance of the Prediction Limit (PL).
RESULT Shading and bold font indicates a confirmed exceedance of the PL.

Table 5
Summary of Statistical Exceedances – October 2024
JR Whiting Pond 1 & 2 and Pond 6
Erie, Michigan

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
SUMMARY OF STATISTICAL EXCEEDANCES

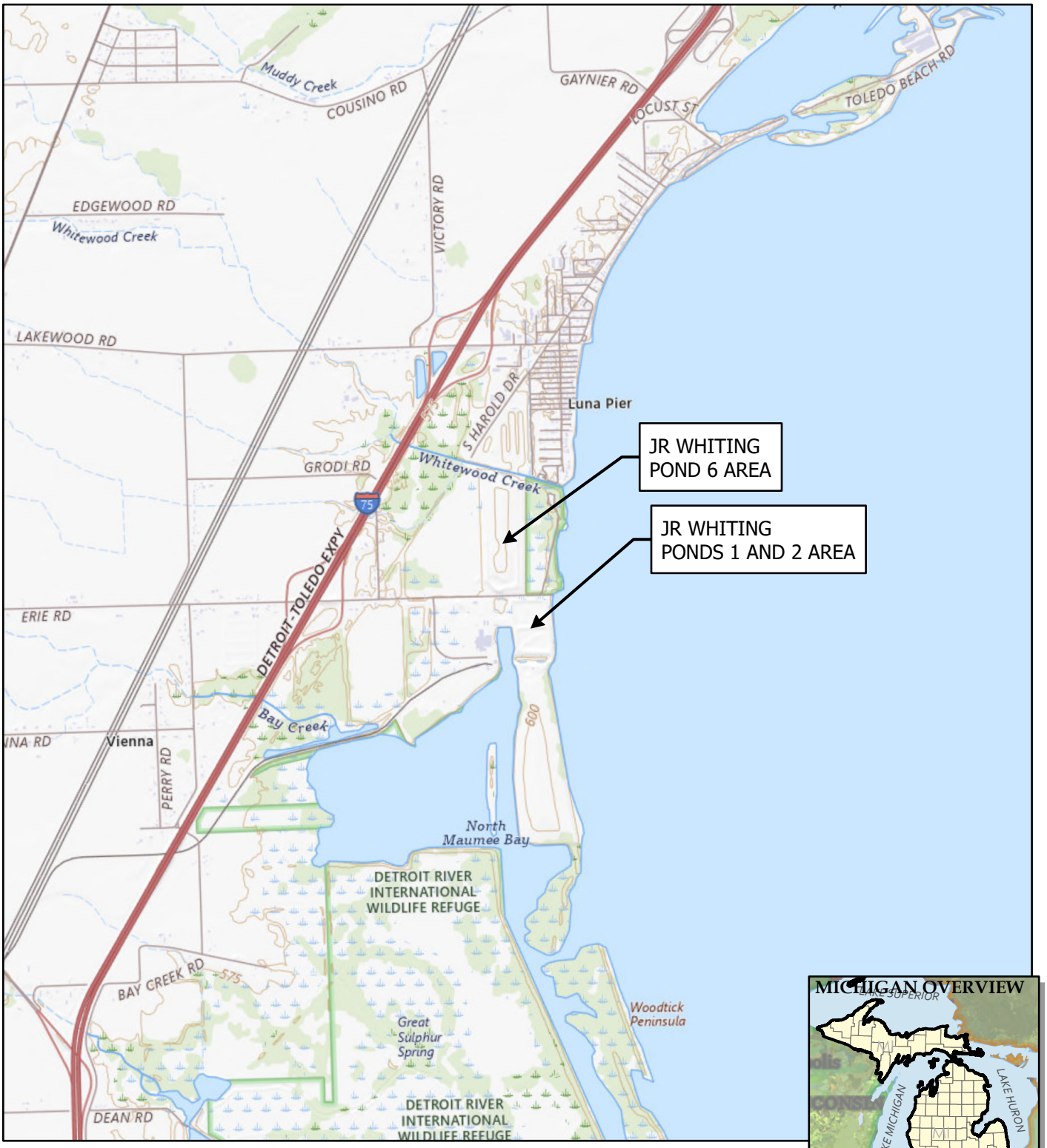
Data is in (X) ug/L or ( ) mg/L unless otherwise stated

Facility: JR Whiting – WDS# 397664

Well #	Location	Parameter	Part 201 GRCC	Statistical Limit (or 'CC' for Control Charts)	4 Qtr. 2024 (**bold** >201)	2 Qtr. 2024 (**bold** >201)	4 Qtr. 2023 (**bold** >201)	2 Qtr. 2023 (**bold** >201)
JRW-MW-15005	JR Whiting Pond 1 & 2	Calcium	NC	120	109	113	114	121(1)

NOTES:
NC = No Criteria
(1) Exceedance was determined to be from natural variability as detailed in the Alternate Source Demonstration: April 2023 Detection Monitoring Event, Former JR Whiting Power Plant Ponds 1 and 2, Erie, Michigan dated July 14, 2023.

Figures



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.

N

1"=3,000'
1:36,000

0 3,000 6,000
FEET

TRC
1540 Eisenhower Place
Ann Arbor, MI 48108-3284
Phone: 734.971.7080

PROJECT:

CONSUMERS ENERGY COMPANY
JR WHITING POWER PLANT
ERIE, MICHIGAN

TITLE:

SITE LOCATION MAP

DRAWN BY:	A. ADAIR
CHECKED BY:	V. BUENING
APPROVED BY:	S. HOLMSTROM
DATE:	JANUARY 2025
PROJ. NO.:	553810
FILE:	JRWhiting.mxd

FIGURE 1

T:\1-PROJECTS\Consumers_Energy\514397_JRWhiting\2-APRX\JRWhiting.aprx -- Saved By: AADAIR on 12/20/2024, 12:04:37 PM

LEGEND

- MONITORING WELL (STATIC WATER LEVEL ONLY)
- CCR UNIT MONITORING WELL

NOTES:

1: BASE MAP IMAGERY FROM GOOGLE EARTH PRO AND PARTNERS, (4/17/2024).
2. STATIC WATER ONLY WELL LOCATIONS SURVEYED BY SHERIDAN SURVEYING CO. ON 11/19/2015.
3. PONDS 1 AND 2 WELL LOCATIONS SURVEYED BY ROWE PROFESSIONAL SERVICES CO. ON 11/27/2019.

1:6,000
1" = 500'

0 500 1,000 FEET

PROJECT:
CONSUMERS ENERGY COMPANY
JR WHITING POWER PLANT
ERIE, MICHIGAN

TITLE:
SITE PLAN
WITH CCR MONITORING WELL LOCATIONS

DRAWN BY:	A. ADAIR	PROJ. NO.:	553810
CHECKED BY:	V. BUENING		
APPROVED BY:	S. HOLMSTROM		FIGURE 2
DATE:	JANUARY 2025		

TRC
1540 EISENHOWER PLACE
ANN ARBOR, MI 48108-3284
PHONE: 734.971.7080

FILE: JRWhiting.aprx

Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl. Map Rotation: 0
Saved By AADAIR on 1/22/2025 11:55:29 AM File Path: T:\PROJECTS\Consumers_Energy\514397_JRWhiting\2-APRX\JRWhiting.aprx Layout Name: 2024_03 Figure 2

LEGEND

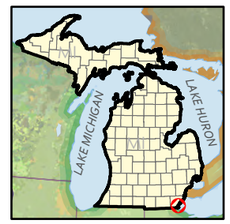
- MONITORING WELL (STATIC WATER LEVEL ONLY)
- CCR UNIT MONITORING WELL

LABEL FORMAT

MONITORING WELL ID
GROUNDWATER ELEVATION FT (MEASUREMENT DATE)

NOTES:

1: BASE MAP IMAGERY FROM GOOGLE EARTH PRO AND PARTNERS, (4/17/2024).
2. WELL LOCATIONS SURVEYED BY SHERIDAN SURVEYING CO. ON 11/19/2015.
3. PONDS 1 AND 2 WELL LOCATIONS SURVEYED BY ROWE PROFESSIONAL SERVICES CO. ON 11/27/2019.
4. MONITORING WELL TOP OF CASING SURVEYED BY ROWE PROFESSIONAL SERVICES CO. ON 7/14/2020. VERTICAL DATUM IS NAVD88.



1:6,000
1" = 500'

0 500 1,000 FEET

PROJECT:	CONSUMERS ENERGY COMPANY JR WHITING POWER PLANT ERIE, MICHIGAN
TITLE:	GROUNDWATER POTENTIOMETRIC ELEVATION SUMMARY OCTOBER 2024
DRAWN BY: A. ADAIR	PROJ. NO.: 553810
CHECKED BY: V. BUENING	FIGURE 3
APPROVED BY: S. HOLMSTROM	
DATE: JANUARY 2025	

TRC
1540 EISENHOWER PLACE
ANN ARBOR, MI 48108-3284
PHONE: 734.971.7080

FILE: JRWhiting.aprx

Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl; Map Rotation: 0
Saved By AADAIR on 1/8/2025, 12:19:24 PM; File Path: T:\1-PROJECTS\Consumers_Energy\514397_JRWhiting\2-APRX\JRWhiting.aprx; Layout Name: 2024_03 Figure 3

Appendix A
Data Quality Reviews

Pond 1 & 2

Laboratory Data Quality Review
Groundwater Sampling Event October 2024
Consumers Energy JR Whiting Pond 1 & 2

Groundwater samples were collected by Consumers Energy (CE) Laboratory Services for the October 2024 groundwater monitoring sampling event. Samples were analyzed for anions, total metals, and total dissolved solids by CE Laboratory Services, located in Jackson, Michigan. The laboratory analytical results were reported in laboratory project number 24-0832.

During the October 2024 sampling event, a groundwater sample was collected from each of the following wells:

- JRW-MW-15001
- JRW-MW-15002
- JRW-MW-15003
- JRW-MW-15004
- JRW-MW-15005
- JRW-MW-15006

Each sample was analyzed for the following constituents:

Analyte Group	Method
Anions (Chloride, Fluoride, Sulfate)	EPA 300.0
Total Dissolved Solids (TDS)	SM 2540C
Total Metals (Boron, Calcium, Iron)	SW-846 6020B

TRC reviewed the laboratory data to assess data usability. The following sections summarize the data review procedure and the results of the review.

Data Quality Review Procedure

The analytical data were reviewed using the USEPA National Functional Guidelines for Inorganic Superfund Data Review (USEPA, 2020). The following items were included in the evaluation of the data:

- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;
- Reporting limits (RLs) compared to project-required RLs;
- Data for equipment blanks and field blanks. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Percent recoveries for matrix spike (MS) and matrix spike duplicates (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

- It should be noted that results for method blanks and laboratory control samples were not provided for review by the laboratory. Therefore, potential contamination arising from laboratory sample preparation and/or analytical procedures and the accuracy of the analytical method using a clean matrix could not be evaluated.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

Review Summary

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances and issues identified in this evaluation, are noted below.

