

January 31, 2025

Subject:

2024 Annual Groundwater Monitoring and Corrective Action Report JH Cambell Power Plant Dry Ash Landfill

Enclosures:

Document	Date
CCR Annual Groundwater Report	January 31, 2025
Requirements: § 257.90(e) Checklist for the JH	
Campbell Dry Ash Landfill CCR Unit	
2024 Annual Groundwater Monitoring and	January 31, 2025
Corrective Action Report, JH Campbell Power	
Plant Dry Ash Landfill. (TRC, January 31, 2025)	

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

Document	Date
§257.90(e) of 40 CFR Part 257, Standards for	April 17, 2015
the Disposal of Coal Combustion Residuals in	
Landfills and Surface Impoundments, under	
Subpart D of the Resource Conservation and	
Recovery Act (RCRA)	

CCR Annual Groundwater Report Requirements: § 257.90(e) Checklist for the JH Campbell Dry Ash Landfill 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⁾
	Section 2.1 ⁽¹⁾ Note: No monitoring wells were installed or decommissioned 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⁾ , Tables 3 and 4 ⁽¹⁾
(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 1.1 ⁽¹⁾ Note: CCR unit remains in Assessment Monitoring
(5) Other information required to be included in the annual report as specified in §§ 257.90 through 257.98.	Section 2.0 ⁽¹⁾ , Section 3.0 ⁽¹⁾
(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⁾
(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 1.0 ⁽¹⁾
(iii) If it was determined that there was a statistically significant increase over background for one or more constituents listed in appendix III to this part pursuant to § 257.94(e):	
(A) Identify those constituents listed in appendix III to this part and the names of the monitoring wells associated with such an increase; and	Section 1.1 ⁽¹⁾
(B) Provide the date when the assessment monitoring program was initiated for the CCR unit.	Section 1.1 ⁽¹⁾
(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:	
(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; no constituents present at statistically significant levels above GWPS
(B) Provide the date when the assessment of corrective measures was initiated for the CCR unit;	Not Applicable; Corrective Action not triggered
(C) Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit; and	Not Applicable; Corrective Action not triggered
(D) Provide the date when the assessment of corrective measures was completed for the CCR unit.	Not Applicable; Corrective Action not triggered
(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; Corrective Action not triggered
(vi) Whether remedial activities were initiated or are ongoing pursuant to § 257.98 during the current annual reporting period.	Not Applicable; Corrective Action not triggered

Notes:

(1) 2024 Annual Groundwater Monitoring and Corrective Action Report JH Campbell Power Plant Dry Ash Landfill. TRC. January 31, 2025.



2024 Annual Groundwater Monitoring and Corrective Action Report

JH Campbell Power Plant Dry Ash Landfill

West Olive, Michigan

January 2025

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Executive Summary

On behalf of Consumers Energy, TRC has prepared this report for the JH Campbell Dry Ash Landfill to cover the period of January 1, 2024 to December 31, 2024 and document the status of groundwater monitoring and corrective action for 2024 in accordance with §257.90(e).

Consumers Energy first reported the potential for statistically significant increases (SSIs) for Appendix III constituents in the *Annual Groundwater Monitoring Report, JH Campbell Power Plant, Dry Ash Landfill.* The statistical evaluation of the Appendix III indicator parameters confirming SSIs over background were as follows:

- Boron at JHC-MW-15017, JHC-MW-15018, JHC-MW-15019, JHC-MW-15020, JHC-MW-15021, JHC-MW-15022, JHC-MW-15031, JHC-MW-15032, JHC-MW-15035, and JHC-MW-15037;
- Calcium at JHC-MW-15018, JHC-MW-15019, JHC-MW-15020, JHC-MW-15022, JHC-MW-15031, JHC-MW-15035, and JHC-MW-15037;
- Chloride at JHC-MW-15017, JHC-MW-15020, JHC-MW-15031;
- Sulfate at JHC-MW-15017, JHC-MW-15018, JHC-MW-15019, JHC-MW-15020, JHC-MW-15021, JHC-MW-15032, JHC-MW-15031, JHC-MW-15035, JHC-MW-15036, and JHC-MW-15037; and
- Total dissolved solids (TDS) at JHC-MW-15017, JHC-MW-15018, JHC-MW-15019, JHC-MW-15020, JHC-MW-15021, JHC-MW-15022, JHC-MW-15031, JHC-MW-15035, JHC-MW-15036, and JHC-MW-15037.

On April 25, 2018, Consumers Energy entered assessment monitoring upon determining that an Alternate Source Demonstration for the Appendix III constituents was not successful. After subsequent sampling for Appendix IV constituents, Consumers Energy compared the assessment monitoring data to the groundwater protection standards (GWPSs) to determine whether or not Appendix IV constituents are detected at statistically significant levels above the GWPSs in accordance with §257.95.

The semiannual statistical evaluations performed to-date, including those in the 2024 reporting period, have shown that no Appendix IV constituents are present at statistically significant levels above the GWPSs. Therefore, Consumers Energy remains in assessment monitoring and will not seek to initiate an assessment of corrective measures pursuant to §257.95(g)(3).

Consumers Energy will continue executing the self-implementing groundwater compliance schedule in conformance with §257.90 - §257.98. The next semiannual assessment monitoring events are tentatively scheduled for the second and fourth calendar quarter of 2025.



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 – 257.98) apply to the Consumers Energy Company (Consumers Energy) Dry Ash Landfill at the JH Campbell Power Plant Site (Dry Ash Landfill). Pursuant to the CCR Rule, no later than January 31, 2018, and annually thereafter, 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 calendar year 2024 activities at the Dry Ash Landfill from January 1, 2024 to December 31, 2024. The Dry Ash Landfill was in assessment monitoring at the beginning and at the end of the period covered by this report. Data that have been collected and evaluated in 2024 under §257.90 - §257.98 are presented in this report.

1.1 Program Summary

Consumers Energy first reported the potential for statistically significant increases (SSIs) for Appendix III constituents in the *Annual Groundwater Monitoring Report, JH Campbell Power Plant, Dry Ash Landfill CCR Unit* (TRC, January 2018). The statistical evaluation of the Appendix III indicator parameters confirming SSIs over background were as follows:

- Boron at JHC-MW-15017, JHC-MW-15018, JHC-MW-15019, JHC-MW-15020, JHC-MW-15021, JHC-MW-15022, JHC-MW-15031, JHC-MW-15032, JHC-MW-15035, and JHC-MW-15037;
- Calcium at JHC-MW-15018, JHC-MW-15019, JHC-MW-15020, JHC-MW-15022, JHC-MW-15031, JHC-MW-15035, and JHC-MW-15037;
- Chloride at JHC-MW-15017, JHC-MW-15020, JHC-MW-15031;
- Sulfate at JHC-MW-15017, JHC-MW-15018, JHC-MW-15019, JHC-MW-15020, JHC-MW-15021, JHC-MW-15022, JHC-MW-15031, JHC-MW-15035, JHC-MW-15036, and JHC-MW-15037; and
- Total dissolved solids (TDS) at JHC-MW-15017, JHC-MW-15018, JHC-MW-15019, JHC-MW-15020, JHC-MW-15021, JHC-MW-15022, JHC-MW-15031, JHC-MW-15035, JHC-MW-15036, and JHC-MW-15037.

As discussed in the 2018 Annual Groundwater Monitoring Report for the JH Campbell Power Plant Dry Ash Landfill CCR Unit (2018 Annual Report) (TRC, January 2019), upon determining that an Alternate Source Demonstration for the Appendix III constituents was not successful, Consumers Energy initiated an Assessment Monitoring Program for the Dry Ash Landfill on April 25, 2018 pursuant to §257.95 of the CCR Rule. The assessment monitoring program includes sampling and analyzing groundwater within the groundwater monitoring system for all constituents listed in Appendix III and Appendix IV. In accordance with §257.93(h)(2) and within



the compliance schedule clarified by the USEPA in April 2018, the first round of semiannual assessment monitoring data was statistically evaluated against the Groundwater Protection Standards (GWPSs) as reported on January 14, 2019 and placed in the operating record in accordance with §257.105(h)(8). This comparison showed that no Appendix IV constituents were present at statistically significant levels above the GWPSs. Therefore, Consumers Energy remained in assessment monitoring. The subsequent assessment monitoring evaluations, including those in the 2024 reporting period, have also indicated that no Appendix IV constituents have been present in downgradient monitoring wells at statistically significant levels exceeding the GWPSs. Therefore, the Dry Ash Landfill monitoring system remained in assessment monitoring and has continued to be sampled for the Appendix III and Appendix IV constituents and statistically evaluated on a semiannual basis in accordance with §257.95.

In addition to the semiannual assessment monitoring performed in accordance with §257.95, Consumers Energy is also conducting quarterly monitoring in accordance with the Michigan Department of Environment, Great Lakes, and Energy (EGLE)¹-approved *Dry Ash Landfill Hydrogeological Monitoring Plan* (HMP) (TRC, October 2020, Revised November 2021). Quarterly monitoring results are reported under a separate cover in accordance with the requirements of the Michigan Natural Resources and Environmental Protection Act (NREPA), also known as Part 115 of PA 451 of 1994, as amended (a.k.a., Michigan Part 115 Solid Waste Management) and the HMP. Assessment monitoring data that has been collected and evaluated in 2024 in accordance with the CCR Rule are presented in this report.

1.2 Site Overview

The JH Campbell Plant is a coal-fired power generation facility located in West Olive, Michigan, on the eastern shore of Lake Michigan. It is bordered by the Pigeon River on the south, 156th Avenue on the east, and Croswell Street to the north with Lakeshore Drive bisecting the site from north to south. The power generating plant consists of three coal-fired electric generating units located on the western side of the site and the CCR disposal area is on the east side of the site, east of Lakeshore Drive. Figure 1 is a site location map showing the facility and the surrounding area.

The existing Dry Ash Landfill is a double-composite geomembrane lined landfill which is licensed and permitted for CCR disposal and includes two double-lined leachate and contact water retention ponds. Site features are shown on Figure 2. Dry, moisture-conditioned CCR from the three coal-fired electric generating units is managed in the licensed Dry Ash Landfill which is regulated under Part 115 of the NREPA, PA 451 of 1994, as amended, and monitored in adherence to the facility's HMP.

Bottom ash is currently sluiced to concrete tanks where it is dewatered. The settled and dewatered bottom ash is beneficially reused or managed at the Dry Ash Landfill. The facility consists of the existing CCR landfill Cells 1 through 6. Dry ash from all generating units is stored in silos until it is placed into the facility or is sold and shipped off site. At this time, the north faces of Cells 1 and 2 and the majority of the eastern half of Cell 2 have been closed

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¹ Effective Monday, April 22, 2019, the Michigan Department of Environmental Quality (MDEQ) became known as the Michigan Department of Environment, Great Lakes, and Energy.



along with Cell 3. Partial cover has been constructed over Cell 4. Cell 5 was constructed in 2018 and put into service in 2019. Cell 6 was constructed in 2021 and put into service in 2022.

1.3 Geology/Hydrogeology

Groundwater is typically encountered at elevations ranging from 604 feet near the background wells (located to the north-northwest of the Dry Ash Landfill) to 590 feet along the southeast corner of the Dry Ash Landfill and south of the former Ponds 1-2 and Pond A CCR surface impoundments and generally flows to the south-southeast toward the Pigeon River. The subsurface materials encountered at the JH Campbell site generally consist of approximately 40 to 60 feet of poorly graded, fine-grained lacustrine sand. A laterally extensive clay-rich till is generally encountered within approximately 40 to 60 ft below ground surface (bgs) across the site that according to deep drilling logs conducted at the JH Campbell Power Plant (just west of the CCR units) is on the order of 80 feet thick and extends to the top of shale bedrock approximately 140 ft bgs.



2.0 Groundwater Monitoring

2.1 Monitoring Well Network

In accordance with 40 CFR 257.91 and as documented in the 2022 Annual Groundwater Monitoring and Corrective Action Report, Consumers Energy, JH Campbell Power Plant, Dry Ash Landfill (2022 Annual Report) (TRC, January 2023), Consumers Energy established a groundwater monitoring system for the JHC Dry Ash Landfill, which currently consists of 14 monitoring wells (6 background monitoring wells and 8 downgradient monitoring wells) that are screened in the uppermost aquifer. The monitoring well locations are shown on Figure 2. Six monitoring wells located north-northwest of the Dry Ash Landfill provide data on background groundwater quality that has not been affected by CCR management at the site (JHC-MW-15023 through JHC-MW-15028). Background groundwater quality data from these six background wells are additionally used for the CCR groundwater monitoring program at three other JH Campbell CCR units.

No changes were made to the Dry Ash Landfill monitoring well network in 2024.

As shown on Figure 2, monitoring wells JHC-MW-15029, JHC-MW-15030, JHC-MW-15032, and JHC-MW-5034 are used for water level measurements only. Static water level data are collected at additional wells throughout the JH Campbell CCR units and used to construct a site-wide groundwater contour map.

2.2 Semiannual Groundwater Monitoring

Per §257.95, all wells in the CCR unit monitoring program must be sampled at least semiannually. One semiannual event must include analysis for all constituents from Appendix III and Appendix IV constituents and one semiannual event may include analysis for those constituents in Appendix IV of the CCR Rule that were detected during prior sampling. In addition to the Appendix III and IV constituents, field parameters including dissolved oxygen, oxidation reduction potential, specific conductivity, temperature, and turbidity were collected at each well. Samples were collected and analyzed in accordance with the HMP which also includes an updated sampling and analysis plan (SAP) used for the semiannual assessment monitoring program in accordance with §257.95 of the CCR Rule.

2.2.1 Data Summary

The first semiannual groundwater assessment monitoring event for 2024 was performed on April 15 through 17, 2024 and the second semiannual groundwater assessment monitoring event was performed on October 14 through 16, 2024. Both events were performed by Consumers Energy, and samples were analyzed by Consumers Energy Laboratory Services in Jackson, Michigan, with radium samples analyzed by Eurofins Environmental Testing in Earth City, Missouri in accordance with the SAP. Static water elevation data were collected at all monitoring well locations. Groundwater samples were collected from the background monitoring wells and the Dry Ash Landfill monitoring wells during both events for the Appendix III and Appendix IV constituents and field parameters.



A summary of the groundwater data collected during the April and October 2024 events are provided on Table 1 (static groundwater elevation data), Table 2 (field data), Table 3 (background analytical results), and Table 4 (Dry Ash Landfill analytical results). Sample data, including laboratory reports and field data, are included in Appendix A.

2.2.2 Data Quality Review

Data from each round were evaluated for completeness, overall quality and usability, methodspecified 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. The data quality reviews are summarized in Appendix B.

2.2.3 Groundwater Flow Rate and Direction

Groundwater elevation data collected during the semiannual assessment monitoring events were generally similar to data collected previously in the background, detection monitoring events, and previous assessment monitoring events. The data showed that groundwater within the uppermost aquifer generally flows to the south-southeast across the site, with a southwesterly groundwater flow component on the western edge of the site.

Groundwater elevations measured across the site during the April and October 2024 events are provided on Table 1. April and October 2024 groundwater elevations were used to construct the groundwater contour maps provided on Figure 3 and Figure 4, respectively. The average hydraulic gradient for each sampling event was calculated using the following well pairs: JHC-MW-15026/PZ-23S, MW-15017/PZ-24S, and JHC-MW-15024/JHC-MW-15031 (Figure 2). The average hydraulic gradient was 0.0036 ft/ft in April 2024 and 0.0034 ft/ft in October 2024. Using the mean hydraulic conductivity of 62 ft/day (ARCADIS, 2016) and an assumed effective porosity of 0.4, the estimated average seepage velocity is approximately 0.55 ft/day or 200 ft/year for the April 2024 event, and approximately 0.53 ft/day or 190 ft/year for the October 2024 event.

The general groundwater flow direction is similar to that identified in previous monitoring rounds and continues to demonstrate that the downgradient wells are appropriately positioned to detect the presence of Appendix IV constituents that could potentially migrate from the Dry Ash Landfill.



3.0 Statistical Evaluation

Assessment monitoring is continuing at the Dry Ash Landfill in accordance with §257.95. The following section summarizes the statistical approach applied to assess the 2024 groundwater data in accordance with the assessment monitoring program. The statistical evaluation details are provided in Appendix C (*Statistical Evaluation of April 2024 Assessment Monitoring Sampling Event*) and Appendix D (*Statistical Evaluation of October 2024 Assessment Monitoring Sampling Event*).

3.1 Establishing Groundwater Protection Standards

The Groundwater Protection Standards (GWPSs) are used to assess whether Appendix IV constituent concentrations are present in groundwater at unacceptable levels as a result of CCR Unit operations by statistically comparing concentrations in the downgradient wells to the GWPSs for each Appendix IV constituent. The calculation of the GWPSs is documented in the Groundwater Protection Standards technical memorandum included in Appendix C of the 2018 Annual Report.

3.2 Data Comparison to Groundwater Protection Standards

Consistent with the *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities*, *Unified Guidance* (Unified Guidance) (USEPA, 2009), the preferred method for comparisons to a fixed standard are confidence limits. An exceedance of the standard occurs when the 99 percent lower confidence level of the downgradient data exceeds the GWPS. As presented in the 2018 through 2023 Annual Reports, the statistical data comparison through the 2023 semiannual assessment monitoring events indicated that no Appendix IV constituents were present at statistically significant levels exceeding the GWPSs. Therefore, assessment monitoring continued in 2024.

There are no parameter-well combinations that included a direct exceedance of the GWPS over the past eight semiannual assessment monitoring events conducted through October 2024, with the exception of antimony. During the October 2022 sampling event, antimony was detected above the GWPS in one downgradient well in an otherwise non-detect dataset. Since the initial detection of antimony occurred, the lower confidence level for antimony has remained below the GWPS and antimony has not been detected within the last four semiannual events in 2023 and 2024. A summary of the confidence intervals for April and October 2024 are provided in Tables 5 and 6.

Per §257.95(e), Consumers Energy can return to detection monitoring at the Dry Ash Landfill if the concentrations of all of the Appendix III and IV constituents are at or below background values for two consecutive events, using the statistical procedures included in §257.93(g). As shown on Table 4, several Appendix III and Appendix IV constituents are above the background upper tolerance limits (UTLs). Therefore, Consumers Energy will continue semiannual assessment monitoring in 2025 per §257.95(d).



4.0 Corrective Action

There were no corrective actions needed or performed for the Dry Ash Landfill within the calendar year 2024. The semiannual assessment monitoring analysis completed to-date indicate that no Appendix IV constituents are present at statistically significant levels exceeding the GWPSs. Therefore, Consumers Energy has continued semiannual assessment monitoring at the Dry Ash Landfill per §257.95(d) and will continue executing the self-implementing groundwater compliance schedule in conformance with §257.90 - §257.98.



5.0 Conclusions and Recommendations

Assessment monitoring groundwater samples are collected semiannually from the groundwater monitoring system wells and analyzed for Appendix III and Appendix IV constituents pursuant to §257.95(d). The semiannual assessment monitoring analysis completed to-date indicate that no Appendix IV constituents are present at statistically significant levels exceeding the GWPSs. Therefore, Consumers Energy has continued semiannual assessment monitoring at the Dry Ash Landfill.

Per §257.95(e), Consumers Energy can return to detection monitoring at the Dry Ash Landfill if the concentrations of all of the Appendix III and IV constituents are at or below background values for two consecutive events, using the statistical procedures included in §257.93(g). Several Appendix III and Appendix IV constituents remain above the background levels. Therefore, Consumers Energy will continue semiannual assessment monitoring in 2025 per §257.95(d) and will continue executing the self-implementing groundwater compliance schedule in conformance with §257.90 - §257.98.

The next semiannual monitoring events are tentatively scheduled for the second and fourth calendar quarter of 2025.



6.0 References

- TRC. January 2018. Annual Groundwater Monitoring Report, Consumers Energy, JH Campbell Site, Dry Ash Landfill CCR Unit, West Olive, Michigan. Prepared for Consumers Energy Company.
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- TRC. January 2021. 2020 Annual Groundwater Monitoring Report, Consumers Energy, JH Campbell Site, Dry Ash Landfill CCR Unit, West Olive, Michigan. Prepared for Consumers Energy Company.
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- TRC. January 2023. 2022 Annual Groundwater and Corrective Action Monitoring Report, Consumers Energy, JH Campbell Power Plant, Dry Ash Landfill, West Olive, Michigan. Prepared for Consumers Energy Company.
- TRC. January 2024. 2023 Annual Groundwater and Corrective Action Monitoring Report, Consumers Energy, JH Campbell Power Plant, Dry Ash Landfill, West Olive, 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.



Summary of Groundwater Elevation Data JH Campbell – RCRA CCR Monitoring Program West Olive, Michigan

NA/ - II	Ground Surface	TOC Elevation	Geologic Unit	Screen Interval	April '	15, 2024	Octobe	r 14, 2024
Well Location	Elevation (ft) (ft)		of Screen Interval	Elevation (ft)	Depth to Water (ft BTOC)	Groundwater Elevation (ft)	Depth to Water (ft BTOC)	Groundwater Elevation (ft)
Background								
JHC-MW-15023	617.01	619.98	Sand	603.0 to 593.0	17.96	602.02	20.00	599.98
JHC-MW-15024	613.79	616.62	Sand	606.8 to 596.8	13.68	602.94	15.46	601.16
JHC-MW-15025	614.14	617.17	Sand	607.1 to 597.1	13.20	603.97	14.91	602.26
JHC-MW-15026	615.09	618.04	Sand	607.1 to 597.1	15.19	602.85	16.76	601.28
JHC-MW-15027	614.77	617.30	Sand	604.8 to 594.8	15.80	601.50	17.40	599.90
JHC-MW-15028	611.02	613.80	Sand	603.0 to 593.0	16.57	597.23	17.26	596.54
JHC-MW-15029	608.08	610.95	Sand	600.1 to 590.1	12.82	598.13	14.46	596.49
JHC-MW-15030	604.05	607.17	Sand	600.1 to 590.1	10.51	596.66	12.01	595.16
Pond 1N, 1S, 2N, 28	607.02	609.53	Sand	603.5 to 598.5		MM		NM
JHC-MW-15001								NM
JHC-MW-15002	618.18	621.27	Sand	590.2 to 580.2	24.50	596.77		
JHC-MW-15003	623.16	627.20	Sand	595.2 to 585.2	32.69	594.51		NM
JHC-MW-15005	606.22	609.99	Sand	579.2 to 569.2	18.13	591.86		NM
JHC-MW-18004	602.92	605.72	Sand	596.9 to 586.9	11.37	594.35		NM
JHC-MW-18005	600.30	603.16	Sand	595.3 to 585.3	10.30	592.86		NM
JHC-MW-22001	601.52	604.28	Sand	596.5 to 586.5	10.68	593.60		NM
Pond 3N, 3S	000.40	005.05	01	004.4 1. 504.4	05.00	500.00		NM
JHC-MW-15013	632.40	635.25	Sand	604.4 to 594.4	35.39	599.89		
JHC-MW-15015	632.46	635.20	Sand	604.5 to 594.5	34.96	600.24		NM
JHC-MW-15016	631.81	632.52	Sand	603.8 to 593.8	32.42	600.10		NM
JHC-MW-18001	609.09	611.98	Sand	603.1 to 593.1	12.26	599.72		NM
JHC-MW-18002	605.53	608.93	Sand	602.0 to 592.0	9.09	599.84		NM
JHC-MW-18003	605.36	608.78	Sand	601.9 to 591.9	9.00	599.78		NM
Landfill JHC-MW-15017	613.69	616.61	Sand	603.7 to 593.7	16.80	599.81	18.11	598.50
JHC-MW-15017	614.26	617.02	Sand	604.3 to 594.3	17.47	599.55	18.65	598.37
JHC-MW-15022	620.92	623.79	Sand	597.9 to 587.9		MM		NM
JHC-MW-15031	632.94	635.87	Sand	599.9 to 589.9	43.70	592.17	44.41	591.46
JHC-MW-15031	611.32	614.29	Sand	598.3 to 588.3	17.03	597.26	18.74	595.55
JHC-MW-15032	618.08	620.99	Sand	602.1 to 592.1		NM		NM
JHC-MW-15034	612.90	615.97	Sand	601.9 to 591.9	18.70	597.27(3)	17.83	598.14
JHC-MW-15035	632.53	634.28	Sand	599.5 to 589.5	41.31	592.97	42.01	592.27
JHC-MW-15036	617.94	618.34	Sand	597.9 to 587.9	27.01	591.33	28.31	590.03
JHC-MW-15037	614.28	616.06	Sand	591.3 to 586.3	25.27	590.79	26.10	589.96
MW-B3	630.51	634.17	Sand	598.5 to 593.5	39.05	595.12	39.70	594.47
MW-B4	633.80	635.67	Sand	593.8 to 588.8	41.75	593.92	42.41	593.26
Pond A	000.00	000.01	Cana	000.0 10 000.0	11.70	000.02	12.11	000.20
JHC-MW-15006	624.74	627.58	Sand	599.7 to 589.7	35.10	592.48	36.54	591.04
JHC-MW-15007R ⁽²⁾	625.73	628.26	Sand	595.7 to 585.7	36.14	592.12	37.69	590.57
JHC-MW-15008R ⁽¹⁾	632.32	634.67	Sand	597.3 to 587.3	43.08	591.59	44.65	590.02
JHC-MW-15009R ⁽²⁾	632.15	635.05	Sand	595.2 to 585.2	43.29	591.76	44.54	590.51
JHC-MW-15011R ⁽²⁾	627.73	629.79	Sand	594.7 to 584.7	37.60	592.19	38.68	591.11
Downgradient Well								<u>'</u>
MW-13	593.40	595.37	Clayey Silt	587.9 to 585.4	9.98	585.39		Dry
MW-14S	587.36	590.98	Sand	582.9 to 577.9	11.02	579.96	11.18	579.80
PZ-23S	602.84	604.97	Sand	591.8 to 586.8	15.09	589.88	15.94	589.03
PZ-24S	586.56	590.15	Sand	584.6 to 579.6	7.77	582.38	9.75	580.40
PZ-40S	589.51	593.25	Sand	585.5 to 575.5	10.83	582.42	13.07	580.18
TW-19-05	603.44	606.36	Sand	592.8 to 587.8	15.69	590.67	17.63	588.73
TW-19-06A	599.61	602.54	Sand	592.3 to 587.3	12.78	589.76	14.62	587.92

Notes:

Survey conducted by Nederveld, November 2015, October 2018, December 2018, August 2019, and July 2021.

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.

NM: Not measured

(1) JHC-MW-15008R installed in June 2019.

 $\ensuremath{\text{(2) JHC-MW-15007R, JHC-MW-15009R, and JHC-MW-15011R installed in July 2021.}}$

Table 2 Summary of Field Parameters JH Campbell Dry Ash Landfill - RCRA CCR Monitoring Program West Olive, Michigan

Sample Location	Sample Date	Dissolved Oxygen	Oxidation Reduction Potential	рН	Specific Conductivity	Temperature	Turbidity
		(mg/L)	(mV)	(SU)	(umhos/cm)	(°C)	(NTU)
JH Campbell Backgro	und						
JHC-MW-15023	4/15/2024	2.48	253.9	5.9	143	10.3	2.2
JHC-10100-10023	10/14/2024	0.65	194.8	6.5	135	12.1	1.6
JHC-MW-15024	4/15/2024	2.67	174.5	7.5	286	9.4	2.1
3110-10100-1302-4	10/14/2024	0.67	178.4	7.9	328	12.1	1.8
JHC-MW-15025	4/15/2024	4.27	237.9	7.9	422	9.3	1.6
JHC-10100-15025	10/14/2024	3.29	153.0	8.0	420	11.3	2.6
JHC-MW-15026	4/15/2024	6.91	350.0	5.8	34	10.4	2.7
JHC-10100-15020	10/15/2024	4.05	316.2	5.9	46	11.9	2.3
JHC-MW-15027	4/15/2024	9.61	235.3	6.5	107	10.6	9.3
JHC-10100-15021	10/15/2024	8.34	280.0	7.4	154	12.5	2.9
JHC-MW-15028	4/15/2024	8.25	148.4	8.5	102	12.7	3.5
JHC-10100-15020	10/15/2024	8.20	225.1	8.7	109	13.4	3.5
JH Campbell Dry Ash	Landfill						
JHC-MW-15017	4/16/2024	1.84	212.9	6.7	418	12.2	1.8
31 1C-1010 V- 130 17	10/15/2024	0.72	167.5	6.7	420	11.6	1.7
JHC-MW-15018	4/16/2024	1.51	210.3	6.6	392	14.1	1.8
JHC-1010 V- 150 16	10/15/2024	0.96	159.0	6.6	568	12.6	1.4
JHC-MW-15031	4/16/2024	2.08	223.2	7.2	239	12.6	1.7
JHC-10100-15051	10/15/2024	1.64	113.9	7.3	503	13.0	1.4
JHC-MW-15035	4/16/2024	1.19	170.0	7.2	483	13.8	1.1
JUC-16166-15099	10/15/2024	0.47	93.5	7.3	479	14.1	1.2
JHC-MW-15036	4/16/2024	2.63	207.0	7.3	418	11.3	3.3
JUC-16166- 12020	10/15/2024	1.08	150.8	7.8	304	12.9	1.9
JHC-MW-15037	4/15/2024	4.94	267.7	7.2	393	10.9	1.2
JHC-IVIVV-1503/	10/15/2024	5.47	250.5	7.2	566	11.3	1.3
MW-B3	4/16/2024	1.80	237.6	6.1	507	12.9	1.3
IVIVV-D3	10/15/2024	1.46	186.8	6.1	519	12.5	1.2
MW-B4	4/16/2024	0.39	100.8	6.9	514	14.6	1.7
IVIVV-D4	10/15/2024	0.35	107.0	7.0	594	14.7	1.1

Notes:

mg/L -Milligrams per Liter.

mV - Millivolts.

SU - Standard Units.

umhos/cm - Micromhos per centimeter.

°C - Degrees Celsius.

NTU - Nephelometric Turbidity Unit

Summary of Groundwater Sampling Results (Analytical) JH Campbell Background - RCRA CCR Monitoring Program West Olive, Michigan

					Sample Location:	JHC-M	W-15023	JHC-M	W-15024	JHC-M	W-15025
					Sample Date:	4/15/2024	10/14/2024	4/15/2024	10/14/2024	4/15/2024	10/14/2024
Constituent	Unit	EPA MCL	MI Residential*	MI Non- Residential*	MI GSI^						
Appendix III ⁽¹⁾											
Boron	ug/L	NC	500	500	7,200	46	27	26	< 20	26	21
Calcium	mg/L	NC	NC	NC	500EE	15.6	12.9	26.1	28.2	37.5	37.1
Chloride	mg/L	250**	250 ^E	250 ^E	500EE	6.80	4.57	13.5	26.8	50.3	43.3
Fluoride	ug/L	4,000	NC	NC	NC	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Sulfate	mg/L	250**	250 ^E	250 ^E	500EE	15.5	11.3	7.49	8.10	9.14	12.0
Total Dissolved Solids	mg/L	500**	500 ^E	500 ^E	500	105	84	155	174	242	215
pH, Field	SU	6.5 - 8.5**	6.5 - 8.5 ^E	6.5 - 8.5 ^E	6.5 - 9.0	5.9	6.5	7.5	7.9	7.9	8.0
Appendix IV ⁽¹⁾											
Antimony	ug/L	6	6.0	6.0	130	< 1	< 1	< 1	< 1	< 1	< 1
Arsenic	ug/L	10	10	10	10	< 1	< 1	< 1	< 1	< 1	< 1
Barium	ug/L	2,000	2,000	2,000	820	48	24	17	17	9	10
Beryllium	ug/L	4	4.0	4.0	18	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	ug/L	5	5.0	5.0	3.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium	ug/L	100	100	100	11	< 1	< 1	< 1	< 1	1	< 1
Cobalt	ug/L	NC	40	100	100	< 6	< 6	< 6	< 6	< 6	< 6
Fluoride	ug/L	4,000	NC	NC	NC	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Lead	ug/L	NC	4.0	4.0	39	< 1	< 1	< 1	< 1	< 1	< 1
Lithium	ug/L	NC	170	350	440	< 10	< 10	< 10	< 10	< 10	< 10
Mercury	ug/L	2	2.0	2.0	0.20#	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Molybdenum	ug/L	NC	73	210	3,200	< 5	< 5	< 5	< 5	< 5	< 5
Radium-226	pCi/L	NC	NC	NC	NC	< 0.171	< 0.137	< 0.154	< 0.178	< 0.183	0.128
Radium-228	pCi/L	NC	NC	NC	NC	< 0.591	< 0.541	< 0.656	< 0.601	0.597	0.586
Radium-226/228	pCi/L	5	NC	NC	NC	< 0.591	0.546	< 0.656	< 0.601	0.607	0.714
Selenium	ug/L	50	50	50	5.0	< 1	< 1	1	< 1	< 1	< 1
Thallium	ug/L	2	2.0	2.0	3.7	< 2	< 2	< 2	< 2	< 2	< 2

Notes:

ug/L - micrograms per liter; mg/L - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.

NC - no criteria; -- - not analyzed.

- * Michigan Part 201 Generic Drinking Water Cleanup Criteria, December 30, 2013, updated October 12, 2023.
- ** Secondary Maximum Contaminant Level (SMCL), EPA Secondary Drinking Water Regulations (SDWR) April, 2012.
- ^ Michigan Part 201 Groundwater Surface Water Interface (GSI) Criteria. Hardness-dependent criteria calculated using site-specific hardness of 180 mg CaCO3/L as measured at surface water sample SW-01 collected on April 9, 2018 from the Pigeon River. Chromium GSI criterion based on hexavalent chromium per footnote {H}.
- # If detected above 0.20 ug/L, further evaluation of low-level mercury may be necessary to evaluate the GSI pathway per Michigan Part 201 and MDEQ policy and procedure 09-014 dated June 20, 2012.
- E Criterion is the aesthetic drinking water value per footnote {E}.
- EE Criterion is based on the total dissolved solids GSI value per footnote {EE}.
- (1) 40 CFR Part 257 Appendix III Detection Monitoring Constituents and Appendix IV Assessment Monitoring Constituents.

BOLD value indicates an exceedance of one or more of the listed criteria.

RED value indicates an exceedance of the MCL.

All metals were analyzed as total unless otherwise specified.

January 2025

Summary of Groundwater Sampling Results (Analytical) JH Campbell Background - RCRA CCR Monitoring Program West Olive, Michigan

					Sample Location:	JHC-M\	W-15026	JHC-M	W-15027	JHC-M\	V-15028
					Sample Date:	4/15/2024	10/15/2024	4/15/2024	10/15/2024	4/15/2024	10/15/2024
				MI Non-							
Constituent	Unit	EPA MCL	MI Residential*	Residential*	MI GSI^						
Appendix III ⁽¹⁾											
Boron	ug/L	NC	500	500	7,200	< 20	< 20	25	22	< 20	< 20
Calcium	mg/L	NC	NC	NC	500EE	3.14	4.28	13.1	18.7	13.6	15.0
Chloride	mg/L	250**	250 ^E	250 ^E	500EE	1.58	3.07	< 1.00	1.27	< 1.00	< 1.00
Fluoride	ug/L	4,000	NC	NC	NC	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Sulfate	mg/L	250**	250 ^E	250 ^E	500EE	5.85	7.24	5.02	4.79	4.12	5.23
Total Dissolved Solids	mg/L	500**	500 ^E	500 ^E	500	29	27	84	75	62	62
pH, Field	SU	6.5 - 8.5**	6.5 - 8.5 ^E	6.5 - 8.5 ^E	6.5 - 9.0	5.8	5.9	6.5	7.4	8.5	8.7
Appendix IV ⁽¹⁾											
Antimony	ug/L	6	6.0	6.0	130	< 1	< 1	< 1	< 1	< 1	< 1
Arsenic	ug/L	10	10	10	10	< 1	< 1	< 1	< 1	< 1	< 1
Barium	ug/L	2,000	2,000	2,000	820	8	9	20	8	5	6
Beryllium	ug/L	4	4.0	4.0	18	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	ug/L	5	5.0	5.0	3.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium	ug/L	100	100	100	11	< 1	< 1	1	< 1	< 1	< 1
Cobalt	ug/L	NC	40	100	100	< 6	< 6	< 6	< 6	< 6	< 6
Fluoride	ug/L	4,000	NC	NC	NC	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Lead	ug/L	NC	4.0	4.0	39	< 1	< 1	< 1	< 1	< 1	< 1
Lithium	ug/L	NC	170	350	440	< 10	< 10	< 10	< 10	< 10	< 10
Mercury	ug/L	2	2.0	2.0	0.20#	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Molybdenum	ug/L	NC	73	210	3,200	< 5	< 5	< 5	< 5	< 5	< 5
Radium-226	pCi/L	NC	NC	NC	NC	< 0.148	< 0.109	0.206	< 0.0985	< 0.239	< 0.116
Radium-228	pCi/L	NC	NC	NC	NC	< 0.562	< 0.617	1.03	0.828	< 0.628	< 0.566
Radium-226/228	pCi/L	5	NC	NC	NC	< 0.562	< 0.617	1.24	0.887	< 0.628	< 0.566
Selenium	ug/L	50	50	50	5.0	< 1	< 1	< 1	< 1	< 1	< 1
Thallium	ug/L	2	2.0	2.0	3.7	< 2	< 2	< 2	< 2	< 2	< 2

Notes:

ug/L - micrograms per liter; mg/L - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.

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- ** Secondary Maximum Contaminant Level (SMCL), EPA Secondary Drinking Water Regulations (SDWR) April, 2012.
- ^ Michigan Part 201 Groundwater Surface Water Interface (GSI) Criteria. Hardness-dependent criteria calculated using site-specific hardness of 180 mg CaCO3/L as measured at surface water sample SW-01 collected on April 9, 2018 from the Pigeon River. Chromium GSI criterion based on hexavalent chromium per footnote {H}.
- # If detected above 0.20 ug/L, further evaluation of low-level mercury may be necessary to evaluate the GSI pathway per Michigan Part 201 and MDEQ policy and procedure 09-014 dated June 20, 2012.
- E Criterion is the aesthetic drinking water value per footnote {E}.
- EE Criterion is based on the total dissolved solids GSI value per footnote {EE}.
- (1) 40 CFR Part 257 Appendix III Detection Monitoring Constituents and Appendix IV Assessment Monitoring Constituents.

BOLD value indicates an exceedance of one or more of the listed criteria.

RED value indicates an exceedance of the MCL.

All metals were analyzed as total unless otherwise specified.

Summary of Groundwater Sampling Results (Analytical) JH Campbell Dry Ash Landfill - RCRA CCR Monitoring Program West Olive, Michigan

						Sample Location:	JHC-M\	N-15017	JHC-M\	W-15018	JHC-M\	W-15031	JHC-MV	V-15035
						Sample Date:	4/16/2024	10/15/2024	4/16/2024	10/15/2024	4/16/2024	10/15/2024	4/16/2024	10/15/2024
					Ml Non-									
Constituent	Unit	UTL	EPA MCL	MI Residential*	Residential*	MI GSI^								
Appendix III ⁽¹⁾														
Boron	ug/L	51	NC	500	500	7,200	121	116	96	174	42	80	63	55
Calcium	mg/L	46	NC	NC	NC	500EE	52.5	52	44.6	61.7	35.1	67.7	76.5	66.5
Chloride	mg/L	43	250**	250 ^E	250 ^E	500EE	17.6	16.9	20.8	30.3	1.91	2.77	7.67	5.61
Fluoride	ug/L	1,000	4,000	NC	NC	NC	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Sulfate	mg/L	14	250**	250 ^E	250 ^E	500EE	34.1	34.3	26.7	37.9	12.3	21.2	24.8	28.4
Total Dissolved Solids	mg/L	258	500**	500E	500 ^E	500	238	242	266	314	148	269	304	268
pH, Field	SU	4.8 - 9.2	6.5 - 8.5**	6.5 - 8.5 ^E	6.5 - 8.5 ^E	6.5 - 9.0	6.7	6.7	6.6	6.6	7.2	7.3	7.2	7.3
Appendix IV ⁽¹⁾														
Antimony	ug/L	2	6	6.0	6.0	130	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Arsenic	ug/L	1	10	10	10	10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Barium	ug/L	35	2,000	2,000	2,000	820	22	20	27	27	11	16	15	14
Beryllium	ug/L	1	4	4.0	4.0	18	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	ug/L	0.2	5	5.0	5.0	3.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium	ug/L	2	100	100	100	11	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cobalt	ug/L	15	NC	40	100	100	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6
Fluoride	ug/L	1,000	4,000	NC	NC	NC	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Lead	ug/L	1	NC	4.0	4.0	39	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Lithium	ug/L	10	NC	170	350	440	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Mercury	ug/L	0.2	2	2.0	2.0	0.20#	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Molybdenum	ug/L	5	NC	73	210	3,200	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Radium-226	pCi/L	NA	NC	NC	NC	NC	< 0.164	< 0.129	< 0.167	< 0.149	< 0.263	< 0.189	< 0.208	0.253
Radium-228	pCi/L	NA	NC	NC	NC	NC	0.618	0.605	< 0.499	< 0.677	< 0.796	< 0.627	1.90	< 0.574
Radium-226/228	pCi/L	1.93	5	NC	NC	NC	0.656	0.661	< 0.499	< 0.677	< 0.796	< 0.627	2.00	0.587
Selenium	ug/L	5	50	50	50	5.0	12	14	11	14	2	3	1	< 1
Thallium	ug/L	2	2	2.0	2.0	3.7	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2

Notes

ug/L - micrograms per liter; mg/L - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.

NC - no criteria; -- - not analyzed.