- The reviewed Appendix III constituents as well as iron will be utilized for the purposes of a detection monitoring program.
- Data are usable for the purposes of the detection monitoring program.
- When the data are evaluated through a detection monitoring statistical program, findings below may be used to support the removal of outliers.

QA/QC Sample Summary

- One equipment blank (EB-01) and one field blank (FB-01) were collected. Target analytes were not detected in these blank samples.
- MS and MSD analyses were performed on sample JRW-MW-15006 for total metals and anions. The recoveries were within the acceptance limits. Relative percent differences (RPDs) were not provided by the laboratory and therefore were not evaluated; further, MS/MSD concentrations were not provided by the laboratory. However, since all MS/MSD recoveries were within the acceptance limits, there is no impact on data usability due to this issue.
- A laboratory duplicate analysis was not performed on a sample from this data set.
- Samples DUP-01/JRW-MW-15002 were submitted as the field duplicate pair with this data set; all criteria were met with the following exception:
  - The RPD for iron (136.3%) was > 30. Therefore, the positive results for iron in all groundwater samples in this data set should be considered potentially uncertain (i.e., estimated), as summarized in the attached table, Attachment A.
- The nondetect RL for TDS (10 mg/L) in samples EB-01 and FB-01 was above the RL specified in the Sample and Analysis Plan (SAP) (1.0 mg/L). There is no adverse impact on data usability since TDS was detected >10x the blank RLs in the associated groundwater samples.
- The nondetect RL for sulfate (1,000 µg/L) in samples EB-01 and FB-01 was below the RL specified in the SAP (2,000 µg/L). There is no adverse impact on data usability since reported RL is lower than SAP RL.

Attachment A

Summary of Data Non-Conformances for Groundwater Analytical Data

JR Whiting Pond 1 2

Erie, Michigan

Samples	Collection Date	Analyte	Non-Conformance/Issue
JRW-MW-15001	10/3/2024	Iron	Field duplicate variability (relative percent difference above criteria); potential uncertainty exists for the listed results.
JRW-MW-15002	10/3/2024		
JRW-MW-15003	10/3/2024		
JRW-MW-15004	10/3/2024		
JRW-MW-15005	10/3/2024		
JRW-MW-15006	10/3/2024		
DUP-01	10/3/2024		

Pond 6

Laboratory Data Quality Review
Groundwater Sampling Event October 2024
Consumers Energy JR Whiting Pond 6

Groundwater samples were collected by Consumers Energy (CE) Laboratory Services for the October 2024 groundwater monitoring sampling event. Samples were analyzed for anions, total metals, and total dissolved solids by CE Laboratory Services, located in Jackson, Michigan. The laboratory analytical results were reported in laboratory project number 24-0833.

During the October 2024 sampling event, a groundwater sample was collected from each of the following wells:

- JRW-MW-16001
- JRW-MW-16002
- JRW-MW-16003
- JRW-MW-16004
- JRW-MW-16005
- JRW-MW-16006

Each sample was analyzed for the following constituents:

Analyte Group	Method
Anions (Chloride, Fluoride, Sulfate)	EPA 300.0
Total Dissolved Solids (TDS)	SM 2540C
Total Metals (Boron, Calcium, Iron)	SW-846 6020B

TRC reviewed the laboratory data to assess data usability. The following sections summarize the data review procedure and the results of the review.

Data Quality Review Procedure

The analytical data were reviewed using the USEPA National Functional Guidelines for Inorganic Superfund Data Review (USEPA, 2020). The following items were included in the evaluation of the data:

- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;
- Reporting limits (RLs) compared to project-required RLs;
- Data for equipment blanks and field blanks. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Percent recoveries for matrix spike (MS) and matrix spike duplicates (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and

- Overall usability of the data.
- It should be noted that results for method blanks and laboratory control samples were not provided for review by the laboratory. Therefore, potential contamination arising from laboratory sample preparation and/or analytical procedures and the accuracy of the analytical method using a clean matrix could not be evaluated.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

Review Summary

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances and issues identified in this evaluation, are noted below.

- The reviewed Appendix III constituents as well as iron will be utilized for the purposes of a detection monitoring program.
- Data are usable for the purposes of the detection monitoring program.
- When the data are evaluated through a detection monitoring statistical program, findings below may be used to support the removal of outliers.

QA/QC Sample Summary

- One equipment blank (EB-02) and one field blank (FB-02) were collected. Target analytes were not detected in these blank samples.
- MS/MSD analyses were performed on sample JRW-MW-16003 for total metals and anions. The recoveries were within the acceptance limits. Relative percent differences were not provided by the laboratory and therefore were not evaluated; further, MS/MSD concentrations were not provided by the laboratory. However, since MS/MSD recoveries were within the acceptance limits, there is no impact on data usability due to this issue.
- A laboratory duplicate analysis was not performed on a sample from this data set.
- Samples DUP-02/JRW-MW-16003 were submitted as the field duplicate pair with this data set; all criteria were met with the following exception.
  - The RPD for iron (31%) was > 30. Therefore, the positive results for iron in all groundwater samples in this data set should be considered potentially uncertain (i.e., estimated), as summarized in the attached table, Attachment A.
- The nondetect RL for TDS (10 mg/L) in samples EB-02 and FB-02 was above the RL specified in the Sample and Analysis Plan (SAP) (1 mg/L). There is no adverse impact on data usability since TDS was detected >10x the blank RLs in the associated groundwater samples.
- The nondetect RL for sulfate (1,000 µg/L) in samples EB-02 and FB-02 was below the RL specified in the SAP (2,000 µg/L). There is no adverse impact on data usability since reported RL is lower than SAP RL.

Attachment A

Summary of Data Non-Conformances for Groundwater Analytical Data

JR Whiting Pond 6

Erie, Michigan

Samples	Collection Date	Analyte	Non-Conformance/Issue
JRW-MW-16001	10/3/2024	Iron	Field duplicate variability (relative percent difference above criteria); potential uncertainty exists for the listed results.
JRW-MW-16002	10/3/2024		
JRW-MW-16003	10/3/2024		
JRW-MW-16004	10/3/2024		
JRW-MW-16005	10/3/2024		
JRW-MW-16006	10/3/2024		
DUP-02	10/3/2024		

Appendix B
Laboratory Reports

Pond 1 & 2

Consumers Energy
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135 W. Trail St.
Jackson, MI 49201
phone 517-788-1251
fax 517-788-2533

To: HDRegister, P22-521

From: EBlaj, T-258

Date: October 20, 2024

Subject: RCRA GROUNDWATER MONITORING – JR WHITING POND 1 & 2 – 2024 Q4

CC: Sarah Holmstrom, Project Manager
TRC Environmental Corporation
1540 Eisenhower Place
Ann Arbor, MI 48108

Chemistry Project: 24-0832

CE Laboratory Services conducted groundwater monitoring at JR Whiting, Pond 1 & 2 on 10/03/2024, for the 2nd Semiannual monitoring requirement, and as specified in the Sampling and Analysis Plan for the site. The samples were received for analysis by the Chemistry department of Laboratory Services on 10/03/2024.

The report that follows presents the results of the requested analytical testing; the results apply only to the samples as received. All samples have been analyzed in accordance with the 2016 TNI Standard and the applicable A2LA accreditation scope for Laboratory Services. Any exceptions to applicable test method criteria and standard compliance are noted in the Case Narrative or flagged with applicable qualifiers in the analytical results section.

Reviewed and approved by:

Emil Blaj
Sr. Technical Analyst
Project Lead

ilac-MRA A2LA ACCREDITED Certificate #1097.04

CASE NARRATIVE

I. Sample Receipt

All samples were received within hold time and in good conditions; no anomalies were noted on the attached Sample Log-In Shipment Inspection Form during sample check-in. Identification of all samples included in the work order/project is provided in the sample summary section. All sample preservation and temperature upon receipt was verified by the sample custodian and confirmed to meet method requirements.

II. Methodology

Unless otherwise indicated, sample preparation and analysis was performed in accordance with the corresponding test methods from "Methods for the Determination of Inorganic Substances in Environmental Samples (EPA/600/R-93/100); SW-846, "Test Methods for Evaluating Solid Waste – Physical/Chemical Methods", USEPA (latest revisions), and Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WPCF, 22nd Edition, 2012.

III. Results/Quality Control

Analytical results for this report are presented by laboratory sample ID, container, & aliquot number. Results for the field blanks, field duplicates, and recoveries of the field matrix spike & matrix spike duplicate samples are included in the results section; all other quality control data is listed in the Quality Control Summary associated with the particular test method, as appropriate. Unless specifically noted in the case narrative, all method quality control requirements have been met. If any results are qualified, the corresponding data flags/qualifiers are listed on the last page of the results section. Any additional information on method performance, when applicable, is presented in this section of the case narrative. When data flags are not needed, the qualifiers text box on the last page is left blank, and a statement confirms that no exceptions occurred.

DEFINITIONS / QUALIFIERS

The following qualifiers and/or acronyms are used in the report, where applicable:

Acronym	Description
RL	Reporting Limit
ND	Result not detected or below Reporting Limit
NT	Non TNI analyte
LCS	Laboratory Control Sample
LRB	Laboratory Reagent Blank (also referred to as Method Blank)
DUP	Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
TDL	Target Detection Limit
SM	Standard Methods Compendium

Qualifier	Description
*	Generic data flag, applicable description added in the corresponding notes section
B	The analyte was detected in the LRB at a level which is significant relative to sample result
D	Reporting limit elevated due to dilution
E	Estimated due to result exceeding the linear range of the analyzer
H	The maximum recommended hold time was exceeded
I	Dilution required due to matrix interference; reporting limit elevated
J	Estimated due to result found above MDL but below PQL (or RL)
K	Reporting limit raised due to matrix interference
M	The precision for duplicate analysis was not met; RPD outside acceptance criteria
N	Non-homogeneous sample made analysis questionable
PI	Possible interference may have affected the accuracy of the laboratory result
Q	Matrix Spike or Matrix Spike Duplicate recovery outside acceptance criteria
R	Result confirmed by new sample preparation and reanalysis
X	Other notation required; comment listed in sample notes and/or case narrative

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Work Order Sample Summary

Customer Name: JR Whiting Complex
Work Order ID: JRW RCRA GW Monitoring - Pond 1&2 - October 2024
Date Received: 10/3/2024
Chemistry Project: 24-0832

Sample #	Field Sample ID	Matrix	Sample Date	Site
24-0832-01	JRW-MW-15001	Groundwater	10/03/2024 14:31	JRW RCRA GW Monitoring - Pond 1&2
24-0832-02	JRW-MW-15002	Groundwater	10/03/2024 09:50	JRW RCRA GW Monitoring - Pond 1&2
24-0832-03	JRW-MW-15003	Groundwater	10/03/2024 10:30	JRW RCRA GW Monitoring - Pond 1&2
24-0832-04	JRW-MW-15004	Groundwater	10/03/2024 11:13	JRW RCRA GW Monitoring - Pond 1&2
24-0832-05	JRW-MW-15005	Groundwater	10/03/2024 11:55	JRW RCRA GW Monitoring - Pond 1&2
24-0832-06	JRW-MW-15006	Groundwater	10/03/2024 13:19	JRW RCRA GW Monitoring - Pond 1&2
24-0832-07	DUP-01	Groundwater	10/03/2024 00:00	JRW RCRA GW Monitoring - Pond 1&2
24-0832-08	EB-01	Water	10/03/2024 14:41	JRW RCRA GW Monitoring - Pond 1&2
24-0832-09	FB-01	Water	10/03/2024 14:38	JRW RCRA GW Monitoring - Pond 1&2
24-0832-10	JRW-MW-15006 Field MS	Groundwater	10/03/2024 13:19	JRW RCRA GW Monitoring - Pond 1&2
24-0832-11	JRW-MW-15006 FIeld MSD	Groundwater	10/03/2024 13:19	JRW RCRA GW Monitoring - Pond 1&2

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Analytical Report

Report Date: 10/20/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 1&2**	Laboratory Project:	**24-0832**
Field Sample ID:	**JRW-MW-15001**	Collect Date:	10/03/2024
Lab Sample ID:	24-0832-01	Collect Time:	02:31 PM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0832-01-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	184		ug/L	20	10/15/2024	AB24-1016-01
Calcium	138000		ug/L	1000	10/15/2024	AB24-1016-01
Iron	852		ug/L	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0832-01-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	48900		ug/L	1000	10/09/2024	AB24-1009-02
Fluoride	1130		ug/L	1000	10/09/2024	AB24-1009-02
Sulfate	411000		ug/L	1000	10/09/2024	AB24-1009-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0832-01-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	982		mg/L	10	10/08/2024	AB24-1008-04

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Analytical Report

Report Date: 10/20/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 1&2**	Laboratory Project:	**24-0832**
Field Sample ID:	**JRW-MW-15002**	Collect Date:	10/03/2024
Lab Sample ID:	24-0832-02	Collect Time:	09:50 AM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0832-02-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	198		ug/L	20	10/15/2024	AB24-1016-01
Calcium	135000		ug/L	1000	10/15/2024	AB24-1016-01
Iron	776		ug/L	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0832-02-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	46400		ug/L	1000	10/09/2024	AB24-1009-02
Fluoride	1250		ug/L	1000	10/09/2024	AB24-1009-02
Sulfate	421000		ug/L	1000	10/09/2024	AB24-1009-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0832-02-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	952		mg/L	10	10/08/2024	AB24-1008-04

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Analytical Report

Report Date: 10/20/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 1&2**	Laboratory Project:	**24-0832**
Field Sample ID:	**JRW-MW-15003**	Collect Date:	10/03/2024
Lab Sample ID:	24-0832-03	Collect Time:	10:30 AM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0832-03-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	201		ug/L	20	10/15/2024	AB24-1016-01
Calcium	113000		ug/L	1000	10/15/2024	AB24-1016-01
Iron	122		ug/L	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0832-03-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	45000		ug/L	1000	10/09/2024	AB24-1009-02
Fluoride	1270		ug/L	1000	10/09/2024	AB24-1009-02
Sulfate	356000		ug/L	1000	10/09/2024	AB24-1009-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0832-03-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	748		mg/L	10	10/08/2024	AB24-1008-04

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Analytical Report

Report Date: 10/20/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 1&2**	Laboratory Project:	**24-0832**
Field Sample ID:	**JRW-MW-15004**	Collect Date:	10/03/2024
Lab Sample ID:	24-0832-04	Collect Time:	11:13 AM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0832-04-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	214		ug/L	20	10/15/2024	AB24-1016-01
Calcium	113000		ug/L	1000	10/15/2024	AB24-1016-01
Iron	112		ug/L	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0832-04-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	48300		ug/L	1000	10/09/2024	AB24-1009-02
Fluoride	1210		ug/L	1000	10/09/2024	AB24-1009-02
Sulfate	340000		ug/L	1000	10/09/2024	AB24-1009-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0832-04-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	776		mg/L	10	10/08/2024	AB24-1008-04

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Analytical Report

Report Date: 10/20/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 1&2**	Laboratory Project:	**24-0832**
Field Sample ID:	**JRW-MW-15005**	Collect Date:	10/03/2024
Lab Sample ID:	24-0832-05	Collect Time:	11:55 AM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0832-05-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	190		ug/L	20	10/15/2024	AB24-1016-01
Calcium	109000		ug/L	1000	10/15/2024	AB24-1016-01
Iron	51		ug/L	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0832-05-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	33800		ug/L	1000	10/09/2024	AB24-1009-02
Fluoride	1150		ug/L	1000	10/09/2024	AB24-1009-02
Sulfate	309000		ug/L	1000	10/09/2024	AB24-1009-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0832-05-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	696		mg/L	10	10/08/2024	AB24-1008-04

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Analytical Report

Report Date: 10/20/24

Sample Site: **JRW RCRA GW Monitoring - Pond 1&2**
Field Sample ID: **JRW-MW-15006**
Lab Sample ID: 24-0832-06
Matrix: Groundwater

Laboratory Project: **24-0832**
Collect Date: 10/03/2024
Collect Time: 01:19 PM

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0832-06-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	185		ug/L	20	10/15/2024	AB24-1016-01
Calcium	120000		ug/L	1000	10/15/2024	AB24-1016-01
Iron	1020		ug/L	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0832-06-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	45400		ug/L	1000	10/09/2024	AB24-1009-02
Fluoride	1180		ug/L	1000	10/09/2024	AB24-1009-02
Sulfate	355000		ug/L	1000	10/09/2024	AB24-1009-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0832-06-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	816		mg/L	10	10/08/2024	AB24-1008-04

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Laboratory Services
A CENTURY OF EXCELLENCE

Analytical Report

Report Date: 10/20/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 1&2**	Laboratory Project:	**24-0832**
Field Sample ID:	**DUP-01**	Collect Date:	10/03/2024
Lab Sample ID:	24-0832-07	Collect Time:	12:00 AM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0832-07-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	195		ug/L	20	10/15/2024	AB24-1016-01
Calcium	118000		ug/L	1000	10/15/2024	AB24-1016-01
Iron	147		ug/L	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0832-07-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	45700		ug/L	1000	10/09/2024	AB24-1009-02
Fluoride	1280		ug/L	1000	10/09/2024	AB24-1009-02
Sulfate	359000		ug/L	1000	10/09/2024	AB24-1009-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0832-07-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	716		mg/L	10	10/08/2024	AB24-1008-04

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Analytical Report

Report Date: 10/20/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 1&2**	Laboratory Project:	**24-0832**
Field Sample ID:	**EB-01**	Collect Date:	10/03/2024
Lab Sample ID:	24-0832-08	Collect Time:	02:41 PM
Matrix:	Water		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0832-08-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	ND		ug/L	20	10/15/2024	AB24-1016-01
Calcium	ND		ug/L	1000	10/15/2024	AB24-1016-01
Iron	ND		ug/L	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0832-08-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	ND		ug/L	1000	10/09/2024	AB24-1009-02
Fluoride	ND		ug/L	1000	10/09/2024	AB24-1009-02
Sulfate	ND		ug/L	1000	10/09/2024	AB24-1009-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0832-08-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	ND		mg/L	10	10/08/2024	AB24-1008-04

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Report Date: 10/20/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 1&2**	Laboratory Project:	**24-0832**
Field Sample ID:	**FB-01**	Collect Date:	10/03/2024
Lab Sample ID:	24-0832-09	Collect Time:	02:38 PM
Matrix:	Water		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0832-09-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	ND		ug/L	20	10/15/2024	AB24-1016-01
Calcium	ND		ug/L	1000	10/15/2024	AB24-1016-01
Iron	ND		ug/L	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0832-09-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	ND		ug/L	1000	10/09/2024	AB24-1009-02
Fluoride	ND		ug/L	1000	10/09/2024	AB24-1009-02
Sulfate	ND		ug/L	1000	10/09/2024	AB24-1009-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0832-09-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	ND		mg/L	10	10/08/2024	AB24-1008-04

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Analytical Report

Report Date: 10/20/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 1&2**	Laboratory Project:	**24-0832**
Field Sample ID:	**JRW-MW-15006 Field MS**	Collect Date:	10/03/2024
Lab Sample ID:	24-0832-10	Collect Time:	01:19 PM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0832-10-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	120		%	20	10/15/2024	AB24-1016-01
Calcium	105		%	1000	10/15/2024	AB24-1016-01
Iron	112		%	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0832-10-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	119		%	1000	10/09/2024	AB24-1009-02
Fluoride	101		%	1000	10/09/2024	AB24-1009-02
Sulfate	106		%	1000	10/09/2024	AB24-1009-02

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Analytical Report

Report Date: 10/20/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 1&2**	Laboratory Project:	**24-0832**
Field Sample ID:	**JRW-MW-15006 FIeld MSD**	Collect Date:	10/03/2024
Lab Sample ID:	24-0832-11	Collect Time:	01:19 PM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0832-11-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	101		%	20	10/15/2024	AB24-1016-01
Calcium	106		%	1000	10/15/2024	AB24-1016-01
Iron	105		%	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0832-11-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	120		%	1000	10/09/2024	AB24-1009-02
Fluoride	102		%	1000	10/09/2024	AB24-1009-02
Sulfate	106		%	1000	10/09/2024	AB24-1009-02

Data Qualifiers	Exception Summary
	No exceptions occurred.

TITLE: SAMPLE LOG-IN – SHIPMENT INSPECTION FORM

Project Number: 24-0832 **Inspection Date:** 10.4.24 **Inspection By:** CIE

Sample Origin/Project Name: JR Whiting Pond 1 & 2

Shipment Delivered By: Enter the type of shipment carrier.

Inter-Company Mail_____ FedEx _____ UPS _____ USPS _____

Tracking Number: _____ Other/(Carry In) (whom) KDR - Consumers

Shipping Containers: Enter the type and number of shipping containers received.

Cooler (1) Cardboard Box _____ Custom Case _____ Envelope/Mailer _____

Loose/Unpackaged Containers _____ Other _____

Condition of Shipment: Enter the as-received condition of the shipment container.

Damaged Shipment Observed: None ✓ Dented _____ Leaking _____

Other _____

Shipment Security: Enter if any of the shipping containers were opened before receipt.

Shipping Containers Received: Opened _____ Sealed ✓ N/A _____

Enclosed Documents: Enter the type of documents enclosed with the shipment.

CoC ✓ Work Request _____ Air Data Sheet_____ Other_____

Temperature of Containers: Measure the temperature of several sample containers.

As-Received Temperature Range 4.2-5.8 °C Samples Received on Ice: Yes ✓ No____

M&TE # and Expiration L5027723 / 6.27.25

Number and Type of Containers: Enter the type and total number of sample containers received.