- * Michigan Part 201 Generic Drinking Water Cleanup Criteria, December 30, 2013, updated October 12, 2023.
- ** Secondary Maximum Contaminant Level (SMCL), EPA Secondary Drinking Water Regulations (SDWR) April, 2012.
- ^ Michigan Part 201 Groundwater Surface Water Interface (GSI) Criteria. Hardness-dependent criteria calculated using site-specific hardness of 180 mg CaCO3/L as measured at surface water sample SW-01 collected on April 9, 2018 from the Pigeon River. Chromium GSI criterion based on hexavalent chromium per footnote {H}.
- # If detected above 0.20 ug/L, further evaluation of low-level mercury may be necessary to evaluate the GSI pathway per Michigan Part 201 and MDEQ policy and procedure 09-014 dated June 20, 2012.
- E Criterion is the aesthetic drinking water value per footnote {E}.
- EE Criterion is based on the total dissolved solids GSI value per footnote {EE}.
- (1) 40 CFR Part 257 Appendix III Detection Monitoring Constituents and Appendix IV Assessment Monitoring Constituents.

Indicates that the concentration in one or more wells exceeds the background level. If concentrations of all Appendix III and Appendix IV constituents are below the background level for two consecutive events,

the unit may return to detection monitoring.

BOLD value indicates an exceedance of one or more of the listed criteria.

RED value indicates an exceedance of the MCL.

All metals were analyzed as total unless otherwise specified.

Summary of Groundwater Sampling Results (Analytical) JH Campbell Dry Ash Landfill - RCRA CCR Monitoring Program West Olive, Michigan

						Sample Location:	JHC-M\	W-15036	JHC-M\	W-15037	MV	V-B3	MW	/-B4
						Sample Date:	4/16/2024	10/15/2024	4/15/2024	10/15/2024	4/16/2024	10/15/2024	4/16/2024	10/15/2024
					MI Non-									
Constituent	Unit	UTL	EPA MCL	MI Residential*	Residential*	MI GSI^								
Appendix III ⁽¹⁾														
Boron	ug/L	51	NC	500	500	7,200	86	56	110	178	119	146	263	331
Calcium	mg/L	46	NC	NC	NC	500 ^{EE}	57.3	37.2	57.1	85.6	68.6	56.9	77.7	79.1
Chloride	mg/L	43	250**	250 ^E	250 ^E	500EE	3.04	6.77	1.60	1.74	18.6	20.0	17.0	11.5
Fluoride	ug/L	1,000	4,000	NC	NC	NC	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Sulfate	mg/L	14	250**	250 ^E	250 ^E	500EE	33.6	17.2	22.1	24.5	72.2	66.6	22.1	25.5
Total Dissolved Solids	mg/L	258	500**	500E	500E	500	244	164	240	338	343	323	330	332
pH, Field	SU	4.8 - 9.2	6.5 - 8.5**	6.5 - 8.5 ^E	6.5 - 8.5 ^E	6.5 - 9.0	7.3	7.8	7.2	7.2	6.1	6.1	6.9	7.0
Appendix IV ⁽¹⁾														
Antimony	ug/L	2	6	6.0	6.0	130	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Arsenic	ug/L	1	10	10	10	10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Barium	ug/L	35	2,000	2,000	2,000	820	9	6	10	13	74	57	41	39
Beryllium	ug/L	1	4	4.0	4.0	18	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	ug/L	0.2	5	5.0	5.0	3.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium	ug/L	2	100	100	100	11	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cobalt	ug/L	15	NC	40	100	100	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6
Fluoride	ug/L	1,000	4,000	NC	NC	NC	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Lead	ug/L	1	NC	4.0	4.0	39	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Lithium	ug/L	10	NC	170	350	440	< 10	< 10	< 10	< 10	18	19	< 10	< 10
Mercury	ug/L	0.2	2	2.0	2.0	0.20#	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Molybdenum	ug/L	5	NC	73	210	3,200	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Radium-226	pCi/L	NA	NC	NC	NC	NC	< 0.271	0.180	< 0.270	< 0.159	0.257	< 0.160	0.216	0.279
Radium-228	pCi/L	NA	NC	NC	NC	NC	< 0.680	< 0.772	< 0.728	< 0.541	0.998	< 0.588	< 0.773	< 0.504
Radium-226/228	pCi/L	1.93	5	NC	NC	NC	0.701	< 0.772	< 0.728	< 0.541	1.25	< 0.588	0.873	< 0.504
Selenium	ug/L	5	50	50	50	5.0	2	< 1	5	5	6	4	2	4
Thallium	ua/L	2	2	2.0	2.0	3.7	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2

ug/L - micrograms per liter; mg/L - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.

NC - no criteria; -- - not analyzed.

- * Michigan Part 201 Generic Drinking Water Cleanup Criteria, December 30, 2013, updated October 12, 2023.
- ** Secondary Maximum Contaminant Level (SMCL), EPA Secondary Drinking Water Regulations (SDWR) April, 2012.
- ^ Michigan Part 201 Groundwater Surface Water Interface (GSI) Criteria. Hardness-dependent criteria calculated using site-specific hardness of 180 mg CaCO3/L as measured at surface water sample SW-01 collected on April 9, 2018 from the Pigeon River. Chromium GSI criterion based on hexavalent chromium per footnote {H}.
- # If detected above 0.20 ug/L, further evaluation of low-level mercury may be necessary to evaluate the GSI pathway per Michigan Part 201 and MDEQ policy and procedure 09-014 dated June 20, 2012.
- E Criterion is the aesthetic drinking water value per footnote {E}.
- EE Criterion is based on the total dissolved solids GSI value per footnote {EE}.
- (1) 40 CFR Part 257 Appendix III Detection Monitoring Constituents and Appendix IV Assessment Monitoring Constituents.

Indicates that the concentration in one or more wells exceeds the background level. If concentrations of all Appendix III and Appendix IV constituents are below the background level for two consecutive events,

the unit may return to detection monitoring.

BOLD value indicates an exceedance of one or more of the listed criteria.

RED value indicates an exceedance of the MCL.

All metals were analyzed as total unless otherwise specified.

Table 5

Summary of Groundwater Protection Standard Exceedances – April 2024 JH Campbell Dry Ash Landfill - RCRA CCR Monitoring Program West Olive, Michigan

Constituent	Units	GWPS	JHC-MW-15035			
			LCL	UCL		
Antimony	ug/L	6	1.0	7.0		

Notes:

ug/L - micrograms per Liter.

GWPS - Groundwater Protection Standard as established in TRC's Technical Memorandum dated October 15, 2018.

UCL - Upper Confidence Limit (α = 0.01) of the downgradient data set.

LCL - Lower Confidence Limit ($\alpha = 0.01$) of the downgradient data set.

Indicates a statistically significant exceedance of the GWPS. An exceedance

occurs when the LCL is greater than the GWPS.

Table 6

Summary of Groundwater Protection Standard Exceedances – October 2024 JH Campbell Dry Ash Landfill - RCRA CCR Monitoring Program West Olive, Michigan

Constituent	Units	GWPS	JHC-MW-15035			
			LCL	UCL		
Antimony	ug/L	6	1.0	7.0		

Notes:

ug/L - micrograms per Liter.

GWPS - Groundwater Protection Standard as established in TRC's Technical Memorandum dated October 15, 2018.

UCL - Upper Confidence Limit (α = 0.01) of the downgradient data set.

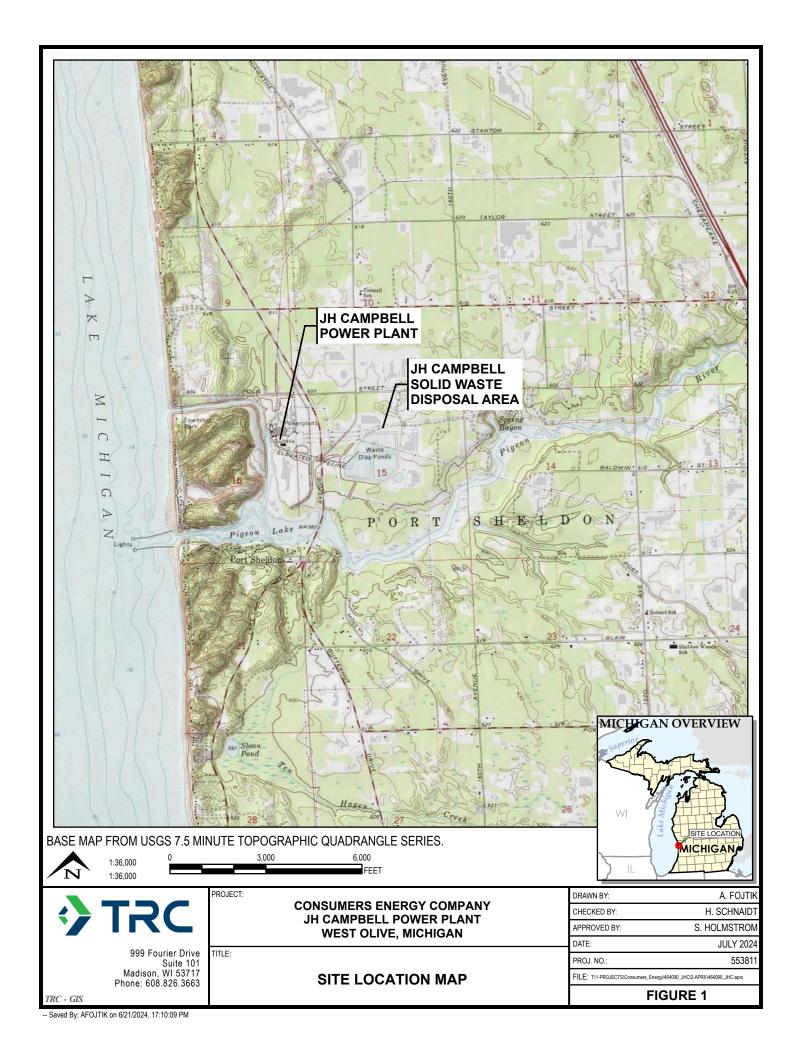
LCL - Lower Confidence Limit (α = 0.01) of the downgradient data set.

Indicates a statistically significant exceedance of the GWPS. An exceedance

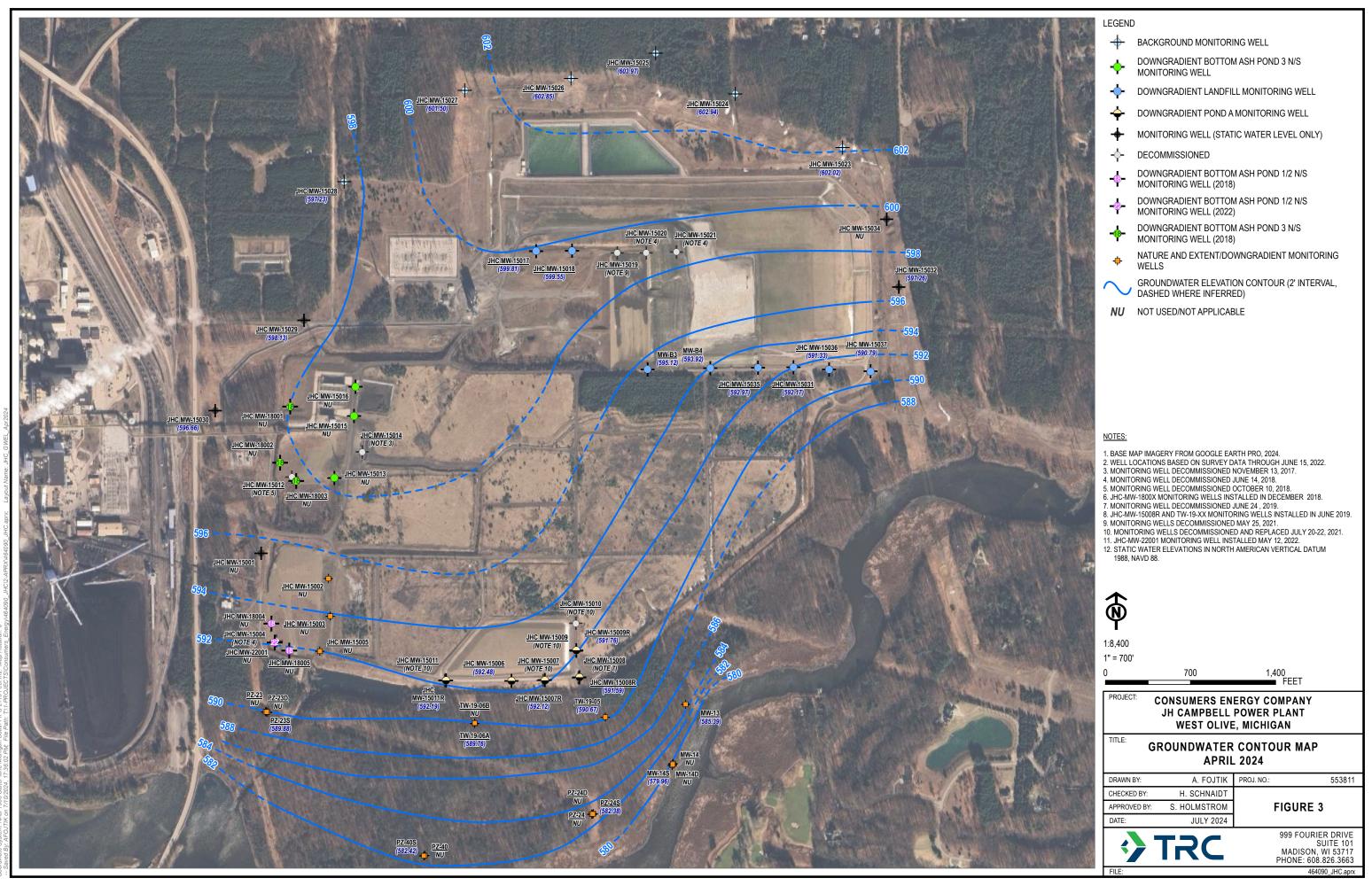
occurs when the LCL is greater than the GWPS.



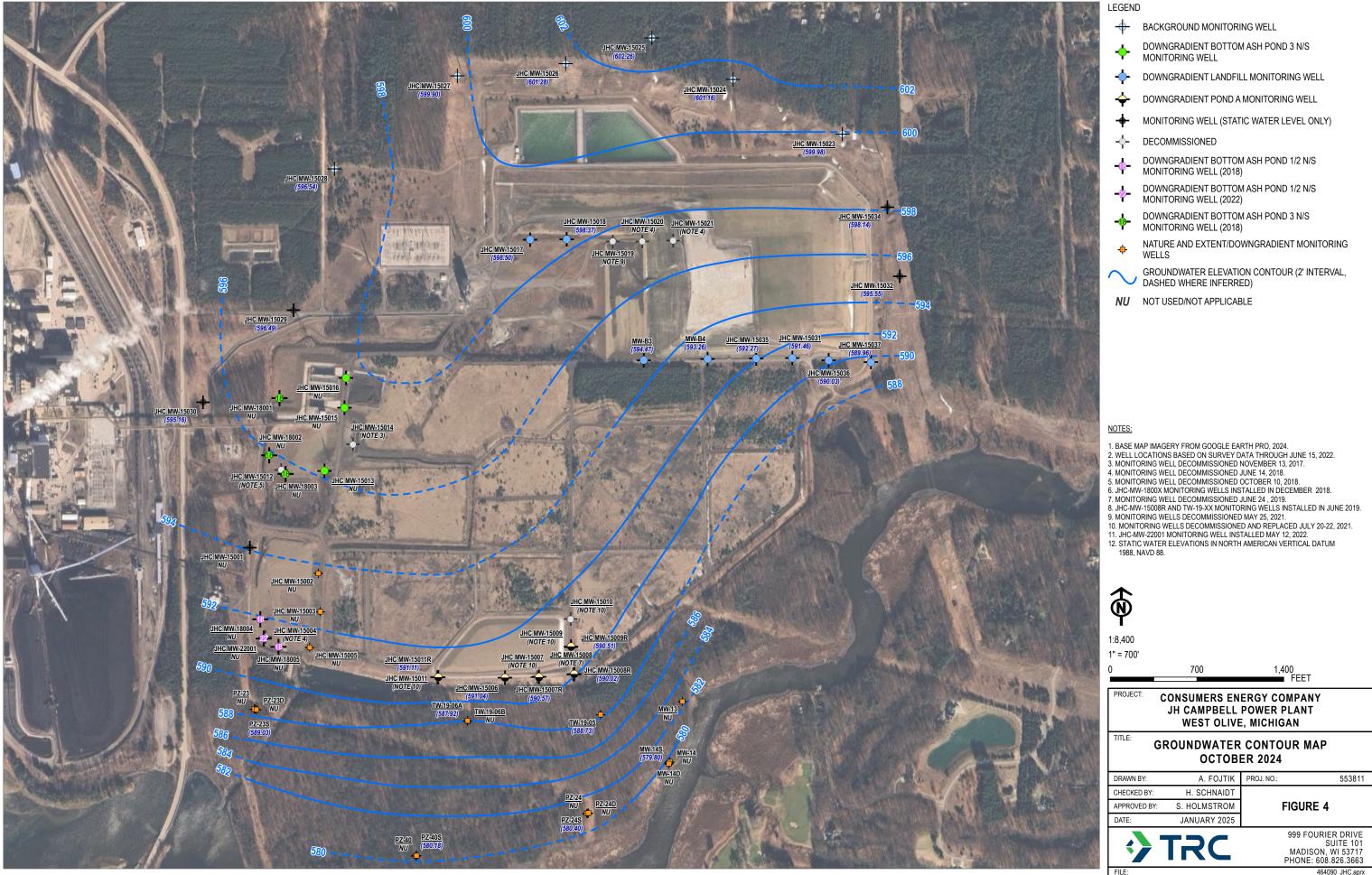
Figures







m: NAD 1083 StateDlane Mirhingo South EIDS 2112 East Intl. Man Detation:



MADISON, WI 53717 PHONE: 608.826.3663



Appendix A Laboratory and Field Data



Site: JH Campbell

Project No:

24-0285,24-0284,24-0283,24-0282,24-0281,24-0280,24-0279,

Analyst: LMO (LE

Reviewed by:

Review Date: 04-24-14

Date: 4-15.24

Method: Electronic Tape

Tape ID: Geotech S/N: 1009-22

Well ID	Time	DTW (ft)	DTB (ft)	Re-Check (if needed)	Remarks
JHC-MW-15017	1046	16.80	22.93		GOOD
JHC-MW-15018	1050	17.47	12.95		G000
MWB1	1043	35.25	35.25	rid u	DYY & 4.15.24 & 1043 DYY & 4.14.24 @ 1905 Check@ 4.17.24 @ 1900 = 37.68
MWB2	1040	37.68	37.77		Checko 4.17.24 @ 1900 237.69
MWB3	1033	39.65	40.20		40015
MWB4	1029	41.75	47.74	11	G100D
JHC-MW-15035 (MW-B5)	0755	41.31	45.28		GOOD
JHC-MW-15031	1617	43.70	46.18		G00)
JHC-MW-15036 (MW-B6)	1009	27.01	32.52		Broken well hinge
JHC-MW-15037 (MW-B7)	0958	25.27	30.90		G000
MW-8	0953	29.19	33.42		FICOD
MW-8C	0955	29.80	43.10		GOOD
JHC-MW-15032	0947	17.03	24.05		Good
JHC-MW-15034	0942	18.70	23.98	,	GOUD
JHC-MW-15023	0938	1-1.96	27.67		GOOD not locked doesn't
MW5	0935	11.29	16.55		G00D
MW4	0925	31.71	32.72	i i	6000
JHC-MW-15024	0915	13.68	19.92		GOOD
JHC-MW-15025	0910	13.20	19.90		GOOD
MW3	0902	12.50	16.43	, A	G000
JHC-MW-15026	0857	15.19	21.02		Goop
JHC-MW-15027	0847	15.80	23.00		GOOD
MW1	0842	12.92	14.07		400P
JHC-MW-15028	0837	14.57	20.82		6000
JHC-MW-15029	6827	12.82	20.91		G00D
14 C-MW-15035	: TOC reference	th 041324	I plate for RWs)		Form Rev.10-13-23



Site: JH Campbell

Project No: 24.0285

Analyst: CLE (LMO Reviewed by:

Date: 4.15.24 Review Date: 104-24-24

Method: Electronic Tape

Tape ID: Geotech S/N: 1009-22

Tape ID.	ellotech		3/11.	1009-12	
Well ID	Time	DTW (ft)	DTB (ft)	Re-Check (if needed)	Remarks
JHC-MW-15009R	1125	43.29	50.80		GOOD locked
JHC-MW-15008R	1123	43.68	47.44		GOOD locked
JHC-MW-15007R	1119	36.14	43.10		GOOD (oche.)
JHC-MW-15006	1115	35.10	38.00		Good Locked
JHC-MW-15011R	1103	37.40	45.20		GOOD LOCKED GOOD LOCKED GOOD LOCKED GOOD LOCKED
					,
					b



Site: JH Campbell

Project No: 24-0285,24.0284,24-0283,24-0282, 24-0281,24-0280,24-0279, 24:0278

Analyst: (16, CMO Reviewed by:

Date: 4.15.24 Review Date: 04-24-1-4

Method: Electronic Tape

Tape ID: Gestech S/N: 1009-22

Well ID	Time	DTW (ft)	DTB (ft)	Re-Check (if needed)	Remarks
JHC-MW-15030	1142	10.51	16.90		GOOD, LOCKEN
MW-22-16	1149	4.35			GOOD, locked
PZ-37 (Gated Plant Area)	1154	5.20	20.03		GOOD, locked GOOD, locked
PZ-23	1134	13.45	14.40		Good Tocked
PZ-23S	1137	15.09	17.50		GOOD, locked
(4)					
			(b)		
				e	
					5



Site: JH Campbell

Project No: 24-6278,-0279,-0280,-0281,-0282,-0283,-0284,-0285

Analyst: KDR Reviewed by: 54-24-24

Date: 4-15-24 Review Date:

Method: Electronic Tape

Tape ID: Solinst 101 P7 S/N: LS030623

Well ID	Time	DTW (ft)	DTB (ft)	Re-Check (if needed)	Remarks	
MW-9B	0757	21.86	29.59		hood	
MW-9C	0759	21.12	41.39		hood	
MW-9D	0801	20.95	54.75		Good Locked	
MW-10B	0807	14.12	23.54	2.	bood	
MW-13	0813	9.98	16.25	Dry	located Recheders on 4.16.24 at 2	ኒ ዕ:3ጊ
MW-14	0817	10.28	17.46		hood Locked	
MW-14S	6818	11.02	13.29		Good	
PZ-24	0826	5.24	13.81		Good Locked	
PZ-24S	0828	7.77	11.09		GOOD LOCKED	
PZ-40	0035	7.98	22.45		hood locked	
PZ-40S	6836	10.83	17.98		1002 1001/e2	
MW-12	0751	8.59	9.82		Good	
MW-11A	0855	10.98	16.65		4001	
MW-15	0857	14.06	16.39		GOOD Joules	
MW-16A	0859	12.64	20.90	v	Locked	
MW-17	0901	15.71	23.48		Good Locked	
RW-1	14 44	30.25	48.40		4000	
RW-2	1710	34.72	49.40		५००२	
RW-3	1732	17,25	23.30		4001	
RW-4	17 63	16.90	22.00		Good	
RW-5	1816	9.91	21.63		G002	
RW-6	1830	14.95	21.95		Good	
RW-7	1843	12.00	20.12		Good	
SG-22-1	6910	1.30			4001	
SG-22-2	0913	1.26	-		G00d	

NOTES: TOC reference point (top of steel plate for RWs)

Form Rev.10-13-23EB



Site: JH Campbell

Project No: 24-0278, -0279, -0280, -0281, -0282, -0283, -0284, -0285

Analyst: KDR Reviewed by:

Date: 4.15.24 Review Date: 194-24-24

Method: Electronic Tape

Tape ID: Solinst 101 P7 S/N: LS030623

Tape ID: Solivist 181 P7 S/N: LS030623					
Well ID	Time	DTW (ft)	DTB (ft)	Re-Check (if needed)	Remarks
MW-22-13	11:05	9.39	15.19		400d
MW-22-12	10:57	6.06	12.38		100b
MW-10AR	11:01	14.27	14.31		Good
TW-19-05	10:33	15.69	18.55		4009
TW-19-06A	10:28	12.78	15.31		4002
MW-22-11	10:51	6.59	14.83		400d 10cked
MW-22-10	10:45	7.17	28.55		Louis
MW-22-09	10:42	6.80	14.02		Locked
MW-22-08	10:22	7.48	16.85		1001 10016
MW-22-07	10:16	10.02	17.83		400 d
MW-22-06	10'.12	6.45	14.80		4001 1045e2
MW-22-05	10:05	8.87	16.59		100Kez
MW-22-04	09:59	6.51	14.83		Good locked
MW-22-03	09:51	3.73	14.85		Good
MW-22-02	09:33	9.06	12.81		hood
					,
					,
		190			
NOTES	TOO (F D 40 40 00



Site: JH Campbell

Project No: 24-0278,-0279,-0280,-0281,-0282,-0283,-0284,-6285

Analyst: KDK Reviewed by:

Date: 4.15.24 Review Date: 194-24-24

Method: Electronic Tape

Tape ID: Solinst 101 P7 SIN: LS036/023

Well ID	Time	DTW (ft)	DTB (ft)	Re-Check (if needed)	Remarks
PZ-21-01	1128	34.39	38.30		bood
PZ-21-02	1143	37.52	43.64		4000
PZ-21-03	1148	38.00	43.77		Good
PZ-21-04	1201	38.87	44.32		Good
PZ-21-05	1208	34.06	43.10		GOOD
PZ-21-06	1155	38.84	46.00		Good 10c/LED
PZ-1203	1217	Dry	37.90	9	Good
PZ-1204	1224	DCA	31.12		Good
PZ-1205	1230	35.07	35.95		4000
PZ-1206	1238	Dry	27.00		16CKC)
PZ-1208	1244	Dry	37.27		GOOD
PZ-1212	1210	Dry	24.70		Good
		•			
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Laboratory Services A CENTURY OF EXCELLENCE

Sonde ID	15H
Start Date	04-15=2024
Project #	Q2.7024 JHC GW
Site	
Reviewed	ati.
By & Date:	04-24-24

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 (95.2)	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	2 nd Daily Field Checks Completed	3 rd Daily Field Checks Completed	4 th Daily Filed Checks Completed	End Project Calibration Value
4.0	GFS # 1634	24003185	5.31.25	4.05	3.99	4.01	3.98		
7.0	GFS # 1639	24003597	7.24.25	7.04	7.00	1.00	1.01		
10.0	GFS # 1645	24003166	6.18.25	9.94	9.99	9.99	10.01		
			nitials & Date:	4.12.24 Cle	4.15.24 CU	4.14.24	4-17-24 CU		

Is the same standard used for calibration and as-founds?

(if no, document on pg. 2)

Are the calibration values within ±0.10 of the standard?

(V) 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	2 nd Daily Field Checks Completed	3rd Daily Field Checks Completed	4 th Daily Filed Checks Completed	End Project Calibration Value
+228 (mV)	GFS	24005992	7.4.24	+229.1			4117.3	Skro	
		ļ	nitials & Date:	9.17.24	4.15.24	4.14.24	4.17:24		

Is the same standard used for calibration and as-founds?

Are the calibration values within ±10% of the standard?

Y or Nif no, document on pg. 2)
Y or N (if no, recalibration is required)

DO	Source	Source Lot #	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2 nd Daily Field Checks Completed	3 rd Daily Field Checks Completed	4th Daily Filed Checks Completed	End Project Calibration Value
90-110% saturation	DI Water	N/A	N/A	95.2	96.3	95.0	95.1		
		1	nitials & Date:	04-12-24	4.15.24	4.14.24	dl 4-17.24		

Is the same standard used for calibration and as-founds?

Are the calibration values within 90-110%?

or (if no, document on pg. 2)
or N (if no, recalibration is required)

Sonde ID	15H	Project #: 24-0278 to 24-0283
Start Date	04.15-2024	
Reviewed		Site:
By &	af.	
Date:	V 04-24-24	02-2024 JHC GW

Specific Conductance (uS/cm)	Source	Source Lot#	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2 nd Daily Field Checks Completed	3 rd Daily Field Checks Completed	4th Daily Filed Checks Completed	End Project Calibration Value
GOA = 1403	GFS 4	-30982	7.3.24						
	24003734_	_	≥ A¶.	1413	1403	1404	1407		
		ln	itials & Date:	C4 041224	4.15.24	4.16.24	4.17-24		

• Is the same standard used for calibration and as-founds?

Are the calibration values within ±3% of the standard?

Y or Wif no, document on pg. 2)
On N (if no, recalibration is required)

Turbidity (NTUs)	Source	Source Lot#	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2 nd Daily Field Checks Completed	3 rd Daily Field Checks Completed	4 th Daily Filed Checks Completed	End Project Calibration Value
0	DI Water			-0.20	-0.07	-0.01	0.03		
40.0 (±4.0 NTUs)	Hach 2746356	A2122	05.2024	38.99	39.47	38.91	36:11		
800.0 (±80.0 NTUs)	Hach 2660553	A 2188	07-2024	60.5	769.11	789.34	180.13	•	
			itials & Date:	041224		4.14.24	4.17.24		

Is the same standard used for calibration and as-founds?

Are the calibration values within ±10% of the standard?

or (if no, document on pg. 2)
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	6FS	22370024	9.9.24	pH 9.0	_		
pH 7.0	GFS	24002182	4.22.25	ORP	GFS 17781	24005728	6.24.24
pH 10.0	GES71	22350848	8.8.24	2			2.
Sp. Conductivity	30982	24003734	7.3.24				
40.0 Turbidity 800	Hach	A 2089	05-2024				
40.0 Turbidity	Haen	A2315	11-2024				



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Sonde ID	21G	
Start Date	4.12.24	24-6218, 24-0279
น	4-0280,24-1	0281 ,124-0282,24,0283
Project #	JHC	24-628, 24-0279 5281 ,24-0282,24,0283 24-0285,24-0284
Site	JHC	
Reviewed	94.	
By & Date	7	04-24-24

	Equipment Details	Model & S/N
	Monitor Brand	YSI ProDSS S/N 21G102278
]	Sonde Brand	YSI ProDSS S/N 21G105848
	Flow Cell	EXO1 599080
	DO Probe 45.4	YSI ProDSS S/N 21G101534
	Turbidity Probe	YSI ProDSS S/N 21G101646
	pH With ORP	YSI ProDSS S/N 21H101604
	Conductivity & Temperature Probe	YSI ProDSS S/N 21G101888

_										
	pH Standard (± 0.1)	Source	Source Lot#	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2 nd Daily Field Checks Completed	3 rd Daily Field Checks Completed	4th Daily Filed Checks Completed	End Project Calibration Value
	4.0	GFS # 1634	24003185	5.21.25	4.09	4.09	4.65	4.04		
	7.0	GFS # 1639	24003597	7.24.25	7.06	7.67	7.04	7.05		
	10.0	GFS # 1645	24003150	5.28 .25	10.0		9.98			
		•		Initials & Date:	UNO 4.12.24	4.15.24	4.14.2	417.24		

- Is the same standard used for calibration and as-founds?
- or N (if no, document on pg. 2)
- Are the calibration values within ±0.10 of the standard?
- or N (if no, recalibration is required)

			Initials & Date:	4.12.24	4.15.24	4.16.24	4.17.24		
+228 (mV)	GFS# 3525	24005992	7.4.24	229.4	229.2	2780	128.0		
ORP Standard (± 10mV)	Source	Source Lot#	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2 nd Daily Field Checks Completed	3 rd Daily Field Checks Completed	4th Daily Filed Checks Completed	End Project Calibration Value

- Is the same standard used for calibration and as-founds?
- or N (if no, document on pg. 2)
- Are the calibration values within ±10% of the standard?
- or N (if no, recalibration is required).

DO	Source	Source Lot#	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2 nd Daily Field Checks Completed	3 rd Daily Field Checks Completed	4th Daily Filed Checks Completed	End Project Calibration Value
90-110% saturation	DI Water	N/A	N/A	94.4	100.3	9.9	95.4		
Initials & Date: 4.12.74 4.15.14 4(4.14 4.17)									

- Is the same standard used for calibration and as-founds?
- or N (if no, document on pg. 2)
- Are the calibration values within 90-110%?

or N (if no, recalibration is required)

Sonde ID	21G	Project #: 24-0278 , 24-0279
		24-0282, 24-0281, -24-0280
Start Date	4.12.24	24-0285, 24-0284, 24-0283
Reviewed		Site:
By & Date:	04-24.24	JHC

	36						4220	202	
Specific Conductance (uS/cm)	Source	Source Lot#	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2 nd Daily Field Checks Completed	3 rd Daily Field Checks Completed	4th Daily Field Checks Completed	End Project Calibration Value
(1403	UFS # 2174	24003734	. 0	1393	1394	1379	1410	·	
			Initials & Date:	4.12.24	4.15.24	4.16.24	4.17.2	4	

Is the same standard used for calibration and as-founds?

Are the calibration values within range of the standard?

or N (if no, document on pg. 2)

N (if no, recalibration is required)

3rd Daily Field Checks Completed 4th Daily Field Checks Completed End Project Calibration Value 2nd Daily Field Checks Completed 1st Daily Field Checks Completed Pre -Project Calibration Value Source Exp. **Turbidity** Source Source (NTUs) Lot# Date 0.06 0.13 009 0 **DI Water** 0.19 Hach 05/2024 40.0 A2122 2746356 38.64 40.88 41.00 (± 4.0 NTUs) Hach 7/2024 0.008 AZ 188 2660553 (± 80.0 NTUs)

Is the same standard used for calibration and as-founds?

• Are the calibration values within ±10% of the standard?

or N (if no, recalibration is required)

Additional Information for calibration standards

Initials & Date:

Standard	Source	Source Lot #	Source Exp. Date	Standard	Source	Source Lot #	Source Exp. Date
pH 4.0				pH 9.0 Check		×	
pH 7.0	1			ORP			
pH 10.0							
Sp. Conductivity					A		
40.0 Turbidity							,
10.0 Turbidity							



Laboratory Services

Sonde ID	22J
	11.7 13
Start Date	4.15.24
	24-0278,-0279,-0280,-0281,-6282,-6283
Project #	-0284,-0285
1 Toject #	0801 (-080)
	TIL
Site	() H(
	0 110
Reviewed	aL.
By & Date	04-24-24

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.	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	2 nd Daily Field Checks Completed	3 rd Daily Field Checks Completed	4 th Daily Filed Checks Completed	End Project Calibration Value
4.0	GFS # 1634	24003185	2.31.52	4.00	4.03	4.64			4.06
7.0	GFS # 1639	24008587	1.21.26	7.00	7.02	7.01			7.08
10.0	GFS # 1645	22350048	8.18.24		10.04	10.03			10.05
			Initials & Date:	4.14.22	KPR 14.15.24	4016-24			4.17.24

Is the same standard used for calibration and as-founds?

or N (if no, document on pg. 2)

One of N (if no, recalibration is required)

• Are the calibration values within ±0.10 of the standard?

ORP Standard (± 10mV)	Source	Source Lot #	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2 nd Daily Field Checks Completed	3 rd Daily Field Checks Completed	4 th Daily Filed Checks Completed	End Project Calibration Value
<u>+λλβ,0</u> (mV)	GFS # 5525	24005728	6.4.24	228.0	227.4	226.8			224.3
			Initials & Date:	KDR 4-14-24	4.15.24	40R			120R 4.17.24

• Is the same standard used for calibration and as-founds?

or N (if no, document on pg. 2)

Are the calibration values within ±10% of the standard?

or N (if no, recalibration is required).

DO	Source	Source Lot#	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2 nd Daily Field Checks Completed	3 rd Daily Field Checks Completed	4th Daily Filed Checks Completed	End Project Calibration Value
90-110% saturation	DI Water	N/A	N/A	96.1	96.9	97,5			97.1
Initials & Date:								11.17.24	

Is the same standard used for calibration and as-founds?

Are the calibration values within 90-110%?

or N (if no, document on pg. 2)
or N (if no, recalibration is required)

Sonde ID	22J	Project #: 24-6278,-0279,-0280 -0281, -0282,-0283,-0284,0285
Start Date	4.15.24	-0281, -0282, -0283, -0284, 0285
Reviewed By & Date:	A. 04-24-24	Site: 3 HC

Specific Conductance (uS/cm)	Source	Source Lot#	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2 nd Daily Field Checks Completed	3 rd Daily Field Checks Completed	4th Daily Field Checks Completed	End Project Calibration Value
1403 (1399-1427)	4F5# 2174	24003734	7.3.24	1403	1404	00			1410
			Initials & Date:	1777 1777	KDR 4.15.24	1.16.24			1(DR 4-17-24

• Is the same standard used for calibration and as-founds?

Are the calibration values within range of the standard?

or N (if no, document on pg. 2)
or N (if no, recalibration is required)

Turbidity (NTUs)	Source	Source Lot#	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2 nd Daily Field Checks Completed	3 rd Daily Field Checks Completed	4th Daily Field Checks Completed	End Project Calibration Value
0	DI Water			0.00	0.05	0.06			0.09
40.0 (± 4.0 NTUs)	Hach 2746356	A2315	11.24	40.00	40.61	40.29			38.33
800.0 (± 80.0 NTUs)	Hach 2660553	A3063	5.25	860.00	782.19	777.15			769.87
			nitials & Date:	414.24	_K የ የ ነ	4.16.24			KOR 4-17-24

• 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?

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							



Well ID <u>JHC-MW-15023</u> Date <u>4.15.24</u> Control Number <u>24-0278-01</u>												
C Back	ground	٧	Vell Material:	PVC	SS	Iron	Galv. Steel					
Purge Method: Peristaltic Submersible Bladder Fultz Bailer												
Depth to Water Tape: Geolech S/N: 1009-22												
QC SAMPLE: MS/MSD DUP Sonde ID:15M19H20M 2_21G22J												
er T/PVC (ft) ₋	17.96	Depth-To-Bo	ottom T/PVC	(ft) <u>27.6</u> 7	_	Completed by	LMO					
рН	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity				
units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU				
+/- 0.1	NA					*	< 0.33	+/- 10%				
Starle	d provid					190	17.97					
2007			260	2.91	+207.3		•	3.25				
	11.1						17.97	3.69				
5.35	110.	87.5					17.97	5.14				
6.63	11.1	89.9	31.5	3.42	+ 218.4		17.97	5.05				
5.60	11.1	103.7	29.0	3.20.	f 21ae.10		17.97	496				
	10.9	115.3	27.3	3.01 -	+ 245.4	180	17.97	3,99				
5.73	10.7	121.9	26.3	2.90 -	f 262.0	180	17.97	3,45				
5.80	10.9	132.8	25.9	2.86	+ 259.9	180	17.97	3.10				
5.85	10.8	138.6	24.9	2.89	+ 258.9	180	17.97	3.14				
5.88	10,7	139.6	24.3	2.70	+156.9	180	17.97	2.71				
5.88	10.7	139.5	245	2.73	+ 254.2	180	17.97	2.61				
5.89	10.5	142.7	24.6	2.67	+ 255.4	180	17.97	2.78				
5.89	10.3	143.1	22.9	4		180	17.97	2.47				
5.90	10.3	143.4	22.7	2.48 -	+ 253.9	180	17.97	2.24				
ime (min):	70	Total Purge V	olume (gal) :	14.0		Review Date:	01212	04-24.24				
	00F, 51	nny, L	aniu			Review By:	17	<u></u>				
SVI SUMBER	2016	collec	ted S	ample			0	SERVICINA AND COLD				
s Filled	Preservat	ive Codes:	A-NONE B-I	HNO3 C - H2SC	04 D - NaOH E	- HCl F						
Sizo	Typo	Preservative Code	Filtered V/N	Quantity	Sizo	Type	Preservative	Filtered Y/N				
				2			in the second se	N N				
125mL		A				,		, 1				
250mL	1100	A										
			75.V V									
	C Back d: V er Tape: G PH Units +/-0.1 Starte U.79 5.35 5.63 5.63 5.80 5.85 5.88 5.88 5.88 5.88 5.89	C Background d: V Peristaltic del V Peristaltic	C Background d: V Peristaltic Subservative Codes: Per Tape: G C O + C h S/N: Ms/MsD DUP_ Depth-To-Bo ph Temp Sp Cond units C us/cm +/- 0.1 NA +/- 3% Stablization Stablization	C Background d:	C Background Well Material: YPVC Peristaltic Submersible Blackground Blackground Blackground Stablization Blackground Bl	C Background Well Material: YPVC SS d: V Peristaltic Submersible Bladder er Tape: GCOLECH S/N: (DO9-722 MS/MSD DUP Sonde ID: _15M ph Temp Sp Cond DO DO ORP units 'C us/cm %sat. ppm mV 1/-0.1 NA 1/-3% 1/-10% 1/-0.3ppm 1/-10mV Stabilization parameters for the last three readings GLATL A PUMP [C.79 11	C Background Well Material:	C Backgroun Well Material:				



Well ID JHC-NW-15024 Date 4.15.24 Control Number 24-0278-02 Location JHC Background Well Material: ✓ PVC SS Iron Galv. Steel										
Purge Method		Peristaltic	Sul	bmersible	Bla	dder	Fultz	Bail	er	
						uuci	Tuitz	ball	CI	
Depth to Wat	er Tape:	leatech	S/N	: 1009-2						
QC SAMPLE:	N	IS/MSD	DUP_		Sonde ID:	15M	19H	20M <u>/</u> 21G	22J	
Depth-to-wat	er T/PVC (ft)	13.46	Depth-To-B	ottom T/PVC	(ft) 19.92	_	Completed by	MO		
Time	рН	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% Stablization	+/- 10% on parameters f	+/- 0.3ppm	+/- 10mV	*	< 0.33	+/- 10%	
1816	. ما اه	0.100	Stabilzatio	n parameters j	or the last tille	e reddings	180	13.68		
1814	Started	11. I	279.9	33.0	3.58	+195.1	180	13.67	4.84	
1819	7.54	9.5	294.7	18.3	2.10	+183.4	180	13.47	5.20	
1824	7.53	9.5	296.2	21.9	2.50	+180.0	180	13.67	3.77	
1829	7.53	9.4	286.3	22.9	2.43	+ 177.8	180	13.67	2.70	
1834	7.53	9.3	285.6	23.6	2.73	+ 175.5	180	13.67	2.10	
1839	7.51	9.4	286.4	23.3	2.67	+174.5	180	13.47	2.05	
1840				L J. J	2 1	. 1 . 1 . 0	.00	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
1851	sample End	collect	<i>a</i> l							
1031	eng	3								
						*				
Total Pump T	ime (min):	30	Total Purge V	olume (gal) :	11.25		Review Date:	04/24	24	
Weather:	70' Sun	ny . Wind	lu				Review By:	X		
		,	. 1					0		
Comments:	SACRET NO SERVICE				A STATE OF A STATE OF THE STATE					
Bottle	Bottles Filled Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F									
		_	Preservative					Preservative	-11.	
Quantity	Size 125 m L	Plashc	Code	Filtered Y/N	Quantity 2	Size	Plash (Code B	Filtered Y/N	
1	125 mL	143-16	B	T		1	1 145/16	J		
1	250 m L		n							
2	COML	VOA	Pr							
* Pump rate show		• • • •	nd <1 gal/min for i	high Volume.						



Well ID 14C. MW-15025 Date 4-15-25 Control Number 24-0278-03 10-1159												
Location _	HC Backa	frand	V	Vell Material:	PVC	SS	Iron	Galv. Steel				
Purge Method	d:	Peristaltic	Sul	omersible	Blac	dder	Fultz	Bail	er			
Depth to Wat	er Tape:	Geotec	h S/N	13-11								
QC SAMPLE:	IV.	IS/MSD	DUP_		Sonde ID:	<u>✓</u> 15M	19Н	20M21G	22J			
Depth-to-wat	er T/PVC (ft)	13.19_	Depth-To-Bo	ottom T/PVC	(ft) <u>19.90</u>	_	Completed by	cle				
Time	рН	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% on parameters f	+/- 0.3ppm	+/- 10mV	*	< 0.33	+/- 10%			
				ni parameters j	or the last three	e redaings		12 - 0				
1755	Starte	-d punt	2				180	13.23				
1800	7.84	9.6	Sol	22.7	2.60	+256.8	180	13.23	1.64			
1805	7.88	9.5	438	34.7	3.96	+244,3	180	13.23	1.67			
1810	7-90	9.3	425	37.0	4.24	+ 241.4	180	13.23	1.48			
1815	7-90	9.3	424	37.1		+ 239.8	180	13.23	1.63			
1820	7.91	9.3	422	37.3	4.27	+237.9	180	13.23	1.62			
18200"	71. PMIS 24											
_		-00	11,000									
1833	end											
									E			
						3						
Total Pump T	ima (min):	25	Total Purge V	olumo (gal) :			Review Date:	.01/ 01/	- T.,			
Weather:				olume (gai) .	11,25				-24			
weather.		0°F, 51	anny				Review By:					
		Calla	101 =		121112			V	-			
Comments:		COLLEC	ted Fi	I ECT W	2(100.20)		- CASE 1802					
Bottle	s Filled	Preservat	ive Codes:	A-NONE B-	HNO3 C - H2S	04 D - NaOH I	- HCl F					
Quantity	Size	Tuno	Preservative Code	Filtered Y/N	Quantity	Size	Tunc	Preservative Code	Filtered Y/N			
Quantity 3	125mL	Type HDPE	B	Filtered 1710	Quantity 2	I-L	Type L'NOZ	B	N Piltered Y/N			
3	125ml	1	A A	1		l	HDPE	υ	' \			
Ĭ	250ML	-	A									
2	Leom	VOA	À	1								
* Pump rate show			nd <1 gal/min for l	high Volume.								



	ion JHC Background Well Material: PVC SS Iron Galv. Steel								
Purge Metho		Peristaltic	Sul	omersible	Blac	dder	Fultz	Baile	er
Depth to Wat	er Tape: G	eotech	S/N	: 7371					
QC SAMPLE:		/IS/MSD [✓ DUP <u>·</u>	01_	Sonde ID:	<u>~</u> 15M	19Н	_20M21G	22J
Depth-to-wat	er T/PVC (ft)	15.18	Depth-To-B	ottom T/PVC (ft) 21.02	_	Completed by	/	
Time	рН	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%
				on parameters f	or the last three	e reaaings			
1553	Star	ted pu	1.50			0	200	15.20	5
1400	4.00	167	35.5	60.2	6.69	+170.8	200	15,20	5.49
1405	5.90	10.7	34.7	59.5	6.41	+217.8	200	15,20	4.08
1410	5.87	10,5	34.8	59.8	6.48	+258.5	200	15,20	3.72
1615	5.85	10.5	34,4	62.0	4.92	+ 285.2	200	15.20	3.20
1620	5.84	10.5	34.2	62.8	7.01	+ 301.9	206	15,20	3.62
1425	5.87	10.4	34.8	59.7	6.68	+321.9	200	15,20	2.87
1630	5.86	10.4	34.3	60.5		+325.6	200	15,20	2.79
1635	5.81	10.4	33.3	63.9		+ 334.3	200	15.20	2.73
1440	5,81	10,4	33.4	.63.5	7.10	+342.7	200	15,26	7.74
1645	5,83	10,5	34.1	63.2	7,05	+348,2	200	15,20	2.76
1450	5,84	10.4	34,4	6118		+ 350,0		15,20	2.73
1651		ted Sa			0 11				
1715	V2 2 10		MPQ						
	en	3							
Total Pump T	ime (min):	58	Total Purge V	olume (gal) :	22D		Review Date:	04-24.	24
Weather:				oranic (gar) .	· 5,0		Review By:	gu.	A9
Weather.	10	of Sunny					Neview by.		
Comments:		COLL	ected	FIELD	TNI P			V	
	NEW STREET	THE RESTRICT		are a series				STATE OF THE PARTY	
Bottle	s Filled	Preservat	ive Codes: Preservative	A - NONE B - I	HNO3 C - H2S0	O4 D - NaOH E	- HCl F	Preservative	
Quantity	Size	Туре	Code	Filtered Y/N	Quantity	Size	Туре	Code	Filtered Y/N
2	125mL	HDPE	В	N	Ч	1-L	HDPE	В	7
2	125mL		A						
2	250mL	1	A						
.4	Leame	plastic		→					
* Pump rate sho	uld be <500 mL/m	nin for low-flow an	d <1 gal/min for	high Volume.					



	MW-15	Desire.	Date 4 15	13		Control Numb	oer 24-02	18-05	
Location 11	c Backgr	ound	٧	Well Material:	PVC	SS	Iron	Galv. Steel	
Purge Metho	d: 🗸	Peristaltic	Su	bmersible	Bla	dder	Fultz	Bail	er
Depth to Wat	er Tape: G	cotech	S/N	: 1009-2	-2				
QC SAMPLE:	N	IS/MSD	DUP_		Sonde ID:	15M	19Н	_20M <u>~</u> 21G	22J
Depth-to-wat	er T/PVC (ft)	15.80	Depth-To-B	ottom T/PVC	(ft) 23.00	_	Completed by	<u>umo</u>	
Time	рН	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%
		•		on parameters f	or the last thre	e reaaings	Δ =	41	
1601	Started	1 Pumpi	ng				80	15.81	
1608	Turne	d spea	ed up	to 100			100	15.82	
1613	6.64	12.3	70.7	94.3	10.17	+ 213.4	100	15.82	25.04
1418	· 6.13	11.5	79.0	93.7	10.24	+ 228.8	160	15.80	16.70
1623	6.17	11.4	82.2	93.3	10.17	+ 232.9	100	15.80	17.00
1628	6.21	11.2	86.3	92.1	10.10	+ 232.7	100	15.80	14.92
1633	6.22	11.1	87.6	92.3	10.15	+ 234.1	100	15.80	12.18
1038	6.23	11.4	88.7	92.4	10.09	+ 235.2	100	15.80	12.82
1643	6.27	11.2	93.1	91.0	10.02	+ 236.9	100	15.80	10.79
1648	6.29	11.1	93.1	91.0	9.99	+ 234.2	100	15.80	11.27
1649	Turned	speed		80				15.84	
1456	6.37	10.4	97.0	87.9	9.83	+235.8	180	15.85	10.86
1707	6.42	16.4	98.7	86.9	9.74	+235.8	180	15.85	10.77
1704	6.42	10.3	103.4	B7.0	9.74	+233.9	180	15.85	11.52
1711	4.4Le	10.4	103.1	85.9	9.44	+ 233.1	180	15.85	11.44
Total Pump T	ime (min):	-	Total Purge V	olume (gal) :	_		Review Date:	04-24-	4
Weather:	70 ° 50	nny, wu	ndy				Review By:	V	
								8	
Comments:									
Bottle	s Filled	Preservat	ive Codes:	A-NONE B-I	HNO3 C - H2S	O4 D - NaOH E	- HCl F		
Quantity	Size	Туре	Preservative Code	Filtered Y/N	Quantity	Size	Туре	Preservative Code	Filtered Y/N
1	125 mL	Plasne	A	N	2	1-6	Plashe	В	N
1	125mL		В	T		•			
ı	250 mL		A						
2	(40)	VAIR		1					

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



	Vell ID JHC-MW-15027 Date 4.15-23 Control Number 24-0278-05										
Location	JHC Back	ground	V	Vell Material:	✓ PVC	SS	Iron	Galv. Steel			
Purge Method	d: 🗸	Peristaltic	Sul	omersible		dder	Fultz	Bail	er		
Depth to Wat	er Tape: 🛭 🥝	160 sech	S/N	1009-22	2						
QC SAMPLE:	IV	IS/MSD	DUP_		Sonde ID:	15M	19Н	20M <u></u> 21G	22J		
Depth-to-wat	er T/PVC (ft)	15.00	Depth-To-Bo	ottom T/PVC (ft) 23.00	_	Completed by	LNO			
Time	рН	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% Stablizatio	+/- 10% on parameters f	+/- 0.3ppm or the last three	+/- 10mV e readings	*	< 0.33	+/- 10%		
1714	6.48	10.3	105.1	86.8	9.73	+233.2	180	15.85	10.48		
1721	4.51	10.3	108.0	84.9	9.51	1235.3	180	15.85	9.88		
1726	4.50	10.5	167.3	85.8	9.57	1235.3	180	15.85	9.39		
1731	6.50	10.6	107.3	86.4	9.61	+235.3	180	15.85	9.29		
1732	collecte	d Samp	n								
1745	5nd										
				,							
Total Pump T	ime (min): (7 1	Total Purge V	olume (gal) :	~4		Review Date:	94.24.	24		
Weather:	(,	11		(8)			Review By:		~1		
								X			
Comments:								2 ×			
Bottle	s Filled	Preservat	ive Codes:	A-NONE B-I	- H2SC	D4 D-NaOH E	- HCL F-				
Bottle	o / mea	rieservat	Preservative	140142 0-1		. D Naon E	. 1101	Preservative			
Quantity	Size	Туре	Code	Filtered Y/N	Quantity	Size	Туре	Code	Filtered Y/N		
* Pump rate sho	uld be <500 mL/m	in for low-flow ar	nd <1 gal/min for l	nigh Volume.							



Well ID <u>111C MW-15208</u> Date <u>4.15.24</u>

Consumers Energy Company Monitoring Well Sampling Worksheet

Control Number 24 - 0218 - 04

Location 1116 Background Well Material: PVC SS Iron Galv. Steel											
Purge Method	d: 🗸	Peristaltic	Sul	omersible	Bla	dder	Fultz	Bail	er		
Depth to Wat	er Tape: 💪	eotech	S/N	1009-2	.2						
QC SAMPLE:	N	/IS/MSD	DUP_		Sonde ID:	15M	19H	_20M <u></u>	22J		
Depth-to-wat	er T/PVC (ft)	16.76	Depth-To-B	ottom T/PVC	(ft) <u>20.82</u>		Completed b	vcle/lma)		
Time	рН	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity		
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft			
3-5 min	+/- 0.1	NA	+/- 3% Stablizatio	+/- 10% on parameters f	+/- 0.3ppm or the last thre	+/- 10mV e readings	Φ	< 0.33	+/- 10%		
1432	Started	Pump					226	16.91			
1435	-	dpump :	sound to	180			180	17.38			
1439	117	pump		700			120	17.79			
1432		l pump					80	14.85			
1453	8.41	12.8	102.5	77.7	8.24	+135.1	80	14.85	3.70		
1458	8.48	12.4	101.9	77.0	8.24	+140. S	80	16.93	3.87		
1503	8.44	12.4	100.5	18.0	8.31	+147.1	80	16.70	3.67		
1508	8.45	124	100.8	77.5	8.23	1147.0	80	14.70	3.44		
1513	8.49	12.7	101.7	77.6	8.25	+ 148.4	80	16.70	3.49		
700	-				0.03	7190.9	00	(0.70	5.71		
1514		ed sam	PIZ								
1540	Gnd										
Total Pump T		12		olume (gal) :	~1		Review Date:		-24		
Weather:	76.4 50	sund m	ndy				Review By:		-		
								0			
Comments:			V3000000						N. W. C. C. C.		
Bottle	s Filled	Preservat	ive Codes:	A-NONE B-	HNO3 C - H2S	O4 D - NaOH I	- HCl F -				
Quantity	Size	Туре	Preservative Code	Filtered Y/N	Quantity	Size	Туре	Preservative Code	Filtered Y/N		
l	125 mL	Plashs	A	N	2	1-1	Plashe	B	N		
i	125ml		В	7					-		
	250 mL	7	P								
* Pump rate show	(00 m L	VOR nin for low-flow an	A gal/min for	high Volume							
r ump rute shot	and DE SOUTHL/II	mi joi iow-jiow ui	ia 1 gui/iiiii jui	ngn volume.							



Well ID F ?	2-01		Date <u>4.15.24</u> Control Number <u>24 - 6278 - 0</u> 9						
Location <u></u>	Ite Backay	round	V	Vell Material:	PVC	SS	Iron	Galv. Steel	
Purge Metho	d:	Peristaltic	Sul	omersible	Blac	lder	Fultz	Bail	er
Depth to Wat	er Tape:		S/N	:	March 1997				
QC SAMPLE:	N	IS/MSD	DUP_		Sonde ID:	15M	19Н	20M21G	22J
Depth-to-wat	er T/PVC (ft)		Depth-To-Bo	ottom T/PVC ((ft)	_	Completed by	LMO	
Time	рН	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%
				on parameters f	or the last three	readings			
2010	collecte	d Sam	pla						
-									
*						36.			
	,								
Total Pump T	ime (min):		Total Purge V	olume (gal) :		•	Review Date:	٥५-24.	24
Weather:							Review By:	V-	
Comments:									
Rottle	s Filled	Procoruat	ive Codes:	A-NONE B	HNO3 C-H2SC	A D. NaOU	- HCL E-		SELVENCT SUB
Bottle	3 i meu	rieseivat	Preservative	A-NOINE B-	11403 C- 1123C	D-INDUT I	nci F -	Preservative	
Quantity	Size	Туре	Code	Filtered Y/N	Quantity	Size	Туре	Code	Filtered Y/N
1	125mL	Plashe	A	P.					
<u> </u>	125mL		B						
	250 mL		A						
2	1-6	7	B	-					
* Pump rate sho	uld be <500 mL/m	in for low-flow ar	nd <1 gal/min for l	nigh Volume.					



Well ID To	3-01		Date <u>4.15.29</u> Control Number <u>24-0278-09</u>						
	rc Backgr	ound	V	Vell Material:	PVC	SS	Iron	Galv. Steel	
Purge Method	d:	Peristaltic	Sul	omersible	Blac	dder	Fultz	Baile	er
Depth to Wat	er Tape:		S/N						
QC SAMPLE:	N	IS/MSD	DUP_		Sonde ID:	15M	19Н	20M21G	22J
Depth-to-wat	er T/PVC (ft)		Depth-To-Bo	ottom T/PVC (ft)	_	Completed by	LMO	
Time	рН	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%
				n parameters f	or the last three	e readings			
2025	collect	red Sav	nple						
						1			
Total Pump T	ime (min):	-	Total Purge V	olume (gal) :	_		Review Date:	94-24-2	.વ
Weather:							Review By:	M.	
	a a							7	
Comments:								/	
Bottle	s Filled	Preservat	ive Codes:	A-NONE B-I	HNO3 C-H2SC	04 D - NaOH E	- HCl F-		
9000			Preservative					Preservative	
Quantity	Size	Туре	Code	Filtered Y/N	Quantity	Size	Туре	Code	Filtered Y/N
1	125ml	Plastic	A	7					
	125 mb		13						
	250 ml		P						
2	1-6	in familiar (interview of					
້ Pump rate shou	uld be <500 mL/m	ın Jor Iow-flow ar	ia <1 gai/min for l	iign volume.					



Well ID 11to	1-mw-15	017	Date <u>4.1 4.24</u> Control Number <u>24-0283-03</u> E8 Sun24							
Location 	tc lands	ul	V	Vell Material:	✓ PVC	SS	Iron	Galv. Steel	54	
Purge Method	d: 🗸	Peristaltic	Sul	omersible	Blac	dder	Fultz	Bail	er	
Depth to Wat	er Tape: 6(0	Hech	S/N	1009.2	2					
QC SAMPLE:	N	IS/MSD	DUP_		Sonde ID:	15M	19Н	20M ⁄ 21G	22J	
Depth-to-wat	er T/PVC (ft)	6.80	Depth-To-Bo	ottom T/PVC (ft) 22.93		Completed by	Umo_		
Time	рН	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%	
	-1	4	Stablizatio	on parameters f	or the last three	e readings	2.00	14- 00		
1107	started						300	16.80		
1112	6.65	12.0	437.8	27.2	2.91	+ 220.1	300	16.80	4.18	
1117	6.68	11.9	428.1	25.4	2.75	+219.9	200	16.80	2.89	
1122	6.70	12.0	421.1	21.1	2.27	+ 217.6	300	16.80	2.05	
1127	6.71	12.0	421.0 20.4 2.22 +217.0 300 14.80 2							
1132	6.72	12.0	423.0	19.6	2.11	1216.1	200	16.80	1.89	
1137	4.73	12.0	416.3	17.7	1.90	+214.0	200	16.80	1.86	
1142	4.71	12.0	418.9	17.7	1.89	+213.3	300	16.80	1.80	
1147	6.72	12.2	418.3	17.4	1.84	+212.9	300	16.86	1-82	
1148		Hd Sa				, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	7			
1204		Ha 54	Meid							
1 201	Gnd									
								2		
Total Pump T		1	Total Purge V	olume (gal) : ،	~3.5		Review Date:	٥५,24,	24	
Weather:	70.6	sunny,	windy				Review By:	A.		
								1		
Comments:		12 HONES (18 A)						V	13405/03/	
Bottle	s Filled	Preservat	ive Codes:	A-NONE B-I	HNO3 C - H2SC	D4 D-NaOH E	- HCl F			
	0.8		Preservative			and a		Preservative		
Quantity 1	Size	Type	Code	Filtered Y/N	Quantity	Size	Type	Code	Filtered Y/N	
1	125mL	Plashe	B	7	2	1-L 125mL	Plashe	В	4	
i	250 mL		A			ISML	-	9		
2	uoml	VOA	A	Ļ						
* Pump rate shou	uld be <500 mL/m	in for low-flow ar	nd <1 gal/min for	high Volume.						



Well ID 14C-MW-15018 Date 4.16.24

						Control Numb			
Location 11+0	c- Land F	111	V	Vell Material:	✓ PVC	SS	Iron	Galv. Steel	
Purge Method	d: 🗸	Peristaltic	Submersible Bladder Fultz Bailer						er
Depth to Wat	er Tape: Ge	otech	S/N	1009-27	L				
QC SAMPLE:	N	ns/msd [DUP_		Sonde ID:	15M	19H	20M <u>✓</u> 21G	22J
Depth-to-wat	er T/PVC (ft) _	17.45	Depth-To-Bo	ottom T/PVC	(ft) <u>22.95</u>		Completed by	Lmo	
Time	рН	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%
				n parameters f	or the last three	e readings		1	
1257		d pump			_			17.45	
1302	6.46	13.9	338.0	34.9	3.57	+213.4	200	17.45	2.54
1307	6.35	13.7	328.2	30.6	3.17	+220.3	200	17.45	3.36
1312	6.36	13.7	335.0	27.6	2.84	+222.0	200	17.45	3.48
1317	6.40	13.8	343.2	24.2	2.50	+2220	200	17.45	2.73
1322	6.45	13.8	353.8	21.1	2.18	+220.5	200	17.45	2.31
1327	Ce.49	14.0	218.4	18.5	1.90	+ 218.2	200	17.45	2.09
1382	4.53	13.9	216.5	17.4	1.79	1216.4	200	17.45	2.09
1337	(e.5 G	13.9	214.8	1 Ce . 1	1.47	+ 214.9	200	17.45	1.91
1342	6.54	13.8	382.9	15.1	1.57	+212.8	200	17.45	1.74
1347	6.59	14.0	388·le	14.2	1.74	+210.7.	200	17-45	1.78
1352	6.59	13.9	389.4	14.5	1.51	+211.0	200	17.45	1.72
1357	6.59	14.1	391.5	14.7	1.51	+ 210.3	200	17.45	1.75
1358	Collecte	d sampl	e						
		•							
Total Pump T	ime (min): (e l	Total Purge V	olume (gal) :	~ 3.25		Review Date:	04.24.2	٠4
Weather:		unny Wu	ndly				Review By:	Y	
		,	7					1	
Comments:								<i>V</i>	
Rottle	s Filled	Procoruat	ive Codes:	A - NONE R -	HNOS C- HSS	D4 D-NaOH I	L HOLE		
Bottle	3 i ilieu	Freservat	Preservative	V-INOINE D.	11103 C-11230	D- NaOH I	nci r •	Preservative	
Quantity	Size	Туре	Code	Filtered Y/N	Quantity	Size	Туре	Code	Filtered Y/N
	125mL	Plasho	A	7	2	1-6	Plastic	B	7
1	125mL		B			125 mL		B	1
2	Come	VOR	A			uno	4.16.24		
		nin for low-flow an		nigh Volume.	I	1	1		



<u> ۱۱۸ _ Well</u> ID			Date 4.16.	-	Control Number <u>24-0280-03</u>				
Location _ J	1C Land	<u></u>	V	Vell Material:	PVC	SS	Iron	Galv. Steel	İ
Purge Method	i:	Peristaltic	Sul	omersible	Blac	dder	Fultz	Baile	er
Depth to Wat	er Tape: 🛭 🛱 e	otech	S/N	: 7371					
QC SAMPLE:	N	1S/MSD	DUP_		Sonde ID:	<u>~</u> 15M	19Н	20M21G	22J
Depth-to-wat	er T/PVC (ft)	43.68	Depth-To-Bo	ottom T/PVC	(ft) 44.18		Completed by	CIE	
Time	рН	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%
00.0				on parameters f	or the last three	e readings			
0950	Star.	ted pun	np				350	43.70	
0955	7.22	12.6	237.3	20.1	2.14	+213.8	350	4370	4.74
1000	7.20	12.4	238 .4	19.3	2.06	+218.5	350	4370	2.72
1005	7.20	12.0	238.9	19.2	2.04	+ 221.4	350	43.70	2.04
1010	7.20	12.6	239.1	19.5	2.07	+ 223.0	-350	43.70	1.76
1015	7.20	12.60	2391.4	19.5	2.00	+223.2	350	43.70	1.71
1014	Colle	sted 5	amou						×
1021	en		or / ip ac						
IVI	211								
Total Pump T	ime (min):	26	Total Purge V	olume (gal) :	17 <		Review Date:	04-24·	2 V
Weather:					62.5		Review By:	7	^1
weather.	U O	of, Sun	ny, wi	nby			neview by.	$\overline{}$	
Comments:								U	
	s Filled	Procorvat	ive Codes:	A-NONE B-	HNOS C- HSS	O4 D-NaOH I	- HCL E-		
bottle	3 i meu	Freservat	Preservative	A-NOINE B	11403 C- 11230	D- NaOn I		Preservative	
Quantity	Size	Туре	Code	Filtered Y/N	Quantity	Size	Туре	Code	Filtered Y/N
	125mc	HAPE	В	N	2	1-1	HDPE	B	N
1	125mL		A		в				
1	250mL	V	A						
* Pump rata sha	UDML	NOA nin for low-flow ar	H ad/min for	high Volume					
rump rute siloi	IN DE SOUTHL/IT	iii joi low-jiow ar	iu - 1 gui/iiiii joi i	ngii voiuine.					



	IW-B3 HC Land		Date	ハレ・2川 Vell Material:	PVC	Control Numb	per <u>24 - 02</u>	80 - 04 Galv. Steel	
Purge Metho		Peristaltic		omersible		dder	Fultz	Bail	er
Depth to Wat		aeotec!	/	: 7371					
QC SAMPLE:		IS/MSD	DUP_		Sonde ID:	15M	19H	20M21G	22J
Depth-to-wat	er T/PVC (ft)	39.04	Depth-To-Bo	ottom T/PVC ((ft) 40, 20		Completed by	1016	
Time	рН	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min 3-5 min	units +/- 0.1	°C NA	uS/cm +/- 3%	% sat. +/- 10%	ppm +/- 0.3ppm	mV +/- 10mV	mL/min *	Drawdown ft < 0.33	NTU +/- 10%
	.,,			on parameters f					., 20,0
1150	Star	rted pr	100 D				310	* water level	
1155	6.62	12.8	505	12.4	1.31	+191.5	310	pump	1.44
1200	6.04	12.8	507	15,1	1.40	+214.1	310	head - can't	1.39
1205	6.04	12.8	567	15.4	1.63	+ 221.4	316	measure	1.34
1210	4.05	12.8	507	16.1	1.70	+228.7	310	*	1.34
1215	4.05	12.9	507	14.5	1.74	+232.7	310	*	1.34
1220	4.05	12.9	504	16.9	1.79	+235.9	310	*	1.40
1225	4.05	12.9	507	17.0	1.80	+237.6	310	*	1.34
1226	collect	ed Sar	nple						
1231	ind							39.06	
	0110								
		ш							
									Ÿ
			*						
Total Pump T	ime (min):	34	Total Purge V	olume (gal) :	~3.0		Review Date:	٥٧٠24	. 24
Weather:	45°F	, Sunny	Udaku				Review By:	V:	
		, , , , , , , ,	1					1	
Comments:								V	
Bottle	s Filled	Preservat	ive Codes:	A-NONE B-I	HNO3 C - H2S0	D4 D - NaOH E	E-HCI F-		
			Preservative					Preservative	
Quantity	Size	Type	Code	Filtered Y/N	Quantity	Size	Type	Code	Filtered Y/N
1	125mL	HDPE	B	N	2	1.1	HOPE	В	N
	125mL 250mL		A						
2	60mL	AOV	A	\downarrow					
* Pump rate sho	uld be <500 mL/m		nd <1 gal/min for i	nigh Volume.					



	IW-B4		Date <u>4 · 1 4</u> V	٠ <u>2</u> Vell Material:	PVC	Control Numb	per <u>24 - 02</u> Iron	<u>.80-05,</u> -1 Galv. Steel	2, -135
Purge Method		Peristaltic	Sul	omersible	Blac	dder	Fultz	Bail	er
Depth to Wat	er Tape: G	eotech	S/N	: 7371					
QC SAMPLE:		IS/MSD	DUP_		Sonde ID:		19H	20M21G	22J
Depth-to-wat	er T/PVC (ft) _	41.74	Depth-To-Bo	ottom T/PVC	(ft) <u>47.74</u>	_	Completed by	(16_	
Time	рН	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 for the last three	+/- 10mV	*	< 0.33	+/- 10%
	0 .			on parameters J	or the last three	e reaaings	2 -	* Can't	
1045	Star	ted pu	mp				325	measure	
1050	6.93	14.4	574	6.3	0.65	+160.8	325	- H20	4.52
1055	6.93	14.5	559	5,4	0.55	+141.2	325	Below	3.00
1100	4.93	14.5	539	4.4	0.47	+126.6	325	Pump	2.19
1105	4.93	14,5	532	4.3	0.43	+ 119.1	325	¥	1.87
1110	6.93	14.5	528	4,2	0.43	+113,2	325	*	1.85
1115	6.92	14.5	523	4.1	0.41	+105,7	325	*	1.76
1120	4.92	14.5	518	4,0	0.40	+101.2	325	*	1.69
1125	le .92	14.6	514	3.9	0.39	+100.8	325	*	1.68
1124		ted sa			0.31			41.76	
267		ten sa	mpu					(1110	
11 32	end								
Total Pump T	ime (min):	41	Total Purge V	olume (gal) :	13.5		Review Date:	७५-३५	-24 ·
Weather:	40°F	=, Sunny	Wind	1			Review By:	A.	×
*)		,		,				0	
Comments:		((ollecteal	FIELD	MSIL	NSD		Secretary of the Control of the Cont	
Bottle	s Filled	Preservat	ive Codes:	A-NONE B-	HNO3 C-H2S	O4 D - NaOH E	- HCl F		
			Preservative					Preservative	
Quantity 2	Size	Type	Code	Filtered Y/N	Quantity	Size	Type	Code	Filtered Y/N
3	125mL	HDIPE	B	N	2	1-6	HDPE	B	Ν
3	125mL 250mL		A A						
1	LOME	VOA	A						
* Pump rate sho	uld be <500 mL/m			hiah Volume.	II				



Well ID JHC	?-mw-15	035	Date <u>4 - 16</u>	.24		Control Numb	per_24-07	280-06	
Location <u>JH</u>	C Land	Sill_	V	Vell Material:	PVC	SS	Iron	Galv. Steel	
Purge Methoc	l:	Peristaltic	Sul	omersible	Blad	dder	Fultz	Bail	er
Depth to Wate	er Tape: 🛮 🧜	Floteen	s/N	7371					
QC SAMPLE:	N	IS/MSD	DUP_		Sonde ID:	<u>15M</u>	19Н	20M21G	22J
Depth-to-wate	er T/PVC (ft) ₋	41.31	Depth-To-Bo	ottom T/PVC ((ft) <u>45.2</u> 5	<u>ટ</u>	Completed by	cle	
Time	рН	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% Stablizatio	+/- 10% on parameters f	+/- 0.3ppm or the last three	+/- 10mV e readinas	*	< 0.33	+/- 10%
0843	Starle	d pum				J	350	41.33	
0845	7.15	13,5	476.7	8,4	0.87	+203,4	350	41.33	12.55
0850	7.18	13.6	477.4	7.9	0.82	+173.3	350	41.23	4.55
0855	7.19	13.7	4776	8.5	0.88	+147.3	350	41.33	2.66
0900	7.20	13,7	478.8	9.5	0.98	+146.9	350	41.33	2.01
0905	7.20	13.7	479.5	10.0	1.04	+168.6	350	41.33	1.71
6910	7.20	13.8	481.0	(1.0	1.14	+172.7	350	41.33	1.40
0915	7.20	13.8	481.0	11.2	1.10	+173.4	350	41.33	1.22
0920	7.21	13.8	482.3	115	1.19	+157.2	350	41.33	1.16
0925	7.21	13.8	482.6	11,7	1,20	+167.7	350	41.33	1.14
0930	7.21	13.8	482.8	11.6	1.20	+169.1	350	41.33	1.16
0935	7.21	13.8	482.9	11.5	1.19	1170.0	356	41.33	1.10
0936	CO []	ected	Sampl	e					
0945	·lni	>							
Total Pump Ti	me (min):	53	Total Purge V	olume (gal) :	25.0		Review Date:	04-24-	24
Weather:	500	F, Par	the cloud	1, wins	4		Review By:	7.	
				•				U	•
Comments:		Prof. Albert	可以为人 有例		1 - 10 TO 10 TO 10 A TO				
Bottles	s Filled	Preservat	ive Codes:	A-NONE B-I	HNO3 C - H2S0	04 D - NaOH E	- HCl F		
Quantity	Size	Туре	Preservative Code	Filtered Y/N	Quantity	Size	Туре	Preservative Code	Filtered Y/N
ľ	125mL	HDPE	В	7	2	1-L	HDPE	B	N
1	125mL	1	A						
2	250ML	VOA	A	\downarrow					
			nd <1 gal/min for i		L				
The second secon		The state of the s							



Well ID 114C-MW- 15036			Date 4.16	24	Control Number 24 - 0280 - 07					
Location VM	c landfil			Well Material: PVC SS Iron Galv. Steel						
Purge Method: Peristaltic Submersible Bladder						dder	Fultz	Bail	er	
Depth to Wat	er Tape: Geo	tech	S/N	1009-27	-					
QC SAMPLE:	N	is/MSD	DUP Sonde ID:15M19H20M <u> </u>					22J		
Depth-to-wat	er T/PVC (ft) _	27.0	Depth-To-Bo	ottom T/PVC	(ft) 32.52	_	Completed by	umo		
Time	рН	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 or the last three	+/- 10mV	*	< 0.33	+/- 10%	
8025		0	Stabilzatio	n parameters j	or the last three	e redaings	80	27.0		
6830	Started	Pump					80	61.0		
0837	Stopped	Pump	to cha	nge tub	ung		0.0	0-1		
0853	started						80	27.0		
0858	7.17	10.9	456.7	42.1	4.60	+228.8	80	27.0	13.87	
6902	7.20	10.9	455.7	35.7	3.94	+ 455.4	80	27.6	12.56	
0 903	Torned	Pump	up to	120			120	26.98	10.38	
6908	7.24	11.0	440.2	29.5	3.24	+216.6	120	26.98	9.67	
0913	7.27	11.0	440.4	29.0	3.19	+215.8	120	26.98	8. 29	
0918	7.27	11-1	439. U	28.9	3.17	+213.9	120	26.98	8.42	
0923	7.27	11.1	434.8	28.2	3.10	+212.8	120	26.98	6.68	
0928	7.28	(1 - 1	433.4	27.1	2.94	+209.4	120	26.98	4.20	
0933	7.30	11.2	427.3	26.1	2.85	+208.9	120	26.98	3. Ce0	
0938	7.31	11.2	424.8	25.4	2.78	+208.3	120	26.98	3.57	
0943	7.31	11.2	422.0	24.8	2.71	+207.9	120	26.98	3.43	
0948	7.32	11.3	418.4	23.2	2.63	+267.0	120	26.98	3.31	
	ime (min): ち	(0	Total Purge V	olume (gal) :	~2.0		Review Date:	300		
					en e		Review By:	94		
	76 Sunn Collected Gnq	Sample	7					Y		
		REVAILED IN		A NOVE	unos e un	04 P N 511	LUC! T			
Bottle	s Filled	Preservat	ive Codes: Preservative	A-NONE B-	HINUS C-H2SO	O4 D - NaOH E	:-HCI F	Preservative		
Quantity	Size	Туре	Code	Filtered Y/N	Quantity	Size	Туре	Code	Filtered Y/N	
1	125ml	Plastic	A	N	2	1-L	Plashe	B	N	
	125mL		B							
2	250mL ComL	VOA	P	1						
	uld be <500 mL/m			niah Volume	I					



Well ID JHC-mu- 15037 Date 4-15.24 Control Number 24-0280-08-89										
Location <u>J</u>	tc Land	GII	٧	Vell Material:	PVC	SS	Iron	Galv. Steel		
Purge Method	d: 🗸	Peristaltic	Sul	bmersible	Blac	dder	Fultz	Bail	er	
Depth to Wat	er Tape: G	cotech	S/N	: 7371						
QC SAMPLE:	N	is/msd [V DUP_	03	Sonde ID:	<u>~</u> 15M	19H	20M21G	22J	
Depth-to-wat	er T/PVC (ft) 💈	25.31	Depth-To-B	ottom T/PVC	(ft) <u>30,90</u>)	Completed by	_CIE		
Time	рН	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% Stablizatio	+/- 10% on parameters f	+/- 0.3ppm or the last three	+/- 10mV e readinas	*	< 0.33	+/- 10%	
1905	Stario	d Pur		parameters j		l	180	25.32	2	
1910	7.30	11.3	387	43,4	4.75	+245.8	180	25.32	2.61	
1915	7.24	11.0	397	43.4	4.80	+255.5	180	25.32	1.91	
1920	7.24	(1,1	2	43.3	4.76	+242,2	180	25.32	1.84	
1925	7.23	11.1	392	43.8	4.82	+264.2	180	25.32	1.60	
1930	7.21	10.9	393	44.8	4.94	+ 267,7	1.50	25.32	1.21	
1931		Section 1		-1978	9, 11	, 201, 1	(2	- 52		
1948	end	ed sample								
(1/10	Olla									
		2.			. 26					
Total Pump T				olume (gal) : •	1.25		Review Date:		.24	
Weather:	650	F, SU	004				Review By:	7		
Comments:		00114	rched T	FIELD F	N 12			U		
comments:		COTTE		LECD K	34-					
Bottle	s Filled	Preservat	ive Codes: Preservative	A-NONE B-I	HNO3 C - H2SC	D4 D - NaOH E	- HCl F	Preservative		
Quantity	Size	Туре	Code	Filtered Y/N	Quantity	Size	Туре	Code	Filtered Y/N	
2	125mL	HDPE	В	N	١-(1-L	HDPE	B	N	
2	125mL	\\	A A							
4	250ml 60ml	VOR	A	1,						
	uld be <500 mL/m			high Volume.						



Well ID			Date 4.10				per 24-62	7	
Location 1	Crange	111	V	Vell Material:	PVC	SS	Iron	Galv. Steel	
Purge Method:								er	
Depth to Wate	er Tape:		S/N	:					
QC SAMPLE: MS/MSD			DUP_		Sonde ID:	nde ID:15M19H20M21G2			22J
Depth-to-wate	Depth-to-water T/PVC (ft)			ottom T/PVC ((ft) Completed by			/	
Time	рН	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% Stablizatio	+/- 10% on parameters f	+/- 0.3ppm or the last three	+/- 10mV readings	*	< 0.33	+/- 10%
1250	Colle	cted bo	imple						
	J 41 (
		,					*		
Total Pump Tir	me (min):		Total Purge V	olume (gal) :			Review Date:	٥4-24	14
Weather:	ine (min).		Total Turge V	oranie (gar) .			Review By:		
-							neview by.		
Comments:								V	
MACON TO A CONTRACT OF THE CON	Maria Salar	573 D. C.B.	NECESTA DE LA	STATISTICS N		Supplied to			75 4787, 5213
Bottles	Filled	Preservat	ive Codes: Preservative	A - NONE B - I	HNO3 C - H2SC	04 D - NaOH E	E - HCl F	Preservative	
Quantity	Size	Туре	Code	Filtered Y/N	Quantity	Size	Туре	Code	Filtered Y/N
	125m1	HDPE	В	17					
	100110								
1	125ML 125ML	1	A						
1 2	125ml 250ml	1	A A B	\					



	B.03		Date 4.14				per 24 · 02		
Location	JHC Lan	4-411	V	Vell Material:	PVC	SS	Iron	Galv. Steel	
Purge Method: Peristaltic Submersible Bladder Fultz Bailer							er		
Depth to Wat	er Tape:		S/N						
QC SAMPLE:	l N	IS/MSD	DUP_		Sonde ID:	Sonde ID:15M19H20M		20M21G	22J
Depth-to-wat	er T/PVC (ft) _		Depth-To-Bo	ottom T/PVC (ft)		Completed by	1_CIE	
Time	рН	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%
				n parameters f	or the last three	readings			
1300	Coll	ected s	ample						
			,						
ñ									
								7	
Total Pump T	ime (min):	-	Total Purge V	olume (gal) :			Review Date:	04-24-2	4
Weather:							Review By:	H.	
								- /	
Comments:								V	2
Comments.									
Bottle	s Filled	Preservat	ive Codes:	A-NONE B-I	HNO3 C-H2SC	04 D - NaOH I	E - HCl F		
			Preservative					Preservative	
Quantity	Size	Туре	Code	Filtered Y/N	Quantity	Size	Type	Code	Filtered Y/N
	125mL	HDPE	В	N					
1	125mL		A						
2	250mL	1	B						
	uld be <500 mL/m			high Volume					
r uniprate silot	DC \000 IIIL/III	joi iovv-jiovv ui	ia a guijiiiii jul i	ngii volullie.					



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

To: JJFirlit, JH Campbell Complex

From: EBlaj, T-258

Date: May 03, 2024

Subject: JH CAMPBELL SOLID WASTE DISPOSAL AREA - GROUNDWATER MONITORING

2nd Quarter, 2024 – Background Wells

CC: HDRegister, P22-521 Sarah Holmstrom, Project Manager

ADSantini, P20-215B-REM TRC Companies, Inc. 1540 Eisenhower Place

Ann Arbor, MI 48108

Chemistry Project: 24-0278

CE Laboratory Services conducted groundwater monitoring at the JH Campbell Solid Waste Disposal Area during the week of 04/15/2024, for the 2nd Quarter requirement, as specified in the Hydrogeological Monitoring Plan for the site. The samples were received for analysis by the Chemistry department on 04/17/2024.