Container Type	Water	Soil	Other	Broken	Leaking
VOA (40mL or 60mL)					
Quart/Liter (g / p)					
9-oz (amber glass jar)					
2-oz (amber glass)					
125 mL (plastic)	22				
24 mL vial (glass)					
250 mL (plastic)	9				
Other _____					

All sample pH meeting criteria? Yes ✓ No___ N/A___ **pH paper lot #** 205522 **Exp. Date** 2.15.25
FSP 13-640-508

Indicate if an Exception Report (Page 2 of 2) is needed: Yes ____ No ✓

CHAIN OF CUSTODY

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CONSUMERS ENERGY COMPANY – LABORATORY SERVICES

135 WEST TRAIL ST., JACKSON, MI 49201 • (517) 788-1251

SAMPLING SITE / CUSTOMER: JRW Pond 1&2 GW Monitoring – October 2024

PROJECT NUMBER: **24-0832**

SAP CC or WO#:

REQUESTER: JR Register

SAMPLING TEAM: KDR, LMO

TURNAROUND TIME REQUIRED: ☐ 24 HR ☐ 48 HR ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____

SEND REPORT TO: JR Register

email:

phone:

COPY TO: TRC

MATRIX CODES: GW = Groundwater; WW = Wastewater; W = Water / Aqueous Liquid; S = Soil / General Solid; O = Oil; OX = Other _____; SL = Sludge; A = Air; WP = Wipe; WT = General Waste

ANALYSIS REQUESTED (Attach List if More Space is Needed)

QA REQUIREMENT: ☐ NPDES ☒ TNI ☐ ISO 17025 ☐ 10 CFR 50 APP. B ☐ INTERNAL INFO ☐ OTHER _____

LAB SAMPLE ID	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	MATRIX	FIELD SAMPLE ID / LOCATION	CONTAINERS TOTAL #	PRESERVATIVE None	HNO_3	H_2SO_4	NaOH	HCl	MeOH	Other	Total Metals	Anions	TDS	REMARKS
24-0832-01	10.03.24	1431	GW	JRW-MW-15001	3	2	1						x	x	x	
-02	10.03.24	0950	GW	JRW-MW-15002	3	2	1						x	x	x	
-03	10.03.24	1030	GW	JRW-MW-15003	3	2	1						x	x	x	
-04	10.03.24	1113	GW	JRW-MW-15004	3	2	1						x	x	x	
-05	10.03.24	1155	GW	JRW-MW-15005	3	2	1						x	x	x	
-06	10.03.24	1319	GW	JRW-MW-15006	3	2	1						x	x	x	
-07	10.03.24	—	GW	DUP-01	3	2	1						x	x	x	
-08	10.03.24	1441	W	EB-01	3	2	1						x	x	x	
-09	10.03.24	1438	W	FB-01	3	2	1						x	x	x	
-10	10.03.24	1319	GW	JRW-MW-15006 MS	2	1	1						x	x		
-11	10.03.24	1319	GW	JRW-MW-15006 MSD	2	1	1						x	x		

RELINQUISHED BY: [signature] DATE/TIME: 10.3.24/1734 RECEIVED BY: [signature]

RELINQUISHED BY: DATE/TIME: RECEIVED BY:

COMMENTS:

Received on Ice? ☑ Yes ☐ No M&TE #: LS027723

Temperature: 4.2-5.8 °C Cal. Due Date: 6.27.25

Pond 6

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135 W. Trail St.
Jackson, MI 49201
phone 517-788-1251
fax 517-788-2533

To: HDRegister, P22-521

From: EBlaj, T-258

Date: October 20, 2024

Subject: RCRA GROUNDWATER MONITORING – JR WHITING POND 6 – 2024 Q4

CC: Sarah Holmstrom, Project Manager
TRC Environmental Corporation
1540 Eisenhower Place
Ann Arbor, MI 48108

Chemistry Project: 24-0833

CE Laboratory Services conducted groundwater monitoring at JR Whiting, Pond 6 on 10/03/2024, for the 2nd Semiannual monitoring requirement, and as specified in the Sampling and Analysis Plan for the site. The samples were received for analysis in the Chemistry department of Laboratory Services on 10/03/2024.

The report that follows presents the results of the requested analytical testing; the results apply only to the samples as received. All samples have been analyzed in accordance with the 2016 TNI Standard and the applicable A2LA accreditation scope for Laboratory Services. Any exceptions to applicable test method criteria and standard compliance are noted in the Case Narrative or flagged with applicable qualifiers in the analytical results section.

Reviewed and approved by:

Emil Blaj
Sr. Technical Analyst
Project Lead

ilac-MRA A2LA ACCREDITED Certificate #1097.04

Testing performed in accordance with the A2LA scope of accredidation specified in the listed certificate.

CASE NARRATIVE

I. Sample Receipt

All samples were received within hold time and in good conditions; no anomalies were noted on the attached Sample Log-In Shipment Inspection Form during sample check-in. Identification of all samples included in the work order/project is provided in the sample summary section. All sample preservation and temperature upon receipt was verified by the sample custodian and confirmed to meet method requirements.

II. Methodology

Unless otherwise indicated, sample preparation and analysis was performed in accordance with the corresponding test methods from "Methods for the Determination of Inorganic Substances in Environmental Samples (EPA/600/R-93/100); SW-846, "Test Methods for Evaluating Solid Waste – Physical/Chemical Methods", USEPA (latest revisions), and Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WPCF, 22nd Edition, 2012.

III. Results/Quality Control

Analytical results for this report are presented by laboratory sample ID, container, & aliquot number. Results for the field blanks, field duplicates, and recoveries of the field matrix spike & matrix spike duplicate samples are included in the results section; all other quality control data is listed in the Quality Control Summary associated with the particular test method, as appropriate. Unless specifically noted in the case narrative, all method quality control requirements have been met. If any results are qualified, the corresponding data flags/qualifiers are listed on the last page of the results section. Any additional information on method performance, when applicable, is presented in this section of the case narrative. When data flags are not needed, the qualifiers text box on the last page is left blank, and a statement confirms that no exceptions occurred.

DEFINITIONS / QUALIFIERS

The following qualifiers and/or acronyms are used in the report, where applicable:

Acronym	Description
RL	Reporting Limit
ND	Result not detected or below Reporting Limit
NT	Non TNI analyte
LCS	Laboratory Control Sample
LRB	Laboratory Reagent Blank (also referred to as Method Blank)
DUP	Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
TDL	Target Detection Limit
SM	Standard Methods Compendium

Qualifier	Description
*	Generic data flag, applicable description added in the corresponding notes section
B	The analyte was detected in the LRB at a level which is significant relative to sample result
D	Reporting limit elevated due to dilution
E	Estimated due to result exceeding the linear range of the analyzer
H	The maximum recommended hold time was exceeded
I	Dilution required due to matrix interference; reporting limit elevated
J	Estimated due to result found above MDL but below PQL (or RL)
K	Reporting limit raised due to matrix interference
M	The precision for duplicate analysis was not met; RPD outside acceptance criteria
N	Non-homogeneous sample made analysis questionable
PI	Possible interference may have affected the accuracy of the laboratory result
Q	Matrix Spike or Matrix Spike Duplicate recovery outside acceptance criteria
R	Result confirmed by new sample preparation and reanalysis
X	Other notation required; comment listed in sample notes and/or case narrative

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Work Order Sample Summary

Customer Name: JR Whiting Complex
Work Order ID: JRW RCRA GW Monitoring - Pond 6 - October 2024
Date Received: 10/3/2024
Chemistry Project: 24-0833

Sample #	Field Sample ID	Matrix	Sample Date	Site
24-0833-01	JRW-MW-16001	Groundwater	10/03/2024 12:01	JRW RCRA GW Monitoring - Pond 6
24-0833-02	JRW-MW-16002	Groundwater	10/03/2024 11:21	JRW RCRA GW Monitoring - Pond 6
24-0833-03	JRW-MW-16003	Groundwater	10/03/2024 15:31	JRW RCRA GW Monitoring - Pond 6
24-0833-04	JRW-MW-16004	Groundwater	10/03/2024 14:41	JRW RCRA GW Monitoring - Pond 6
24-0833-05	JRW-MW-16005	Groundwater	10/03/2024 12:41	JRW RCRA GW Monitoring - Pond 6
24-0833-06	JRW-MW-16006	Groundwater	10/03/2024 14:06	JRW RCRA GW Monitoring - Pond 6
24-0833-07	DUP-02	Groundwater	10/03/2024 00:00	JRW RCRA GW Monitoring - Pond 6
24-0833-08	EB-02	Water	10/03/2024 15:48	JRW RCRA GW Monitoring - Pond 6
24-0833-09	FB-02	Water	10/03/2024 15:57	JRW RCRA GW Monitoring - Pond 6
24-0833-10	JRW-MW-16003 Field MS	Groundwater	10/03/2024 15:31	JRW RCRA GW Monitoring - Pond 6
24-0833-11	JRW-MW-16003 FIeld MSD	Groundwater	10/03/2024 15:31	JRW RCRA GW Monitoring - Pond 6

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Analytical Report

Report Date: 10/20/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 6**	Laboratory Project:	**24-0833**
Field Sample ID:	**JRW-MW-16001**	Collect Date:	10/03/2024
Lab Sample ID:	24-0833-01	Collect Time:	12:01 PM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0833-01-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	159		ug/L	20	10/15/2024	AB24-1016-01
Calcium	82300		ug/L	1000	10/15/2024	AB24-1016-01
Iron	135		ug/L	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0833-01-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	19300		ug/L	1000	10/09/2024	AB24-1009-02
Fluoride	1260		ug/L	1000	10/09/2024	AB24-1009-02
Sulfate	256000		ug/L	1000	10/09/2024	AB24-1009-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0833-01-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	614		mg/L	10	10/08/2024	AB24-1008-04

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Analytical Report

Report Date: 10/20/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 6**	Laboratory Project:	**24-0833**
Field Sample ID:	**JRW-MW-16002**	Collect Date:	10/03/2024
Lab Sample ID:	24-0833-02	Collect Time:	11:21 AM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0833-02-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	161		ug/L	20	10/15/2024	AB24-1016-01
Calcium	133000		ug/L	1000	10/15/2024	AB24-1016-01
Iron	306		ug/L	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0833-02-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	21600		ug/L	1000	10/09/2024	AB24-1009-02
Fluoride	ND		ug/L	1000	10/09/2024	AB24-1009-02
Sulfate	416000		ug/L	1000	10/09/2024	AB24-1009-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0833-02-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	784		mg/L	10	10/08/2024	AB24-1008-04

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Analytical Report

Report Date: 10/20/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 6**	Laboratory Project:	**24-0833**
Field Sample ID:	**JRW-MW-16003**	Collect Date:	10/03/2024
Lab Sample ID:	24-0833-03	Collect Time:	03:31 PM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0833-03-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	208		ug/L	20	10/15/2024	AB24-1016-01
Calcium	115000		ug/L	1000	10/15/2024	AB24-1016-01
Iron	429		ug/L	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0833-03-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	26900		ug/L	1000	10/09/2024	AB24-1009-02
Fluoride	1140		ug/L	1000	10/09/2024	AB24-1009-02
Sulfate	395000		ug/L	1000	10/09/2024	AB24-1009-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0833-03-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	772		mg/L	10	10/08/2024	AB24-1008-04