Samples for Radium analysis have been subcontracted to Eurofins/TestAmerica, Inc. and their results are being reported separately. Please note that the subcontracted work is not reported under the CE laboratory scope of accreditation.

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



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

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CASE NARRATIVE

I. <u>Sample Receipt</u>

All samples were received within hold time and in good conditions; no anomalies were noted on the 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. Sample preservation 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 percent recoveries of the field matrix spike & matrix spike duplicate samples are included in the results section. 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	Not a 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
В	Generic data flag, applicable description added in the corresponding notes section The analyte was detected in the LRB at a level which is significant relative to sample result
ע	The analyte was accepted in the ERD at a level which is significant relative to sample result

D	Reporting limit elevated due to dilution
Е	Estimated due to result exceeding the linear range of the analyzer
Н	The maximum recommended hold time was exceeded
[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



Work Order Sample Summary

Customer Name: JH Campbell Complex

Work Order ID: Q2-2024 JHC Background Wells

Date Received: 4/17/2024 Chemistry Project: 24-0278

Sample #	Field Sample ID	<u>Matrix</u>	Sample Date	<u>Site</u>
24-0278-01	JHC-MW-15023	Groundwater	04/15/2024 20:16	JHC GW Monitoring - Background Wells
24-0278-02	JHC-MW-15024	Groundwater	04/15/2024 18:39	JHC GW Monitoring - Background Wells
24-0278-03	JHC-MW-15025	Groundwater	04/15/2024 18:20	JHC GW Monitoring - Background Wells
24-0278-04	JHC-MW-15026	Groundwater	04/15/2024 16:51	JHC GW Monitoring - Background Wells
24-0278-05	JHC-MW-15027	Groundwater	04/15/2024 17:32	JHC GW Monitoring - Background Wells
24-0278-06	JHC-MW-15028	Groundwater	04/15/2024 15:14	JHC GW Monitoring - Background Wells
24-0278-07	DUP-01	Groundwater	04/15/2024 00:00	JHC GW Monitoring - Background Wells
24-0278-08	FB-01	Water	04/15/2024 20:40	JHC GW Monitoring - Background Wells
24-0278-09	EB-01	Water	04/15/2024 20:25	JHC GW Monitoring - Background Wells
24-0278-10	JHC-MW-15025 Field MS	Groundwater	04/15/2024 18:20	JHC GW Monitoring - Background Wells
24-0278-11	JHC-MW-15025 Field MSD	Groundwater	04/15/2024 18:20	JHC GW Monitoring - Background Wells



Report Date:

05/03/24



Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0278

 Field Sample ID:
 JHC-MW-15023
 Collect Date:
 04/15/2024

 Lab Sample ID:
 24-0278-01
 Collect Time:
 08:16 PM

Metals by EPA 6020B: CCR Rule Appe	11012 111-14 10	tai wictai.		Aliquot #: 24-0	278-01-C01-A01	Analyst: EE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Arsenic	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Barium	48		ug/L	5.0	04/23/2024	AB24-0423-01
Beryllium	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Boron	46		ug/L	20.0	04/23/2024	AB24-0423-01
Cadmium	ND		ug/L	0.2	04/23/2024	AB24-0423-01
Calcium	15600		ug/L	1000.0	04/23/2024	AB24-0423-01
Chromium	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Cobalt	ND		ug/L	6.0	04/23/2024	AB24-0423-01
Copper	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Iron	58		ug/L	20.0	04/23/2024	AB24-0423-01
Lead	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Lithium	ND		ug/L	10.0	04/23/2024	AB24-0423-01
Magnesium	5310		ug/L	1000.0	04/23/2024	AB24-0423-01
Molybdenum	ND		ug/L	5.0	04/23/2024	AB24-0423-01
Nickel	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Potassium	1060		ug/L	100.0	04/23/2024	AB24-0423-01
Selenium	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Silver	ND		ug/L	0.2	04/23/2024	AB24-0423-01
Sodium	6050		ug/L	1000.0	04/23/2024	AB24-0423-01
Thallium	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Vanadium	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Zinc	ND		ug/L	10.0	04/23/2024	AB24-0423-01
Mercury by EPA 7470A, Total, Aqueou	S			Aliquot #: 24-0	278-01-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/24/2024	AB24-0424-02
Anions by EPA 300.0 CCR Rule Analyte	e List, CI, F,	SO4, Aqı	ieous	Aliquot #: 24-0	278-01-C02-A01	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	6800		ug/L	1000.0	04/19/2024	AB24-0419-01
Fluoride	ND		ug/L	1000.0	04/19/2024	AB24-0419-01
Sulfate	15500		ug/L	1000.0	04/19/2024	AB24-0419-01
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	278-01-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking



Analytical Report

Report Date: 05/03/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0278

 Field Sample ID:
 JHC-MW-15023
 Collect Date:
 04/15/2024

 Lab Sample ID:
 24-0278-01
 Collect Time:
 08:16 PM

Alkalinity by SM 2320B		A	Aliquot #: 24-0	278-01-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	47200	ug/L	10.0	04/22/2024	AB24-0422-05
Alkalinity Bicarbonate	47200	ug/L	10.0	04/22/2024	AB24-0422-05
Alkalinity Carbonate	ND	ug/L	10.0	04/22/2024	AB24-0422-05



Report Date:

05/03/24



Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0278

 Field Sample ID:
 JHC-MW-15024
 Collect Date:
 04/15/2024

 Lab Sample ID:
 24-0278-02
 Collect Time:
 06:39 PM

Metals by EPA 6020B: CCR Rule App	oendix III-IV To	otal Metals	Ехр	Aliquot #: 24-0	278-02-C01-A01	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Arsenic	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Barium	17		ug/L	5.0	04/23/2024	AB24-0423-01
Beryllium	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Boron	26		ug/L	20.0	04/23/2024	AB24-0423-01
Cadmium	ND		ug/L	0.2	04/23/2024	AB24-0423-01
Calcium	26100		ug/L	1000.0	04/23/2024	AB24-0423-01
Chromium	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Cobalt	ND		ug/L	6.0	04/23/2024	AB24-0423-01
Copper	1		ug/L	1.0	04/23/2024	AB24-0423-01
Iron	93		ug/L	20.0	04/23/2024	AB24-0423-01
Lead	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Lithium	ND		ug/L	10.0	04/23/2024	AB24-0423-01
Magnesium	8010		ug/L	1000.0	04/23/2024	AB24-0423-01
Molybdenum	ND		ug/L	5.0	04/23/2024	AB24-0423-01
Nickel	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Potassium	863		ug/L	100.0	04/23/2024	AB24-0423-01
Selenium	1		ug/L	1.0	04/23/2024	AB24-0423-01
Silver	ND		ug/L	0.2	04/23/2024	AB24-0423-01
Sodium	20100		ug/L	1000.0	04/23/2024	AB24-0423-01
Thallium	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Vanadium	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Zinc	ND		ug/L	10.0	04/23/2024	AB24-0423-01
Mercury by EPA 7470A, Total, Aqueo	ous			Aliquot #: 24-0	278-02-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/24/2024	AB24-0424-02
Anions by EPA 300.0 CCR Rule Anal	yte List, CI, F,	SO4, Aqu	eous	Aliquot #: 24-0	278-02-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	13500		ug/L	1000.0	04/19/2024	AB24-0419-01
Fluoride	ND		ug/L	1000.0	04/19/2024	AB24-0419-01
Sulfate	7490		ug/L	1000.0	04/19/2024	AB24-0419-01
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	278-02-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	155		mg/L	10.0	04/17/2024	AB24-0417-09
	0.4	I 0270 Dago 7	of 25			



Analytical Report

Report Date: 05/03/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0278

 Field Sample ID:
 JHC-MW-15024
 Collect Date:
 04/15/2024

 Lab Sample ID:
 24-0278-02
 Collect Time:
 06:39 PM

Alkalinity by SM 2320B			Aliquot #: 24-0	0278-02-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	119000	ug/L	10.0	04/22/2024	AB24-0422-05
Alkalinity Bicarbonate	119000	ug/L	10.0	04/22/2024	AB24-0422-05
Alkalinity Carbonate	ND	ug/L	10.0	04/22/2024	AB24-0422-05



Report Date:

05/03/24



Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0278

 Field Sample ID:
 JHC-MW-15025
 Collect Date:
 04/15/2024

 Lab Sample ID:
 24-0278-03
 Collect Time:
 06:20 PM

Metals by EPA 6020B: CCR Rule Appe	endix III-IV To	tal Metals	s Ехр	Aliquot #: 24-0	278-03-C01-A01	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Arsenic	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Barium	9		ug/L	5.0	04/23/2024	AB24-0423-01
Beryllium	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Boron	26		ug/L	20.0	04/23/2024	AB24-0423-01
Cadmium	ND		ug/L	0.2	04/23/2024	AB24-0423-01
Calcium	37500		ug/L	1000.0	04/23/2024	AB24-0423-01
Chromium	1		ug/L	1.0	04/23/2024	AB24-0423-01
Cobalt	ND		ug/L	6.0	04/23/2024	AB24-0423-01
Copper	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Iron	34		ug/L	20.0	04/23/2024	AB24-0423-01
Lead	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Lithium	ND		ug/L	10.0	04/23/2024	AB24-0423-01
Magnesium	11400		ug/L	1000.0	04/23/2024	AB24-0423-01
Molybdenum	ND		ug/L	5.0	04/23/2024	AB24-0423-01
Nickel	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Potassium	1190		ug/L	100.0	04/23/2024	AB24-0423-01
Selenium	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Silver	ND		ug/L	0.2	04/23/2024	AB24-0423-01
Sodium	25900		ug/L	1000.0	04/23/2024	AB24-0423-01
Thallium	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Vanadium	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Zinc	ND		ug/L	10.0	04/23/2024	AB24-0423-01
Mercury by EPA 7470A, Total, Aqueoเ	IS			Aliquot #: 24-0	278-03-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/24/2024	AB24-0424-02
Anions by EPA 300.0 CCR Rule Analy	te List, CI, F,	SO4, Aqu	ieous	Aliquot #: 24-0	278-03-C02-A01	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	50300		ug/L	1000.0	04/19/2024	AB24-0419-01
Fluoride	ND		ug/L	1000.0	04/19/2024	AB24-0419-01
Sulfate	9140		ug/L	1000.0	04/19/2024	AB24-0419-01
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	278-03-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	242		mg/L	10.0	04/17/2024	AB24-0417-09
	24-	-0278 Page :	9 of 25			



Analytical Report

Report Date: 05/03/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0278

 Field Sample ID:
 JHC-MW-15025
 Collect Date:
 04/15/2024

 Lab Sample ID:
 24-0278-03
 Collect Time:
 06:20 PM

Alkalinity by SM 2320B			Aliquot #: 24-0	0278-03-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	120000	ug/L	10.0	04/22/2024	AB24-0422-05
Alkalinity Bicarbonate	120000	ug/L	10.0	04/22/2024	AB24-0422-05
Alkalinity Carbonate	ND	ug/L	10.0	04/22/2024	AB24-0422-05



Report Date:

05/03/24

24-0278



Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project:

 Field Sample ID:
 JHC-MW-15026
 Collect Date:
 04/15/2024

 Lab Sample ID:
 24-0278-04
 Collect Time:
 04:51 PM

Metals by EPA 6020B: CCR Rule App	endix III-IV 1	Total Metals	Ехр	Aliquot #: 24-0	278-04-C01-A01	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Arsenic	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Barium	8		ug/L	5.0	04/23/2024	AB24-0423-01
Beryllium	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Boron	ND		ug/L	20.0	04/23/2024	AB24-0423-01
Cadmium	ND		ug/L	0.2	04/23/2024	AB24-0423-01
Calcium	3140		ug/L	1000.0	04/23/2024	AB24-0423-01
Chromium	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Cobalt	ND		ug/L	6.0	04/23/2024	AB24-0423-01
Copper	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Iron	45		ug/L	20.0	04/23/2024	AB24-0423-01
Lead	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Lithium	ND		ug/L	10.0	04/23/2024	AB24-0423-01
Magnesium	ND		ug/L	1000.0	04/23/2024	AB24-0423-01
Molybdenum	ND		ug/L	5.0	04/23/2024	AB24-0423-01
Nickel	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Potassium	387		ug/L	100.0	04/23/2024	AB24-0423-01
Selenium	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Silver	ND		ug/L	0.2	04/23/2024	AB24-0423-01
Sodium	1310		ug/L	1000.0	04/23/2024	AB24-0423-01
Thallium	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Vanadium	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Zinc	ND		ug/L	10.0	04/23/2024	AB24-0423-01
Mercury by EPA 7470A, Total, Aqueo	us			Aliquot #: 24-0	278-04-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/24/2024	AB24-0424-02
Anions by EPA 300.0 CCR Rule Analy	rte List, CI, F	F, SO4, Aqu	eous	Aliquot #: 24-0	278-04-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	1580		ug/L	1000.0	04/19/2024	AB24-0419-01
Fluoride	ND		ug/L	1000.0	04/19/2024	AB24-0419-01
Sulfate	5850		ug/L	1000.0	04/19/2024	AB24-0419-01
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	278-04-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	29		mg/L	10.0	04/17/2024	AB24-0417-09
	2	4 0279 Daga 1	1 of 0E			



Report Date: 05/03/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0278

 Field Sample ID:
 JHC-MW-15026
 Collect Date:
 04/15/2024

 Lab Sample ID:
 24-0278-04
 Collect Time:
 04/5/2024

Alkalinity by SM 2320B			Aliquot #: 24-	Analyst: DLS	
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	ND	ug/L	10.0	04/22/2024	AB24-0422-05
Alkalinity Bicarbonate	ND	ug/L	10.0	04/22/2024	AB24-0422-05
Alkalinity Carbonate	ND	ug/L	10.0	04/22/2024	AB24-0422-05



05/03/24



Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0278

 Field Sample ID:
 JHC-MW-15027
 Collect Date:
 04/15/2024

 Lab Sample ID:
 24-0278-05
 Collect Time:
 05:32 PM

Metals by EPA 6020B: CCR Rule App	endix III-IV T	otal Metals	з Ехр	Aliquot #: 24-0	278-05-C01-A01	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Arsenic	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Barium	20		ug/L	5.0	04/23/2024	AB24-0423-01
Beryllium	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Boron	25		ug/L	20.0	04/23/2024	AB24-0423-01
Cadmium	ND		ug/L	0.2	04/23/2024	AB24-0423-01
Calcium	13100		ug/L	1000.0	04/23/2024	AB24-0423-01
Chromium	1		ug/L	1.0	04/23/2024	AB24-0423-01
Cobalt	ND		ug/L	6.0	04/23/2024	AB24-0423-01
Copper	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Iron	576		ug/L	20.0	04/23/2024	AB24-0423-01
Lead	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Lithium	ND		ug/L	10.0	04/23/2024	AB24-0423-01
Magnesium	3290		ug/L	1000.0	04/23/2024	AB24-0423-01
Molybdenum	ND		ug/L	5.0	04/23/2024	AB24-0423-01
Nickel	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Potassium	357		ug/L	100.0	04/23/2024	AB24-0423-01
Selenium	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Silver	ND		ug/L	0.2	04/23/2024	AB24-0423-01
Sodium	1610		ug/L	1000.0	04/23/2024	AB24-0423-01
Thallium	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Vanadium	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Zinc	ND		ug/L	10.0	04/23/2024	AB24-0423-01
Mercury by EPA 7470A, Total, Aqueo	us			Aliquot #: 24-0	278-05-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/24/2024	AB24-0424-02
Anions by EPA 300.0 CCR Rule Analy	/te List, CI, F	, SO4, Aqւ	ieous	Aliquot #: 24-0	278-05-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	ND		ug/L	1000.0	04/19/2024	AB24-0419-01
Fluoride	ND		ug/L	1000.0	04/19/2024	AB24-0419-01
Sulfate	5020		ug/L	1000.0	04/19/2024	AB24-0419-01
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	278-05-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	84		mg/L	10.0	04/17/2024	AB24-0417-10
	24	1 0270 Dago 1	2 of 25			



Report Date: 05/03/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0278

 Field Sample ID:
 JHC-MW-15027
 Collect Date:
 04/15/2024

 Lab Sample ID:
 24-0278-05
 Collect Time:
 05:32 PM

Alkalinity by SM 2320B			Aliquot #: 24-	Analyst: DLS	
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	32000	ug/L	10.0	04/22/2024	AB24-0422-05
Alkalinity Bicarbonate	32000	ug/L	10.0	04/22/2024	AB24-0422-05
Alkalinity Carbonate	ND	ug/L	10.0	04/22/2024	AB24-0422-05



05/03/24



Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0278

 Field Sample ID:
 JHC-MW-15028
 Collect Date:
 04/15/2024

 Lab Sample ID:
 24-0278-06
 Collect Time:
 03:14 PM

Metals by EPA 6020B: CCR Rule App	endix III-IV T	otal Metals E	хр	Aliquot #: 24-0	278-06-C01-A01	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND	uç	g/L	1.0	04/23/2024	AB24-0423-01
Arsenic	ND	uç	g/L	1.0	04/23/2024	AB24-0423-01
Barium	5	uç	g/L	5.0	04/23/2024	AB24-0423-01
Beryllium	ND	uç	g/L	1.0	04/23/2024	AB24-0423-01
Boron	ND	uç	g/L	20.0	04/23/2024	AB24-0423-01
Cadmium	ND	uç	g/L	0.2	04/23/2024	AB24-0423-01
Calcium	13600	uç	g/L	1000.0	04/23/2024	AB24-0423-01
Chromium	ND	uç	g/L	1.0	04/23/2024	AB24-0423-01
Cobalt	ND	uç	g/L	6.0	04/23/2024	AB24-0423-01
Copper	ND	uç	g/L	1.0	04/23/2024	AB24-0423-01
Iron	51	ug	g/L	20.0	04/23/2024	AB24-0423-01
Lead	ND	ug	g/L	1.0	04/23/2024	AB24-0423-01
Lithium	ND	ug	g/L	10.0	04/23/2024	AB24-0423-01
Magnesium	3180	ug	g/L	1000.0	04/23/2024	AB24-0423-01
Molybdenum	ND	uç	g/L	5.0	04/23/2024	AB24-0423-01
Nickel	ND	uç	g/L	2.0	04/23/2024	AB24-0423-01
Potassium	275	uç	g/L	100.0	04/23/2024	AB24-0423-01
Selenium	ND	uç	g/L	1.0	04/23/2024	AB24-0423-01
Silver	ND	uç	g/L	0.2	04/23/2024	AB24-0423-01
Sodium	ND	uç	g/L	1000.0	04/23/2024	AB24-0423-01
Thallium	ND	uç	g/L	2.0	04/23/2024	AB24-0423-01
Vanadium	ND	uç	g/L	2.0	04/23/2024	AB24-0423-01
Zinc	ND	uį	g/L	10.0	04/23/2024	AB24-0423-01
Mercury by EPA 7470A, Total, Aqueo	us			Aliquot #: 24-0	278-06-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND	uį	g/L	0.2	04/24/2024	AB24-0424-02
Anions by EPA 300.0 CCR Rule Analy	∕te List, Cl, F	, SO4, Aqued	ous	Aliquot #: 24-0	278-06-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	ND	uç	g/L	1000.0	04/19/2024	AB24-0419-01
Fluoride	ND	ug	g/L	1000.0	04/19/2024	AB24-0419-01
Sulfate	4120		g/L	1000.0	04/19/2024	AB24-0419-01
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	278-06-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	62	m	ıg/L	10.0	04/17/2024	AB24-0417-10
	0.	1 0279 Daga 15 a	f 25			



Report Date: 05/03/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0278

 Field Sample ID:
 JHC-MW-15028
 Collect Date:
 04/15/2024

 Lab Sample ID:
 24-0278-06
 Collect Time:
 03:14 PM

Alkalinity by SM 2320B			Aliquot #: 24-0)278-06-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	47200	ug/L	10.0	04/22/2024	AB24-0422-05
Alkalinity Bicarbonate	47200	ug/L	10.0	04/22/2024	AB24-0422-05
Alkalinity Carbonate	ND	ug/L	10.0	04/22/2024	AB24-0422-05



05/03/24



Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0278

Field Sample ID: DUP-01 Collect Date: 04/15/2024 Lab Sample ID: 24-0278-07 Collect Time: 12:00 AM

	ndix III-IV To		x-p	Aliquot #: 24-0	278-07-C01-A01	Analyst: EE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Arsenic	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Barium	9		ug/L	5.0	04/23/2024	AB24-0423-01
Beryllium	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Boron	ND		ug/L	20.0	04/23/2024	AB24-0423-01
Cadmium	ND		ug/L	0.2	04/23/2024	AB24-0423-01
Calcium	3110		ug/L	1000.0	04/23/2024	AB24-0423-01
Chromium	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Cobalt	ND		ug/L	6.0	04/23/2024	AB24-0423-01
Copper	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Iron	57		ug/L	20.0	04/23/2024	AB24-0423-01
Lead	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Lithium	ND		ug/L	10.0	04/23/2024	AB24-0423-01
Magnesium	ND		ug/L	1000.0	04/23/2024	AB24-0423-01
Molybdenum	ND		ug/L	5.0	04/23/2024	AB24-0423-01
Nickel	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Potassium	368		ug/L	100.0	04/23/2024	AB24-0423-01
Selenium	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Silver	ND		ug/L	0.2	04/23/2024	AB24-0423-01
Sodium	1290		ug/L	1000.0	04/23/2024	AB24-0423-01
Thallium	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Vanadium	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Zinc	ND		ug/L	10.0	04/23/2024	AB24-0423-01
Mercury by EPA 7470A, Total, Aqueous	s			Aliquot #: 24-0	278-07-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/24/2024	AB24-0424-02
Anions by EPA 300.0 CCR Rule Analyt	e List, CI, F,	SO4, Aqı	ieous	Aliquot #: 24-0	278-07-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	1590		ug/L	1000.0	04/19/2024	AB24-0419-01
Fluoride	ND		ug/L	1000.0	04/19/2024	AB24-0419-01
Sulfate	5870		ug/L	1000.0	04/19/2024	AB24-0419-01
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	278-07-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking



Report Date: 05/03/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0278

 Field Sample ID:
 DUP-01
 Collect Date:
 04/15/2024

 Lab Sample ID:
 24-0278-07
 Collect Time:
 12:00 AM

Alkalinity by SM 2320B			Aliquot #: 24-0	0278-07-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	ND	ug/L	10.0	04/22/2024	AB24-0422-05
Alkalinity Bicarbonate	ND	ug/L	10.0	04/22/2024	AB24-0422-05
Alkalinity Carbonate	ND	ug/L	10.0	04/22/2024	AB24-0422-05



05/03/24

Report Date:



Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0278

 Field Sample ID:
 FB-01
 Collect Date:
 04/15/2024

 Lab Sample ID:
 24-0278-08
 Collect Time:
 08:40 PM

Matrix: Water

Metals by EPA 6020B: CCR Rule Appe	endix III-IV To	tal Metals	s Ехр	Aliquot #: 24-0	278-08-C01-A01	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Arsenic	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Barium	ND		ug/L	5.0	04/23/2024	AB24-0423-01
Beryllium	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Boron	ND		ug/L	20.0	04/23/2024	AB24-0423-01
Cadmium	ND		ug/L	0.2	04/23/2024	AB24-0423-01
Calcium	ND		ug/L	1000.0	04/23/2024	AB24-0423-01
Chromium	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Cobalt	ND		ug/L	6.0	04/23/2024	AB24-0423-01
Copper	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Iron	ND		ug/L	20.0	04/23/2024	AB24-0423-01
Lead	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Lithium	ND		ug/L	10.0	04/23/2024	AB24-0423-01
Magnesium	ND		ug/L	1000.0	04/23/2024	AB24-0423-01
Molybdenum	ND		ug/L	5.0	04/23/2024	AB24-0423-01
Nickel	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Potassium	ND		ug/L	100.0	04/23/2024	AB24-0423-01
Selenium	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Silver	ND		ug/L	0.2	04/23/2024	AB24-0423-01
Sodium	ND		ug/L	1000.0	04/23/2024	AB24-0423-01
Thallium	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Vanadium	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Zinc	ND		ug/L	10.0	04/23/2024	AB24-0423-01
Mercury by EPA 7470A, Total, Aqueou	ıs			Aliquot #: 24-0	278-08-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/24/2024	AB24-0424-02
Anions by EPA 300.0 CCR Rule Analys	te List, CI, F,	SO4, Aqu	ieous	Aliquot #: 24-0	278-08-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	ND		ug/L	1000.0	04/19/2024	AB24-0419-01
Fluoride	ND		ug/L	1000.0	04/19/2024	AB24-0419-01
Sulfate	ND		ug/L	1000.0	04/19/2024	AB24-0419-01
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	278-08-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	ND		mg/L	10.0	04/17/2024	AB24-0417-10
	24-	0278 Page 1	9 of 25			



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Laboratory Services
A CENTURY OF EXCELLENCE

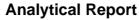
Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0278

 Field Sample ID:
 EB-01
 Collect Date:
 04/15/2024

 Lab Sample ID:
 24-0278-09
 Collect Time:
 08:25 PM

Matrix: Water

Metals by EPA 6020B: CCR Rule Appe	ndix III-IV To	tal Metals	s Ехр	Aliquot #: 24-0	278-09-C01-A01	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Arsenic	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Barium	ND		ug/L	5.0	04/23/2024	AB24-0423-01
Beryllium	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Boron	ND		ug/L	20.0	04/23/2024	AB24-0423-01
Cadmium	ND		ug/L	0.2	04/23/2024	AB24-0423-01
Calcium	ND		ug/L	1000.0	04/23/2024	AB24-0423-01
Chromium	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Cobalt	ND		ug/L	6.0	04/23/2024	AB24-0423-01
Copper	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Iron	ND		ug/L	20.0	04/23/2024	AB24-0423-01
Lead	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Lithium	ND		ug/L	10.0	04/23/2024	AB24-0423-01
Magnesium	ND		ug/L	1000.0	04/23/2024	AB24-0423-01
Molybdenum	ND		ug/L	5.0	04/23/2024	AB24-0423-01
Nickel	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Potassium	ND		ug/L	100.0	04/23/2024	AB24-0423-01
Selenium	ND		ug/L	1.0	04/23/2024	AB24-0423-01
Silver	ND		ug/L	0.2	04/23/2024	AB24-0423-01
Sodium	ND		ug/L	1000.0	04/23/2024	AB24-0423-01
Thallium	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Vanadium	ND		ug/L	2.0	04/23/2024	AB24-0423-01
Zinc	ND		ug/L	10.0	04/23/2024	AB24-0423-01
Mercury by EPA 7470A, Total, Aqueou	S			Aliquot #: 24-0	278-09-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/24/2024	AB24-0424-02
Anions by EPA 300.0 CCR Rule Analyt	e List, CI, F,	SO4, Aqı	ieous	Aliquot #: 24-0	278-09-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	ND		ug/L	1000.0	04/19/2024	AB24-0419-01
Fluoride	ND		ug/L	1000.0	04/19/2024	AB24-0419-01
Sulfate	ND		ug/L	1000.0	04/19/2024	AB24-0419-01
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	278-09-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	ND	3	mg/L	10.0	04/17/2024	AB24-0417-10
		0278 Page 2		10.0	J/202 1	0111 10





A CENTURY OF EXCELLENCE

Report Date: 05/03/24

JHC GW Monitoring - Background Wells (395496) Sample Site: Laboratory Project: 24-0278

Field Sample ID: JHC-MW-15025 Field MS Collect Date: 04/15/2024 Lab Sample ID: 24-0278-10 Collect Time: 06:20 PM

Metals by EPA 6020B: CCR	letals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp			278-10-C01-A01	Analyst: EB
Parameter(s)	Result	Flag Unit	ts RL	Analysis Date	Tracking
Antimony	112	%	1.0	04/23/2024	AB24-0423-01
Arsenic	109	%	1.0	04/23/2024	AB24-0423-01
Barium	113	%	5.0	04/23/2024	AB24-0423-01
Beryllium	110	%	1.0	04/23/2024	AB24-0423-01
Boron	109	%	20.0	04/23/2024	AB24-0423-01
Cadmium	112	%	0.2	04/23/2024	AB24-0423-01
Calcium	95.0	%	1000.0	04/23/2024	AB24-0423-01
Chromium	110	%	1.0	04/23/2024	AB24-0423-01
Cobalt	104	%	6.0	04/23/2024	AB24-0423-01
Copper	103	%	1.0	04/23/2024	AB24-0423-01
Iron	116	%	20.0	04/23/2024	AB24-0423-01
Lead	105	%	1.0	04/23/2024	AB24-0423-01
Lithium	106	%	10.0	04/23/2024	AB24-0423-01
Magnesium	108	%	1000.0	04/23/2024	AB24-0423-01
Molybdenum	112	%	5.0	04/23/2024	AB24-0423-01
Nickel	107	%	2.0	04/23/2024	AB24-0423-01
Potassium	101	%	100.0	04/23/2024	AB24-0423-01
Selenium	107	%	1.0	04/23/2024	AB24-0423-01
Silver	108	%	0.2	04/23/2024	AB24-0423-01
Sodium	115	%	1000.0	04/23/2024	AB24-0423-01
Thallium	108	%	2.0	04/23/2024	AB24-0423-01
Vanadium	110	%	2.0	04/23/2024	AB24-0423-01
Zinc	110	%	10.0	04/23/2024	AB24-0423-01
Mercury by EPA 7470A, To	tal, Aqueous		Aliquot #: 24-0	278-10-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag Unit	ts RL	Analysis Date	Tracking
Mercury	97.0	%	0.2	04/24/2024	AB24-0424-02
Anions by EPA 300.0 CCR	Rule Analyte List, Cl, F,	SO4, Aqueous	Aliquot #: 24-0	278-10-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag Unit	-	Analysis Date	Tracking
Chloride	106	%	1000.0	04/19/2024	AB24-0419-01
Fluoride	100	%	1000.0	04/19/2024	AB24-0419-01
Sulfate	96	%	1000.0	04/19/2024	AB24-0419-01





Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0278

Field Sample ID: JHC-MW-15025 Field MSD

Lab Sample ID: 24-0278-11
Matrix: Groundwater

Collect Date: 04/15/2024 Collect Time: 06:20 PM

Report Date:

05/03/24

		tal Metals Exp	Aliquot #: 24-0	278-11-C01-A01	Analyst: EE
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Antimony	110	%	1.0	04/23/2024	AB24-0423-01
Arsenic	110	%	1.0	04/23/2024	AB24-0423-01
Barium	110	%	5.0	04/23/2024	AB24-0423-01
Beryllium	111	%	1.0	04/23/2024	AB24-0423-01
Boron	108	%	20.0	04/23/2024	AB24-0423-01
Cadmium	112	%	0.2	04/23/2024	AB24-0423-01
Calcium	100	%	1000.0	04/23/2024	AB24-0423-01
Chromium	109	%	1.0	04/23/2024	AB24-0423-01
Cobalt	106	%	6.0	04/23/2024	AB24-0423-01
Copper	103	%	1.0	04/23/2024	AB24-0423-01
Iron	109	%	20.0	04/23/2024	AB24-0423-01
Lead	104	%	1.0	04/23/2024	AB24-0423-01
Lithium	105	%	10.0	04/23/2024	AB24-0423-01
Magnesium	113	%	1000.0	04/23/2024	AB24-0423-01
Molybdenum	111	%	5.0	04/23/2024	AB24-0423-01
Nickel	107	%	2.0	04/23/2024	AB24-0423-01
Potassium	106	%	100.0	04/23/2024	AB24-0423-01
Selenium	111	%	1.0	04/23/2024	AB24-0423-01
Silver	105	%	0.2	04/23/2024	AB24-0423-01
Sodium	120	%	1000.0	04/23/2024	AB24-0423-01
Thallium	106	%	2.0	04/23/2024	AB24-0423-01
Vanadium	112	%	2.0	04/23/2024	AB24-0423-01
Zinc	110	%	10.0	04/23/2024	AB24-0423-01
Mercury by EPA 7470A, Total, A	Aqueous		Aliquot #: 24-0	278-11-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Mercury	97.0	%	0.2	04/24/2024	AB24-0424-02
Anions by EPA 300.0 CCR Rule	Analyte List, Cl, F,	SO4, Aqueous	Aliquot #: 24-0	278-11-C02-A01	Analyst: KDF
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Chloride	107	%	1000.0	04/19/2024	AB24-0419-0 ⁻
Fluoride	100	%	1000.0	04/19/2024	AB24-0419-0 ²



A CENTURY OF EXCELLENCE

Analytical Report

Report Date: 05/03/24

Data Qualifiers	Exception Summary
	No exceptions occurred.

CONSUMERS ENERGY Chemistry Department

PROC CHEM-1.2.01 PAGE 1 OF 2 REVISION 4 ATTACHMENT A

General Standard Operating Procedure

TITLE: SAMPLE LOG-IN - SHIPMENT INSPECTION FORM

	Project Log-In Number: 24-0278											
	Inspection Date: 04-17-2024	Inspection By: と ほ										
	Sample Origin/Project Name: THC Q2- 2024	Background Wells										
	Shipment Delivered By: Enter the type of shipment carrie	r.										
		USPS Airborne										
	Tracking Number:											
	Shipping Containers: Enter the type and number of shipping containers received.											
	Cooler Cardboard Box Loose/Unpackaged Containers	Custom Case Envelope/Mailer Other										
	Condition of Shipment: Enter the as-received condition of the shipment container.											
	Damaged Shipment Observed: NoneOther	Dented Leaking										
	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	•										
	Temperature of Containers: Measure the temperature of several sample containers.											
	As-Received Temperature Range 1.8-3.9%	•										
	M&TE # and Expiration 015402 / 5-23.											
	•											
	Number and Type of Containers: Enter the total number											
pH Text Paper	VOA (40mL or 60ml) Water VOA (40mL or 60ml)	Other Broken Leaking										
EX 02-15-25	9-oz (amber glass jar)											
=u												
	125 mL (plastic) 24											
	24 mL vial (glass)											
	Security Control of the Control of t	The second secon										

lage 2 of 2 not needed 24-0278 Page 24 of 25

CHAIN OF CUSTODY



CONSUMERS ENERGY COMPANY – LABORATORY SERVICES

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

		1
Page	of	

SAMPL	ING SITE / CU	ISTOMER:	:			PROJECT NUMBER:	SAP CC or WO#:			ANALYSIS REQUESTED							QA REQUIREMENT:						
JHC (Q2-2024 Bac	kground V	Wells			24-0278	24-0278 REQUESTER: Bethany Swanberg					(Attach List if More Space is Needed)						QA REQUIREMENT:					
SAMPL	ING TEAM:					TURNAROUND TIME REQUIRED:	TURNAROUND TIME REQUIRED:														□ NPDES		
	CLE	+ L	NO			□ 24 HR □ 48 HR □ 3 DAYS □ STA	ANDARD ⊠ OTH	IER _	_														⊠ TNI
SEND I	REPORT TO:	Joseph I	Firlit			email:	phone:																□ ISO 17025
CC	OPY TO:	JR Regi	ister			MATRIX CODES: GW = Groundwater OX = Other _			CC	NT	AIN	ERS											☐ 10 CFR 50 APP. B
		TRC				WW = Wastewater SL = Sludge W = Water / Aqueous Liquid A = Air		-	P	RES	ERV	VATI	VE	Metals			_	226	228				☐ INTERNAL INFO
	LAB	SAMPLE	COLL	ECTION	RIX	S = Soil / General Solid $WP = Wipe$ $O = Oil$ $WT = General Solid$		FOTAL #			7 7		ш .	M Me	suc		alinit	Radium	Radium				□ OTHER
SAN	MPLE ID	DATI	E	TIME	MATRIX	FIELD SAMPLE ID / LOC	CATION	TOT	None	None HNO3 H2SO4 NaOH HCI McOH Other		Total	Anions	TDS	Alkalinity	Rad	Rad				REMARKS		
24-	-0278-01	4.15.	24	2014	GW	JHC-MW-15023		7	4	3				x	x	x	х	х	х				
	-02	[1839	GW	JHC-MW-15024		7	4	3				x	х	x	х	х	х				
	-03			1826	GW	JHC-MW-15025		7	4	3				x	х	x	х	х	x				
	-04			lusi	GW	JHC-MW-15026	*	7	4	3				x	х	x	х	x	х				
	-05			1732	GW	JHC-MW-15027		7	4	3				x	х	x	х	x	х		-		
	-06			1514	GW	JHC-MW-15028		7	4	3				x	х	х	х	х	х				-
	-07			_	GW	DUP-01		7	4	3			\perp	x	х	x	х	x	х				
	-08			2040	W	FB-01		5	2	3				x	х	х		х	х				
	-09			2025	W	EB-01		5	2	3				х	x	х		х	х				
	-10			1820	GW	JHC-MW-15025 MS		2	1	1	_			x	х								
+	-11	1		1820	GW	JHC-MW-15025 MSD		2	1	1	_		_	X	х								
•	UISHED BY: UISHED BY:	ert	-		OATE/I 4 · 16 DATE/I	-24 1247	ECEIVED BY:		7						MME			I van		Io.	Me	TE#	015402
KELINQ	VISHED BY:			1		-17-24 0750	1278 Page 25 of 2	£	-										<u>l</u> °C				Date: <u>\$-23-24</u>



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

To: JJFirlit, JH Campbell Complex

From: EBlaj, T-258

Date: May 03, 2024

Subject: JH CAMPBELL SOLID WASTE DISPOSAL AREA – GROUNDWATER MONITORING

2nd Ouarter, 2024 – Landfill Wells

CC: HDRegister, P22-521 Sarah Holmstrom, Project Manager

ADSantini, P20-215B-REM TRC Companies, Inc.

1540 Eisenhower Place Ann Arbor, MI 48108

Chemistry Project: 24-0280

CE Laboratory Services conducted groundwater monitoring at the JH Campbell Solid Waste Disposal Area during the week of 04/15/2024, for the 2nd Quarter requirement, as specified in the Hydrogeological Monitoring Plan for the site. The samples were received for analysis by the Chemistry department on 04/17/2024.

Samples for Radium analysis have been subcontracted to Eurofins/TestAmerica, Inc. and their results are being reported separately. Please note that the subcontracted work is not reported under the CE laboratory scope of accreditation.

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



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

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CASE NARRATIVE

I. Sample Receipt

All samples were received within hold time and in good conditions; no anomalies were noted on the 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. Sample preservation 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 percent recoveries of the field matrix spike & matrix spike duplicate samples are included in the results section. 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	<u>Description</u>
RL	Reporting Limit
ND	Result not detected or below Reporting Limit
NT	Not a 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
0 1:0	
<u>Qualifier</u>	<u>Description</u>
*	Generic data flag, applicable description added in the corresponding notes section
В	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



Work Order Sample Summary

Customer Name: JH Campbell Complex Work Order ID: Q2-2024 Landfill Wells

Date Received: 4/17/2024 Chemistry Project: 24-0280

Sample #	Field Sample ID	<u>Matrix</u>	Sample Date	<u>Site</u>
24-0280-01	JHC-MW-15017	Groundwater	04/16/2024 11:48	JHC GW Monitoring - Landfill Wells
24-0280-02	JHC-MW-15018	Groundwater	04/16/2024 13:58	JHC GW Monitoring - Landfill Wells
24-0280-03	JHC-MW-15031	Groundwater	04/16/2024 10:16	JHC GW Monitoring - Landfill Wells
24-0280-04	MW-B3	Groundwater	04/16/2024 12:26	JHC GW Monitoring - Landfill Wells
24-0280-05	MW-B4	Groundwater	04/16/2024 11:26	JHC GW Monitoring - Landfill Wells
24-0280-06	JHC-MW-15035	Groundwater	04/16/2024 09:36	JHC GW Monitoring - Landfill Wells
24-0280-07	JHC-MW-15036	Groundwater	04/16/2024 09:49	JHC GW Monitoring - Landfill Wells
24-0280-08	JHC-MW-15037	Groundwater	04/15/2024 19:31	JHC GW Monitoring - Landfill Wells
24-0280-09	DUP-03	Groundwater	04/15/2024 00:00	JHC GW Monitoring - Landfill Wells
24-0280-10	FB-03	Water	04/16/2024 12:50	JHC GW Monitoring - Landfill Wells
24-0280-11	EB-03	Water	04/16/2024 13:10	JHC GW Monitoring - Landfill Wells
24-0280-12	MW-B4 MS	Groundwater	04/16/2024 11:26	JHC GW Monitoring - Landfill Wells
24-0280-13	MW-B4 MSD	Groundwater	04/16/2024 11:26	JHC GW Monitoring - Landfill Wells



05/03/24



Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0280

 Field Sample ID:
 JHC-MW-15017
 Collect Date:
 04/16/2024

 Lab Sample ID:
 24-0280-01
 Collect Time:
 11:48 AM

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/23/2024	AB24-0422-03
Metals by EPA 6020B: CCR Rule App	oendix III-IV To	tal Metals	s Ехр	Aliquot #: 24-0)280-01-C01-A02	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Arsenic	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Barium	22		ug/L	5.0	04/25/2024	AB24-0426-01
Beryllium	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Boron	121		ug/L	20.0	04/25/2024	AB24-0426-01
Cadmium	ND		ug/L	0.2	04/25/2024	AB24-0426-01
Calcium	52500		ug/L	1000.0	04/25/2024	AB24-0426-01
Chromium	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Cobalt	ND		ug/L	6.0	04/25/2024	AB24-0426-01
Copper	2		ug/L	1.0	04/25/2024	AB24-0426-01
Iron	41		ug/L	20.0	04/25/2024	AB24-0426-01
Lead	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Lithium	ND		ug/L	10.0	04/25/2024	AB24-0426-01
Magnesium	11100		ug/L	1000.0	04/25/2024	AB24-0426-01
Molybdenum	ND		ug/L	5.0	04/25/2024	AB24-0426-01
Nickel	ND		ug/L	2.0	04/25/2024	AB24-0426-01
Potassium	1320		ug/L	100.0	04/25/2024	AB24-0426-01
Selenium	12		ug/L	1.0	04/25/2024	AB24-0426-01
Silver	ND		ug/L	0.2	04/25/2024	AB24-0426-01
Sodium	14400		ug/L	1000.0	04/25/2024	AB24-0426-01
Thallium	ND		ug/L	2.0	04/25/2024	AB24-0426-01
Vanadium	ND		ug/L	2.0	04/25/2024	AB24-0426-01
Zinc	ND		ug/L	10.0	04/25/2024	AB24-0426-01
Anions by EPA 300.0 CCR Rule Anal	vte List. Cl. F.	SO4. Agu	ieous	Aliguot #: 24-0)280-01-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	17600	-	ug/L	1000.0	04/19/2024	AB24-0419-01
Fluoride	ND		ug/L	1000.0	04/19/2024	AB24-0419-01
Sulfate	34100		ug/L	1000.0	04/19/2024	AB24-0419-01
Total Dissolved Solids by SM 2540C				Aliquet #: 24 C)280-01-C03-A01	Analyst CI E
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Analyst: CLE Tracking
• •		riag			-	_
Total Dissolved Solids	238		mg/L	10.0	04/17/2024	AB24-0417-09



Report Date: 05/03/24

Laboratory Services
A CENTURY OF EXCELLENCE

24-0280-01

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0280 Field Sample ID: JHC-MW-15017 Collect Date: 04/16/2024

Collect Date: 04/16/2024 Collect Time: 11:48 AM

Matrix: Groundwater

Lab Sample ID:

Alkalinity by SM 2320B	Aliquot #: 24-0	Analyst: DLS			
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	151000	ug/L	10.0	04/24/2024	AB24-0424-01
Alkalinity Bicarbonate	151000	ug/L	10.0	04/24/2024	AB24-0424-01
Alkalinity Carbonate	ND	ug/L	10.0	04/24/2024	AB24-0424-01



05/03/24



Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0280

 Field Sample ID:
 JHC-MW-15018
 Collect Date:
 04/16/2024

 Lab Sample ID:
 24-0280-02
 Collect Time:
 01:58 PM

Mercury by EPA 7470A, Total, A	Aqueous		Aliquot #: 24-0	0280-02-C01-A01	Analyst: CLE
Parameter(s)	Result	Flag Units	s RL	Analysis Date	Tracking
Mercury	ND	ug/L	0.2	04/23/2024	AB24-0422-03
Metals by EPA 6020B: CCR Rul	le Appendix III-IV To	tal Metals Exp	Aliquot #: 24-0)280-02-C01-A02	Analyst: EB
Parameter(s)	Result	Flag Units	-	Analysis Date	Tracking
Antimony	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Arsenic	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Barium	27	ug/L	5.0	04/25/2024	AB24-0426-01
Beryllium	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Boron	96	ug/L	20.0	04/25/2024	AB24-0426-01
Cadmium	ND	ug/L	0.2	04/25/2024	AB24-0426-01
Calcium	44600	ug/L	1000.0	04/25/2024	AB24-0426-01
Chromium	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Cobalt	ND	ug/L	6.0	04/25/2024	AB24-0426-01
Copper	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Iron	25	ug/L	20.0	04/25/2024	AB24-0426-01
Lead	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Lithium	ND	ug/L	10.0	04/25/2024	AB24-0426-01
Magnesium	13000	ug/L	1000.0	04/25/2024	AB24-0426-01
Molybdenum	ND	ug/L	5.0	04/25/2024	AB24-0426-01
Nickel	ND	ug/L	2.0	04/25/2024	AB24-0426-01
Potassium	1420	ug/L	100.0	04/25/2024	AB24-0426-01
Selenium	11	ug/L	1.0	04/25/2024	AB24-0426-01
Silver	ND	ug/L	0.2	04/25/2024	AB24-0426-01
Sodium	16500	ug/L	1000.0	04/25/2024	AB24-0426-01
Thallium	ND	ug/L	2.0	04/25/2024	AB24-0426-01
Vanadium	ND	ug/L	2.0	04/25/2024	AB24-0426-01
Zinc	ND	ug/L	10.0	04/25/2024	AB24-0426-01
Anions by EPA 300.0 CCR Rule	Analyte List, Cl, F,	SO4, Aqueous	Aliquot #: 24-0)280-02-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag Units		Analysis Date	Tracking
Chloride	20800	ug/L	1000.0	04/19/2024	AB24-0419-01
Fluoride	ND	ug/L	1000.0	04/19/2024	AB24-0419-01
Sulfate	26700	ug/L	1000.0	04/19/2024	AB24-0419-01
Total Dissolved Solids by SM 2	540C		Aliquot #: 24-0)280-02-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag Units	-	Analysis Date	Tracking
Total Dissolved Solids	266	mg/L	10.0	04/17/2024	AB24-0417-09
		0290 Bago 7 of 20			



Report Date: 05/03/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0280

 Field Sample ID:
 JHC-MW-15018
 Collect Date:
 04/16/2024

 Lab Sample ID:
 24-0280-02
 Collect Time:
 01:58 PM

Alkalinity by SM 2320B		Aliquot #: 24-0	Analyst: DLS		
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	135000	ug/L	10.0	04/24/2024	AB24-0424-01
Alkalinity Bicarbonate	135000	ug/L	10.0	04/24/2024	AB24-0424-01
Alkalinity Carbonate	ND	ug/L	10.0	04/24/2024	AB24-0424-01



05/03/24



Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0280

 Field Sample ID:
 JHC-MW-15031
 Collect Date:
 04/16/2024

 Lab Sample ID:
 24-0280-03
 Collect Time:
 10:16 AM

Mercury by EPA 7470A, Total, Aqueo	us			Aliquot #: 24-0	280-03-C01-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/23/2024	AB24-0422-03
Metals by EPA 6020B: CCR Rule App	endix III-IV To	tal Metals	Ехр	Aliquot #: 24-0	280-03-C01-A02	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Arsenic	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Barium	11		ug/L	5.0	04/25/2024	AB24-0426-01
Beryllium	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Boron	42		ug/L	20.0	04/25/2024	AB24-0426-01
Cadmium	ND		ug/L	0.2	04/25/2024	AB24-0426-01
Calcium	35100		ug/L	1000.0	04/25/2024	AB24-0426-01
Chromium	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Cobalt	ND		ug/L	6.0	04/25/2024	AB24-0426-01
Copper	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Iron	39		ug/L	20.0	04/25/2024	AB24-0426-01
Lead	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Lithium	ND		ug/L	10.0	04/25/2024	AB24-0426-01
Magnesium	8910		ug/L	1000.0	04/25/2024	AB24-0426-01
Molybdenum	ND		ug/L	5.0	04/25/2024	AB24-0426-01
Nickel	ND		ug/L	2.0	04/25/2024	AB24-0426-01
Potassium	916		ug/L	100.0	04/25/2024	AB24-0426-01
Selenium	2		ug/L	1.0	04/25/2024	AB24-0426-01
Silver	ND		ug/L	0.2	04/25/2024	AB24-0426-01
Sodium	3720		ug/L	1000.0	04/25/2024	AB24-0426-01
Thallium	ND		ug/L	2.0	04/25/2024	AB24-0426-01
Vanadium	ND		ug/L	2.0	04/25/2024	AB24-0426-01
Zinc	ND		ug/L	10.0	04/25/2024	AB24-0426-01
Anions by EPA 300.0 CCR Rule Analy	/te List. Cl. F.	SO4. Aque	eous	Aliguot #: 24-0	280-03-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	1910	_	ug/L	1000.0	04/19/2024	AB24-0419-01
Fluoride	ND		ug/L	1000.0	04/19/2024	AB24-0419-01
Sulfate	12300		ug/L	1000.0	04/19/2024	AB24-0419-01
Total Dissolved Solids by SM 2540C				Alignot #: 24.0	200 02 002 404	Analyst CI F
Parameter(s)	Result	Flag	Units	RL	280-03-C03-A01 Analysis Date	Analyst: CLE Tracking
. ,		•			•	_
Total Dissolved Solids	148		mg/L	10.0	04/17/2024	AB24-0417-09
	24	0290 Daga 0	of 20			



Report Date: 05/03/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496)

Laboratory Project: **24-0280**Collect Date: 04/16/2024

Field Sample ID: JHC-MW-15031 Lab Sample ID: 24-0280-03

Collect Time: 10:16 AM

Alkalinity by SM 2320B	Aliquot #: 24-0	Analyst: DLS			
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	198000	ug/L	10.0	04/24/2024	AB24-0424-01
Alkalinity Bicarbonate	198000	ug/L	10.0	04/24/2024	AB24-0424-01
Alkalinity Carbonate	ND	ug/L	10.0	04/24/2024	AB24-0424-01



05/03/24



Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0280

 Field Sample ID:
 MW-B3
 Collect Date:
 04/16/2024

 Lab Sample ID:
 24-0280-04
 Collect Time:
 12:26 PM

Result ND ndix III-IV To Result	Flag stal Metals	Units ug/L	RL 0.2	Analysis Date	Tracking
ndix III-IV To	tal Metals	ug/L	0.2	0.4/32/3004	
	tal Metals		V. <u>–</u>	04/23/2024	AB24-0422-03
Result	Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp			280-04-C01-A02	Analyst: EB
	Flag	Units	RL	Analysis Date	Tracking
ND		ug/L	1.0	04/25/2024	AB24-0426-01
ND		ug/L	1.0	04/25/2024	AB24-0426-01
74		ug/L	5.0	04/25/2024	AB24-0426-01
ND		ug/L	1.0	04/25/2024	AB24-0426-01
119		ug/L	20.0	04/25/2024	AB24-0426-01
ND		ug/L	0.2	04/25/2024	AB24-0426-01
68600		ug/L	1000.0	04/25/2024	AB24-0426-01
ND		ug/L	1.0	04/25/2024	AB24-0426-01
ND		ug/L	6.0	04/25/2024	AB24-0426-01
2		ug/L	1.0	04/25/2024	AB24-0426-01
29		ug/L	20.0	04/25/2024	AB24-0426-01
ND		ug/L	1.0	04/25/2024	AB24-0426-01
18		ug/L	10.0	04/25/2024	AB24-0426-01
19700		ug/L	1000.0	04/25/2024	AB24-0426-01
ND		ug/L	5.0	04/25/2024	AB24-0426-01
ND		ug/L	2.0	04/25/2024	AB24-0426-01
2640		ug/L	100.0	04/25/2024	AB24-0426-01
6		ug/L	1.0	04/25/2024	AB24-0426-01
ND		ug/L	0.2	04/25/2024	AB24-0426-01
14300		ug/L	1000.0	04/25/2024	AB24-0426-01
ND		ug/L	2.0	04/25/2024	AB24-0426-01
ND		ug/L	2.0	04/25/2024	AB24-0426-01
ND		ug/L	10.0	04/25/2024	AB24-0426-01
e List, Cl, F,	SO4, Aqu	ieous	Aliquot #: 24-0	280-04-C02-A01	Analyst: KDR
Result	Flag	Units	RL	Analysis Date	Tracking
				•	AB24-0419-01
		-			AB24-0419-01
72200		ug/L	1000.0	04/19/2024	AB24-0419-01
			Aliguot #- 24-0	1280-04-C03-A01	Analyst: CLE
Result	Flag	Units	•		Tracking
	3			_	AB24-0417-09
	ND 74 ND 119 ND 68600 ND ND 22 29 ND 18 19700 ND ND 2640 6 ND 14300 ND	ND 74 ND 119 ND 68600 ND ND ND 18 19700 ND	ND ug/L 74 ug/L ND ug/L 119 ug/L ND ug/L 68600 ug/L ND ug/L ND ug/L 29 ug/L ND ug/L 18 ug/L 19700 ug/L ND ug/L ND	ND ug/L 1.0 74 ug/L 5.0 ND ug/L 1.0 119 ug/L 20.0 ND ug/L 0.2 68600 ug/L 1000.0 ND ug/L 1.0 ND ug/L 1.0 ND ug/L 6.0 2 ug/L 1.0 29 ug/L 20.0 ND ug/L 1.0 18 ug/L 1.0 18 ug/L 10.0 19700 ug/L 10.0 ND ug/L 5.0 ND ug/L 5.0 ND ug/L 2.0 ND ug/L 2.0 ND ug/L 1000.0 ND ug/L 1.0 Efector Selector	ND ug/L 1.0 04/25/2024 74 ug/L 5.0 04/25/2024 ND ug/L 1.0 04/25/2024 119 ug/L 20.0 04/25/2024 ND ug/L 0.2 04/25/2024 ND ug/L 1000.0 04/25/2024 ND ug/L 1.0 04/25/2024 ND ug/L 1.0 04/25/2024 ND ug/L 1.0 04/25/2024 ND ug/L 1.0 04/25/2024 2 ug/L 1.0 04/25/2024 29 ug/L 20.0 04/25/2024 ND ug/L 1.0 04/25/2024 18 ug/L 1.0 04/25/2024 18 ug/L 1.0 04/25/2024 18 ug/L 1.0 04/25/2024 ND ug/L 5.0 04/25/2024 ND ug/L 10.0 04/25/2024 ND ug/L 10.0 04/25/2024 ND ug/L 10.0 04/25/2024 ND ug/L 1000.0 04/25/2024 ND ug/L 2.0 04/25/2024 ND ug/L 2.0 04/25/2024 ND ug/L 2.0 04/25/2024 ND ug/L 1.0 04/25/2024 ND ug/L 2.0 04/25/2024 ND ug/L 1.0 04/25/2024 ND ug/L 2.0 04/25/2024 ND ug/L 1.0 04/25/2024 ND ug/L 2.0 04/25/2024 ND ug/L 1.0 04/25/2024



Report Date: 05/03/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496)

Laboratory Project: 24-0280

 Field Sample ID:
 MW-B3
 Collect Date:
 04/16/2024

 Lab Sample ID:
 24-0280-04
 Collect Time:
 12:26 PM

Alkalinity by SM 2320B			Aliquot #: 24-0	0280-04-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	182000	ug/L	10.0	04/24/2024	AB24-0424-01
Alkalinity Bicarbonate	182000	ug/L	10.0	04/24/2024	AB24-0424-01
Alkalinity Carbonate	ND	ug/L	10.0	04/24/2024	AB24-0424-01



05/03/24



Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0280

 Field Sample ID:
 MW-B4
 Collect Date:
 04/16/2024

 Lab Sample ID:
 24-0280-05
 Collect Time:
 11:26 AM

						Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/23/2024	AB24-0422-03
Metals by EPA 6020B: CCR Rule Appe	endix III-IV To	tal Metals	s Ехр	Aliquot #: 24-0)280-05-C01-A02	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Arsenic	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Barium	41		ug/L	5.0	04/25/2024	AB24-0426-01
Beryllium	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Boron	263		ug/L	20.0	04/25/2024	AB24-0426-01
Cadmium	ND		ug/L	0.2	04/25/2024	AB24-0426-01
Calcium	77700		ug/L	1000.0	04/25/2024	AB24-0426-01
Chromium	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Cobalt	ND		ug/L	6.0	04/25/2024	AB24-0426-01
Copper	2		ug/L	1.0	04/25/2024	AB24-0426-01
Iron	ND		ug/L	20.0	04/25/2024	AB24-0426-01
Lead	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Lithium	ND		ug/L	10.0	04/25/2024	AB24-0426-01
Magnesium	15100		ug/L	1000.0	04/25/2024	AB24-0426-01
Molybdenum	ND		ug/L	5.0	04/25/2024	AB24-0426-01
Nickel	ND		ug/L	2.0	04/25/2024	AB24-0426-01
Potassium	2620		ug/L	100.0	04/25/2024	AB24-0426-01
Selenium	2		ug/L	1.0	04/25/2024	AB24-0426-01
Silver	ND		ug/L	0.2	04/25/2024	AB24-0426-01
Sodium	16100		ug/L	1000.0	04/25/2024	AB24-0426-01
Thallium	ND		ug/L	2.0	04/25/2024	AB24-0426-01
Vanadium	ND		ug/L	2.0	04/25/2024	AB24-0426-01
Zinc	ND		ug/L	10.0	04/25/2024	AB24-0426-01
Anions by EPA 300.0 CCR Rule Analy	te List. Cl. F.	SO4. Agu	ieous	Aliguot #: 24-0)280-05-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	17000	-	ug/L	1000.0	04/19/2024	AB24-0419-01
Fluoride	ND		ug/L	1000.0	04/19/2024	AB24-0419-01
Sulfate	22100		ug/L	1000.0	04/19/2024	AB24-0419-01
Total Dissolved Solids by SM 2540C				Aliquet #: 24 C	1280 <u>-</u> 05-002 A04	Analyst CI E
Parameter(s)	Result	Flag	Units	RL	0280-05-C03-A01 Analysis Date	Analyst: CLE Tracking
• •		ı iag			-	_
Total Dissolved Solids	330		mg/L	10.0	04/17/2024	AB24-0417-09



Report Date: 05/03/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0280

 Field Sample ID:
 MW-B4
 Collect Date:
 04/16/2024

 Lab Sample ID:
 24-0280-05
 Collect Time:
 11:26 AM

Alkalinity by SM 2320B			Aliquot #: 24-	0280-05-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	239000	ug/L	10.0	04/24/2024	AB24-0424-01
Alkalinity Bicarbonate	239000	ug/L	10.0	04/24/2024	AB24-0424-01
Alkalinity Carbonate	ND	ug/L	10.0	04/24/2024	AB24-0424-01



05/03/24



Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0280

 Field Sample ID:
 JHC-MW-15035
 Collect Date:
 04/16/2024

 Lab Sample ID:
 24-0280-06
 Collect Time:
 09:36 AM

	eous					Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/23/2024	AB24-0422-03
Metals by EPA 6020B: CCR Rule Ap	pendix III-IV To	tal Metals	s Ехр	Aliquot #: 24-0)280-06-C01-A02	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Arsenic	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Barium	15		ug/L	5.0	04/25/2024	AB24-0426-01
Beryllium	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Boron	63		ug/L	20.0	04/25/2024	AB24-0426-01
Cadmium	ND		ug/L	0.2	04/25/2024	AB24-0426-01
Calcium	76500		ug/L	1000.0	04/25/2024	AB24-0426-01
Chromium	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Cobalt	ND		ug/L	6.0	04/25/2024	AB24-0426-01
Copper	1		ug/L	1.0	04/25/2024	AB24-0426-01
Iron	ND		ug/L	20.0	04/25/2024	AB24-0426-01
Lead	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Lithium	ND		ug/L	10.0	04/25/2024	AB24-0426-01
Magnesium	16600		ug/L	1000.0	04/25/2024	AB24-0426-01
Molybdenum	ND		ug/L	5.0	04/25/2024	AB24-0426-01
Nickel	ND		ug/L	2.0	04/25/2024	AB24-0426-01
Potassium	2030		ug/L	100.0	04/25/2024	AB24-0426-01
Selenium	1		ug/L	1.0	04/25/2024	AB24-0426-01
Silver	ND		ug/L	0.2	04/25/2024	AB24-0426-01
Sodium	9210		ug/L	1000.0	04/25/2024	AB24-0426-01
Thallium	ND		ug/L	2.0	04/25/2024	AB24-0426-01
Vanadium	ND		ug/L	2.0	04/25/2024	AB24-0426-01
Zinc	ND		ug/L	10.0	04/25/2024	AB24-0426-01
Anions by EPA 300.0 CCR Rule An	alyte List, Cl, F,	SO4, Aqu	ieous	Aliquot #: 24-0)280-06-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	7670		ug/L	1000.0	04/19/2024	AB24-0419-01
Fluoride	ND		ug/L	1000.0	04/19/2024	AB24-0419-01
Sulfate	24800		ug/L	1000.0	04/19/2024	AB24-0419-01
Total Dissolved Solids by SM 2540	C			Aliquot #- 24-0)280-06-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	304	- 3	mg/L	10.0	04/17/2024	AB24-0417-09
Total Dissolved Solids	JU 4		mg/L	10.0	UH/11/2U24	70411-09



Report Date: 05/03/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0280

 Field Sample ID:
 JHC-MW-15035
 Collect Date:
 04/16/2024

 Lab Sample ID:
 24-0280-06
 Collect Time:
 09:36 AM

Alkalinity by SM 2320B			Aliquot #: 24-0	Analyst: DLS	
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	252000	ug/L	10.0	04/24/2024	AB24-0424-01
Alkalinity Bicarbonate	252000	ug/L	10.0	04/24/2024	AB24-0424-01
Alkalinity Carbonate	ND	ug/L	10.0	04/24/2024	AB24-0424-01



05/03/24



Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0280

 Field Sample ID:
 JHC-MW-15036
 Collect Date:
 04/16/2024

 Lab Sample ID:
 24-0280-07
 Collect Time:
 09:49 AM

Daramatar(a)	Dearth	FI	11:4:4:	D.	Analysis Date	T1:!
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/23/2024	AB24-0422-03
Metals by EPA 6020B: CCR Rule Appe	ndix III-IV To	tal Metals	s Ехр	Aliquot #: 24-0)280-07-C01-A02	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Arsenic	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Barium	9		ug/L	5.0	04/25/2024	AB24-0426-01
Beryllium	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Boron	86		ug/L	20.0	04/25/2024	AB24-0426-01
Cadmium	ND		ug/L	0.2	04/25/2024	AB24-0426-01
Calcium	57300		ug/L	1000.0	04/25/2024	AB24-0426-01
Chromium	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Cobalt	ND		ug/L	6.0	04/25/2024	AB24-0426-01
Copper	1		ug/L	1.0	04/25/2024	AB24-0426-01
Iron	45		ug/L	20.0	04/25/2024	AB24-0426-01
Lead	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Lithium	ND		ug/L	10.0	04/25/2024	AB24-0426-01
Magnesium	14200		ug/L	1000.0	04/25/2024	AB24-0426-01
Molybdenum	ND		ug/L	5.0	04/25/2024	AB24-0426-01
Nickel	ND		ug/L	2.0	04/25/2024	AB24-0426-01
Potassium	1370		ug/L	100.0	04/25/2024	AB24-0426-01
Selenium	2		ug/L	1.0	04/25/2024	AB24-0426-01
Silver	ND		ug/L	0.2	04/25/2024	AB24-0426-01
Sodium	7790		ug/L	1000.0	04/25/2024	AB24-0426-01
Thallium	ND		ug/L	2.0	04/25/2024	AB24-0426-01
Vanadium	ND		ug/L	2.0	04/25/2024	AB24-0426-01
Zinc	ND		ug/L	10.0	04/25/2024	AB24-0426-01
Anions by EPA 300.0 CCR Rule Analyt	e List. Cl. F.	SO4. Agu	ieous	Aliquot #: 24-0)280-07-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	3040	9	ug/L	1000.0	04/19/2024	AB24-0419-01
Fluoride	ND		ug/L	1000.0	04/19/2024	AB24-0419-01
Sulfate	33600		ug/L	1000.0	04/19/2024	AB24-0419-01
			J			
Total Dissolved Solids by SM 2540C					0280-07-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	244		mg/L	10.0	04/17/2024	AB24-0417-09



Report Date: 05/03/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496)

Laboratory Project: **24-0280**Collect Date: 04/16/2024

 Field Sample ID:
 JHC-MW-15036
 Collect Date:
 04/16/2024

 Lab Sample ID:
 24-0280-07
 Collect Time:
 09:49 AM

Alkalinity by SM 2320B			Aliquot #: 24-0	Analyst: DLS	
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	182000	ug/L	10.0	04/24/2024	AB24-0424-01
Alkalinity Bicarbonate	182000	ug/L	10.0	04/24/2024	AB24-0424-01
Alkalinity Carbonate	ND	ug/L	10.0	04/24/2024	AB24-0424-01



05/03/24



Laboratory Services A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project:

24-0280 Field Sample ID: JHC-MW-15037 Collect Date: 04/15/2024 Lab Sample ID: 24-0280-08 Collect Time: 07:31 PM

Mercury by EPA 7470A, Total, Aqueous			Aliquot #: 24-0	0280-08-C01-A01	Analyst: CLE
Parameter(s)	Result	Flag Unit	s RL	Analysis Date	Tracking
Mercury	ND	ug/L	0.2	04/23/2024	AB24-0422-03
Metals by EPA 6020B: CCR Rul	le Appendix III-IV To	tal Metals Exp	Aliguot #: 24-0	Aliquot #: 24-0280-08-C01-A02	
Parameter(s)	Result	Flag Unit	-	Analysis Date	Analyst: EB Tracking
Antimony	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Arsenic	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Barium	10	ug/L	5.0	04/25/2024	AB24-0426-01
Beryllium	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Boron	110	ug/L	20.0	04/25/2024	AB24-0426-01
Cadmium	ND	ug/L	0.2	04/25/2024	AB24-0426-01
Calcium	57100	ug/L	1000.0	04/25/2024	AB24-0426-01
Chromium	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Cobalt	ND	ug/L	6.0	04/25/2024	AB24-0426-01
Copper	1	ug/L	1.0	04/25/2024	AB24-0426-01
Iron	ND	ug/L	20.0	04/25/2024	AB24-0426-01
Lead	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Lithium	ND	ug/L	10.0	04/25/2024	AB24-0426-01
Magnesium	11700	ug/L	1000.0	04/25/2024	AB24-0426-01
Molybdenum	ND	ug/L	5.0	04/25/2024	AB24-0426-01
Nickel	ND	ug/L	2.0	04/25/2024	AB24-0426-01
Potassium	1420	ug/L	100.0	04/25/2024	AB24-0426-01
Selenium	5	ug/L	1.0	04/25/2024	AB24-0426-01
Silver	ND	ug/L	0.2	04/25/2024	AB24-0426-01
Sodium	6190	ug/L	1000.0	04/25/2024	AB24-0426-01
Thallium	ND	ug/L	2.0	04/25/2024	AB24-0426-01
Vanadium	ND	ug/L	2.0	04/25/2024	AB24-0426-01
Zinc	ND	ug/L	10.0	04/25/2024	AB24-0426-01
Anions by EPA 300.0 CCR Rule	Analyte List, Cl, F,	SO4, Aqueous	Aliquot #: 24-0	0280-08-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag Unit	-	Analysis Date	Tracking
Chloride	1600	ug/L	1000.0	04/19/2024	AB24-0419-01
Fluoride	ND	ug/L	1000.0	04/19/2024	AB24-0419-01
Sulfate	22100	ug/L	1000.0	04/19/2024	AB24-0419-01
Total Dissolved Solids by SM 2	540C		Aliguot #- 24-0	0280-08-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag Unit		Analysis Date	Tracking
Total Dissolved Solids	240	mg/L	10.0	04/17/2024	AB24-0417-09
. 3.6. 2.33334 001140		1119/ L	10.0	J	



Report Date: 05/03/24

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0280

 Field Sample ID:
 JHC-MW-15037
 Collect Date:
 04/15/2024

 Lab Sample ID:
 24-0280-08
 Collect Time:
 07:31 PM

Alkalinity by SM 2320B			Aliquot #: 24-0	0280-08-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	177000	ug/L	10.0	04/24/2024	AB24-0424-01
Alkalinity Bicarbonate	177000	ug/L	10.0	04/24/2024	AB24-0424-01
Alkalinity Carbonate	ND	ug/L	10.0	04/24/2024	AB24-0424-01



05/03/24



Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0280

 Field Sample ID:
 DUP-03
 Collect Date:
 04/15/2024

 Lab Sample ID:
 24-0280-09
 Collect Time:
 12:00 AM

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/23/2024	AB24-0422-03
Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp			s Ехр	Aliquot #: 24-0)280-09-C01-A02	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Arsenic	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Barium	10		ug/L	5.0	04/25/2024	AB24-0426-01
Beryllium	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Boron	109		ug/L	20.0	04/25/2024	AB24-0426-01
Cadmium	ND		ug/L	0.2	04/25/2024	AB24-0426-01
Calcium	57500		ug/L	1000.0	04/25/2024	AB24-0426-01
Chromium	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Cobalt	ND		ug/L	6.0	04/25/2024	AB24-0426-01
Copper	1		ug/L	1.0	04/25/2024	AB24-0426-01
Iron	ND		ug/L	20.0	04/25/2024	AB24-0426-01
Lead	ND		ug/L	1.0	04/25/2024	AB24-0426-01
Lithium	ND		ug/L	10.0	04/25/2024	AB24-0426-01
Magnesium	11500		ug/L	1000.0	04/25/2024	AB24-0426-01
Molybdenum	ND		ug/L	5.0	04/25/2024	AB24-0426-01
Nickel	ND		ug/L	2.0	04/25/2024	AB24-0426-01
Potassium	1400		ug/L	100.0	04/25/2024	AB24-0426-01
Selenium	5		ug/L	1.0	04/25/2024	AB24-0426-01
Silver	ND		ug/L	0.2	04/25/2024	AB24-0426-01
Sodium	6650		ug/L	1000.0	04/25/2024	AB24-0426-01
Thallium	ND		ug/L	2.0	04/25/2024	AB24-0426-01
Vanadium	ND		ug/L	2.0	04/25/2024	AB24-0426-01
Zinc	ND		ug/L	10.0	04/25/2024	AB24-0426-01
Anions by EPA 300.0 CCR Rule An	alvte List, Cl, F,	SO4, Aqu	ieous	Aliquot #: 24-0)280-09-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	1550	_	ug/L	1000.0	04/19/2024	AB24-0419-01
Fluoride	ND		ug/L	1000.0	04/19/2024	AB24-0419-01
Sulfate	23400		ug/L	1000.0	04/19/2024	AB24-0419-01
Total Dissolved Solids by SM 2540	C			Aliquot #: 24-0)280-09-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	249	J	mg/L	10.0	04/17/2024	AB24-0417-09
i stat Dissolved Solids	47€		g/∟	10.0	UT/11/2027	ADZ T 07 11 203



Report Date: 05/03/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0280

 Field Sample ID:
 DUP-03
 Collect Date:
 04/15/2024

 Lab Sample ID:
 24-0280-09
 Collect Time:
 12:00 AM

Alkalinity by SM 2320B			Aliquot #: 24-0	0280-09-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	174000	ug/L	10.0	04/24/2024	AB24-0424-01
Alkalinity Bicarbonate	174000	ug/L	10.0	04/24/2024	AB24-0424-01
Alkalinity Carbonate	ND	ug/L	10.0	04/24/2024	AB24-0424-01



05/03/24



Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0280

 Field Sample ID:
 FB-03
 Collect Date:
 04/16/2024

 Lab Sample ID:
 24-0280-10
 Collect Time:
 12:50 PM

Matrix: Water

Mercury by EPA 7470A, Total, A	Aqueous		Aliquot #: 24-0)280-10-C01-A01	Analyst: CLE
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Mercury	ND	ug/L	0.2	04/23/2024	AB24-0422-03
Metals by EPA 6020B: CCR Rul	e Appendix III-IV To	tal Metals Exp	Aliguot #: 24-0)280-10-C01-A02	Analyst: EB
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Antimony	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Arsenic	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Barium	ND	ug/L	5.0	04/25/2024	AB24-0426-01
Beryllium	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Boron	ND	ug/L	20.0	04/25/2024	AB24-0426-01
Cadmium	ND	ug/L	0.2	04/25/2024	AB24-0426-01
Calcium	ND	ug/L	1000.0	04/25/2024	AB24-0426-01
Chromium	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Cobalt	ND	ug/L	6.0	04/25/2024	AB24-0426-01
Copper	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Iron	ND	ug/L	20.0	04/25/2024	AB24-0426-01
Lead	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Lithium	ND	ug/L	10.0	04/25/2024	AB24-0426-01
Magnesium	ND	ug/L	1000.0	04/25/2024	AB24-0426-01
Molybdenum	ND	ug/L	5.0	04/25/2024	AB24-0426-01
Nickel	ND	ug/L	2.0	04/25/2024	AB24-0426-01
Potassium	ND	ug/L	100.0	04/25/2024	AB24-0426-01
Selenium	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Silver	ND	ug/L	0.2	04/25/2024	AB24-0426-01
Sodium	ND	ug/L	1000.0	04/25/2024	AB24-0426-01
Thallium	ND	ug/L	2.0	04/25/2024	AB24-0426-01
Vanadium	ND	ug/L	2.0	04/25/2024	AB24-0426-01
Zinc	ND	ug/L	10.0	04/25/2024	AB24-0426-01
Anions by EPA 300.0 CCR Rule	Analyte List, Cl, F,	SO4, Aqueous	Aliquot #: 24-0)280-10-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Chloride	ND	ug/L	1000.0	04/19/2024	AB24-0419-01
Fluoride	ND	ug/L	1000.0	04/19/2024	AB24-0419-01
Sulfate	ND	ug/L	1000.0	04/19/2024	AB24-0419-01
Total Dissolved Solids by SM 2	540C		Aliquot #: 24-0)280-10-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Total Dissolved Solids	ND	mg/L	10.0	04/17/2024	AB24-0417-09
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Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0280

 Field Sample ID:
 EB-03
 Collect Date:
 04/16/2024

 Lab Sample ID:
 24-0280-11
 Collect Time:
 01:10 PM

Matrix: Water

Mercury by EPA 7470A, Total, Aqu	ueous		Aliquot #: 24-0)280-11-C01-A01	Analyst: CLE
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Mercury	ND	ug/L	0.2	04/23/2024	AB24-0422-03
Metals by EPA 6020B: CCR Rule	Appendix III-IV To	tal Metals Exp	Aliguot #: 24-0)280-11-C01-A02	Analyst: EB
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Antimony	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Arsenic	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Barium	ND	ug/L	5.0	04/25/2024	AB24-0426-01
Beryllium	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Boron	ND	ug/L	20.0	04/25/2024	AB24-0426-01
Cadmium	ND	ug/L	0.2	04/25/2024	AB24-0426-01
Calcium	ND	ug/L	1000.0	04/25/2024	AB24-0426-01
Chromium	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Cobalt	ND	ug/L	6.0	04/25/2024	AB24-0426-01
Copper	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Iron	ND	ug/L	20.0	04/25/2024	AB24-0426-01
Lead	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Lithium	ND	ug/L	10.0	04/25/2024	AB24-0426-01
Magnesium	ND	ug/L	1000.0	04/25/2024	AB24-0426-01
Molybdenum	ND	ug/L	5.0	04/25/2024	AB24-0426-01
Nickel	ND	ug/L	2.0	04/25/2024	AB24-0426-01
Potassium	ND	ug/L	100.0	04/25/2024	AB24-0426-01
Selenium	ND	ug/L	1.0	04/25/2024	AB24-0426-01
Silver	ND	ug/L	0.2	04/25/2024	AB24-0426-01
Sodium	ND	ug/L	1000.0	04/25/2024	AB24-0426-01
Thallium	ND	ug/L	2.0	04/25/2024	AB24-0426-01
Vanadium	ND	ug/L	2.0	04/25/2024	AB24-0426-01
Zinc	ND	ug/L	10.0	04/25/2024	AB24-0426-01
Anions by EPA 300.0 CCR Rule A	nalyte List, Cl, F,	SO4, Aqueous	Aliquot #: 24-0)280-11-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Chloride	ND	ug/L	1000.0	04/19/2024	AB24-0419-01
Fluoride	ND	ug/L	1000.0	04/19/2024	AB24-0419-01
Sulfate	ND	ug/L	1000.0	04/19/2024	AB24-0419-01
Total Dissolved Solids by SM 254	0C		Aliguot #· 24-0)280-11-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Total Dissolved Solids	ND	mg/L	10.0	04/17/2024	AB24-0417-09
Total Dissolved Collas	ND	ilig/L	10.0	0 -7 /1//2024	7.027-0417-09



05/03/24



Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0280

 Field Sample ID:
 MW-B4 MS
 Collect Date:
 04/16/2024

 Lab Sample ID:
 24-0280-12
 Collect Time:
 11:26 AM

Matrix: Groundwater

Mercury by EPA 7470A, Total,	Aqueous		Aliquot #: 24-0)280-12-C01-A01	Analyst: CLE
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Mercury	96.0	%	0.2	04/23/2024	AB24-0422-03
Metals by EPA 6020B: CCR Ru	le Appendix III-IV To	tal Metals Exp	Aliquot #: 24-0)280-12-C01-A02	Analyst: EB
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Antimony	113	%	1.0	04/25/2024	AB24-0426-01
Arsenic	111	%	1.0	04/25/2024	AB24-0426-01
Barium	113	%	5.0	04/25/2024	AB24-0426-01
Beryllium	105	%	1.0	04/25/2024	AB24-0426-01
Boron	109	%	20.0	04/25/2024	AB24-0426-01
Cadmium	111	%	0.2	04/25/2024	AB24-0426-01
Calcium	106	%	1000.0	04/25/2024	AB24-0426-01
Chromium	110	%	1.0	04/25/2024	AB24-0426-01
Cobalt	109	%	6.0	04/25/2024	AB24-0426-01
Copper	104	%	1.0	04/25/2024	AB24-0426-01
Iron	108	%	20.0	04/25/2024	AB24-0426-01
Lead	103	%	1.0	04/25/2024	AB24-0426-01
Lithium	105	%	10.0	04/25/2024	AB24-0426-01
Magnesium	108	%	1000.0	04/25/2024	AB24-0426-01
Molybdenum	111	%	5.0	04/25/2024	AB24-0426-01
Nickel	107	%	2.0	04/25/2024	AB24-0426-01
Potassium	105	%	100.0	04/25/2024	AB24-0426-01
Selenium	108	%	1.0	04/25/2024	AB24-0426-01
Silver	108	%	0.2	04/25/2024	AB24-0426-01
Sodium	102	%	1000.0	04/25/2024	AB24-0426-01
Thallium	106	%	2.0	04/25/2024	AB24-0426-01
Vanadium	115	%	2.0	04/25/2024	AB24-0426-01
Zinc	110	%	10.0	04/25/2024	AB24-0426-01
Anions by EPA 300.0 CCR Rule	e Analyte List, Cl, F,	SO4, Aqueous	Aliquot #: 24-0)280-12-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Chloride	103	%	1000.0	04/19/2024	AB24-0419-01
Fluoride	101	%	1000.0	04/19/2024	AB24-0419-01
Sulfate	99	%	1000.0	04/19/2024	AB24-0419-01



05/03/24



Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0280

 Field Sample ID:
 MW-B4 MSD
 Collect Date:
 04/16/2024

 Lab Sample ID:
 24-0280-13
 Collect Time:
 11:26 AM

Matrix: Groundwater

Mercury by EPA 7470A, To	tal, Aqueous		Aliquot #: 24-0	280-13-C01-A01	Analyst: CLE	
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking	
Mercury	96.0	%	0.2	04/23/2024	AB24-0422-03	
Metals by EPA 6020B: CCF	R Rule Appendix III-IV To	tal Metals Exp	Aliquot #: 24-0)280-13-C01-A02	Analyst: EB	
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking	
Antimony	111	%	1.0	04/25/2024	AB24-0426-01	
Arsenic	111	%	1.0	04/25/2024	AB24-0426-01	
Barium	110	%	5.0	04/25/2024	AB24-0426-01	
Beryllium	105	%	1.0	04/25/2024	AB24-0426-01	
Boron	105	%	20.0	04/25/2024	AB24-0426-01	
Cadmium	110	%	0.2	04/25/2024	AB24-0426-01	
Calcium	110	%	1000.0	04/25/2024	AB24-0426-01	
Chromium	112	%	1.0	04/25/2024	AB24-0426-01	
Cobalt	109	%	6.0	04/25/2024	AB24-0426-01	
Copper	104	%	1.0	04/25/2024	AB24-0426-01	
Iron	104	%	20.0	04/25/2024	AB24-0426-01	
Lead	104	%	1.0	04/25/2024	AB24-0426-01	
Lithium	104	%	10.0	04/25/2024	AB24-0426-01	
Magnesium	102	%	1000.0	04/25/2024	AB24-0426-01	
Molybdenum	111	%	5.0	04/25/2024	AB24-0426-01	
Nickel	106	%	2.0	04/25/2024	AB24-0426-01	
Potassium	104	%	100.0	04/25/2024	AB24-0426-01	
Selenium	107	%	1.0	04/25/2024	AB24-0426-01	
Silver	107	%	0.2	04/25/2024	AB24-0426-01	
Sodium	103	%	1000.0	04/25/2024	AB24-0426-01	
Thallium	106	%	2.0	04/25/2024	AB24-0426-01	
Vanadium	115	%	2.0	04/25/2024	AB24-0426-01	
Zinc	109	%	10.0	04/25/2024	AB24-0426-01	
Anions by EPA 300.0 CCR	Rule Analyte List, CI, F,	SO4, Aqueous	Aliquot #: 24-0)280-13-C02-A01	Analyst: KDR	
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking	
Chloride	102	%	1000.0	04/19/2024	AB24-0419-01	
Fluoride	101	%	1000.0	04/19/2024	AB24-0419-01	
Sulfate	102	%	1000.0	04/19/2024	AB24-0419-01	



A CENTURY OF EXCELLENCE

Analytical Report

Report Date: 05/03/24

Data Qualifiers	Exception Summary
	No exceptions occurred.