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Analytical Report

Report Date: 10/20/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 6**	Laboratory Project:	**24-0833**
Field Sample ID:	**JRW-MW-16004**	Collect Date:	10/03/2024
Lab Sample ID:	24-0833-04	Collect Time:	02:41 PM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0833-04-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	188		ug/L	20	10/15/2024	AB24-1016-01
Calcium	141000		ug/L	1000	10/15/2024	AB24-1016-01
Iron	320		ug/L	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0833-04-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	38800		ug/L	1000	10/09/2024	AB24-1009-02
Fluoride	1180		ug/L	1000	10/09/2024	AB24-1009-02
Sulfate	481000		ug/L	1000	10/09/2024	AB24-1009-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0833-04-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	938		mg/L	10	10/08/2024	AB24-1008-04

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Analytical Report

Report Date: 10/20/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 6**	Laboratory Project:	**24-0833**
Field Sample ID:	**JRW-MW-16005**	Collect Date:	10/03/2024
Lab Sample ID:	24-0833-05	Collect Time:	12:41 PM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0833-05-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	202		ug/L	20	10/15/2024	AB24-1016-01
Calcium	97200		ug/L	1000	10/15/2024	AB24-1016-01
Iron	46		ug/L	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0833-05-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	24800		ug/L	1000	10/10/2024	AB24-1009-02
Fluoride	1310		ug/L	1000	10/10/2024	AB24-1009-02
Sulfate	297000		ug/L	1000	10/10/2024	AB24-1009-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0833-05-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	656		mg/L	10	10/08/2024	AB24-1008-04

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Analytical Report

Report Date: 10/20/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 6**	Laboratory Project:	**24-0833**
Field Sample ID:	**JRW-MW-16006**	Collect Date:	10/03/2024
Lab Sample ID:	24-0833-06	Collect Time:	02:06 PM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0833-06-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	172		ug/L	20	10/15/2024	AB24-1016-01
Calcium	96900		ug/L	1000	10/15/2024	AB24-1016-01
Iron	328		ug/L	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0833-06-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	24200		ug/L	1000	10/10/2024	AB24-1009-02
Fluoride	1270		ug/L	1000	10/10/2024	AB24-1009-02
Sulfate	304000		ug/L	1000	10/10/2024	AB24-1009-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0833-06-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	692		mg/L	10	10/08/2024	AB24-1008-04

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Analytical Report

Report Date: 10/20/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 6**	Laboratory Project:	**24-0833**
Field Sample ID:	**DUP-02**	Collect Date:	10/03/2024
Lab Sample ID:	24-0833-07	Collect Time:	12:00 AM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0833-07-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	161		ug/L	20	10/15/2024	AB24-1016-01
Calcium	139000		ug/L	1000	10/15/2024	AB24-1016-01
Iron	314		ug/L	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0833-07-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	21700		ug/L	1000	10/10/2024	AB24-1009-02
Fluoride	ND		ug/L	1000	10/10/2024	AB24-1009-02
Sulfate	409000		ug/L	1000	10/10/2024	AB24-1009-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0833-07-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	758		mg/L	10	10/08/2024	AB24-1008-04

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Analytical Report

Report Date: 10/20/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 6**	Laboratory Project:	**24-0833**
Field Sample ID:	**EB-02**	Collect Date:	10/03/2024
Lab Sample ID:	24-0833-08	Collect Time:	03:48 PM
Matrix:	Water		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0833-08-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	ND		ug/L	20	10/15/2024	AB24-1016-01
Calcium	ND		ug/L	1000	10/15/2024	AB24-1016-01
Iron	ND		ug/L	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0833-08-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	ND		ug/L	1000	10/10/2024	AB24-1009-02
Fluoride	ND		ug/L	1000	10/10/2024	AB24-1009-02
Sulfate	ND		ug/L	1000	10/10/2024	AB24-1009-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0833-08-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	ND		mg/L	10	10/08/2024	AB24-1008-04

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Analytical Report

Report Date: 10/20/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 6**	Laboratory Project:	**24-0833**
Field Sample ID:	**FB-02**	Collect Date:	10/03/2024
Lab Sample ID:	24-0833-09	Collect Time:	03:57 PM
Matrix:	Water		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0833-09-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	ND		ug/L	20	10/15/2024	AB24-1016-01
Calcium	ND		ug/L	1000	10/15/2024	AB24-1016-01
Iron	ND		ug/L	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0833-09-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	ND		ug/L	1000	10/10/2024	AB24-1009-02
Fluoride	ND		ug/L	1000	10/10/2024	AB24-1009-02
Sulfate	ND		ug/L	1000	10/10/2024	AB24-1009-02

Total Dissolved Solids by SM 2540C

Aliquot: 24-0833-09-C03-A01 **Analyst: LMO**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Total Dissolved Solids	ND		mg/L	10	10/08/2024	AB24-1008-04

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Analytical Report

Report Date: 10/20/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 6**	Laboratory Project:	**24-0833**
Field Sample ID:	**JRW-MW-16003 Field MS**	Collect Date:	10/03/2024
Lab Sample ID:	24-0833-10	Collect Time:	03:31 PM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0833-10-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	113		%	20	10/15/2024	AB24-1016-01
Calcium	107		%	1000	10/15/2024	AB24-1016-01
Iron	95		%	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0833-10-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	112		%	1000	10/10/2024	AB24-1009-02
Fluoride	100		%	1000	10/10/2024	AB24-1009-02
Sulfate	111		%	1000	10/10/2024	AB24-1009-02

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Analytical Report

Report Date: 10/20/24

Sample Site:	**JRW RCRA GW Monitoring - Pond 6**	Laboratory Project:	**24-0833**
Field Sample ID:	**JRW-MW-16003 FIeld MSD**	Collect Date:	10/03/2024
Lab Sample ID:	24-0833-11	Collect Time:	03:31 PM
Matrix:	Groundwater		

Metals by EPA 6020B: CCR Rule Appendix III and Fe Total Metals

Aliquot: 24-0833-11-C01-A01 **Analyst: EB**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Boron	115		%	20	10/15/2024	AB24-1016-01
Calcium	106		%	1000	10/15/2024	AB24-1016-01
Iron	92		%	20	10/15/2024	AB24-1016-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous

Aliquot: 24-0833-11-C02-A01 **Analyst: KDR**

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking #
Chloride	112		%	1000	10/10/2024	AB24-1009-02
Fluoride	101		%	1000	10/10/2024	AB24-1009-02
Sulfate	109		%	1000	10/10/2024	AB24-1009-02

Data Qualifiers	Exception Summary
	No exceptions occurred.

General Standard Operating Procedure

TITLE: SAMPLE LOG-IN – SHIPMENT INSPECTION FORM

Project Number: 24-0833 **Inspection Date:** 10/4/24 **Inspection By:** CIE

Sample Origin/Project Name: JR Whiting Pond 6

Shipment Delivered By: Enter the type of shipment carrier.

Inter-Company Mail_____ FedEx _____ UPS _____ USPS _____

Tracking Number: _____ Other/Carry In (whom) CIE - consumers

Shipping Containers: Enter the type and number of shipping containers received.

Cooler (1) Cardboard Box _____ Custom Case _____ Envelope/Mailer _____

Loose/Unpackaged Containers _____ Other _____

Condition of Shipment: Enter the as-received condition of the shipment container.

Damaged Shipment Observed: None ✓ Dented _____ Leaking _____

Other _____

Shipment Security: Enter if any of the shipping containers were opened before receipt.

Shipping Containers Received: Opened _____ Sealed ✓ N/A _____

Enclosed Documents: Enter the type of documents enclosed with the shipment.

CoC ✓ Work Request _____ Air Data Sheet_____ Other_____

Temperature of Containers: Measure the temperature of several sample containers.

As-Received Temperature Range 4.2-5.6 °C Samples Received on Ice: Yes ✓ No_____

M&TE # and Expiration 015402 / 5.23.25

Number and Type of Containers: Enter the type and total number of sample containers received.

Container Type	Water	Soil	Other	Broken	Leaking
VOA (40mL or 60mL)					
Quart/Liter (g / p)					
9-oz (amber glass jar)					
2-oz (amber glass)					
125 mL (plastic)	22				
24 mL vial (glass)					
250 mL (plastic)	9				
Other _____					

All sample pH meeting criteria? Yes ✓ No___ N/A___ **pH paper lot #** 205522 **Exp. Date** 2-15-25
FSP 13-640-508

Indicate if an Exception Report (Page 2 of 2) is needed: Yes _____ No ✓

CHAIN OF CUSTODY

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CONSUMERS ENERGY COMPANY – LABORATORY SERVICES

135 WEST TRAIL ST., JACKSON, MI 49201 • (517) 788-1251

SAMPLING SITE / CUSTOMER: JRW Pond 6 GW Monitoring – October 2024

PROJECT NUMBER: 24-0833

SAP CC or WO#:

REQUESTER: JR Register

SAMPLING TEAM: CIE

TURNAROUND TIME REQUIRED: ☐ 24 HR ☐ 48 HR ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____

SEND REPORT TO: JR Register — email: — phone:

COPY TO: TRC

MATRIX CODES: GW = Groundwater; WW = Wastewater; W = Water / Aqueous Liquid; S = Soil / General Solid; O = Oil; OX = Other _____; SL = Sludge; A = Air; WP = Wipe; WT = General Waste

ANALYSIS REQUESTED (Attach List if More Space is Needed)

QA REQUIREMENT: ☐ NPDES ☒ TNI ☐ ISO 17025 ☐ 10 CFR 50 APP. B ☐ INTERNAL INFO ☐ OTHER _____

LAB SAMPLE ID	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	MATRIX	FIELD SAMPLE ID / LOCATION	CONTAINERS TOTAL #	PRESERVATIVE None	HNO_3	H_2SO_4	NaOH	HCl	MeOH	Other	Total Metals	Anions	TDS	REMARKS
24-0833-01	10.3.24	1201	GW	JRW-MW-16001	3	2	1						x	x	x	
-02		1121	GW	JRW-MW-16002	3	2	1						x	x	x	
-03		1531	GW	JRW-MW-16003	3	2	1						x	x	x	
-04		1441	GW	JRW-MW-16004	3	2	1						x	x	x	
-05		1241	GW	JRW-MW-16005	3	2	1						x	x	x	
-06		1406	GW	JRW-MW-16006	3	2	1						x	x	x	
-07		–	GW	DUP-02	3	2	1						x	x	x	
-08		1545	W	EB-02	3	2	1						x	x	x	
-09		1557	W	FB-02	3	2	1						x	x	x	
-10		1531	GW	JRW-MW-16003 MS	2	1	1						x	x		
-11		1531	GW	JRW-MW-16003 MSD	2	1	1						x	x		

RELINQUISHED BY: CA Supplement — DATE/TIME: 10/03/2024 1800 — RECEIVED BY:

RELINQUISHED BY: — DATE/TIME: — RECEIVED BY:

COMMENTS:

Received on Ice? ☑ Yes ☐ No — M&TE #: 05402

Temperature: 4.2-5.6 °C — Cal. Due Date: 5-23-25

Appendix C
Field Notes

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WATER LEVEL DATA

Site: JR Whiting

Project No: 24-0832, -0833 **Reviewed by:** JF

Analyst: KDR, LMO **Review Date:** 10-11-24

Date: 10.03.24

Method: Electronic Tape

Tape ID: Solinst 101 P7 **S/N:** LS0306623

Well ID	Time	DTW Trial 1 (ft)	DTW Trial 2 (ft)	DTB (ft)	Remarks
JRW MW-15001	0824	5.79		81.96	Good, locked
JRW MW-15002	0808	14.56		92.25	Good, locked
JRW MW-15003	0811	11.63		90.29	Good, locked
JRW MW-15004	0814	13.72		96.46	Good, locked
JRW MW-15005	0817	12.66		93.65	Good, locked
JRW MW-15006	0822	4.94		82.97	Good, locked
JRW MW-15006	1508	5.01			
JRW MW-16001	0856	16.72		84.00	marked TOC
JRW MW-16002	0900	13.09		94.37	marked TOC
JRW MW-16003	0903	13.39		86.04	marked TOC
JRW MW-16004	0906	13.75		88.84	marked TOC
JRW MW-16005	0852	16.52		91.41	marked TOC
JRW MW-16006	0845	15.42		91.76	marked TOC
JRW MW-16007	0744	6.69		80.95	marked TOC
JRW MW-16008	0748	7.23		76.31	marked TOC
JRW MW-16009	0752	7.00		81.93	marked TOC

NOTES: *TOC reference point*
DTW = Depth to Water
DTB = Depth to Bottom

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Sonde ID	**15H**
Start Date	10·3·24
Project #	24-0832, -0833
Site	JRW
Reviewed By & Date:	10-11-24

Equipment Details	Model & S/N
Monitor Brand	YSI ProDSS S/N 19F104713
Sonde Brand	YSI ProDSS S/N 15H101425 262909-1
Flow Cell	EXO1 599080
DO Probe 96.7	YSI ProDSS S/N 15G103714
Turbidity Probe	YSI ProDSS S/N 21H105795
pH With ORP	YSI ProDSS S/N 22D102306
Conductivity & Temperature Probe	YSI ProDSS S/N 22G103712

pH Standard (±0.1)	Source	Source Lot #	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2nd Daily Field Checks Completed	3rd Daily Field Checks Completed	4th Daily Filed Checks Completed	End Project Calibration Value
4.0	GFS # 1634	24003185	5·31·25	4.00					4.00
7.0	GFS # 1639	24003597	7·26·25	7.00					7.04
10.0	GFS # 1645	24003156	5·28·25	10.01					9.95
			Initials & Date:	KDR 10·2·24					KDR 10·4·24

- Is the same standard used for calibration and as-founds? (Y) or N (if no, document on pg. 2)
- Are the calibration values within ±0.10 of the standard? (Y) or N (if no, recalibration is required)

ORP Standard (±10 mV)	Source	Source Lot #	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2nd Daily Field Checks Completed	3rd Daily Field Checks Completed	4th Daily Filed Checks Completed	End Project Calibration Value
+228.0 (mV)	GFS# 5525	24009576	11·25·24	226.5					225.5
			Initials & Date:	KDR 10·2·24					KDR 10·4·24

- Is the same standard used for calibration and as-founds? (Y) or N (if no, document on pg. 2)
- Are the calibration values within ±10% of the standard? (Y) or N (if no, recalibration is required)

DO	Source	Source Lot #	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2nd Daily Field Checks Completed	3rd Daily Field Checks Completed	4th Daily Filed Checks Completed	End Project Calibration Value
90-110% saturation	DI Water	N/A	N/A	96.3					97.0
			Initials & Date:	KDR 10·2·24					KDR 10·4·24

- Is the same standard used for calibration and as-founds? (Y) or N (if no, document on pg. 2)
- Are the calibration values within 90-110%? (Y) or N (if no, recalibration is required)

Sonde ID	15H	Project #:
Start Date	10·3·24	24-0832, -0833
Reviewed By & Date:	10-11-24	Site: JRW

Specific Conductance (uS/cm)	Source	Source Lot #	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2nd Daily Field Checks Completed	3rd Daily Field Checks Completed	4th Daily Filed Checks Completed	End Project Calibration Value
1414 (1399-1427)	GFS # 2174	24012460	6·3·25	1412					1410
			Initials & Date:	KDR 10.2.24					KDR 10.4.24

- Is the same standard used for calibration and as-founds? (Y) or N (if no, document on pg. 2)
- Are the calibration values within ±3% of the standard? (Y) or N (if no, recalibration is required)

Turbidity (NTUs)	Source	Source Lot #	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2nd Daily Field Checks Completed	3rd Daily Field Checks Completed	4th Daily Filed Checks Completed	End Project Calibration Value
0	DI Water	--	--	0.01					0.02
40.0 (±4.0 NTUs)	Hach 2746356	A3093	4·25	39.87					42.76
800.0 (±80.0 NTUs)	Hach 2660553	A3310	11·25	812.95					827.19
			Initials & Date:	KDR 10.2.24					KDR 10.4.24

- Is the same standard used for calibration and as-founds? (Y) or N (if no, document on pg. 2)
- Are the calibration values within ±10% of the standard? (Y) or N (if no, recalibration is required)

Additional Information for calibration standards

Standard	Source	Source Lot #	Source Exp. Date	Standard	Source	Source Lot #	Source Exp. Date
pH 4.0				pH 9.0			
pH 7.0				ORP			
pH 10.0							
Sp. Conductivity							
10.0 Turbidity							
40.0 Turbidity							

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Sonde ID	22J
Start Date	10.3.24
Project #	24-0832, -0833
Site	JRW
Reviewed By & Date	10-11-24

Equipment Details	Model & S/N
Monitor Brand	YSI ProDSS S/N 22L102214
Sonde Brand	YSI ProDSS S/N 22J103704
Flow Cell	EXO1 599080
DO Probe 96.9	YSI ProDSS S/N 23B101266
Turbidity Probe	YSI ProDSS S/N 22K100049
pH With ORP	YSI ProDSS S/N 23A103253
Conductivity & Temperature Probe	YSI ProDSS S/N 23C105385

pH Standard (± 0.1)	Source	Source Lot #	Source Exp. Date	Pre-Project Calibration Value	1st Daily Field Checks Completed	2nd Daily Field Checks Completed	3rd Daily Field Checks Completed	4th Daily Filed Checks Completed	End Project Calibration Value
4.0	GFS # 1634	24003185	5.31.25	3.99					4.03
7.0	GFS # 1639	24004517	7.26.25	6.99					7.04
10.0	GFS # 1645	24003156	5.28.25	10.02					9.99
			Initials & Date:	KDR 10.2.24					KDR 10.4.24

- Is the same standard used for calibration and as-founds? (Y) or N (if no, document on pg. 2)
- Are the calibration values within ±0.10 of the standard? (Y) or N (if no, recalibration is required)

ORP Standard (± 10mV)	Source	Source Lot #	Source Exp. Date	Pre-Project Calibration Value	1st Daily Field Checks Completed	2nd Daily Field Checks Completed	3rd Daily Field Checks Completed	4th Daily Filed Checks Completed	End Project Calibration Value
+228.0 (mV)	GFS # 5525	24009576	11.25.24	223.6					223.1
			Initials & Date:	KDR 10.2.24					KDR 10.4.24

- Is the same standard used for calibration and as-founds? (Y) or N (if no, document on pg. 2)
- Are the calibration values within ±10% of the standard? (Y) or N (if no, recalibration is required).

DO	Source	Source Lot #	Source Exp. Date	Pre-Project Calibration Value	1st Daily Field Checks Completed	2nd Daily Field Checks Completed	3rd Daily Field Checks Completed	4th Daily Filed Checks Completed	End Project Calibration Value
90-110% saturation	DI Water	N/A	N/A	97.3					96.1
			Initials & Date:	KDR 10.2.24					KDR 10.4.24

- Is the same standard used for calibration and as-founds? (Y) or N (if no, document on pg. 2)
- Are the calibration values within 90-110%? (Y) or N (if no, recalibration is required)

Sonde ID	22J	Project #:
Start Date	10·3·24	24-0832,-0833
Reviewed By & Date:	10-11-24	Site: JRW

Specific Conductance (uS/cm)	Source	Source Lot #	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2nd Daily Field Checks Completed	3rd Daily Field Checks Completed	4th Daily Field Checks Completed	End Project Calibration Value
1413 (1399 -1427)	GFS # 2174	~~24006158~~ 10 KDR 10·2·24	10·4·24	1404					1406
			Initials & Date:	KDR 10·2·24					KDR 10·4·24

- Is the same standard used for calibration and as-founds? (Y) or N (if no, document on pg. 2)
- Are the calibration values within range of the standard? (Y) or N (if no, recalibration is required)

Turbidity (NTUs)	Source	Source Lot #	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2nd Daily Field Checks Completed	3rd Daily Field Checks Completed	4th Daily Field Checks Completed	End Project Calibration Value
0	DI Water	--	--	0.01					0.01
40.0 (± 4.0 NTUs)	Hach 2746356	A3093	4·25	40.30					43.24
800.0 (± 80.0 NTUs)	Hach 2660553	A3310	11·25	850.19					831.94
			Initials & Date:	KDR 10·2·24					KDR 10·4·24

- Is the same standard used for calibration and as-founds? (Y) or N (if no, document on pg. 2)
- Are the calibration values within ±10% of the standard? (Y) or N (if no, recalibration is required)

Additional Information for calibration standards

Standard	Source	Source Lot #	Source Exp. Date	Standard	Source	Source Lot #	Source Exp. Date
pH 4.0				pH 9.0 Check			
pH 7.0				ORP			
pH 10.0							
Sp. Conductivity							
40.0 Turbidity							
10.0 Turbidity							

Pond 1 & 2

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Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID JRW-MW-15001 Date 10.03.24 Control Number 24-0832-01
Location JR Whiting Well Material: ☑ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☑ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: Solinst 101 P7 S/N: LS0306e23

QC SAMPLE: ☐ MS/MSD ☐ DUP____ Sonde ID: ___15M ___19H ___20M ___21G ✓22J

Depth-to-water T/PVC (ft) 5.83 Depth-To-Bottom T/PVC (ft) 81.96 Completed by KDR|LMO

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1333	started	Pump					196	5.91	
1338	7.64	16.6	1081	45.5	4.40	+0.9	196	5.91	3.83
1342	7.64	16.1	1079	41.3	4.05	+11.8	196	5.91	3.93
1346	7.61	16.0	1080	36.0	3.54	+17.0	196	5.91	4.35
1350	7.57	15.5	1076	26.4	2.60	+1.0	196	5.91	5.39
1354	7.56	15.6	1077	22.3	2.20	-49.5	196	5.91	5.73
1358	7.56	15.8	1077	15.3	1.48	-88.1	196	5.91	7.86
1402	7.56	15.9	1080	12.3	1.21	-98.5	196	5.91	7.12
1406	7.57	16.0	1077	9.5	0.92	-110.2	196	5.91	6.89
1410	7.57	15.9	1076	7.9	0.77	-116.2	196	5.91	7.25
1414	7.58	15.8	1078	6.5	0.63	-121.5	196	5.91	7.41
1418	7.58	16.1	1076	5.3	0.52	-123.9	196	5.91	7.71
1422	7.58	15.8	1074	4.5	0.45	-124.4	196	5.91	7.67
1426	7.59	15.7	1075	4.3	0.42	-125.6	196	5.91	7.84
1430	7.58	15.7	1078	4.1	0.40	-127.9	196	5.91	7.55