CONSUMERS ENERGY

Chemistry Department

General Standard Operating Procedure

PROC CHEM-1.2.01 PAGE 1 OF 2 REVISION 4 ATTACHMENT A

T1	TITLE: SAMPLE LOG-IN – SHIPMENT INSPECTION FORM	
Pı	roject Log-In Number: 24-0280	
	nspection Date: <u>04-17-2024</u> Inspection By: <u>EB</u>	
Sa	ample Origin/Project Name: THC Q2-2024 Landfill Wells	
Sh	hipment Delivered By: Enter the type of shipment carrier.	
	Pony FedEx UPS USPS Other (Hand Carry) (whom) EB	
	Tracking Number: Shipping Form Attached: Y	
St	hipping Containers: Enter the type and number of shipping containers received.	
	Cooler Cardboard Box Custom Case Loose/Unpackaged Containers Other	
Co	Condition of Shipment: Enter the as-received condition of the shipment container.	
	Damaged Shipment Observed: None Dented Other	Leaking
SI	Shipment Security: Enter if any of the shipping containers were opened before receipt.	
	Shipping Containers Received: OpenedN/A Sealed _N/A	
ID.	100	
15.)	CoC Work Request Air Data Sheet Otl	her
Te	Emperature of Containers: Measure the temperature of several sample containers.	
	As-Received Temperature Range 0.6-4.4° Samples Received on Ice: Yes	✓ No
	M&TE # and ExpirationOISYo2/5-23-24	
N	Number and Type of Containers: Enter the total number of sample containers received.	
pH Test Paper o.	_14 Container Type Water Soil Other Bro	oken <u>Leaking</u>
Lot * 205522	VOA (40mL or 60mL) 18	4
Lot * 205522 Exp 2-15-25	9-oz (amber glass jar)	The state of the s
•	2-oz (amber glass)	
	125 mL (plastic) 26	-
	24 mL vial (glass)	

Page 2 of 2 not needed.

CHAIN OF CUSTODY



CONSUMERS ENERGY COMPANY - LABORATORY SERVICES

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

SAMPLING SITE / C	USTOMER:			PROJECT NUMBER:	SAP CC or Wo	O#:							Α	NAI	LYSI	S RE	EQUE	ESTE	D		QA REQUIREMEN	NT.
JHC Q2-2024 Lan	dfill Wells			24-0280	REQUESTER	: Beth	any	Swa	nbe	rg		(Attach List if More Space is Needed)							VI:			
SAMPLING TEAM:				TURNAROUND TIME REQUIRED:																	□ NPDES	
CLE	4 LMO			□ 24 HR □ 48 HR □ 3 DAYS □ STA	NDARD 🛮 OT	HER_															⊠ TNI	
SEND REPORT TO:	Joseph Firlit			email:	phone:																□ ISO 17025	
COPY TO:	JR Register			MATRIX CODES: GW = Groundwater OX = Other			C	ONT	AIN	ERS											☐ 10 CFR 50 APP. B	
	TRC			WW = Wastewater SL = Sludge W = Water / Aqueous Liquid A = Air			1	PRES	ERV	ATI	VE	tals				226	228				☐ INTERNAL INFO	
LAB	SAMPLE COLI	LECTION	X	S = Soil / General Solid WP = Wipe O = Oil WT = General	al Waste	AL#					_	Me	ns		linity	um 2	um 2				□ OTHER	_
SAMPLE ID	DATE	TIME	MATRIX	FIELD SAMPLE ID / LOCA	ATION	TOTAL #	None	HNO3	NaOH	HCI	MeOH	Total Metals	Anions	TDS	Alkalinity	Radium 2	Radium				REMARKS	
24-0280-01	4-16-24	1148	GW	JHC-MW-15017		7	4	3				x	x	x	x	x	x					
-02	4.16.24	1358	GW	JHC-MW-15018		7	4	3				x	х	x	x	x	x					
-03	4.16.24	1016	GW	JHC-MW-15031		7	4	3				x	x	x	x	x	x					
-04	4-16-24	1226	GW	MW-B3		7	4	3				х	х	x	x	x	x					
-05	4.16.24	1126	GW	MW-B4		7	4	3				x	х	х	х	x	x					
-06	4.16.24	0930	GW	JHC-MW-15035 (MW-B5)		7	4	3				х	х	x	х	x	х			-		
-07	4.16.24		GW	JHC-MW-15036 (MW-B6)		7	4	3				х	х	x	х	х	х					
-08	4.15.24	1931	GW	JHC-MW-15037 (MW-B7)		5	2	3				х	x	x	х	х	x					
-09	4.15.24	_	GW	DUP-03		5	2	3				х	х	x	х	x	x					
-10	4-16-24	1250	W	FB-03	37	5	2	3				х	х	х		х	x					
-11	4.16.24	1310	W	EB-03		5	2	3				х	х	x		х	х					
-12	4-14-24	(126	GW	MW-B4 MS		2	1	1				х	x									
RELINQUISHED BY:		I	DATE/1	IME: REC	CEIVED BY:							СО	MME	NTS	:							
CHAINA	ahlouf		4.16	7-24 1315	£.																	
RELINQUISHED BY:	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	I	DATE/1	TIME: RE	EIVED BY:							Red	eived	on Io	ce? [VYe:	s 🗆 l	No	M&	TE#:	015402	
Y	~ `		04-1	7-24 0770 -	1.61	7/	-					Ter	npera	ture:	0.6	-4.	½ °C		Cal.	Due	Date: 5-23-24	
			- 1-1	7-24 0730	280 Page 29 of 3	7hv	_															

CHAIN OF CUSTODY



CONSUMERS ENERGY COMPANY – LABORATORY SERVICES

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

Page _ 2 of _ 2

SAMPLING SITE / CU	STOMER:			PROJECT NUMBER:	SAP CC or WC	D#:							Α	NAI	YSIS	S RE	EQUEST	ED	0.1.77.02.27.77.77.77.77
JHC 24-2024 Land	fill Wells			24-0280	REQUESTER:	Beth	any	Swa	inbei	rg							Space is 1		QA REQUIREMENT:
SAMPLING TEAM:				TURNAROUND TIME REQUIRED:															☐ NPDES
				□ 24 HR □ 48 HR □ 3 DAYS □ STA	ANDARD ⊠ OTH	HER_													⊠ TNI
SEND REPORT TO:	Joseph Firlit			email:	phone:														□ ISO 17025
COPY TO:	JR Register			MATRIX CODES: GW = Groundwater OX = Other _			CO	ONT	AINE	ERS									☐ 10 CFR 50 APP. B
	TRC			WW = Wastewater SL = Sludge W = Water / Aqueous Liquid A = Air			F	PRES	ERV	ATI	VE	tals			_	57	328		☐ INTERNAL INFO
LAB	SAMPLE COLL	LECTION	RIX	S = Soil / General Solid $WP = Wipe$ $O = Oil$ $WT = General Solid$		TOTAL#			7 -		т	Total Metals	suc		Alkalinity	Radium 226	Radium 228		□ OTHER
SAMPLE ID	DATE	TIME	MATRIX	FIELD SAMPLE ID / LOC	ATION	TOI	None	HNO ₃	NaOF	HCI	MeOH	Tota	Anions	TDS	Alka	Radi	Radi		REMARKS
24-0280-13	4-16-24	1126	GW	MW-B4 MSD		2	1	1				x	x						
							Н		+	\vdash									
										4	+								
									П	T									
									-										
RELINQUISHED BY:			DATE/T	CIME.	CEIVED BY:							001	0.00	Ima					
RELINQUISHED B1.		1	JA I E/ I	IME. RE	CEIVED BY:							COI	ММЕ	N15:					
CHSUBGNON	<u>t</u>		1./10-													,			
RELINQUISHED BY:	B	I	DATE/T	TIME: RE	EIVED BY:	/						Rece	eived	on Ic	e? 💆	Yes	□ No	М&ТЕ	E#: 015402 ue Date: 5-23-24
Y.			94-l'	7-24 0730	0280 Page 30 of 3	50 30						Tem	perat	ure: Q	.6-	ય.પ	<u>°</u> °C	Cal. Du	ue Date: 5-23-24

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ANALYTICAL REPORT

PREPARED FOR

Attn: Emil Blaj Consumers Energy 135 W Trail Street Jackson, Michigan 49201

Generated 5/24/2024 11:58:24 AM

JOB DESCRIPTION

JH Campbell Background Wells

JOB NUMBER

160-53901-1

Eurofins St. Louis 13715 Rider Trail North Earth City MO 63045



Eurofins St. Louis

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins TestAmerica Project Manager.

Authorization

Zhorda Ridenhower Generated
5/24/2024 11:58:24 AM

Authorized for release by Rhonda Ridenhower, Business Unit Manager Rhonda.Ridenhower@et.eurofinsus.com Designee for Micha Korrinhizer, Project Manager Micha.Korrinhizer@et.eurofinsus.com (314)298-8566 3

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Client: Consumers Energy Project/Site: JH Campbell Background Wells Laboratory Job ID: 160-53901-1

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Case Narrative

Client: Consumers Energy

Project: JH Campbell Background Wells

Job ID: 160-53901-1 Eurofins St. Louis

CASE NARRATIVE

Client: Consumers Energy

Project: JH Campbell CCR Groundwater Testing

Report Number: 160-53901-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition, all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method.

Eurofins Environment Testing attests to the validity of the laboratory data generated by Eurofins facilities reported herein. All analyses performed by Eurofins Environment Testing facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins Environment Testing's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report.

Calculations are performed before rounding to avoid round-off errors in calculated results.

Proper preservation was noted for the methods performed on these samples, unless otherwise detailed below.

All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client.

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.

Reference the chain of custody and receipt report for any variations on receipt conditions.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

Receipt

The samples were received on 4/26/2024 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and properly preserved. The temperature of the cooler at receipt time was 16.5°C.

Receipt Exceptions

The following sample was received at the laboratory without a sample collection time documented on the chain of custody: DUP-01 (160-53901-7). A time of 12:00am was used to log the samples.

Method 903.0 - Radium-226 (GFPC)

Samples JHC-MW-15023 (160-53901-1), JHC-MW-15024 (160-53901-2), JHC-MW-15025 (160-53901-3), JHC-MW-15026 (160-53901-4), JHC-MW-15027 (160-53901-5), JHC-MW-15028 (160-53901-6), DUP-01 (160-53901-7), FB-01 (160-53901-8) and EB-01 (160-53901-9) were analyzed for Radium-226 (GFPC). The samples were prepared on 4/29/2024 and analyzed on 5/23/2024.

Method 904.0 - Radium-228 (GFPC)

Samples JHC-MW-15023 (160-53901-1), JHC-MW-15024 (160-53901-2), JHC-MW-15025 (160-53901-3), JHC-MW-15026 (160-53901-4), JHC-MW-15027 (160-53901-5), JHC-MW-15028 (160-53901-6), DUP-01 (160-53901-7), FB-01 (160-53901-8) and EB-01 (160-53901-9) were analyzed for Radium-228 (GFPC). The samples were prepared on 4/29/2024 and analyzed on

Eurofins St. Louis

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Job ID: 160-53901-1

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Case Narrative

Client: Consumers Energy

Project: JH Campbell Background Wells

Job ID: 160-53901-1 (Continued)

Eurofins St. Louis

Job ID: 160-53901-1

5/21/2024.

Method Ra226_Ra228 - Combined Radium-226 and Radium-228

Samples JHC-MW-15023 (160-53901-1), JHC-MW-15024 (160-53901-2), JHC-MW-15025 (160-53901-3), JHC-MW-15026 (160-53901-4), JHC-MW-15027 (160-53901-5), JHC-MW-15028 (160-53901-6), DUP-01 (160-53901-7), FB-01 (160-53901-8) and EB-01 (160-53901-9) were analyzed for Combined Radium-226 and Radium-228. The samples were analyzed on 5/24/2024.

No analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Eurofins St. Louis

5/24/2024

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Form No. CA-C-WI-002, Rev. 4.23, dated 4/16/2019

Sinc 140 common 44F.	Chain of Custody Record
ģ	
13715 Rider Trail North	

& eurofins Environment Testing TestAmerica

	Project Manag	Project Manager: Emil Biaj						ON COO	
Close Contact	Email: Emil.Bla	Email: Emil.Blaj@cmsenergy.com		S	Site Contact:		Date:		i C
Ciletti Collidati	Tel/Fax: 517-788-5888	88-5888		۲	Lab Contact: Jayna Awalt		Carrier: UPS		3
Consumers Erlergy, Laboratory Controct	Ana	Analysis Turnaround Time	Time					Sampler: CELS	
33 W. Ifall Street	CALENDAR DAYS		✓ WORKING DAYS	S				For Lab Use Only.	_
Jackson, WI 49201	TAT if diffe	TAT if different from Below _22 days	ays		(Vyalk-III Clefft.	
11/-180-3000		2 weeks			۲.٤٥				
JH Campbell Back		1 week)6 A			ON SON	
Project #: 24-0278		2 days			(EP.				
P O # (PR24040552/PO4400121591)		1 day		avi1	977 WW				
Sample Identification	Sample Date	Sample Type (C=Comp. Time G=Grab)	Matrix	C # f. o Preserva	Perform Radium Radium			Sample Specific Notes:	fic Note
JHC-MW-15023	4/15/24	2016	GW	2 4	×				
JHC-MW-15024	4/15/24	1839	0W	2 4	× ×				
JHC-MW-15025	4/15/24	1820	GW	2	x x				
JHC-MW-15026	4/15/24	1651	GW	2	x x				
JHC-MW-15027	4/15/24	1732	GW	2	× × ×				
JHC-MW-15028	4/15/24	1514	GW	2	× × ×				
DUP-01	4/15/24	1	ΜĎ	2	× ×				
FB-01	4/15/24	2040	3	2	× × ×		160-53901 Chain of Custody	of Custody	
EB-01	4/15/24	2025	≯	2	× ×				
			-						
2 HCI: 3= H2SO4: 4=HNO3:	NO3: 5=NaOH: 6= Ot	Other							
Preservation Useu. 1-10c, 2-110, 5-1120, Preservation Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste?	Pleas	A Waste Codes for the sample in the	r the sam	ple in the	Sample Dispose	ıl (A fee may bı	e assessed if samples a	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	Ê
ction if the lab	ant Poison B		Unknown		Return to Client		✓ Disposal by Lab	Archive for Months	
Special Instructions/QC Requirements & Comments:									
Lean de Lean d					Coole	Cooler Temp. (°C): Obs'd:	bs'd: Corr'd:	Therm ID No.:	
Custody Seals Intact: Yes No Relinquished by:	Company:	Company:	1.	Date/Time:	Received t	CPS		Date/Time:	
Relinquished by:	Company			Date/Time:	Received by:	Nother	MU Company:		0930
			6					Doto/Limb	

Login Sample Receipt Checklist

Client: Consumers Energy Job Number: 160-53901-1

Login Number: 53901 List Source: Eurofins St. Louis

List Number: 1

Creator: Worthington, Sierra M

Groutor. Worthington, Clorid in		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	False	Sample 7 had no time listed on the COC.
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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Definitions/Glossary

Client: Consumers Energy Job ID: 160-53901-1

Project/Site: JH Campbell Background Wells

Qualifiers

Rad

Qualifier **Qualifier Description**

Result is less than the sample detection limit.

Glossary

Abbreviation These commonly used abbreviations may or may not be present in this report.

Listed under the "D" column to designate that the result is reported on a dry weight basis

Percent Recovery %R **CFL** Contains Free Liquid CFU Colony Forming Unit CNF Contains No Free Liquid

Duplicate Error Ratio (normalized absolute difference) **DER**

Dil Fac **Dilution Factor**

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

Estimated Detection Limit (Dioxin) **EDL** LOD Limit of Detection (DoD/DOE) LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level" MDA Minimum Detectable Activity (Radiochemistry) MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit ML Minimum Level (Dioxin) MPN Most Probable Number Method Quantitation Limit MQL

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive QC **Quality Control**

Relative Error Ratio (Radiochemistry) **RER**

Reporting Limit or Requested Limit (Radiochemistry) RL

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin) **TEQ** Toxicity Equivalent Quotient (Dioxin)

Too Numerous To Count **TNTC**

Eurofins St. Louis

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Method Summary

Client: Consumers Energy

Project/Site: JH Campbell Background Wells

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Job ID: 160-53901-1

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Sample Summary

Client: Consumers Energy Project/Site: JH Campbell Background Wells

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-53901-1	JHC-MW-15023	Water	04/15/24 20:16	04/26/24 09:30
160-53901-2	JHC-MW-15024	Water	04/15/24 18:39	04/26/24 09:30
160-53901-3	JHC-MW-15025	Water	04/15/24 18:20	04/26/24 09:30
160-53901-4	JHC-MW-15026	Water	04/15/24 16:51	04/26/24 09:30
160-53901-5	JHC-MW-15027	Water	04/15/24 17:32	04/26/24 09:30
160-53901-6	JHC-MW-15028	Water	04/15/24 15:14	04/26/24 09:30
160-53901-7	DUP-01	Water	04/15/24 00:00	04/26/24 09:30
160-53901-8	FB-01	Water	04/15/24 20:40	04/26/24 09:30
160-53901-9	EB-01	Water	04/15/24 20:25	04/26/24 09:30

Job ID: 160-53901-1

Project/Site: JH Campbell Background Wells

Client Sample ID: JHC-MW-15023

Lab Sample ID: 160-53901-1 Date Collected: 04/15/24 20:16

Matrix: Water

Date Received: 04/26/24 09:30

Method: EPA 903.	0 - Radium	-226 (GFP	C)							
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.143	U	0.119	0.120	1.00	0.171	pCi/L	04/29/24 08:51	05/23/24 09:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.8		30 - 110					04/29/24 08:51	05/23/24 09:48	1

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.421	U	0.375	0.377	1.00	0.591	pCi/L	04/29/24 08:55	05/21/24 12:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.8		30 - 110					04/29/24 08:55	05/21/24 12:26	1
Y Carrier	80.0		30 - 110					04/29/24 08:55	05/21/24 12:26	1

Method: TAL-STL R	a226_Ra	228 - Con	nbined Radi	um-226 ar	nd Radiur	n-228				
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226	0.564	U	0.393	0.396	5.00	0.591	pCi/L	 -	05/24/24 07:51	1
+ 228										

Client Sample ID: JHC-MW-15024 Lab Sample ID: 160-53901-2 Date Collected: 04/15/24 18:39 **Matrix: Water**

Date Received: 04/26/24 09:30

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0670	U	0.0916	0.0918	1.00	0.154	pCi/L	04/29/24 08:51	05/23/24 09:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.2		30 - 110					04/29/24 08:51	05/23/24 09:48	1

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.280	U	0.390	0.391	1.00	0.656	pCi/L	04/29/24 08:55	05/21/24 12:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.2		30 - 110					04/29/24 08:55	05/21/24 12:26	1
Y Carrier	78.1		30 - 110					04/29/24 08:55	05/21/24 12:26	1

Client: Consumers Energy

Project/Site: JH Campbell Background Wells

Client Sample ID: JHC-MW-15024

Date Collected: 04/15/24 18:39 Date Received: 04/26/24 09:30 Lab Sample ID: 160-53901-2

Matrix: Water

Job ID: 160-53901-1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

	_		Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.347	U	0.401	0.402	5.00	0.656	pCi/L		05/24/24 07:51	1

Client Sample ID: JHC-MW-15025

Date Collected: 04/15/24 18:20 Date Received: 04/26/24 09:30

Lab Sample ID: 160-53901-3

Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00989	U	0.0886	0.0886	1.00	0.183	pCi/L	04/29/24 08:51	05/23/24 09:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.1		30 - 110					04/29/24 08:51	05/23/24 09:48	1

Method: EPA 904	4.0 - Radium	-228 (GFP	C)							
		•	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.597		0.392	0.396	1.00	0.581	pCi/L	04/29/24 08:55	05/21/24 12:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.1		30 - 110					04/29/24 08:55	05/21/24 12:26	1
Y Carrier	81.9		30 - 110					04/29/24 08:55	05/21/24 12:26	1

Method: TAL-STL R	a226_Ra	228 - Com	bined Radi	um-226 an	nd Radiur	n-228				
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.607		0.402	0.406	5.00	0.581	pCi/L		05/24/24 07:51	1

Client Sample ID: JHC-MW-15026 Lab Sample ID: 160-53901-4 Date Collected: 04/15/24 16:51 **Matrix: Water**

Date Received: 04/26/24 09:30

Method: EPA 903.	0 - Radium	-226 (GFP	C)							
		•	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0470	U	0.0828	0.0829	1.00	0.148	pCi/L	04/29/24 08:51	05/23/24 09:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.5		30 - 110					04/29/24 08:51	05/23/24 09:48	1

Project/Site: JH Campbell Background Wells

Client Sample ID: JHC-MW-15026

Date Collected: 04/15/24 16:51 Date Received: 04/26/24 09:30 Lab Sample ID: 160-53901-4

Matrix: Water

Method:	EPA	904.0 -	Radium-228	(GFPC)	

		•	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.347	U	0.349	0.350	1.00	0.562	pCi/L	04/29/24 08:55	05/21/24 12:30	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.5		30 - 110					04/29/24 08:55	05/21/24 12:30	1
Y Carrier	81.9		30 - 110					04/29/24 08:55	05/21/24 12:30	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

	_		Count Uncert.	Total Uncert.					
Analyte Combined Radium 226		Qualifier	(2σ+/-) 0.359	(2σ+/-) 0.360	RL 5.00	MDC Unit	Prepared	Analyzed 05/24/24 07:51	Dil Fac
+ 220									

Client Sample ID: JHC-MW-15027

Date Collected: 04/15/24 17:32 Date Received: 04/26/24 09:30 Lab Sample ID: 160-53901-5

Matrix: Water

Method: EPA 903.0 - Radium-226 (GFPC)

Welliou. EFA 903	o.u - Kaululli	-220 (GFF	U)							
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.206		0.146	0.148	1.00	0.203	pCi/L	04/29/24 08:51	05/23/24 10:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.7		30 - 110					04/29/24 08:51	05/23/24 10:05	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte Radium-228	Result 1.03	Qualifier	Count Uncert. (2σ+/-) 0.461	Total Uncert. (2σ+/-) 0.471	RL 1.00	MDC 0.597	 Prepared 04/29/24 08:55	Analyzed 05/21/24 12:30	Dil Fac
Carrier	%Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Ba Carrier	81.7		30 - 110				04/29/24 08:55	05/21/24 12:30	1
Y Carrier	75.9		30 - 110				04/29/24 08:55	05/21/24 12:30	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

			Count	iotai					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC Unit	Prepared	Analyzed	Dil Fac
Combined Radium	1.24		0.484	0.494	5.00	0.597 pCi/L		05/24/24 07:51	1
226 + 228									

Client: Consumers Energy

Project/Site: JH Campbell Background Wells

Client Sample ID: JHC-MW-15028

Lab Sample ID: 160-53901-6

Date Collected: 04/15/24 15:14 **Matrix: Water** Date Received: 04/26/24 09:30

Method: EPA 90	3.0 - Radium	-226 (GFP	C)							
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0161	U	0.123	0.123	1.00	0.239	pCi/L	04/29/24 08:51	05/23/24 10:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.0		30 - 110					04/29/24 08:51	05/23/24 10:05	

			Count	Total						
			Uncert.	Uncert.						
			Officert.	Officert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0191	U	0.329	0.329	1.00	0.628	pCi/L	04/29/24 08:55	05/21/24 12:30	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.0		30 - 110					04/29/24 08:55	05/21/24 12:30	1
Y Carrier	76.6		30 - 110					04/29/24 08:55	05/21/24 12:30	1

Method: TAL-STL F	Ra226_Ra	228 - Con	nbined Rad	ium-226 a	ınd Radiu	m-228				
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226	-0.00294	U	0.351	0.351	5.00	0.628	pCi/L	 -	05/24/24 07:51	1
+ 228										

Client Sample ID: DUP-01 Lab Sample ID: 160-53901-7 Date Collected: 04/15/24 00:00 **Matrix: Water** Date Received: 04/26/24 09:30

Method: EPA 903.0) - Radium	-226 (GFP	C)							
		•	Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.143	U	0.118	0.119	1.00	0.324	pCi/L	04/29/24 08:51	05/23/24 10:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	56.1		30 - 110					04/29/24 08:51	05/23/24 10:05	1

Method: EPA 90	4.0 - Radium	-228 (GFP	C)							
		•	Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.634	U	0.564	0.567	1.00	0.888	pCi/L	04/29/24 08:55	05/21/24 12:30	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	56.1		30 - 110					04/29/24 08:55	05/21/24 12:30	1
Y Carrier	79.6		30 - 110					04/29/24 08:55	05/21/24 12:30	1

Client: Consumers Energy

Project/Site: JH Campbell Background Wells

Client Sample ID: DUP-01

Lab Sample ID: 160-53901-7

Matrix: Water

Job ID: 160-53901-1

Date Collected: 04/15/24 00:00 Date Received: 04/26/24 09:30

Method: TAL-STL Ra226_	Ra228 - Combined Radium-226 and Radium-228
------------------------	--

	_		Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.492	U	0.576	0.579	5.00	0.888	pCi/L		05/24/24 07:51	1

Client Sample ID: FB-01 Lab Sample ID: 160-53901-8

Date Collected: 04/15/24 20:40 **Matrix: Water**

Date Received: 04/26/24 09:30

Method: EPA 903.	.0 - Radium	-226 (GFP	C)							
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.467		0.173	0.178	1.00	0.166	pCi/L	04/29/24 08:51	05/23/24 10:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.2		30 - 110					04/29/24 08:51	05/23/24 10:05	1

Method: FPA 904.0 - Radium-228 (GFPC)

- Kaululli	-220 (GFP	U)							
		Count	Total						
		Uncert.	Uncert.						
Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
0.211	U	0.310	0.311	1.00	0.525	pCi/L	04/29/24 08:55	05/21/24 12:31	1
%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
98.2		30 - 110					04/29/24 08:55	05/21/24 12:31	1
82.6		30 - 110					04/29/24 08:55	05/21/24 12:31	1
	Result 0.211 % Yield 98.2	Result Qualifier 0.211 U %Yield Qualifier 98.2	Result 0.211 Qualifier Qualifier Qualifier (2σ+/-) ($ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Count Uncert. Uncert. Uncert.	Count Uncert. Uncert. Vincert. Vincer	Count Uncert. Uncert. Uncert.	Count Uncert. Uncert. Uncert. Count Uncer	Note to the latest content of the latest

Method: TAL-STL Ra226 Ra228 - Combined Radium-226 and Radium-228

	_	Count	Total					
		Uncert.	Uncert.					
Analyte	Result Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC Unit	Prepared	Analyzed	Dil Fac
Combined Radium	0.678	0.355	0.358	5.00	0.525 pCi/L		05/24/24 07:51	1

Client Sample ID: EB-01 Lab Sample ID: 160-53901-9

Date Collected: 04/15/24 20:25 **Matrix: Water** Date Received: 04/26/24 09:30

١					
	Method:	EPA	903.0 -	Radium-226	(GFPC)

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.113	U	0.111	0.111	1.00	0.170	pCi/L	04/29/24 08:51	05/23/24 10:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.2		30 - 110					04/29/24 08:51	05/23/24 10:05	1

Client Sample Results

Client: Consumers Energy Job ID: 160-53901-1

Project/Site: JH Campbell Background Wells

+ 228

Client Sample ID: EB-01 Lab Sample ID: 160-53901-9

Date Collected: 04/15/24 20:25
Date Received: 04/26/24 09:30

Matrix: Water

Method: EPA 90	4.0 - Radium	-228 (GFP	C)							
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0615	U	0.281	0.282	1.00	0.515	pCi/L	04/29/24 08:55	05/21/24 12:31	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.2		30 - 110					04/29/24 08:55	05/21/24 12:31	1
Y Carrier	79.6		30 - 110					04/29/24 08:55	05/21/24 12:31	1

Method: TAL-STL R	Ra226_Ra	228 - Con	nbined Radi	um-226 a	nd Radiu	m-228				
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226	0.174	U	0.302	0.303	5.00	0.515	pCi/L		05/24/24 07:51	1

1

Client: Consumers Energy Job ID: 160-53901-1

Project/Site: JH Campbell Background Wells

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-659070/1-A

Lab Sample ID: LCS 160-659070/2-A

Matrix: Water

Analysis Batch: 662988

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 659070

MB MB Uncert. Uncert. Analyte Result Qualifier $(2\sigma + / -)$ $(2\sigma + / -)$ RL **MDC** Unit Prepared Analyzed Dil Fac Radium-226 0.1169 U 0.106 0.107 1.00 0.158 pCi/L 04/29/24 08:51 05/23/24 09:46

Total

MB

Carrier %Yield Qualifier Limits Prepared Analyzed Dil Fac Ba Carrier 94.4 30 - 110 04/29/24 08:51 05/23/24 09:46

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 659070

10

Analysis Batch: 662988

Total

LCS LCS %Rec **Spike** Uncert. Analyte Added Result Qual $(2\sigma + / -)$ RL **MDC** Unit %Rec Limits Radium-226 11.3 10.90 1.25 1.00 0.239 pCi/L 96 75 - 125

Count

LCS LCS

Carrier %Yield Qualifier Limits Ba Carrier 92.1 30 - 110

Lab Sample ID: 160-53902-A-4-A DU **Client Sample ID: Duplicate**

Matrix: Water

Matrix: Water

Analysis Batch: 663009

Prep Type: Total/NA

Prep Batch: 659070

Total

Sample Sample DU DU **RER** Uncert. Analyte Result Qual $(2\sigma + / -)$ RL **MDC** Unit Result Qual RER Limit 0.04134 U Radium-226 0.257 0.123 1.00 0.229 pCi/L 0.82

DU DU

Carrier %Yield Qualifier Limits Ba Carrier 89.8 30 - 110

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-659071/1-A

Matrix: Water

Analysis Batch: 662590

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 659071 Count Total

MB MB Uncert. Uncert. Analyte Result Qualifier $(2\sigma + / -)$ $(2\sigma + / -)$

RL **MDC** Unit Prepared Dil Fac Analyzed Radium-228 0.05926 Ū 0.289 0.289 1.00 0.530 pCi/L 04/29/24 08:55 05/21/24 12:25

> MB MB

Carrier %Yield Qualifier Limits Prepared Dil Fac Analyzed Ba Carrier 94.4 30 - 110 04/29/24 08:55 05/21/24 12:25 30 - 110 Y Carrier 78.1 04/29/24 08:55 05/21/24 12:25

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QC Sample Results

Client: Consumers Energy Job ID: 160-53901-1

Project/Site: JH Campbell Background Wells

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-659071/2-A **Matrix: Water**

Analysis Batch: 662590

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 659071

Total LCS LCS %Rec Spike Uncert. Analyte Added Result Qual $(2\sigma + / -)$ RL**MDC** Unit %Rec Limits Radium-228 8.92 10.40 1.42 1.00 0.584 pCi/L 117 75 - 125

LCS LCS

%Yield Qualifier Carrier Limits Ba Carrier 92.1 30 - 110 Y Carrier 78.9 30 - 110

Lab Sample ID: 160-53902-A-4-B DU

Matrix: Water

Analysis Batch: 662590

Client Sample ID: Duplicate

Prep Type: Total/NA

Prep Batch: 659071

Total

Sample Sample DU DU Uncert. **RER** Analyte Result Qual Result Qual $(2\sigma + / -)$ RL **MDC** Unit RER Limit Radium-228 0.4943 U 1.00 0.655 pCi/L 0.54 0.998 0.423

DU DU

Carrier %Yield Qualifier Limits Ba Carrier 30 - 110 89.8 80.0 30 - 110 Y Carrier

QC Association Summary

Client: Consumers Energy Project/Site: JH Campbell Background Wells

Prep Batch: 659070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-53901-1	JHC-MW-15023	Total/NA	Water	PrecSep-21	
160-53901-2	JHC-MW-15024	Total/NA	Water	PrecSep-21	
160-53901-3	JHC-MW-15025	Total/NA	Water	PrecSep-21	
160-53901-4	JHC-MW-15026	Total/NA	Water	PrecSep-21	
160-53901-5	JHC-MW-15027	Total/NA	Water	PrecSep-21	
160-53901-6	JHC-MW-15028	Total/NA	Water	PrecSep-21	
160-53901-7	DUP-01	Total/NA	Water	PrecSep-21	
160-53901-8	FB-01	Total/NA	Water	PrecSep-21	
160-53901-9	EB-01	Total/NA	Water	PrecSep-21	
MB 160-659070/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-659070/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
160-53902-A-4-A DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 659071

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-53901-1	JHC-MW-15023	Total/NA	Water	PrecSep_0	
160-53901-2	JHC-MW-15024	Total/NA	Water	PrecSep_0	
160-53901-3	JHC-MW-15025	Total/NA	Water	PrecSep_0	
160-53901-4	JHC-MW-15026	Total/NA	Water	PrecSep_0	
160-53901-5	JHC-MW-15027	Total/NA	Water	PrecSep_0	
160-53901-6	JHC-MW-15028	Total/NA	Water	PrecSep_0	
160-53901-7	DUP-01	Total/NA	Water	PrecSep_0	
160-53901-8	FB-01	Total/NA	Water	PrecSep_0	
160-53901-9	EB-01	Total/NA	Water	PrecSep_0	
MB 160-659071/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-659071/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
160-53902-A-4-B DU	Duplicate	Total/NA	Water	PrecSep 0	

Job ID: 160-53901-1

Tracer/Carrier Summary

Client: Consumers Energy Job ID: 160-53901-1

Project/Site: JH Campbell Background Wells

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water Prep Type: Total/NA

			Percent Yield (Acceptance Limits)
		Ва	
Lab Sample ID	Client Sample ID	(30-110)	
160-53901-1	JHC-MW-15023	84.8	
160-53901-2	JHC-MW-15024	79.2	
160-53901-3	JHC-MW-15025	87.1	
160-53901-4	JHC-MW-15026	98.5	
160-53901-5	JHC-MW-15027	81.7	
160-53901-6	JHC-MW-15028	84.0	
160-53901-7	DUP-01	56.1	
160-53901-8	FB-01	98.2	
160-53901-9	EB-01	97.2	
160-53902-A-4-A DU	Duplicate	89.8	
	Lab Control Sample	92.1	
LCS 160-659070/2-A	Eab Control Campic		

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water Prep Type: Total/NA

				Percent Yield (Acceptance Limits)
		Ва	Y	
Lab Sample ID	Client Sample ID	(30-110)	(30-110)	
160-53901-1	JHC-MW-15023	84.8	80.0	
160-53901-2	JHC-MW-15024	79.2	78.1	
160-53901-3	JHC-MW-15025	87.1	81.9	
160-53901-4	JHC-MW-15026	98.5	81.9	
160-53901-5	JHC-MW-15027	81.7	75.9	
160-53901-6	JHC-MW-15028	84.0	76.6	
160-53901-7	DUP-01	56.1	79.6	
160-53901-8	FB-01	98.2	82.6	
160-53901-9	EB-01	97.2	79.6	
160-53902-A-4-B DU	Duplicate	89.8	80.0	
LCS 160-659071/2-A	Lab Control Sample	92.1	78.9	
MB 160-659071/1-A	Method Blank	94.4	78.1	

Y = Y Carrier

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ANALYTICAL REPORT

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JOB DESCRIPTION

JH Campbell Landfill Wells

JOB NUMBER

160-53902-1

Eurofins St. Louis 13715 Rider Trail North Earth City MO 63045



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Job Notes

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Authorized for release by Micha Korrinhizer, Project Manager Micha.Korrinhizer@et.eurofinsus.com (314)298-8566

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Client: Consumers Energy Project/Site: JH Campbell Landfill Wells Laboratory Job ID: 160-53902-1

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Tracer Carrier Summary	

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Case Narrative

Client: Consumers Energy
Project: JH Campbell Landfill Wells

Job ID: 160-53902-1 Eurofins St. Louis

CASE NARRATIVE

Client: Consumers Energy

Project: JH Campbell CCR Groundwater Testing

Report Number: 160-53902-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition, all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method.

Eurofins Environment Testing attests to the validity of the laboratory data generated by Eurofins facilities reported herein. All analyses performed by Eurofins Environment Testing facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins Environment Testing's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report.

Calculations are performed before rounding to avoid round-off errors in calculated results.

Proper preservation was noted for the methods performed on these samples, unless otherwise detailed below.

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

The matrix for the Method Blank and LCS/LCSD is as close to the samples as can be reasonably achieved. Detailed information can be found in the most current revision of the associated SOP.

The method blank (MB) z-score is within limits, unless stated otherwise below, and is stored in the level IV raw data.

This laboratory report is confidential and is intended for the sole use of Eurofins Environment Testing and its client.

No additional analytical or quality issues were noted, other than those described below or in the Definitions/ Glossary page.

Receipt

The samples were received on 4/26/2024 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved. The temperature of the cooler at receipt time was 16.4°C.

Receipt Exceptions

The following sample was received at the laboratory without a sample collection time documented on the chain of custody: DUP-03 (160-53902-9). A time of 12:00am was used to log the sample.

Method 903.0 - Radium-226 (GFPC)

Samples JHC-MW-15017 (160-53902-1), JHC-MW-15018 (160-53902-2), JHC-MW-15031 (160-53902-3), MW-B3 (160-53902-4), MW-B4 (160-53902-5), JHC-MW-15035 (160-53902-6), JHC-MW-15036 (160-53902-7), JHC-MW-15037 (160-53902-8), DUP-03 (160-53902-9), FB-03 (160-53902-10) and EB-03 (160-53902-11) were analyzed for Radium-226 (GFPC). The samples were prepared on 4/29/2024 and 5/29/2024 and analyzed on 5/23/2024 and 6/20/2024.

Method 904.0 - Radium-228 (GFPC)

Samples JHC-MW-15017 (160-53902-1), JHC-MW-15018 (160-53902-2), JHC-MW-15031 (160-53902-3), MW-B3 (160-53902-4), MW-B4 (160-53902-5), JHC-MW-15035 (160-53902-6), JHC-MW-15036 (160-53902-7), JHC-MW-15037 (160-53902-8), DUP-03 (160-53902-9), FB-03 (160-53902-10) and EB-03 (160-53902-11) were analyzed for Radium-228 (GFPC). The samples were prepared on 4/29/2024 and 4/30/2024 and analyzed on 5/21/2024 and 5/22/2024.

Method Ra226_Ra228 - Combined Radium-226 and Radium-228

Eurofins St. Louis

Job ID: 160-53902-1

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Case Narrative

Client: Consumers Energy

Job ID: 160-53902-1 Project: JH Campbell Landfill Wells

Job ID: 160-53902-1 (Continued)

Eurofins St. Louis

Samples JHC-MW-15017 (160-53902-1), JHC-MW-15018 (160-53902-2), JHC-MW-15031 (160-53902-3), MW-B3 (160-53902-4), MW-B4 (160-53902-5), JHC-MW-15035 (160-53902-6), JHC-MW-15036 (160-53902-7), JHC-MW-15037 (160-53902-8), DUP-03 (160-53902-9), FB-03 (160-53902-10) and EB-03 (160-53902-11) were analyzed for Combined Radium-226 and Radium-228. The samples were analyzed on 5/24/2024 and 6/21/2024.

Eurofins St. Louis

Page 5 of 23 6/21/2024

Form No C.A.C.-WILDNO Bov A 22 Asted Aldersonan

06/30

Date/Time: Date/Time:

Company:

Received by: (Nethorn Parceived in Laboratory by:

Date/Time:

Company

6/21/2024

Therm ID No. Date/Time:

Corr'd: Company:

Cooler Temp. (°C): Obs'd:

OPS

Received by:

Company: Consolver energy of m/m / m/m/company:

Custody Seal No.

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Yes

Custody Seals Intact:

Relinquished by: Relinquished by:

Months

Archive for

✓ Disposal by Lab

Return to Client

Non-Hazard Rammable Skin Irritant
Special Instructions/QC Requirements & Comments:

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CALENDAR DANS Sample CELS	The Content of English	Consumers Energy, Laboratory Services	Tel/Fax: 517-	788-5888				ab Col	rtact: ,	Jayna Awa	=	Carrier:		- Jo	1 COC
The following body The fol	Fig. 2017 Fig. 2018 Fig.	135 W. Trail Street	An	alysis Turr	around T	me	Г	E	F	E	F			Samuler CELS	
Colored House, 14 Campel Landfill Wells	Control Cont	Jackson, MI 49201	CALENDAR	DAYS		ING DAYS								For Lab Use On	<u>></u>
Comparison	Completed Handfill Weils Completed Handfill	517-788-5888	TAT if diffe	erent from Bek	1	s		(N						Walk-in Client	_
Project Name, If Campbell Landfill Wells	Project Name	(xxx) xxx-xxxx		2 wee				_				-		l ab Sampling	
100 / S 100	Så perform MS / MSC Pereservative Pereserv	Project Name: JH Campbell Landfill Wells		1 wee	¥										
121551)	Sample Disposal (A fee may be assessed if samples are retained longer	Project #: 24-0280		2 day	60		-								
Sample Sample Sample Carlone Sample Sample Carlone Sample	Preservatii Perform M Pe	O # (PR24040552/PO4400121591)		1 day				N/S						SOD / SOD NO.	
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WW-15035 4/16/24 936 GW 2 4 x x WW-15036 4/16/24 949 GW 2 4 x x IW-15037 4/15/24 1931 GW 2 4 x x B-03 4/16/24 1250 W 2 4 x x B-03 4/16/24 1310 W 2 4 x x	4 4 4 4 4	MW-B4	4/16/24	1126		GW			-						
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MV-15037 JP-03 4/15/24 1931 GW 2 4 x x x	4 4 4 4	JHC-MW-15036	4/16/24	949		GW			-						
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recensation Iteat: 1= Ire 2= MCI: 3= MCOA: A=MNO3: E=NADU: E= Other		EB-03	4/16/24	1310		3			\vdash						
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Cacutation Osder, Files, 2-1101, 3-112004, 4-111100, 3-112004, 4-1110004, 4-1110004, 4-1110004, 4-1110004, 4-1110004, 4-1110004, 4-1110004, 4-1110004, 4-1110004, 4-1110004, 4-1110004, 4-1110004, 4-1110004, 4-1110004, 4-1110004, 4-1110004, 4-1110004, 4-1110004, 4-1110004, 4-11		reservation Used: 1= Ice, 2= HCI; 3= H2SO4; 4=HN	NO3; 5=NaOH; 6= C	ther	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)										
		Are any samples from a listed EPA Hazardous Waste? Comments Section if the lab is to dispose of the sample	Please List any EPA	Waste Coo	les for the	sample	in the		2		200	D 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	וו אמוווףופא מופ ופנמו	ined longer than i m	ontn)

Environment Testing

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Chain of Custody Record

Eurofins TestAmerica, St. Louis

13715 Rider Trail North

Login Sample Receipt Checklist

Client: Consumers Energy Job Number: 160-53902-1

Login Number: 53902 List Source: Eurofins St. Louis

List Number: 1

Creator: Worthington, Sierra M

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td>- Commission</td>	True	- Commission
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	False	Sample 9 did not have a time listed on the COC.
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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Definitions/Glossary

Client: Consumers Energy Job ID: 160-53902-1

Project/Site: JH Campbell Landfill Wells

Qualifiers

Rad

Qualifier Qualifier Description

U Result is less than the sample detection limit.

Glossary

Abbreviation These commonly used abbreviations may or may not be present in this report.

Listed under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent
POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

Eurofins St. Louis

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Method Summary

Client: Consumers Energy

Project/Site: JH Campbell Landfill Wells

Job ID: 160-53902-1

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

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Sample Summary

Client: Consumers Energy Project/Site: JH Campbell Landfill Wells

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-53902-1	JHC-MW-15017	Water	04/16/24 11:48	04/26/24 09:30
160-53902-2	JHC-MW-15018	Water	04/16/24 13:58	04/26/24 09:30
160-53902-3	JHC-MW-15031	Water	04/16/24 10:16	04/26/24 09:30
160-53902-4	MW-B3	Water	04/16/24 12:26	04/26/24 09:30
160-53902-5	MW-B4	Water	04/16/24 11:26	04/26/24 09:30
160-53902-6	JHC-MW-15035	Water	04/16/24 09:36	04/26/24 09:30
160-53902-7	JHC-MW-15036	Water	04/16/24 09:49	04/26/24 09:30
160-53902-8	JHC-MW-15037	Water	04/15/24 19:31	04/26/24 09:30
160-53902-9	DUP-03	Water	04/15/24 00:00	04/26/24 09:30
160-53902-10	FB-03	Water	04/16/24 12:50	04/26/24 09:30
160-53902-11	EB-03	Water	04/16/24 13:10	04/26/24 09:30

Job ID: 160-53902-1

Job ID: 160-53902-1

Client: Consumers Energy

Project/Site: JH Campbell Landfill Wells

Client Sample ID: JHC-MW-15017

Date Collected: 04/16/24 11:48

Date Collected: 04/16/24 11:48 Date Received: 04/26/24 09:30 Lab Sample ID: 160-53902-1

Matrix: Water

Method: EPA 903.0 - Radium	-226 (GFPC)

			Count Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0389	U	0.0879	0.0879	1.00	0.164	pCi/L	04/29/24 08:51	05/23/24 10:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.4		30 - 110					04/29/24 08:51	05/23/24 10:05	1

Method: EPA 904.0 - Radium-228 (GFPC)

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.618		0.367	0.371	1.00	0.525	pCi/L	04/29/24 08:55	05/21/24 12:31	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.4		30 - 110					04/29/24 08:55	05/21/24 12:31	1
Y Carrier	80.7		30 - 110					04/29/24 08:55	05/21/24 12:31	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

mothod: I/tE OIE1	\u\u_		Dilloa Itaai	ann zzo an	a itaaiai					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.656		0.377	0.381	5.00	0.525	pCi/L		05/24/24 07:51	1

Client Sample ID: JHC-MW-15018

Date Collected: 04/16/24 13:58 Date Received: 04/26/24 09:30 Lab Sample ID: 160-53902-2

Matrix: Water

Method: EPA 903.0 - Radium-226 (GFPC)

Method: EPA 903	o.u - Naululli	-226 (GFP	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.129	U	0.113	0.114	1.00	0.167	pCi/L	04/29/24 08:51	05/23/24 10:05	1
Carrier Ba Carrier	%Yield 95.2	Qualifier	Limits 30 - 110					Prepared 04/29/24 08:51	Analyzed 05/23/24 10:05	Dil Fac

Method: EPA 904.0 - Radium-228 (GFPC)

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0529	U	0.254	0.254	1.00	0.499	pCi/L	04/29/24 08:55	05/21/24 12:31	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.2		30 - 110					04/29/24 08:55	05/21/24 12:31	1
Y Carrier	84.1		30 - 110					04/29/24 08:55	05/21/24 12:31	1

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Client: Consumers Energy

Project/Site: JH Campbell Landfill Wells

Client Sample ID: JHC-MW-15018

Date Collected: 04/16/24 13:58 Date Received: 04/26/24 09:30 Lab Sample ID: 160-53902-2

Matrix: Water

Job ID: 160-53902-1

Method: TAL-STL Ra226_Ra22	8 - Combined Radium-226 and Radium-228
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	_		Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0764	U	0.278	0.278	5.00	0.499	pCi/L		05/24/24 07:51	1

Client Sample ID: JHC-MW-15031

Date Collected: 04/16/24 10:16 Date Received: 04/26/24 09:30

Lab Sample ID: 160-53902-3

Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.00924	U	0.129	0.129	1.00	0.263	pCi/L	04/29/24 08:51	05/23/24 10:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.0		30 - 110					04/29/24 08:51	05/23/24 10:05	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyzod	
Analyzod I	
Analyzod I	
Allalyzeu	Dil Fac
5/21/24 14:12	1
Analyzed I	Dil Fac
5/21/24 14:12	1
5/21/24 14:12	1
A 5/2	21/24 14:12 Analyzed 21/24 14:12

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

	_		Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.100	U	0.433	0.433	5.00	0.796	pCi/L		05/24/24 07:51	1

Client Sample ID: MW-B3 Lab Sample ID: 160-53902-4 **Matrix: Water**

Date Collected: 04/16/24 12:26 Date Received: 04/26/24 09:30

Method: EPA 90	3.0 - Radium	-226 (GFP	C)							
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.257		0.139	0.141	1.00	0.168	pCi/L	04/29/24 08:51	05/23/24 10:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.4		30 - 110					04/29/24 08:51	05/23/24 10:06	1

Job ID: 160-53902-1

Project/Site: JH Campbell Landfill Wells

Client: Consumers Energy

Client Sample ID: MW-B3 Lab Sample ID: 160-53902-4

Date Collected: 04/16/24 12:26 **Matrix: Water**

Date Received: 04/26/24 09:30

Method: EPA 904	.0 - Radium	-228 (GFP	C)							
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.998		0.496	0.505	1.00	0.695	pCi/L	04/29/24 08:55	05/21/24 14:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.4		30 - 110					04/29/24 08:55	05/21/24 14:12	1
Y Carrier	85.2		30 - 110					04/29/24 08:55	05/21/24 14:12	1

Method: TAL-STL F	Ra226_Ra	228 - Com	bined Radi	um-226 ar	nd Radiur	n-228				
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.25		0.515	0.524	5.00	0.695	pCi/L		05/24/24 07:51	1

Client Sample ID: MW-B4 Lab Sample ID: 160-53902-5 Date Collected: 04/16/24 11:26 **Matrix: Water** Date Received: 04/26/24 09:30

Method: EPA 903	3.0 - Radium	-226 (GFP	C)							
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.216		0.145	0.146	1.00	0.194	pCi/L	04/29/24 08:51	05/23/24 10:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.7		30 - 110					04/29/24 08:51	05/23/24 10:06	1

Method: EPA 904	.0 - Radium	-228 (GFP	C)							
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.658	U	0.503	0.507	1.00	0.773	pCi/L	04/29/24 08:55	05/21/24 14:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.7		30 - 110					04/29/24 08:55	05/21/24 14:16	1
Y Carrier	81.1		30 - 110					04/29/24 08:55	05/21/24 14:16	1

Method: TAL-STL F	Ra226 Ra	228 - Com	bined Radi	um-226 an	d Radiur	n-228				
	_		Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.873		0.523	0.528	5.00	0.773	pCi/L		05/24/24 07:51	1

6/21/2024

Job ID: 160-53902-1

Client: Consumers Energy Project/Site: JH Campbell Landfill Wells

Client Sample ID: JHC-MW-15035

Date Collected: 04/16/24 09:36 Date Received: 04/26/24 09:30 Lab Sample ID: 160-53902-6

Matrix: Water

Method: EPA 903.0 - Radium-2	26 (GFPC)

Austra	Do o vilé	Ovelities.	Count Uncert.	Total Uncert.	Di	MDG	11	Dan and	Analysed	Dil Faa
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0975	U	0.125	0.126	1.00	0.208	pCi/L	04/29/24 08:51	05/23/24 10:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.6		30 - 110					04/29/24 08:51	05/23/24 10:06	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.90		0.652	0.676	1.00	0.817	pCi/L	04/29/24 08:55	05/21/24 14:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.6		30 - 110					04/29/24 08:55	05/21/24 14:16	1
Y Carrier	80.7		30 - 110					04/29/24 08:55	05/21/24 14:16	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

			0	Tatal						
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium	2.00		0.664	0.688	5.00	0.817	pCi/L		05/24/24 07:51	1

Client Sample ID: JHC-MW-15036

Lab Sample ID: 160-53902-7 Date Collected: 04/16/24 09:49 **Matrix: Water** Date Received: 04/26/24 09:30

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0329	U	0.146	0.146	1.00	0.271	pCi/L	04/29/24 08:51	05/23/24 10:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.4		30 - 110					04/29/24 08:51	05/23/24 10:06	1

Method: EPA 904.0 - Radium-228 (GFPC)

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.668	U	0.455	0.459	1.00	0.680	pCi/L	04/29/24 08:55	05/21/24 14:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.4		30 - 110					04/29/24 08:55	05/21/24 14:16	1
Y Carrier	81.5		30 - 110					04/29/24 08:55	05/21/24 14:16	1

Client: Consumers Energy

Project/Site: JH Campbell Landfill Wells

Client Sample ID: JHC-MW-15036

Date Collected: 04/16/24 09:49 Date Received: 04/26/24 09:30 Lab Sample ID: 160-53902-7

Matrix: Water

Method: TAL-STL Ra226_Ra228 - Combined Ra	adium-226 and Radium-228
---	--------------------------

	_		Count Uncert.	Total Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC Unit	it Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.701		0.478	0.482	5.00	0.680 pCi/	i/L	05/24/24 07:51	1

Client Sample ID: JHC-MW-15037

Date Collected: 04/15/24 19:31 Date Received: 04/26/24 09:30

Lab Sample ID: 160-53902-8

Matrix: Water

Method: EPA 90	3.0 - Radium	-226 (GFP	C)							
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0298	U	0.143	0.143	1.00	0.270	pCi/L	04/29/24 08:51	05/23/24 10:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.2		30 - 110					04/29/24 08:51	05/23/24 10:06	1

Method: EPA 904.	.u - Radium	-228 (GFP	C)							
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.443	U	0.451	0.453	1.00	0.728	pCi/L	04/29/24 08:55	05/21/24 14:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.2		30 - 110					04/29/24 08:55	05/21/24 14:17	1
Y Carrier	85.6		30 - 110					04/29/24 08:55	05/21/24 14:17	1

Method: TAL-STL Ra226 Ra228 - Combined Radium-226 and Radium-228

	_		Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.472	U	0.473	0.475	5.00	0.728	pCi/L		05/24/24 07:51	1

Client Sample ID: DUP-03

Lab Sample ID: 160-53902-9 Date Collected: 04/15/24 00:00 **Matrix: Water**

Date Received: 04/26/24 09:30

Method: EPA 903	.0 - Radium	-226 (GFP	C)							
		•	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0830	U	0.117	0.117	1.00	0.197	pCi/L	04/29/24 08:51	05/23/24 09:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.2		30 - 110					04/29/24 08:51	05/23/24 09:54	1

Client: Consumers Energy

Project/Site: JH Campbell Landfill Wells

Client Sample ID: DUP-03

Lab Sample ID: 160-53902-9

Matrix: Water

Date Collected: 04/15/24 00:00 Date Received: 04/26/24 09:30

Method: I	EPA 904	.0 - Rad	dium-228	(GFPC)

Analyte	Popult	Qualifier	Count Uncert.	Total Uncert.	RL	MDC	l Init	Prepared	Analvzed	Dil Fac
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)		MIDC	UIIIL	Frepareu	Allalyzeu	DII Fac
Radium-228	1.06		0.445	0.456	1.00	0.573	pCi/L	04/29/24 08:55	05/21/24 14:15	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.2		30 - 110					04/29/24 08:55	05/21/24 14:15	1
Y Carrier	84.9		30 - 110					04/29/24 08:55	05/21/24 14:15	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

	_		Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium	1.14		0.460	0.471	5.00	0.573	pCi/L		05/24/24 07:51	1
226 + 228										

Client Sample ID: FB-03

Date Collected: 04/16/24 12:50
Date Received: 04/26/24 09:30

Lab Sample ID: 160-53902-10

Matrix: Water

Method: EPA 903.0 - Radium-226 (GFPC)

Wethou. LI A 30	Jo.u - Itaululli	-220 (01 1	U)							
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0273	U	0.0505	0.0506	1.00	0.0909	pCi/L	05/29/24 08:33	06/20/24 19:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.8		30 - 110					05/29/24 08:33	06/20/24 19:55	1

Method: EPA 904.0 - Radium-228 (GFPC)

		•	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.238	U	0.334	0.335	1.00	0.561	pCi/L	04/30/24 08:17	05/22/24 11:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.7		30 - 110					04/30/24 08:17	05/22/24 11:41	1
Y Carrier	81.1		30 - 110					04/30/24 08:17	05/22/24 11:41	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226	0.266	U	0.338	0.339	5.00	0.561	pCi/L		06/21/24 17:09	1
+ 228										

Client Sample Results

Client: Consumers Energy Job ID: 160-53902-1

Project/Site: JH Campbell Landfill Wells

Client Sample ID: EB-03 Lab Sample ID: 160-53902-11

Date Collected: 04/16/24 13:10 **Matrix: Water** Date Received: 04/26/24 09:30

Method: EPA 903.	0 - Radium	-226 (GFP	C)							
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0412	U	0.0567	0.0568	1.00	0.0956	pCi/L	05/29/24 08:33	06/20/24 19:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.0		30 - 110					05/29/24 08:33	06/20/24 19:40	1

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.443	U	0.333	0.335	1.00	0.503	pCi/L	04/30/24 08:17	05/22/24 11:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.6		30 - 110					04/30/24 08:17	05/22/24 11:41	1
Y Carrier	79.3		30 - 110					04/30/24 08:17	05/22/24 11:41	1

Method: TAL-STL R	a226_Ra	228 - Com	bined Radi	um-226 an	d Radiun	n-228				
			Count	Total						
		_	Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.485	Ū	0.338	0.340	5.00	0.503	pCi/L		06/21/24 17:09	1

Job ID: 160-53902-1

Client: Consumers Energy

Project/Site: JH Campbell Landfill Wells

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-659070/1-A Client Sample ID: Method Blank

Matrix: Water

Matrix: Water

Analysis Batch: 662988

Prep Type: Total/NA

Prep Batch: 659070

MB MB Uncert. Uncert. Analyte Result Qualifier $(2\sigma + / -)$ $(2\sigma + / -)$ RL **MDC** Unit Prepared Analyzed Dil Fac Radium-226 0.1169 Ū 0.106 0.107 1.00 0.158 pCi/L 04/29/24 08:51 05/23/24 09:46

Total

MB

Carrier %Yield Qualifier Limits Prepared Analyzed Dil Fac Ba Carrier 94.4 30 - 110 04/29/24 08:51 05/23/24 09:46

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 659070

10

Analysis Batch: 662988 Total

LCS LCS %Rec **Spike** Uncert. Analyte Added Result Qual $(2\sigma + / -)$ RL **MDC** Unit %Rec Limits Radium-226 11.3 10.90 1.25 1.00 0.239 pCi/L 96 75 - 125

LCS LCS

Analysis Batch: 663009

Carrier %Yield Qualifier Limits Ba Carrier 92.1 30 - 110

Lab Sample ID: LCS 160-659070/2-A

Lab Sample ID: 160-53902-4 DU Client Sample ID: MW-B3 **Matrix: Water**

Prep Type: Total/NA

Prep Batch: 659070 Total

Count

Sample Sample DU DU **RER** Uncert. Analyte Result Qual $(2\sigma + / -)$ RL **MDC** Unit Result Qual RER Limit 0.04134 U Radium-226 0.257 0.123 1.00 0.229 pCi/L 0.82

DU DU Carrier %Yield Qualifier Limits Ba Carrier 89.8 30 - 110

Lab Sample ID: MB 160-663583/1-A Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA **Analysis Batch: 667128 Prep Batch: 663583** Count Total

MB MB Uncert. Uncert. Analyte Result Qualifier $(2\sigma + / -)$ $(2\sigma + / -)$ RL **MDC** Unit Prepared Analyzed Dil Fac Radium-226 -0.01048 U 0.0244 0.0244 1.00 0.0681 pCi/L 05/29/24 08:33 06/20/24 19:35

MΒ MB

Carrier %Yield Qualifier Limits Prepared Analyzed Dil Fac Ba Carrier 88.88 30 - 110 05/29/24 08:33 06/20/24 19:35

Lab Sample ID: LCS 160-663583/2-A **Client Sample ID: Lab Control Sample**

Matrix: Water Prep Type: Total/NA **Analysis Batch: 667128 Prep Batch: 663583**

Total **Spike** LCS LCS Uncert. %Rec Analyte Added Result Qual $(2\sigma + / -)$ RL MDC Unit %Rec Limits 0.0871 pCi/L Radium-226 11.3 12.23 1.24 1.00 108 75 - 125

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Client: Consumers Energy

Project/Site: JH Campbell Landfill Wells

Job ID: 160-53902-1

Prep Type: Total/NA

Prep Batch: 663583

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCS 160-663583/2-A

Matrix: Water

Analysis Batch: 667128

LCS LCS

%Yield Qualifier Carrier Limits Ba Carrier 86.8 30 - 110

Lab Sample ID: 240-203355-D-1-C MS

Client Sample ID: Matrix Spike

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 663583

Matrix: Water Analysis Batch: 667323

> **Spike** MS MS

Sample Sample Uncert. %Rec Analyte Result Qual Added Result Qual $(2\sigma + / -)$ RL **MDC** Unit %Rec Limits Radium-226 0.147 113 10.41 1.07 1.00 0.0733 pCi/L 91 60 - 140

MS MS

Carrier %Yield Qualifier Limits Ba Carrier 93.3 30 - 110

Lab Sample ID: 240-203355-E-1-E MSD

Matrix: Water

Analysis Batch: 667323

Client Sample ID: Matrix Spike Duplicate

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 663583

Total

MSD MSD Sample Sample Spike Uncert.

%Rec **RER** Analyte Result Qual Added Result Qual $(2\sigma + / -)$ RL **MDC** Unit %Rec Limits RER Limit 0.147 60 - 140 Radium-226 11.3 10.63 1.09 1.00 0.0650 pCi/L 93 0.10

Total

MSD MSD

Carrier %Yield Qualifier Limits Ba Carrier 93.5 30 - 110

Method: 904.0 - Radium-228 (GFPC)

MB MB

Lab Sample ID: MB 160-659071/1-A

Matrix: Water

Client Sample ID: Method Blank Prep Type: Total/NA Analysis Batch: 662590 **Prep Batch: 659071** Count Total

MB MB Uncert. Uncert. Analyte Result Qualifier $(2\sigma + / -)$ $(2\sigma + / -)$ RL **MDC** Unit Prepared Analyzed Dil Fac Radium-228 0.05926 Ū 0.289 0.289 1.00 0.530 pCi/L 04/29/24 08:55 05/21/24 12:25

Carrier %Yield Qualifier Limits Prepared Analyzed Dil Fac Ba Carrier 94.4 30 - 110 04/29/24 08:55 05/21/24 12:25 Y Carrier 78.1 30 - 110 04/29/24 08:55 05/21/24 12:25

Lab Sample ID: LCS 160-659071/2-A

Matrix: Water Prep Type: Total/NA **Prep Batch: 659071 Analysis Batch: 662590** Total LCS LCS %Rec **Spike** Uncert.

Analyte Added Result Qual $(2\sigma + / -)$ RL MDC Unit %Rec Limits Radium-228 8.92 10.40 1.42 1.00 0.584 pCi/L 117 75 - 125

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Client: Consumers Energy

Project/Site: JH Campbell Landfill Wells

Job ID: 160-53902-1

Prep Type: Total/NA

Prep Batch: 659071

Client Sample ID: Lab Control Sample

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 659261

Dil Fac

Analyzed

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-659071/2-A

Matrix: Water

Analysis Batch: 662590

LCS LCS

Carrier	%Yield	Qualifier	Limits
Ba Carrier	92.1		30 - 110
Y Carrier	78.9		30 - 110

Matrix: Water

Analysis Batch: 662590

Lab Sample ID: 160-53902-4 DU Client Sample ID: MW-B3

Prep Type: Total/NA **Prep Batch: 659071**

Prepared

04/30/24 08:17 05/22/24 11:37

04/30/24 08:17 05/22/24 11:37

Total Sample Sample DU DU Uncert. **RER** Analyte Result Qual Result Qual $(2\sigma + / -)$ RL **MDC** Unit RER Limit Radium-228 0.4943 U 0.423 0.655 pCi/L 0.54 0.998 1.00

DU DU Carrier %Yield Qualifier Limits Ba Carrier 89.8 30 - 110 Y Carrier 80.0 30 - 110

Lab Sample ID: MB 160-659261/1-A

Matrix: Water

Analysis Batch: 662786

Count Total MB MB Uncert. Uncert. Analyte Qualifier **MDC** Unit Result $(2\sigma + / -)$ $(2\sigma + / -)$ RL Prepared Analyzed Dil Fac Radium-228 0.7566 0.361 0.368 1.00 0.493 pCi/L 04/30/24 08:17 05/22/24 11:37

MB MB Carrier %Yield Qualifier Limits

Ba Carrier 95.4 30 - 110 30 - 110 Y Carrier 84.5

Lab Sample ID: LCS 160-659261/2-A Client Sample ID: Lab Control Sample

Matrix: Water Prep Type: Total/NA **Prep Batch: 659261 Analysis Batch: 662786** Total

Spike LCS LCS Uncert. %Rec Analyte Added Result Qual $(2\sigma + / -)$ RL MDC Unit %Rec Limits Radium-228 8.92 10.07 1.00 0.452 pCi/L 75 - 125

LCS LCS **%Yield Qualifier** Carrier Limits Ba Carrier 95.7 30 - 110 Y Carrier 81.1 30 - 110

Lab Sample ID: 240-203355-D-1-B MSD

Matrix: Water

Analysis Batch: 662786

Client Sample ID: Matrix Spike Duplicate Prep Type: Total/NA

Total Sample Sample Spike MSD MSD Uncert. %Rec **RER** Added **MDC** Unit Result Qual Result Qual $(2\sigma + / -)$ RL %Rec Limits Limit Analyte RER Radium-228 0.936 11.9 13.36 1.79 1.00 0.703 pCi/L 105 60 - 140 0.18

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Prep Batch: 659261

QC Sample Results

Client: Consumers Energy Job ID: 160-53902-1

Project/Site: JH Campbell Landfill Wells

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: 240-203355-D-1-B MSD **Matrix: Water**

Analysis Batch: 662786

Client Sample ID: Matrix Spike Duplicate Prep Type: Total/NA

Prep Batch: 659261

MSD MSD

%Yield Qualifier Carrier Limits Ba Carrier 95.9 30 - 110 Y Carrier 79.3 30 - 110

Lab Sample ID: 240-203355-E-1-D MS

Matrix: Water

Analysis Batch: 662786

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 659261

Total Sample Sample Spike MS MS Uncert.

%Rec Analyte Result Qual Added Result Qual $(2\sigma + / -)$ RL **MDC** Unit %Rec Limits 60 - 140 Radium-228 0.936 11.9 1.82 1.00 0.631 pCi/L 110 14.02

MS MS

Carrier %Yield Qualifier Limits Ba Carrier 96.2 30 - 110 30 - 110 Y Carrier 82.2

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QC Association Summary

Client: Consumers Energy Project/Site: JH Campbell Landfill Wells

Rad

Prep Batch: 659070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-53902-1	JHC-MW-15017	Total/NA	Water	PrecSep-21	
160-53902-2	JHC-MW-15018	Total/NA	Water	PrecSep-21	
160-53902-3	JHC-MW-15031	Total/NA	Water	PrecSep-21	
160-53902-4	MW-B3	Total/NA	Water	PrecSep-21	
160-53902-5	MW-B4	Total/NA	Water	PrecSep-21	
160-53902-6	JHC-MW-15035	Total/NA	Water	PrecSep-21	
160-53902-7	JHC-MW-15036	Total/NA	Water	PrecSep-21	
160-53902-8	JHC-MW-15037	Total/NA	Water	PrecSep-21	
160-53902-9	DUP-03	Total/NA	Water	PrecSep-21	
MB 160-659070/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-659070/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
160-53902-4 DU	MW-B3	Total/NA	Water	PrecSep-21	

Prep Batch: 659071

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-53902-1	JHC-MW-15017	Total/NA	Water	PrecSep_0	
160-53902-2	JHC-MW-15018	Total/NA	Water	PrecSep_0	
160-53902-3	JHC-MW-15031	Total/NA	Water	PrecSep_0	
160-53902-4	MW-B3	Total/NA	Water	PrecSep_0	
160-53902-5	MW-B4	Total/NA	Water	PrecSep_0	
160-53902-6	JHC-MW-15035	Total/NA	Water	PrecSep_0	
160-53902-7	JHC-MW-15036	Total/NA	Water	PrecSep_0	
160-53902-8	JHC-MW-15037	Total/NA	Water	PrecSep_0	
160-53902-9	DUP-03	Total/NA	Water	PrecSep_0	
MB 160-659071/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-659071/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
160-53902-4 DU	MW-B3	Total/NA	Water	PrecSep 0	

Prep Batch: 659261

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-53902-10	FB-03	Total/NA	Water	PrecSep_0	
160-53902-11	EB-03	Total/NA	Water	PrecSep_0	
MB 160-659261/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-659261/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
240-203355-D-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep_0	
240-203355-E-1-D MS	Matrix Spike	Total/NA	Water	PrecSep_0	

Prep Batch: 663583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-53902-10	FB-03	Total/NA	Water	PrecSep-21	
160-53902-11	EB-03	Total/NA	Water	PrecSep-21	
MB 160-663583/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-663583/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
240-203355-D-1-C MS	Matrix Spike	Total/NA	Water	PrecSep-21	
240-203355-E-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	

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6/21/2024

Job ID: 160-53902-1

Tracer/Carrier Summary

Client: Consumers Energy

Project/Site: JH Campbell Landfill Wells

Job ID: 160-53902-1

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water Prep Type: Total/NA

			Percent Yield (Acceptance Limits)
		Ва	
_ab Sample ID	Client Sample ID	(30-110)	
160-53902-1	JHC-MW-15017	91.4	
160-53902-2	JHC-MW-15018	95.2	
160-53902-3	JHC-MW-15031	86.0	
160-53902-4	MW-B3	94.4	
160-53902-4 DU	MW-B3	89.8	
160-53902-5	MW-B4	82.7	
160-53902-6	JHC-MW-15035	87.6	
160-53902-7	JHC-MW-15036	90.4	
160-53902-8	JHC-MW-15037	82.2	
160-53902-9	DUP-03	99.2	
160-53902-10	FB-03	79.8	
160-53902-11	EB-03	86.0	
240-203355-D-1-C MS	Matrix Spike	93.3	
240-203355-E-1-E MSD	Matrix Spike Duplicate	93.5	
_CS 160-659070/2-A	Lab Control Sample	92.1	
_CS 160-663583/2-A	Lab Control Sample	86.8	
	Method Blank	94.4	
MB 160-659070/1-A		88.8	

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water Prep Type: Total/NA

				Percent Yield (Acceptance Limits)
		Ва	Υ	
Lab Sample ID	Client Sample ID	(30-110)	(30-110)	
160-53902-1	JHC-MW-15017	91.4	80.7	
160-53902-2	JHC-MW-15018	95.2	84.1	
160-53902-3	JHC-MW-15031	86.0	78.9	
160-53902-4	MW-B3	94.4	85.2	
160-53902-4 DU	MW-B3	89.8	80.0	
160-53902-5	MW-B4	82.7	81.1	
160-53902-6	JHC-MW-15035	87.6	80.7	
160-53902-7	JHC-MW-15036	90.4	81.5	
160-53902-8	JHC-MW-15037	82.2	85.6	
160-53902-9	DUP-03	99.2	84.9	
160-53902-10	FB-03	93.7	81.1	
160-53902-11	EB-03	87.6	79.3	
240-203355-D-1-B MSD	Matrix Spike Duplicate	95.9	79.3	
240-203355-E-1-D MS	Matrix Spike	96.2	82.2	
LCS 160-659071/2-A	Lab Control Sample	92.1	78.9	
LCS 160-659261/2-A	Lab Control Sample	95.7	81.1	
MB 160-659071/1-A	Method Blank	94.4	78.1	
MB 160-659261/1-A	Method Blank	95.4	84.5	

Y = Y Carrier

Eurofins St. Louis

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6/21/2024



and the law

WATER LEVEL DATA

Site: JH Campbell

Project No: 24-0857, -0858, -0859, -0860, -0861, -0862

Analyst: LMO/CLE

Reviewed by:

Date: 10.14.24

Review Date: () 10-23.

Method: Electronic Tape

Tape ID: Geotech S/N: 1005 7372

Well ID	Time	DTW (ft)	DTB (ft)	Re-Check (if needed)	Remarks
JHC-MW-15017	1001	18.11	22.95	,	6000
JHC-MW-15018	1605	18.45	22.95		Gord
MWB1	1010	_	35.25		Dry
MWB2	1013	_	37.60		Dry
MWB3	1015	39.70	40.20		600d
MWB4	1019	42.41	47.70		6004
JHC-MW-15035 (MW-B5)	1023	42.01	45.25		6000
JHC-MW-15031	1024	44.41	46.14		600d
JHC-MW-15036 (MW-B6)	1636	28.31	32.59		60 od
JHC-MW-15037 (MW-B7)	1032	24.10	30.96		Good
MW-8	1034	29.71	33.43		6000
MW-8C	1034	30.36	63.10		6000
JHC-MW-15032	0845	18.74	24.00		Good, Locked
JHC-MW-15034	0859	17.83	23.91		Good, well cover doesn't fit
JHC-MW-15023	6907	20.00	27.71		Good, Locked *
MW5	0927	13.36	15.54		Good, locked *
MW4	1006		32.74		Good, Dry
JHC-MW-15024	1012	15.46	19.94		Good, locked *
JHC-MW-15025	1017	14.91	19.89		Good, locked
MW3	1042	14.18	16.44		Good, locked +
JHC-MW-15026	1024	14.74	21.02		Good, locked *
JHC-MW-15027	1057	17.40	23 00		Good, locked *
MW1	1104	14.64	16.03		600d, 10cked *
JHC-MW-15028	1111	17.24	20.83		Good , locked
JHC-MW-15029	1135	14.46	20.90		600d, 100ked *

NOTES: TOC reference point (top of steel plate for RWs)

Form Rev.10-13-23EB



WATER LEVEL DATA

Site: JH Campbell

Project No: 24 . 0858

Analyst: (16 Reviewed by:

Date: 10-14-24 Review Date: 10-23-24

Method: Electronic Tape

Tape ID: Geotech S/N: 7371

Well ID	Time	DTW (ft)	DTB (ft)	Re-Check (if needed)	Remarks
JHC-MW-15009R	0849	44.54	50.80		G000
JHC-MW-15008R	0852	44.05	47.58		6000
JHC-MW-15007R	0855	37.69			G00D
JHC-MW-15006	0858	34.54			6000
JHC-MW-15011R	0901	38.68	45.19		GOOD
16.		F			
		noint (top of stee	Label Carpital		Form Pey 10-13-2

10-23-24



WATER LEVEL DATA

Site: JH Campbell

Project No: THE Q4 2024

Analyst: CIE

Reviewed by:

10-14-24 Review Date:

Method: Electronic Tape

Date:

Tape ID: Greatech S/N: 7371

Well ID	Time	DTW (ft)	DTB (ft)	Re-Check (if needed)	Remarks
JHC-MW-15030	0921	12.01	16.94		GOOD
PZ-37 (Gated Plant Area)	0930	U.40	20.02		Overgrown shrubs
PZ-23	0910	14.25	16.73		GOOD
PZ-23S	0912	15,94			4008
1					



WATER LEVEL DATA

Site: JH Campbell

Project No: 24-0857,-0858,-0859,-0860,-0861,-0862

Analyst: KDR Reviewed by:

Date: 16.14.24 Review Date: 0.0.

Method: Electronic Tape

Tape ID: Solinst 101 P7 SIN: LSO30623

Well ID	Time	DTW (ft)	DTB (ft)	Re-Check (if needed)	Remarks
MW-18A	0850	29.29	37.11		Locked
MW-9B	0855	22.34	29.57		Locked
MW-9C	0857	21.60	41.38		Locked
MW-9D	0859	21.45	54.71		Good
MW-10B	0903	15.07	23.54		Good louted
TW-19-05	0908	17.63	18.55		600d
TW-19-06A	0914	14.62	15.31		GOOD TOCKET
MW-13	0921	_	10.27		Well, was pry 10.14.24 at 0921 Well, was pry 10.14.24 at 0848 Good, locked
MVV-14	0925	10.41	17.56		
MW-14S	0927	11.18	13.30	0	Good, Locked
PZ-24	0933	7.19	13.80		Good, Locked
PZ-24S	0935	9.75	11.11		Good, Locked
PZ-40	0943	10.24	22.45		Good, Locked
PZ-40S	0945	13.07	17.96		Good, Locked
MW-12	0959	9.52	9.78		Good, locked
		1.0			



WATER LEVEL DATA

Site: JH Campbell

Project No: 24-0857,-0858,-0859,-0860,-0861,-6862

Analyst: KDR Reviewed by:

Date: 10.14.24 Review Date: (5-23-24)

Method: Electronic Tape

Tape ID: Solinst 101 P7 S/N: LS030623

Well ID	Time	DTW (ft)	DTB (ft)	Re-Check (if needed)	Remarks
MW-11A	1014	10.56	16.65		400d, Locked
MW-16A	1016	12.29	20.90		Good, Locked
MW-15	1019	13.75	16.36	,	Good, Locked
MW-17	1031	15.44	23.46		Good, Locked
P1S	1024	16.20	22.63		Good, Locked
P2S	1026	14.91	22.73		400d, Locked
P3S	1628	14.98	22.83		400d, Locked
P5S	1030	14.16	22.57		Good, Locked
P6S	1032	13.55	22.85		Good, Loclled
P7S	1037	13.05	22.93		Good, Locked
P9S	1035	9.47	19.98		Broken on TOP, Locked
P10	1038	9.91	10.73	-1-	Broken on TOP, Locked worked Installed plug
P11	1040	8.06	9.75		Good, Locked
19					
RW-1	1358	30.35	48.45		G00d
RW-2	1419	34.40	49.65		Good
RW-3	1455	15.75	23.66		G002
RW-4	1535	10.72	22.00		G00 &
RW-5	1556	18.55	21.70		G00d
RW-6	1620	13.77	22.12		400d
RW-7	1638	7.80	20.19		Good
SG-22-1	1048	1.28			4008
SG-22-2	1055	1.26			600d



Laboratory Services A CENTURY OF EXCELLENCE

Sonde ID	15H
Start Date	10.14.24
Project #	24-0857, -0858,-0854,-0860,-0861 -0862
Site	JHC
Reviewed By & Date:	V 10/23/24

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 96.9%	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	2 nd Daily Field Checks Completed	3rd Daily Field Checks Completed	4 th Daily Filed Checks Completed	End Project Calibration Value
4.0	GFS # 1634	24003185	5.31.25	4.00	4.04	4.02			4.02
7.0	GFS # 1639	24012727	6.3.26	7.00	7.08	7.03			7.63
10.0	GFS # 1645	23660188	2.16.25	9.99	9.99	80.01			10.08
	-1	1	nitials & Date:	KDR 10.11.24	10.14.20	LM6			un 6

Is the same standard used for calibration and as-founds?

(N)(if no, document on pg. 2)

Are the calibration values within ±0.10 of the standard? 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	2 nd Daily Field Checks Completed	3 rd Daily Field Checks Completed	4th Daily Filed Checks Completed	End Project Calibration Value
†228.0 (mV)	GF) # 5525	24014269	5.3.25	t228.0	+227.5	+231.9			+231.9
		li li	nitials & Date:	10.11.24	10.14.24	-			10.19.24

Is the same standard used for calibration and as-founds?

Are the calibration values within ±10% of the standard?

(N) (if no, document on pg. 2) N (if no, recalibration is required)

1st Daily Field Checks Completed 3rd Daily Field Checks Completed 4th Daily Filed Checks Completed Pre -Project Calibration Value 2nd Daily Field Checks Completed End Project Calibration Value Source Exp. Source DO Source Lot# Date 96.8% 90-110% 96.9% 97.0% 97.01. N/A **DI Water** N/A saturation KDR 10. 15.24 Initials & Date: 10.14.24 10-15.24

Is the same standard used for calibration and as-founds?

Are the calibration values within 90-110%?

N'(if no, document on pg. 2) or N (if no, recalibration is required)

Sonde ID	15H	Project #: 24-0857-0858,-0859,-0860,-0861
Start Date	10.14.24	-0862
Reviewed By & Date:	w/23/24	Site: 5 HC

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)	GB# 2174	24012460	6.3.25	1414	1409	1403			1403
		In	itials & Date:	KDR 10:11:24	10.14.24	10.19.24			10.15.20

• Is the same standard used for calibration and as-founds?

Are the calibration values within ±3% of the standard?

Y or	(N) (If no, document on pg. 2)
(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	2 nd Daily Field Checks Completed	3 rd Daily Field Checks Completed	4th Daily Filed Checks Completed	End Project Calibration Value
0	DI Water			0.00	0.04	0.02			0.01
40.0 (±4.0 NTUs)	Hach 2746356	A3093	4.25	40.22	41.17	39.89			39.89
800.0 (±80.0 NTUs)	Hach 2660553	A3310	11.25	817.00	832.1	809.60			869.60
		In	itials & Date:	10.11.27	LO.14.24	16.19.24			10.18.2

Is the same standard used for calibration and as-founds?

or N (if no, document on pg. 2)

On N (if no, recalibration is required)

Are the calibration values within ±10% of the standard?

Additional Information for calibration standards

Standard	Source	Source Lot #	Source Exp. Date	Standard	Source	Source Lot #	Source Exp. Date
pH 4.0	GES 1634	24003185	5.31.25	pH 9.0			
pH 7.0	GES 1639	24003597	1.24.25	ORP	GFS 17182	24009578	11.25.24
pH 10.0	GFS 1645	24003158	5.28.25				
Sp. Conductivity	GFS 2174	2402460	6.3.25				
10.0 Turbidity							
40.0 Turbidity							



Laboratory Services

Sonde ID	21G
Start Date	10.14.24
Project#	24.0851, 0858, 0859, 0860, 0861, 0862
Site	JHC Q4 GW
Reviewed By & Date	V 10/22/24

Equipment Details	Model & S/N
Monitor Brand	YSI ProDSS S/N 21G102278
Sonde Brand	YSI ProDSS S/N 21G105848
Flow Cell	EXO1 599080
DO Probe (97.2)	YSI ProDSS S/N 21G101534
Turbidity Probe	YSI ProDSS S/N 21G101646
pH With ORP	YSI ProDSS S/N 21H101604
Conductivity & Temperature Probe	YSI ProDSS S/N 21G101888

pH Standard (± 0.1)	Source	Source Lot#	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2 nd Daily Field Checks Completed	3 rd Daily Field Checks Completed	4 th Daily Filed Checks Completed	End Project Calibration Value
4.0	GFS # 1634	24003185	5-31-25	4.00	3.97	4.01			4.01
7.0	GFS # 1639	24012727	6.3-26	7.00	7.01	7.02			7.00
10.0	GFS # 1645	23040188	2-16-25	10.00	10.01	10.02			10.01
			Initials & Date:	10.11.24	C1E 10-14-24	C16			CIE 1D-15-2

Is the same standard used for calibration and as-founds?

or N (if no, document on pg. 2)

On N (if no, recalibration is required)

Are the calibration values within ±0.10 of the standard?

1st Daily Field Checks Completed 3rd Daily Field Checks Completed 4th Daily Filed Checks Completed 2nd Daily Field Checks Completed Pre -Project Calibration Value End Project Calibration Value ORP Source Source Exp. Date Source Standard Lot# (± 10mV) GPS +228.0 5.23.25 24014269 + 228.1 +2286 +228.1 +227.9 (mV) £5525 LMO CIE CIE CIE **Initials & Date:** 10.11.24 10.14.24 10.15.24 10.15.25

Is the same standard used for calibration and as-founds?

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	2 nd 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	94.9%	91.17.	97.01.			97.1%
			Initials & Date:	LMO 1011-24	10.14.24	Cle 10.15.24	,		10.15.24

Is the same standard used for calibration and as-founds?