Total Pump Time (min): 58 Total Purge Volume (gal) : ~3.0 Review Date: 10-11-24

Weather: 70 °F sunny Review By:

Comments: 1431 sample collected
1434 End sample collection

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F -							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	250mL	HDPE	A	N					
1	125mL	"	A	"					
1	125mL	"	B	"					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Consumers Energy
Generation
Laboratory Services

Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID JRW-MW-15002 Date 10.03.24 Control Number 24-0832-02
Location JR Whiting Well Material: [✓] PVC [ ] SS [ ] Iron [ ] Galv. Steel

Purge Method: [✓] Peristaltic [ ] Submersible [ ] Bladder [ ] Fultz [ ] Bailer

Depth to Water Tape: Solonist 101 P7 S/N: LS0306623

QC SAMPLE: [ ] MS/MSD [ ] DUP____ Sonde ID: ___15M ___19H ___20M ___21G ✓22J

Depth-to-water T/PVC (ft) 14.55 Depth-To-Bottom T/PVC (ft) 92.25 Completed by KDR/LMO

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
0919 started pump							188	14.58	
0921	7.48	13.3	1078	17.4	1.74	-111.6	188	14.58	3.06
0925	7.56	13.2	1097	6.1	0.63	-133.3	188	14.57	7.17
0929	7.58	13.2	1105	4.1	0.42	-144.4	188	14.57	3.90
0933	7.59	13.3	1111	3.2	0.33	-152.0	188	14.57	4.40
0937	7.60	13.3	1111	2.8	0.28	-156.1	188	14.57	4.62
0941	7.60	13.3	1114	2.4	0.25	-159.4	188	14.57	4.54
0945	7.60	13.4	1114	2.2	0.23	-161.2	188	14.57	4.34
0949	7.60	13.4	1111	2.2	0.22	-162.6	188	14.57	4.28
0950	collected sample								
0953	End sample collection								

Total Pump Time (min): 31 Total Purge Volume (gal) : ~1.5 Review Date: 10-11-24

Weather: 60°F, sunny Review By:

Comments:

Bottles Filled					Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F -				
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	250 mL	HDPE	A	N					
1	125mL	HDPE	A	N					
1	125mL	HDPE	B	N					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Laboratory Services

Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID JRW-MW-15003 Date 10.03.24 Control Number 24-0832-03, 24-0832-07
Location JR Whiting Well Material: ☑ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☑ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: Solonist 101 PT S/N: LS0306123

QC SAMPLE: ☐ MS/MSD ☑ DUP-01 Sonde ID: ___15M ___19H ___20M ___21G ✓22J

Depth-to-water T/PVC (ft) 11.64 Depth-To-Bottom T/PVC (ft) 90.29 Completed by KDR|LMO

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1002	Started Pump						136	11.66	
1005	7.57	14.4	993	20.3	2.01	-56.4	136	11.66	7.22
1009	7.56	14.0	988	8.0	0.79	~~-43.5~~ ~~58.7~~ LMO 10.3.24	136	11.66	7.44
1013	7.56	14.0	986	6.4	0.65	-35.5	136	11.66	8.30
1017	7.56	13.9	986	5.6	0.58	-26.1	136	11.66	6.62
1021	7.55	13.9	985	5.2	0.53	-22.1	136	11.66	7.33
1025	7.55	13.8	985	4.9	0.50	-19.5	136	11.66	7.73
1029	7.56	13.9	984	4.8	0.49	-17.1	136	11.66	7.85
1030	collected sample								
1037	End Sample collection								

Total Pump Time (min): 28 Total Purge Volume (gal) : ~1.0 Review Date: 10-11-24

Weather: 60°F, Sunny Review By: J

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
2	250mL	HDPE	A	N					
2	125mL	"	A	"					
2	125mL	"	B	"					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Consumers Energy
Laboratory Services

Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID JRW-MW-15004 Date 10.03.24 Control Number 24-0832-04
Location JR Whiting Well Material: ☑ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☑ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: Solinst 101 PT S/N: LS0306623

QC SAMPLE: ☐ MS/MSD ☐ DUP____ Sonde ID: ___15M ___19H ___20M ___21G ✓22J

Depth-to-water T/PVC (ft) 13.73 Depth-To-Bottom T/PVC (ft) 96.46 Completed by KDR/LMO

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1049	Started pump						188	13.73	
1052	7.55	15.5	956	22.2	2.18	+39.5	188	13.73	3.98
1056	7.51	15.2	952	17.3	1.71	+40.4	188	13.73	3.75
1100	7.50	15.2	951	15.2	1.52	+42.0	188	13.73	4.15
1104	7.50	15.2	951	14.4	1.44	+43.1	188	13.73	4.72
1108	7.50	15.3	951	14.0	1.40	+45.0	188	13.73	4.74
1112	7.50	15.2	949	13.9	1.38	+46.9	188	13.73	4.81
1113	collected sample								
1116	End sample collection								

Total Pump Time (min): 24 Total Purge Volume (gal) : ~1.0 Review Date: 10-11-24

Weather: 60°F, sunny Review By:

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	250 mL	HDPE	A	N					
1	125 mL	"	A	"					
1	125 mL	"	B	"					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Consumers Energy
Geotechnical
Laboratory Services

Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID JRW-MW-15005 Date 10.03.24 Control Number 24-0832-05
Location JR Whiting Well Material: ✓ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ✓ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: Solonist 101 P7 S/N: L5030623

QC SAMPLE: ☐ MS/MSD ☐ DUP____ Sonde ID: ___15M ___19H ___20M ___21G ✓ 22J

Depth-to-water T/PVC (ft) 12.65 Depth-To-Bottom T/PVC (ft) 93.65 Completed by KDR | LMO

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1126	started Pump						192	12.71	
1130	7.69	15.4	876	24.6	2.38	+54.7	192	12.71	4.11
1134	7.69	15.0	875	13.4	1.34	+55.0	192	12.71	2.58
1138	7.69	15.0	874	11.4	1.14	+55.4	192	12.71	2.84
1142	7.69	15.0	873	10.8	1.08	+56.3	192	12.71	2.99
1146	7.68	15.0	874	10.5	1.06	+56.8	192	12.71	3.47
1150 ~~1149~~ LMO 10.3.24	7.68	14.9	874	10.2	1.02	+57.7	192	12.71	3.68
1154	7.68	15.0	874	10.1	1.01	+57.8	192	12.71	3.54
1155	collected sample								
1158	End Sample collection								

Total Pump Time (min): 29 Total Purge Volume (gal) : ~1.5 Review Date: 10-11-24

Weather: 65 °F, sunny Review By:

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	250mL	HDPE	A	N					
1	125mL	"	A	"					
1	125mL	"	B	"					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Consumers Energy
Laboratory Services

Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID JRW-MW-150026 Date 10.03.24 Control Number 24-0832-06,-10,-11
Location JR Whiting Well Material: ☐ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☑ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: Solinist 101 P7 S/N: LS0306623

QC SAMPLE: ☑ MS/MSD ☐ DUP____ Sonde ID: ___15M ___19H ___20M ___21G ✓22J

Depth-to-water T/PVC (ft) 4.90 Depth-To-Bottom T/PVC (ft) 82.97 Completed by KDR/LMO

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1210	started pump						132	4.91	
1214	7.75	17.1	962	36.4	3.48	+64.3	132	4.91	3.24
1218	7.74	16.6	962	+31.6	3.07	+64.9	132	4.91	3.11
1222	7.73	16.7	962	30.2	2.93	+66.0	132	4.91	3.79
1226	7.72	16.7	962	27.4	2.65	+67.0	132	4.91	3.58
1230	7.69	16.6	962	25.0	2.41	+68.0	132	4.91	3.89
1234	7.67	16.6	964	21.5	2.05	+68.5	132	4.91	3.72
1238	7.65	16.5	965	18.0	1.73	+68.1	132	4.91	4.17
1242	7.63	16.6	967	14.2	1.37	+67.1	132	4.91	4.62
1246	7.61	16.8	969	7.2	0.70	+15.0	132	4.91	7.50
1250	7.61	16.6	969	6.4	0.62	-22.4	132	4.91	7.64
1254	7.62	16.5	966	5.8	0.56	-50.5	132	4.91	7.82
1258	7.62	16.6	966	5.1	0.49	-74.6	132	4.91	7.67
1302	7.64	16.9	970	4.8	0.46	-98.0	132	4.91	7.51
1306	7.65	16.8	970	4.5	0.44	-117.2	132	4.91	7.78

Total Pump Time (min): on pg. 2 Total Purge Volume (gal) : Review Date: 10-11-24

Weather: 65°F sunny Review By:

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	250mL	HDPE	A	N					
3	125mL	"	A	"					
3	125mL	"	B	"					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Laboratory Services

Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID JRW-MW-15006 Date 10.03.24 Control Number 24-0832-06, -10, -11
Location JR Whiting Well Material: ☑ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☑ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: Solinst 101 P7 S/N: LS0306623

QC SAMPLE: ☐ MS/MSD ☐ DUP____ Sonde ID: ___15M ___19H ___20M ___21G ✓ 22J

Depth-to-water T/PVC (ft) 4.90 Depth-To-Bottom T/PVC (ft) 82.97 Completed by KDR, UMO

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1310	7.67	16.4	968	4.2	0.41	-129.1	132	4.91	7.67
1314	7.68	16.7	967	3.9	0.38	-137.1	132	4.91	7.54
1318	7.69	16.7	967	3.8	0.37	-138.9	132	4.91	7.48
1319	collected sample								
1322	End sample collection								

Total Pump Time (min): 69 Total Purge Volume (gal) : ~2.5 Review Date: 10-11-24

Weather: 65°F sunny Review By: JF

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - ____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	250mL	HDPE	A	N					
3	125mL	"	A	"					
3	125mL	"	B	"					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Consumers Energy
Laboratory Services

Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID EB-01 Date 10.03.24 Control Number 24-0832-08

Location JR Whiting Well Material: ☐ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☑ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: S/N:

QC SAMPLE: ☐ MS/MSD ☐ DUP____ Sonde ID: ___15M ___19H ___20M ___21G ___22J

Depth-to-water T/PVC (ft) _____ Depth-To-Bottom T/PVC (ft) _____ Completed by KOR/LMO

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1441	Sample	collected							

Total Pump Time (min): — Total Purge Volume (gal) : — Review Date: 10-11-24

Weather: Review By:

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	250mL	HDPE	A	N					
1	125 mL		A						
1	125 mL		B						

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Laboratory Services

Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID FB-01 Date 10.03.24 Control Number 24-0832-09

Location JR Whiting Well Material: ☐ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☐ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: S/N:

QC SAMPLE: ☐ MS/MSD ☐ DUP____ **Sonde ID:** ___15M ___19H ___20M ___21G ___22J

Depth-to-water T/PVC (ft) _____ Depth-To-Bottom T/PVC (ft) _____ Completed by KDR/LMO

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1438	sample collected								

Total Pump Time (min): — Total Purge Volume (gal) : — Review Date: 10-11-24

Weather: 70°F sunny Review By:

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	250mL	HDPE	A	N					
1	125mL	"	A	"					
1	125mL	"	B	"					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Pond 6

Laboratory Services

Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID JRW-MW-16001 Date 10-3-24 Control Number 24-0833-01
Location JR Whiting Well Material: ☑ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☑ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: Geotech S/N: 7371

QC SAMPLE: ☐ MS/MSD ☐ DUP____ Sonde ID: ☑ 15M ☐ 19H ☐ 20M ☐ 21G ☐ 22J

Depth-to-water T/PVC (ft) 16.98 Depth-To-Bottom T/PVC (ft) 84.00 Completed by CIE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1035	Started pump						420	16.98	
1038	10.79	13.2	667	43.3	4.53	+76.3	420	16.98	15.96
1040	Started high volume purge @1000mL/min								
1125	8.59	13.6	783	8.7	0.89	-170.6	1000	16.98	7.72
	Lowered pump speed for Stabilization.								
	High volume purge: 45 mins @ 1000mL/min ≈ 12 gallons								
1140	8.14	14.7	755	5.7	0.57	-160.8	400	16.99	6.63
1145	8.11	14.8	751	5.2	0.52	-156.6	400	16.99	5.17
1150	8.11	14.9	748	5.1	0.51	-156.0	400	16.99	5.09
1155	8.10	14.9	748	4.9	0.50	-155.3	400	16.99	4.88
1200	8.10	14.8	746	4.9	0.50	-154.6	406	16.99	4.91
1201	collected sample								
1203	end								

Total Pump Time (min): 86 Total Purge Volume (gal): ~14.5 total Review Date: 10-11-24

Weather: 67°F, Sunny Review By:

pH 7.5 - 8.9

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	HDPE	B	N					
1	125mL	↓	A	↓					
1	250mL	↓	A	↓					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Consumers Energy
Laboratory Services

Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID JRW-MW-116002 Date 10·3·24 Control Number 24-0833-02, -07
Location JR whiting Well Material: ✓ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ✓ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: Geotech S/N: 7371

QC SAMPLE: ☐ MS/MSD ✓ DUP -02 Sonde ID: ✓ 15M ___ 19H ___ 20M ___ 21G ___ 22J

Depth-to-water T/PVC (ft) 13.12 Depth-To-Bottom T/PVC (ft) 94.37 Completed by CIE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1050	Started pump						240	13.24	
1055	7.77	13.8	994	5.5	0.57	-159.6	240	13.24	5.86
1100	7.64	13.9	1000	4.6	0.48	-156.3	240	13.24	5.89
1105	7.62	13.7	1002	4.4	0.46	-152.5	240	13.24	4.29
1110	7.60	13.6	1002	4.2	0.43	-148.5	240	13.24	4.36
1115	7.60	13.8	1001	4.1	0.43	-148.0	240	13.24	4.15
1120	7.61	13.9	1004	4.2	0.44	-147.9	240	13.24	3.95
1121	Collected Sample end								

Total Pump Time (min): 31 Total Purge Volume (gal) : 12.0 Review Date: 10-11-24

Weather: 67°F, Sunny Review By:

pH 7.5-8.3

Comments: collected Field DUP

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
2	125mL	HDPE	B	N					
2	125mL	↓	A	↓					
2	250mL	↓	A	↓					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Laboratory Services

Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID JRW-MW-16003 Date 10.03.24 Control Number 24-0833-03, -10, -11
Location JRWhiting Well Material: ✓ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ✓ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: Geotech S/N: 7371

QC SAMPLE: ✓ MS/MSD ☐ DUP____ Sonde ID: ✓15M ___19H ___20M ___21G ___22J

Depth-to-water T/PVC (ft) 13.40 Depth-To-Bottom T/PVC (ft) 96.04 Completed by CLE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1500	started pump						225	13.43	
1505	7.69	13.9	980	6.0	0.62	-157.0	225	13.43	3.42
1510	7.68	13.9	979	4.5	0.46	-162.3	225	13.43	2.95
1515	7.68	13.8	976	4.0	0.41	-164.5	225	13.43	2.92
1520	7.69	13.8	974	3.9	0.40	-165.3	225	13.43	2.64
1525	7.69	13.7	974	3.8	0.39	-165.7	225	13.43	2.20
1530	7.69	13.8	970	3.8	0.39	-165.9	225	13.43	2.16
1531	collected sample								
1536	end								

Total Pump Time (min): 31 Total Purge Volume (gal) : ~2.0 Review Date: 10-11-24

Weather: 70°F, sunny Review By: JC

Comments: collected Field MS/MSD

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
3	125mL	HDPE	B	N					
3	125mL	↓	A						
1	250mL		A	↓					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

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Monitoring Well Sampling Worksheet

Well ID JRW-MW-16004 Date 10-03-24 Control Number 24-0833-04
Location JR Whiting Well Material: ☑ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☑ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: Geotech S/N: 7371

QC SAMPLE: ☐ MS/MSD ☐ DUP____ Sonde ID: ✓15M ___19H ___20M ___21G ___22J

Depth-to-water T/PVC (ft) 13.76 Depth-To-Bottom T/PVC (ft) 88.84 Completed by CIE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1415	Started pump						250	13.78	
1420	7.88	14.2	1099	4.2	0.43	-167.9	250	13.78	4.29
1425	7.70	14.1	1147	3.7	0.38	-198.1	250	13.78	3.08
1430	7.66	14.1	1156	3.6	0.37	-197.1	250	13.78	3.37
1435	7.65	14.1	1154	3.6	0.37	-198.3	250	13.78	3.31
1440	7.65	14.1	1149	3.5	0.36	-200.4	250	13.78	2.04
1441	Collected Sample								

Total Pump Time (min): 30 Total Purge Volume (gal) : 12.5 Review Date: 10-11-24

Weather: 70°F, Sunny Review By:

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - ____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	plastic	B	N					
1	125mL	↓	A						
1	250mL	↓	A	↓					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

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Monitoring Well Sampling Worksheet

Well ID JRW-MW-116005 Date 10-3-24 Control Number 24-0833-05
Location JRWhiting Well Material: ✓ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ✓ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: Geotech S/N: 7371

QC SAMPLE: ☐ MS/MSD ☐ DUP____ Sonde ID: ✓15M ___19H ___20M ___21G ___22J

Depth-to-water T/PVC (ft) 116.55 Depth-To-Bottom T/PVC (ft) 91.41 Completed by CIE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1215	Started pump						200	16.56	
1220	7.29	14.4	857	6.1	0.62	+27.2	200	16.56	3.28
1225	7.30	14.3	853	5.5	0.56	+31.4	200	16.56	2.23
1230	7.30	14.0	852	5.2	0.54	+33.7	200	16.56	1.90
1235	7.30	14.2	852	5.0	0.51	+35.3	200	16.56	1.29
1240	7.31	14.2	850	4.9	0.50	+35.2	200	16.56	1.22
1241	Collected Sample								
1242	End								

Total Pump Time (min): 26 Total Purge Volume (gal) : ~1.5 Review Date: 10-11-24

Weather: 67°F, Sunny Review By:

Comments: pH 7.3-8.0

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	HDPE	B	N					
1	125mL	↓	A	↓					
1	250mL	↓	A	↓					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Laboratory Services

Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID JRW-MW-160006 Date 10.3.24 Control Number 24-0833-06
Location JR Whiting Well Material: ☑ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☑ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: Geotech S/N: 7371

QC SAMPLE: ☐ MS/MSD ☐ DUP____ Sonde ID: ✓15M ___19H ___20M ___21G ___22J

Depth-to-water T/PVC (ft) 15.43 Depth-To-Bottom T/PVC (ft) 91.76 Completed by CIE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1258	started pump						225	15.46	
1305	7.56	14.1	819	51.1	5.24	+123.9	225	15.46	1.69
1310	7.56	14.0	819	38.9	3.97	+58.5	225	15.46	1.75
1315	7.64	14.0	821	17.6	1.81	-97.9	225	15.46	1.24
1320	7.67	14.0	820	13.8	1.41	-114.3	225	15.46	1.18
1325	7.71	14.1	819	9.2	0.95	-135.9	225	15.46	1.39
1330	7.73	14.0	818	8.1	0.83	-140.7	225	15.46	1.27
1335	7.75	14.3	815	6.9	0.71	-146.6	225	15.46	1.43
1340	7.76	14.1	819	6.1	0.63	-149.9	225	15.46	1.48
1345	7.77	14.1	818	5.8	0.59	-151.5	225	15.46	1.31
1350	7.78	13.9	816	5.5	0.56	-152.6	225	15.46	1.18
1355	7.78	14.3	812	5.1	0.52	-154.5	225	15.46	1.34
1400	7.79	13.9	810	5.0	0.52	-155.1	225	15.46	1.29
1405	7.78	14.0	809	5.0	0.51	-155.6	225	15.46	1.33
1406	collected sample								

Total Pump Time (min): 61 Total Purge Volume (gal) : ~4.0 Review Date: 10-11-24

Weather: 70°F, Sunny Review By:

Comments: pH 7.5-8.2

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F -							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	HDPE	B	N					
1	125mL	↓	A						
1	250mL	↓	A	↓					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

Laboratory Services

Consumers Energy Company
Monitoring Well Sampling Worksheet

Well ID EB-02 Date 10-03-24 Control Number 24-0833-08

Location JR Whiting Well Material: ☐ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☑ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: S/N:

QC SAMPLE: ☐ MS/MSD ☐ DUP____ **Sonde ID:** ___15M ___19H ___20M ___21G ___22J

Depth-to-water T/PVC (ft) _____ Depth-To-Bottom T/PVC (ft) _____ Completed by CIE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1548	collected sample								

Total Pump Time (min): — Total Purge Volume (gal) : — Review Date: 10-11-24

Weather: 70°F, Sunny Review By:

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	plastic	B	N					
1	125mL	↓	A	↓					
1	250mL	↓	A	↓					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*

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Monitoring Well Sampling Worksheet

Well ID FB-02 Date 10·03·24 Control Number 24·0833-09

Location JR Whiting Well Material: ☐ PVC ☐ SS ☐ Iron ☐ Galv. Steel

Purge Method: ☐ Peristaltic ☐ Submersible ☐ Bladder ☐ Fultz ☐ Bailer

Depth to Water Tape: S/N:

QC SAMPLE: ☐ MS/MSD ☐ DUP____ **Sonde ID:** ___15M ___19H ___20M ___21G ___22J

Depth-to-water T/PVC (ft) _____ Depth-To-Bottom T/PVC (ft) _____ Completed by CIE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	*+/- 0.1*	*NA*	*+/- 3%*	*+/- 10%*	*+/- 0.3ppm*	*+/- 10mV*	*	*< 0.33*	*+/- 10%*
Stablization parameters for the last three readings									
1557	Collected Sample								

Total Pump Time (min): — Total Purge Volume (gal) : — Review Date: 10-11-24

Weather: 76°F, Sunny Review By:

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	plastic	B	N					
1	125mL	↓	A	↓					
1	250mL	↓	A	↓					

** Pump rate should be <500 mL/min for low-flow and <1 gal/min for high Volume.*