Are the calibration values within 90-110%?

or N (if no, document on pg. 2)
or N (if no, recalibration is required)

Sonde ID	21G	Project #: 24 -0851, 0855, 0859, 0860
Start Date	10-14-24	0861, 0862
Reviewed	9-1	Site:
By & Date:	10/25/24	JHC Q4 GW

Specific Conductance (uS/cm)	Source	Source Lot #	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2 nd Daily Field Checks Completed	3 rd Daily Field Checks Completed	4th Daily Field Checks Completed	End Project Calibration Value
(1399-1427)	GFS #2174	2401260	6.3.25	1415	1417	1416			1415
			Initials & Date:	LM6 10.11.24	10.4.24	10.15.26	4		10-15-21

• Is the same standard used for calibration and as-founds?

Are the calibration values within range of the standard?

	Y		(If no, document on pg. 2)
(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	2 nd Daily Field Checks Completed	3 rd Daily Field Checks Completed	4th Daily Field Checks Completed	End Project Calibration Value
0	DI Water	-		0.02	0.00	0.02			0.01
40.0 (± 4.0 NTUs)	Hach 2746356	A3093	04-2025	40.32	40.39	40.13			40.21
800.0 (± 80.0 NTUs)	Hach 2660553	A3310	11-2025	811.48		307.11 3			906.92
	1 4		Initials & Date:	LM6 10.11:24	CI€ 10·14·24	CLE-			CLE 10.15.21

Is the same standard used for calibration and as-founds?

or N (if no, document on pg. 2)
of the standard?

or N (if no, document on pg. 2)
or N (if no, recalibration is required)

Are the calibration values within ±10% of the standard?

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							Ý
Sp. Conductivity	GFS 2174	240 2440	4.3.26				
40.0 Turbidity							
10.0 Turbidity							



Laboratory Services

Sonde ID	22J
Start Date	10.14.24
Project #	24-0857,-0858,-0859,-0860 -0861,-0862
Site	5HC
Reviewed By & Date	7 10/23/24

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 97.2%	YSI ProDSS S/N 23B101266
Turbidity Probe	YSI ProDSS S/N 22K100049
oH 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	2 nd Daily Field Checks Completed	3 rd Daily Field Checks Completed	4th Daily Filed Checks Completed	End Project Calibration Value
4.0	GFS # 1634	24603185	5.31.25	4.00	4.01				4.05
7.0	GFS # 1639	24012727	6.3.26	7.00	7.03				7.06
10.0	GFS # 1645	24003156	5.28.25	10.00	9.98				9.95
			Initials & Date:	10.11.24	1674-74				KDR 10.15.25

Is the same standard used for calibration and as-founds?
Are the calibration values within ±0.10 of the standard?

or N (if no, document on pg. 2)

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	3 rd Daily Field Checks Completed	4th Daily Filed Checks Completed	End Project Calibration Value
+228.0 (mV)	GFS # 5525	24012255	3.1.25	228.0	233.4				226.0
			Initials & Date:	KDR 10.11.24	10.14.74				KDR 10.15.24

Is the same standard used for calibration and as-founds?

or N (if no, document on pg. 2)
 or N (if no, recalibration is required).

Are the calibration values within ±10% of the standard?

DO	Source	Source Lot #	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2 nd Daily Field Checks Completed	3rd Daily Field Checks Completed	4 th Daily Filed Checks Completed	End Project Calibration Value
90-110% saturation	DI Water	N/A	N/A	97.28	97.7				99.0
			Initials & Date:	KDR 10-11-24	KDR 10.14.24				167R 10.1524

• Is the same standard used for calibration and as-founds?

Are the calibration values within 90-110%?

y) or N (if no, document on pg. 2)
y) or N (if no, recalibration is required)

Sonde ID	22J	Project #:
Start Date	10.14.24	24-0857,-0858,-0859,-0860
Reviewed By & Date:	10/23/24	Site: 5 HC

Specific		0	0	roject ation ue	Field ks sted	Field (s	Field (s	y Field cks leted	oject ation Ie
Conductance (uS/cm)	Source	Source Lot #	Source Exp. Date	Pre -Proj Calibrati Value	1st Daily Fiel Checks Completed	2 nd Daily Fie Checks Completed	3rd Daily Fiel Checks Completed	4 th Daily Fiel Checks Completed	End Proj Calibrati Value
1414 (1399-1427)	GF5# 2174	24012460	6.3.25	1414	1407				1406
			Initials & Date:	10.11.24	16-14-24				10.15.24

Is the same standard used for calibration and as-founds?

Are the calibration values within range of the standard?

(1)	or	N	(if no, document on pg. 2)
8	or	N	(if no, recalibration is required)

Turbidity (NTUs)	Source	Source Lot#	Source Exp. Date	Pre -Project Calibration Value	1st Daily Field Checks Completed	2 nd Daily Field Checks Completed	3 rd Daily Field Checks Completed	4th Daily Field Checks Completed	End Project Calibration Value
0	DI Water			0.00	0.15				0.11
40.0 (± 4.0 NTUs)	Hach 2746356	A3093	4.25	40.00	40.81				41.69
800.0 (± 80.0 NTUs)	Hach 2660553	A3310	11.25	817.00	82692				831.14
			Initials & Date:	KDR 16.11.24	KDR 10.14.24				10.15.2

Is the same standard used for calibration and as-founds?

Are the calibration values within ±10% of the standard?

N (if no, document on pg. 2)
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			1	pH 9.0 Check			
pH 7.0				ORP			
pH 10.0							
Sp. Conductivity							
40.0 Turbidity							
10.0 Turbidity							



Purge Method: Depth to Water QC SAMPLE: Depth-to-water Time	Tape: 6e	1/5/MSD 20.02	S/N J DUP_	bmersible : 1005		dder	Fultz	Baile	er
QC SAMPLE: Depth-to-water	T/PVC (ft)	1/5/MSD 20.02	✓ DUP_		Canada ID.				
QC SAMPLE: Depth-to-water	T/PVC (ft)	1/5/MSD 20.02		01	Cauda ID.				
			Depth-To-B		Sonde ID:	<u>√</u> 15M	19Н	_20M21G	22J
Time	рН			ottom T/PVC ((ft) <u>27·71</u>	_	Completed by	umo	
		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%
11.10			Stablizatio	on parameters f	or the last thre	e readings			
750727		PUMP	010	0.2	0.88	+200 7	220	20.02	200
Lot by the second	6.20	12.2	81.3	8.2		+222.7	220	20.02	3,04
	6.24	12.1	95.4	7.0	0.75	+221.0	220	20.02	2.91
1625	6.37	12.0	106.0	5.9	0.64	1212.3	220	20.02	2.37
1630	6.39	12.0	111.8	6.2	0.67	+210.0	220	20.02	2.18
1435	w.43	12.0	122.4	w.0	0.45	+ 205.6	220	20.02	1.92
1640	6.44	12.2	123.9	4.1	0.65	+202.4	220	20.02	1.74
1445	6.49	12.1	132.2	5.8	0.43	+196.6	220	20.02	1.75
1450	6.49	12.1	129.9	5.9	0.63	+196.0	220	20.02	1.68
1655	4.50	12.1	134.9	6.0	0.64	+ 195.4	220	20.02	1.69
1760	4.51	12.1	134.0	5.9	0.62	+194.6	220	26.02	1.67
1705	6.51	12.1	134.5	(e.0)	0.65	+194.8	220	20.02	1.64
1704	Total State of	I sample					7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		
1731	End								
Total Pump Tim	ne (min):	ာ် <mark>ဖ</mark>	Total Purge V	olume (gal) :	~3.25		Review Date:	10-23-2	ч
Weather:		loudy					Review By:	0	٠
								1	
Comments:								<i>V</i>	
Bottles I	Filled	Preservat	ive Codes:	A-NONE B-I	HNO3 C-H2S	D4 D-NaOH E	- HCI F-		
			Preservative					Preservative	
Quantity 10.14	Size	Туре	Code	Filtered Y/N	Quantity	Size	Type	Code	Filtered Y/N
2		Plastic	A	4	4	(gome	Plastic	B	N
	125mL		B	7	7	WOME	VUIT	1	19
2	125mL	1	A	N					



	C-MW-15 HC Back		Date <u>10.14</u>	<u>મ · અ</u> Vell Material:	Control Number 24 - 0857 - 02 PVC SS Iron Galv. Steel					
Purge Metho		Peristaltic	Sub	omersible	Blac	dder	Fultz	Bail	er	
Depth to Wa	ter Tape: 6e	otech	S/N:	1005						
QC SAMPLE:		ns/msd	DUP_	_	Sonde ID:	<u>√</u> 15M	19Н	_20M21G	22J	
Depth-to-wa	ter T/PVC (ft)	15.45	Depth-To-Bo	ottom T/PVC (ft) <u>19.94</u>		Completed by	LMO_		
Time	рН	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%	
			Stablizatio	n parameters fo	or the last thre	e readings				
1800	started			-,	100		220	15.44		
1805	7.92	12.2	341.4	5.6	0.60	\$ 230.1	220	15.46	3.09	
1810	7.88	12.3	316.4	5.7	0.61	+215.0	220	15.44	3.25	
1815	7.88	12.2	329.1	5.4	0.58	+ 209.0	220	15.44	3.13	
1820	7.89	12.2	331.1	5.2	6.SLe	+200.7	220	15.44	2.97	
1825	7.90	12.1	337.0	4.8	0.52	+192.4	220	15.46	2.48	
1830	7.90	12.1	328.9	4.9	0.53	+ 188.1	220	15.46	2.24	
1835	7.90	12.1	332.W	5.2	0.56	+ 184.2	220	15.46	2.02	
1840	7.90	12.1	330.5	5.5	0.59	+181.9	220	15.44	1.97	
1845	7.90	12.1	330.1	5.9	0.63	+ 179.4	220	15.44	1.87	
1850	7.90	12.1	329.9	5.9	0.64	+178.7	220	15.44	18.1	
1855	7.90	12.1	328.3	6.1	0.67	+178.4	220	15.46	1.79	
1856	collecte		10							
1908	End	Jamp								
Total Dumn 7	Fime (min):	5/0	Total Purge V	olume (gal) :	~3.15		Review Date:	200	,	
			Total Fulge v	olume (gai) .	3. 63		Review By:		-23-24	
Weather:	55. Clou	dy					Review by.	4 / 10	- 43.0. (
Comments:		() A. S					7 - 2 - X		*	
Bottle	es Filled	Preserva	tive Codes:	A-NONE B-H	HNO3 C-H2S	O4 D-NaOH I	- HCl F			
0	C!-	*	Preservative Code	Filtered Y/N	0	Cinc	T	Preservative Code	Filtered Y/N	
Quantity	Size	Plashe	-A		Quantity 4 2	Size	Plasmo	B	N	
1	125mL	FINSTI	A	M ma 18743	2	come	VOA	P	10	
	125mL		В	7		QUINU	VUN			
1	250 ML		A	N						
* 0		nin for low-flow o	nd <1 gal/min for I							



	c-mw-15		Date <u>10.14.</u>	면 Vell Material:	✓ PVC		per <u>24 - 0 8</u> Iron	Galv. Steel	, MSP 2,-11
Purge Metho	d:	Peristaltic	Su	omersible	Bla	dder	Fultz	Bail	er
Depth to Wa	ter Tape: 6	eotech	S/N	1005					
QC SAMPLE:	✓ I	MS/MSD	DUP_		Sonde ID:	<u>√</u> 15M	19Н	_20M21G	22J
Depth-to-wa	ter T/PVC (ft)	14.93	Depth-To-B	ottom T/PVC ((ft) <u>19.89</u>	_	Completed b	y uno	
Time	рН	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%
			Stablizatio	on parameters f	or the last thre	e readings			
1935	Started	pump					240	14.97	
1940	7.95	11.5	464.3	26.3	2.86	+127.3	240	14.97	3.28
1945	7.96	11.5	439.1	24.5	2.89	+139.9	240	14.97	2.89
1950	7.97	11.4	431.3	28.1	3.07	+153.3	240	14.97	2.71
1955	7.97	11.4	431.9	28.6	3.12	+155.0	240	14.97	2.72
2000	1.98	11.3	420.2	29.2	3.20	+156.5	240	14.97	2.65
2005	7.98	11.3	420.6	29.8	3.21	+157.2	240	14.97	2.59
2010	7.99	11.3	419.9	30.0	3.29	+155.0	240	14.97	2-58
2011	101164	ed sampi							
2024	Gnd	- C 90							
2000mo		, ,							
T-1-10	i ·		Tatal Down N	-1 (N	1.0		Davis Date	10.23.	211
	ime (min): 1		Total Purge v	olume (gal) :	~1.5		Review Date:	0.	
Weather:	56. F clo	vay					Review By:	X	
Comments:		m.	,			-		U	
Bottle	s Filled	Preservat	ive Codes:	A-NONE B-H	HNO3 C-H2S	O4 D - NaOH I	- HCl F		
0		≠ 0 minds	Preservative	Filtored V/N	0	C!	-	Preservative	Eiltered V/s
Quantity	Size	Plastic	Code	Filtered Y/N	Quantity	Size	Plastic	Code	Filtered Y/N
3	125ml	Plashe	A	17	-	10	record	17	IU
1	250 ML	Plastic	A	N					
2	COML	VOA	A	17					
			nd <1 gal/min for i			L			



	1c-mw-1		Date 10.15	.24		Control Numb	per 24-08	57-04	
Location	HC Back	cyround	,	Well Material:	✓ PVC	SS	Iron	Galv. Steel	
Purge Metho	od:	Peristaltic	Su	bmersible	Bla	dder	Fultz	Bail	er
Depth to Wa	ter Tape: 6	eotech	S/N	: 1005					
QC SAMPLE:		NS/MSD	DUP_		Sonde ID:	<u></u> ✓15M	19Н	_20M21G	22J
Depth-to-wa	ter T/PVC (ft)	16.77	Depth-To-B	ottom T/PVC	(ft) 21.02		Completed b	_\mo_	
Time	рН	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% on parameters f	+/- 0.3ppm	+/- 10mV	*	< 0.33	+/- 10%
			Stabilzatio	on parameters j	or the last thre	e reaaings	225	16.78	
0815	Started		514.5			F-17-18-18-18-18-18-18-18-18-18-18-18-18-18-	220	110.77	100 100
0820	5.89	11.9	44.6	40.0	4.32	+288.9	220	16.78	2.53
0825	5.87	11.9	45.3	38.5	4.15	+296.1	220	16.78	2.62
0830	5.91	12.0	47.4	31.W	4.05	+301.3	220	14.78	2.55
0835	5.88	12.0	46.3	37.6	4.06	+306.0	220	16.78	2.56
0846	5.88	11.9	46.6	37. U	4.66	+309.9	220	16.78	2.47
0845	5.88	12.0	46.4	37.7	4.05	+ 313.2	220	16.78	2.31
0850	5.87	11.9	46.6	37.6	4.04	+ 315. I	220	16.78	2.22
0855	5.87	11.9	46.6	37.4	4.05	+316.2	220	16.78	2.25
0854			100	51.W		1 3(4.7		10.10	
0911	collected	Sample							
Total Pump	 Γime (min): ⁽	41	Total Purge V	olume (gal) :	~ 2.25		Review Date:	10-23.2	.4
Weather:	50 F clo			10-7			Review By:	0.	
	.50 010								
Comments:								,	
Bottl	es Filled	Preserva	tive Codes:	A-NONE B-I	HNO3 C - H2S	O4 D - NaOH I	E-HCLE-		
		1,000,00	Preservative					Preservative	Summer and
Quantity	Size	Type	Code	Filtered Y/N	Quantity	Size	Туре	Code	Filtered Y/N
2	60 mL	VOA	A	7	2	11	Plashi	В	N
1	125ml	Plastic	B	17		7			
	250ml		A	N					
* Pump rate sh		nin for low-flow a	nd <1 gal/min for				4		



	MW-1502		Date <u>(0.15.</u>	.24 Well Material:	✓ PVC		ber <u>24 - 08</u> ና Iron	57-06 Galv. Steel	
Purge Metho		Peristaltic	Su	ubmersible	Bla	ndder	Fultz	Bail	ler
Depth to Wat	ter Tape: Geo	otech	S/N	N: 1005					
QC SAMPLE:		VIS/MSD [DUP_	7 7 4 7 7	Sonde ID:	<u>✓</u> 15M	19H	_20M21G	i22J
Depth-to-wat	ter T/PVC (ft)	17.41	Depth-To-B	Bottom T/PVC ((ft) 23.00		Completed b	y 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	ion parameters fo	or the last thre	e readings		1	
0930	started	pump						17.43	
0935	7.00	12.5	173.8	83.4	8.87	+301.2	240.0	17.43	29.54
0934	Stopped	l sondy f	ixed an	r bubbles					
0945	started	pump					220	17.43	
0950	7.22	12.5	150.1	81.2	8.68	+ 286.0	220	17.43	9.94
0955	7.27	12.4	154.3	82.3	8.79	+283.3	220	17.43	10.32
1000	7.27	12.4	155.8	80.8	8.61	+ 282.2	220	17.43	7.53
1005	7.36	12.5	153.1	80.3	8.50	+280.6	220	17.43	4.72
1010	7.32	12.5	152.3	79.8	8.50	+ 280.7	220	17.43	4.01
1015	7.34	12.5	153.2	79.8	8.42	+280.0	220	17.43	3.25
1020	7. 35	12.5	154.1	78.6	8.38	+ 279.8	220	17.43	2.94
1025	7.35	12.4	154.9	18.5	8.31	+ 280.0	270	17.43	2.89
10 30	7.36	12.5	154.4	18.3	8.34	+ 280.0	220	17.43	2.90
1031	collected					7 200		11.13	2
1147	End	Sami							
	ime (min): (e	.1	Total Purge \	Volume (gal) :	~3.5		Review Date:	: 10.23-3	Les
Weather:	40°F,	Chowale C	Cloudy	Oldine (Ball)	V . 5		Review By:	0.1	
Comments:		1045.20						V	
Bottle	es Filled	Preservat	tive Codes:	A-NONE B-	HNO3 C-H2S	O4 D-NaOH E	E-HCI F		
Quantity	Size	Туре	Preservative Code	Filtered Y/N	Quantity	Size	Туре	Preservative Code	Filtered Y/N
2	GOML	VOA	A	N	2	11	Plastic	В	N
1	125 ml .		A	N	-	10	1.00		1.5
i	125 ml	1 10.0	6	7					
1	250 ML		A	17					
* Pump rate sho		nin for low-flow ar	nd <1 gal/min for I						



	HC Bookgr		Well Material: PVC SS Iron Galv. Steel							
Purge Metho		Peristaltic	Su Su	bmersible	Bladder Fultz Bailer					
Depth to Wa	ter Tape: 6	eotech	S/N	1: 1005						
QC SAMPLE:		MS/MSD	DUP_		Sonde ID:	<u></u>	19Н	_20M21G	22J	
Depth-to-wa	ter T/PVC (ft)	17.20	Depth-To-B	ottom T/PVC	(ft) <u>26.83</u>		Completed b	y_Lmo		
Time	рН	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%	
			Stablizati	on parameters f	for the last thre	ee readings				
1105	Started	pump						17.28		
1110	8.62	13.1	116.7	75.4	7.92	+224.0	240	17.28	3.55	
1115	8.45	13.0	110.5	77.0	8.10	+221.8	240	17.28	3.01	
1120	8 - 67	13.2	11 1.9	78.1	8-19	+ 221.6	240	17.28	2.53	
1125	8.68	13.2	110.4	18.4	8-21	+221.9	240	17.28	2.64	
1130	8.68	13.2	108.2	78.6	8.24	+222.9	240	17.28	2.98	
1135	8.68	13.2	108.9	78.1	8.25	+273.5	240	17.28	3.14	
1140	8.68	13.3	168.3	78.9	8.25	+224.3	240	17.28	3.39	
1145	8.68	13.3	109.0	78.9	8.27	+ 224.7	240	17.28	3.45	
1150	8.68	13.4	109.4	79.1	8.20	+ 225.1	240	17.28	3.50	
1151	collect	ed.								
1205	End									
Total Pump 1	Time (min): 4	10	Total Purge V	olume (gal) :	~ 3 0		Review Date:	10.23-2	4	
Weather:	SOF CLOVE	-	Total Targe V	oranic (gar) .	3.0		Review By:	- 1	:	
	20 0,000	19						1		
Comments:								V		
Bottle	es Filled	Preserva	tive Codes:	A-NONE B-	HNO3 C-H2S	O4 D - NaOH	E-HCI F			
Quantity	Size	Туре	Preservative Code	Filtered Y/N	Quantity	Size	Туре	Preservative Code	Filtered Y/N	
2	LeomL	Vors	A	N	2	11	Plashe	В	N	
1	125 ml	Plashe	A	N		1				
1	125 ml		В	N						
1	250mL	<u></u>	nd <1 gal/min for	N						



Well ID FB-01			Date 10.15.24 Control Number 24 - 0857 - 08							
Location <u></u>	AC Baing	round	V	Vell Material:	PVC	SS	Iron	Galv. Steel		
Purge Method: Peristaltic			Su	bmersible	Bladder Fultz Bailer					
Depth to Wa	ter Tape:		S/N	:						
QC SAMPLE:	N	IS/MSD	DUP_		Sonde ID:	15M	19H	_20M21G	22J	
Depth-to-wa	ter T/PVC (ft)		Depth-To-B	ottom T/PVC (ft)	_ /	Completed b	y LMO		
Time	рН	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%	
	,, 0.2	.,,,		on parameters f				1	7, 20,1	
1222	collected	Sample	e							
									7	
	1									
							-			
			,		and the same of					
						Q X				
Total Pump	Time (min):	-	Total Purge V	'olume (gal) :			Review Date	10.23.	24	
Weather:							Review By	. 94		
weather.	-						Neview by	<u> </u>		
								U		
Comments:										
Bottl	es Filled	Preserva	tive Codes:	A-NONE B-H	HNO3 C-H2SC	04 D - NaOH	E-HCI F-			
2030			Preservative					Preservative		
Quantity	Size	Туре	Code	Filtered Y/N	Quantity	Size	Туре	Code	Filtered Y/N	
l				N	quantity	JILC	Type	2002	7	
1	125mL	Plastic	B	7.5						
	125mL	11	A	N						
1	250mL		A	N						
2	16	_	B	И						
	ould be <500 mL/m	in for low-flow a	-	high Volume						
r ump rute she	Dulu DE \JUU IIIL/III	joi low-jiow u	na -1 gui/min jui	ingii volume.						



Location JH	C Backgr		Date <u>10.15</u>	Well Material:	PVC	SS [Galv. Steel	
Purge Metho	d:	Peristaltic	Su	bmersible	Blac	lder	Fultz	Bail	er
Depth to Wat	er Tape:		S/N	l:					
QC SAMPLE:	N	/IS/MSD	DUP_		Sonde ID:	15N	119Н	_20M21G	22J
Depth-to-wat	er T/PVC (ft)		Depth-To-B	ottom T/PVC (ft)		Completed by	y mo	
Time	рН	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%
				on parameters fo					
1210	collected	d sample	e						
Total Pump T Weather: Comments:	ime (min):	Preservat	Total Purge V	/olume (gal) :	HNO3 C-H2SC	04 D - NaOH	Review Date: Review By:	-	4
Quantity	Size	Туре	Code	Filtered Y/N	Quantity	Size	Туре	Code	Filtered Y/N
1	125ml	Plasmo	В	N					
i	Irsml	T	A	N					
	2SomL		Pr	N					
	UJUINE		Γ'						
7.	11		B	N					



Well ID <u>JHC</u> Location <u>JH</u>	-MW-150 C Land	FIII		15 · 24 Vell Material:	PVC	Control Numb	per <u>24- 085</u> Iron	Galv. Steel	
Purge Method	d: 🗸	Peristaltic	Sul	omersible	Blad	dder	Fultz	Bail	er
Depth to Wat	er Tape: 🛭 🕞	eatech	S/N	17371					
QC SAMPLE:	N	is/MSD	DUP_	_	Sonde ID:	15M	19Н	20M <u>~</u> 21G	22J
Depth-to-wat	er T/PVC (ft) _	18.11	Depth-To-Bo	ottom T/PVC	(ft) 22.9	5	Completed b	CIE_	
Time	рН	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min 3-5 min	units +/- 0.1	°C NA	uS/cm +/- 3%	% sat. +/- 10%	ppm +/- 0.3ppm	mV +/- 10mV	mL/min *	Drawdown ft	NTU +/- 10%
				on parameters f	or the last thre	e readings			
0820	Star	ted pur	np				240	18.13	
0825	6.47	11.4	421.4	9.5	1.04	+179.7	240	18.13	2.36
0830	6.70	11.4	415.5	8.7	0.95	+177.9	240	18.13	2.09
0835	4.74	11.6	410.5	7.2	0.78	+172.9	240	18.13	1.99
0840	6.73	11.5	415.9	6.9	0.76	+171.1	240	18.13	2.00
0845	6.73	11.4	417.7	67	0.73	+1695	240	18.13	1.82
0650	6.73	11.5	420.7	4.7	0.72	4167.6	240	18.13	1.76
0855	6.74	11.6	419.5	6.6	0.72	+147.5	240	18.13	1.71
0850		cted sa							
0906	eni		117						
	01.1								
									-
	(i)			1000					
Total Pump T	ima (min):	36	Total Purge V	olumo (gal) :	- 226		Review Date:	10-25-	214
Weather:	37°F,	Sunny	Total Fulge v	olume (gai) .	72.65		Review By:		λ-1
Wedther.	0101,	Julia	ī.				neview by.	Y	
Comments:								V	
Bottle	s Filled	Preservat	ive Codes:	A-NONE B-I	HNO3 C-H2SI	O4 D-NaOH E	- HCl F-		
Quantity	Size	Туре	Preservative Code	Filtered Y/N	Quantity	Size	Туре	Preservative Code	Filtered Y/N
	125mL	HDPE	В	N	2	1-L	HDRE	В	N
1	125 mL	1	A						
	250mL	1/4	A					61	
<u></u>	uld be <500 mL/m	VOA		N					



Well ID <u>JH</u> Location <u>J</u>		15018 14:11		15 - 24 Well Material:	PVC	Control Numb	oer <u>24-08</u>	59-02, - 0)01
Purge Method	d:	Peristaltic	Su	bmersible	Bla	dder	Fultz	Baile	er
Depth to Wat	er Tape:	Groteck	s/N	: 7371					
QC SAMPLE:		MS/MSD	DUP_(03	Sonde ID:	15M	19Н	20M <u>~</u> 21G	22J
Depth-to-wat	er T/PVC (ft)	18.72	Depth-To-B	ottom T/PVC	(ft) 22.69	<u>5</u>	Completed by	LIE	
Time	рН	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% Stablizatio	+/- 10% on parameters f	+/- 0.3ppm	+/- 10mV	*	< 0.33	+/- 10%
1000	61.			on parameters j	or the last time	e reduings	222	1076	
0927		ted pu		13.8	1117	+1010	220	18.75	211
0935	6.42	12.4	560		1.47	+151.0	220	18.75	2.61
0940	6.48	12.6	570	12.1	1.28	+155.6	220	18.75	2.34
0945	6.51	12.5		12.6	1.16	+157.1	220	18.75	2.07
0950	6.55	12.5	570	9.5	1.01	+157.3		18.75	1.74
0955	4.56	12.7	569	9.2	0.97	+158.3	220	18.75	1.49
1000	U.50	12.0	568	9.1	0.96	+159.0	220	18.75	1.40
1001	(011e	cted ba	mple						
							¥.		
Total Pump T	ime (min):	34	Total Purge V	olume (gal) :	~7 ^		Review Date:	lo_ 23 -2	u d
Weather:		Sunny	Total Large V	oranic (gar) .	- 2,0		Review By:		
Wedther.	- JI'I',	Surviy					neview by.	$-\gamma$	
Comments:	Co	llected	L Field	Duplica	ate			1	
Bottle	s Filled	Preservat	ive Codes:	A-NONE B-I	HNO3 C - H2S	O4 D-NaOH E	- HCl F		
102-10-10-2	1-1-1-1		Preservative	ett.				Preservative	mile desire
Quantity 2	Size 125mL	Type HDPE	Code	Filtered Y/N	Quantity :	Size	Type	Code B	Filtered Y/N
2	125 ML)	BA	N	7	1-L	HDPE	a	14
2	250mL	1	A						
4	60ml	VOA	À	↓					
* Pump rate show	uld be <500 mL/n	nin for low-flow an	d <1 gal/min for	high Volume.					



Well ID <u>J H</u> Location <u>J H C</u>			Date 10 - 10	5·24 Well Material:	PVC	Control Numb	er <u>24-08</u> Iron	59-03 Galv. Steel	
Purge Method	d:	Peristaltic	Su	bmersible	Bla	dder	Fultz	Bail	er
Depth to Wate	er Tape: 👍	eotech	S/N	1					
QC SAMPLE:		IS/MSD	DUP_		Sonde ID:	15M	19Н	20M <u>21</u> G	22J
Depth-to-wate	er T/PVC (ft)	14.42	Depth-To-B	ottom T/PVC	(ft) <u>46.14</u>	L	Completed by	ИО	
Time	На	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% Stablization	+/- 10% on parameters f	+/- 0.3ppm for the last thre	+/- 10mV ee readinas	*	< 0.33	+/- 10%
1350	Star	ted p					500	44.47	
1400	7.32	13.0	501	14.3	1.72	t99.3	500	*	2.31
1405	7,29	13.0	507	15.6	1.64	+104.5	500	*	1.40
1410	7.29	13.1	502	15.5	1.43	+109.0	500	¥	1.37
1415	7.29	13.0	502	15.5	1.63		500	*	1.40
1420	7.20	13.0	503	15.0	1.44	+113.9	500	*	1.43
1421		ted bor		, , , ,	1.0				1.
	und		ripio					44.42	
	211/0							11.10	
Total Duman Ti	too o foo in V	31	Total Duvas V	(aluma (aal)	211 0		Daview Date	10-23.	7 <i>4</i>
Total Pump Ti Weather:				olume (gal) :	14.0		Review Date: Review By:	0	-1
weather.	401,	bun, v	VIIID				Neview by.	— /	
Comments:	* W	ater lea	rel bele	w pun	no head	- can't	Measi	ire	
Bottles	s Filled	Preservat	ive Codes:	A-NONE B-	HNO3 C-H2S	O4 D-NaOH E	- HCl F		
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Туре	Preservative Code	Filtered Y/N
\ \	125ML	HDPE	B	N N	2	1-L	HDPE	13	N
1	125mL		Á						1
2	250mL	UDA	r)						
	uld be <500 mL/m	in for low-flow an	nd <1 gal/min for	high Volume.					



	W-B3 +C Lund	and the second second	Date <u>10 - 1</u>	5.24 Well Material:	PVC	Control Numb	er <u>24 - 09</u> Iron	69-04 Galv. Steel	
Purge Method		Peristaltic		bmersible		dder	Fultz	Baile	er
Depth to Wat	er Tape: G	eotech	S/N	: 7371					
QC SAMPLE:		IS/MSD	DUP_		Sonde ID:	15M	19H	20M <u>/</u> 21G	22J
Depth-to-wat	er T/PVC (ft) _	39.70	Depth-To-B	ottom T/PVC ((ft) 40,20)	Completed by	CIE	
Time	рН	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm +/ 0.3nnm	mV +/- 10mV	mL/min	Drawdown ft	NTU +/- 10%
3-5 min +/- 0.1 NA +/- 3% +/- 10% +/- 0.3ppm +/- 10mV * < 0.33 +/- 10% Stablization parameters for the last three readings									
1045	5+	arted p	ump				300	39.70	
1050	6.13	12.5	509	14.0	1.55	+177.4	300	·*	1.30
1055	6.09	12.4	512	13.3	1.42	+180.0	300	X	1.26
1100	6.10	12.4	515	13.6	1.45	+183.0	300	*	1.18
1105	6.10	12.4	518	13.8	1.47	+185.4	300	¥	1.20
1110	6.10	125	519	13.7	1.46	+186.8	300	*	1.15
1111		cted 50				00.0			
1133	en!		<i>y</i> , <i>y</i>					39.70	
						4			
						-			
Total Dumn T	ima (min):	210	Total Burgo V	(olumo (gal) :	-7 0	1	Review Date:	10-23.7	<u>-</u> 4
Total Pump T Weather:		60		/olume (gal) :	72.0		Review By:		
		Sunn		1,5				1	
Comments:	* WOHL	LIWEL b	flow pu	mp head	d-cunt	measur	U	V	
	s Filled		ive Codes:			O4 D-NaOH E			
0	St.	T	Preservative Code	Filtered Y/N	Our -tit-	C'	Towns	Preservative Code	Filtered Y/N
Quantity	Size 125ML	HDPE	B	riitered 1/10	Quantity 2	Size	Type HDPE	B	N Pilitered 1710
	125mL	TIPE	A				11010	~	14
1	250ml	110.	A						
2 * Pump rate sho	uld be <500 mL/m	VOA	nd <1 gal/min for	high Volume.					



MS USD

Well IDYYVV			Date 10 - 1			Control Numb		7	-12,-13
Location J	IC Land	HIL	V	Vell Material:	PVC	SS	Iron	Galv. Steel	
Purge Method	d:	Peristaltic	Sul	omersible	Blac	dder	Fultz	Bail	er
Depth to Wat	er Tape: G	eotech	S/N	: 7371					
QC SAMPLE:	✓ M	IS/MSD	DUP_		Sonde ID:	15M	19Н	20M <u>21</u> G	22J
Depth-to-wat	er T/PVC (ft)	12.40	Depth-To-Bo	ottom T/PVC ((ft) <u>47.70</u>		Completed by	- CIE	
Time	рН	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%
131			Stablizatio	on parameters f	or the last three	e readings			
1145		irted	pum			6/10/2	400	42.41	A
1160	6.94	14,5	416	4.9	0.49	+111.7	400	42.41	3.48
1155	6.94	14.6	607	4.4	0.44	+111.5	400	42.41	2.72
1200	4.95	14.6	400	3.7	0.37	+108.5	400	42.41	1.65
1205	6.95	14.7	597	3.5	0.36	1107.7	400	42.41	1.26
1210	6.95		595	3.4	0.35	+107,1	400	42.41	1.12
1215	6.96	147	594	3.4		+ 167.0	400	42.41	1.69
1216		ted 60				1 101.0			
75 F 15 6 7 7 6		Hea El	ninge						
1229	enD								
Total Pump Ti	ime (min):	31	Total Purge V	olume (gal) : •	~3.5		Review Date:	10-23-	24
Weather:	40°F	sunny	. wind	N			Review By:	of	. ,
				1	- Value			0	
Comments:		collecte	d Fiel	D MS/N	NSD.			7	
Dattle	e em a	Dunamati	on Continu	A NONE D I	INOS C USC	DA D. N. OU. F	ucl r		
Bottle	s rillea	Preservati	ve Codes: Preservative	A-MONE B-	11VU3 C-H2SC	D4 D - NaOH E	- HCI F	Preservative	
Quantity	Size	Туре	Code	Filtered Y/N	Quantity	Size	Туре	Code	Filtered Y/N
3	125mL	HDPE	В	N	2	1- L	HDPE	В	N
3	125mL		A						
2	250ML	VOA	A A						
		in for low-flow and		nigh Volume.					



Well ID JHC Location JH			Date 10 - 1	6-24 Vell Material:	PVC	Control Numb	per <u>24 - 09</u> Iron	59-01/ Galv. Steel		
Purge Method	: 🔲	Peristaltic	Suk	omersible	Bla	dder	Fultz	Bail	er	
Depth to Wate	er Tape: Ge	otech	S/N:	1371			F-			
QC SAMPLE:		IS/MSD	DUP_	_	Sonde ID:	15M	19Н	20M <u>/</u> 21G	22J	
Depth-to-wate	er T/PVC (ft) _	42.01	Depth-To-Bo	ottom T/PVC ((ft) 46.26 Completed by CIE					
Time	рН	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%	
			Stablizatio	n parameters f	or the last thre	e readings		. 0		
1235	star	ted p	ump				425	42.03		
1240	7,32	14.0	481.3	4.1	0.42	+94.2	425	42.03	3.04	
1245	7,32	14.1	480,5	4.1	0.43	+94.6	425	42.03	2.12	
1250	7.31	14.1	481.9	4.5	0.46	+94.0	425	42.03	2.19	
1255	7.32	14.0	480.9	4.6	0.47	+93,7	425	42.03	1.23	
1300	7.32	14.1	478.4	4.5	0.47	+93.5	425	42.03	1.22	
1301			sample							
1312	end		304111							
	0.,0									
Total Pump Ti	me (min):	36	Total Purge V	olume (gal) :~	3.0		Review Date:	10-23.	24	
Weather:	420F,						Review By:	- 1		
· · · · · ·	1212)	- Juniy	VVIVIP					8		
Comments:										
Bottles	Filled	Preserva	tive Codes:	A-NONE B-I	HNO3 C-H2S	O4 D-NaOH I	- HCl F-			
			Preservative					Preservative	-11.	
Quantity	Size	Type	Code	Filtered Y/N	Quantity	Size	Туре	Code	Filtered Y/N	
	125ML	HDPE	B	N	2	1-L	HDPE	В	A	
1	125 mL 250 mL		H		7					
2	LIMIL	VOA	A							
			nd <1 gal/min for l	nigh Volume.						



Well ID 140	C-MW-13	034 (mw-	Date	5.24		Control Num	ber 24 - 08	359-67			
Location <u>Jl</u>	rc Landti	11	1	Well Material:	✓ PVC	SS	Iron	Galv. Steel			
Purge Metho	d: 🗸	Peristaltic	Su	bmersible	Blac	dder	Fultz	Baile	er		
Depth to Wa	ter Tape: 60	otech	S/N	: 1005							
QC SAMPLE:	N	IS/MSD	DUP_	_	Sonde ID:	<u>√</u> 15M	19H	_20M21G	22J		
Depth-to-wat	ter T/PVC (ft)	17.75	Depth-To-B	ottom T/PVC (C (ft) 32.59 Completed by <u>UNO</u>						
Time	рН	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%		
	Tu de un cel		Stablizati	on parameters f	or the last three	e readings	100				
1415	started						180	17.75	all and a second		
1420	7.78	13.1	308.7	10.4	1.09	147.4	180	17.75	4.70		
1425	7.75	13.1	306.8	12.0	1.27	151.4	180	17.75	3.66		
1430	7.76	13.1	308.9	10.8	1.13	152.4	180	17.75	3.06		
1435	7.74	12.9	301.8	11.2	1.18	153.9	186	17.75	2.38		
1440	7.71	12.7	303.7		1.07	151.9	180	17.75	1.74		
1445	1.77	12.9	306.1	10.2	1.07	151.4	180	17.75	1.95		
1450	1.11	12.9	304.3	16.2	1.08	150.8	180	17.75	1.88		
1451	collected	sample					100	1000000	, 60		
		Same									
1506	End										
				ň							
Total Pump 1	ime (min): 3	lo	Total Purge V	olume (gal) :	~1.75		Review Date:	10-23-20	4		
Weather:	50°F Clo						Review By:				
		201-1						1			
Comments:											
							- 412				
Bottle	es Filled	Preserva	Preservative	A - NONE B - I	1NO3 C - H250	O4 D - NaOH	E - HCI F	Preservative			
Quantity	Size	Туре	Code	Filtered Y/N	Quantity	Size	Туре	Code	Filtered Y/N		
2	GOML	VOA	A	N	2	12	Plashe	В	N		
1	125mL	plasne	A	N							
	125mL		В	N							
1	250mL	7	A	N							



Well ID 14	1 C-MW-15	37 (mw-B	ገ) Date <u>ኒ</u> ዕ-ኒና	5.24		Control Num	ber 24-0	859-08		
Location <u></u>	HC Land.	6111	À	Well Material:	V PVC	: ss	Iron	Galv. Steel		
Purge Metho	od: 🗸	Peristaltic	Su	bmersible	Bla	dder	Fultz	Bail	er	
Depth to Wa	ater Tape: 6c	orech	S/N	: 1005						
QC SAMPLE:		/IS/MSD	DUP_	_	Sonde ID:	Sonde ID:				
Depth-to-wa	nter T/PVC (ft)	26.10	Depth-To-B	ottom T/PVC	(ft) <u>30.90</u>		Completed b	y <u>Umo</u>		
Time	рН	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%	
	Francisco (Stabilzati	on parameters j	or the last thre	e reaaings	5575			
1540	Started	pump					240	26.12	D. 18 . 1	
1545	77.8	11.2	574	49.5	5.42	+213.9	260	212.12	2.19	
1550	7.21	11.2	575	48.ce	5.33	+227.9	260	24.12	1.95	
1555	7.18	11.3	573	49.2	5.37	+241.1	240	26.12	1-48	
1600	7.18	11.4	566	49.6	5.41	+244.0	240	24.12	1.35	
1605	7.17	11.3	565	56.0	5.41	+ 249.8	240	26.12	1.29	
1610	1.17	11.3	546	50.0	5.47	+ 250.5	240	24.12	1.33	
1611	collected	canale							•	
1626	End	Dallie								
								,		
Total Pump	Time (min): 3	1	Total Purge V	'olume (gal) :	22.0		Review Date:	10-23-	24	
Weather:	SOF CLO	udy					Review By:	X		
								0		
Comments:		V - 1110							-	
Bottl	es Filled	Preserva	tive Codes:	A-NONE B-	HNO3 C-H2S	O4 D - NaOH	E-HCI F			
	11-3-		Preservative					Preservative	277	
Quantity	Size	Туре	Code	Filtered Y/N	Quantity	Size	Type	Code	Filtered Y/N	
2	COML	VOA	A	2	2	11	Plastic	В	N	
1	125 mL	Plasne	B	72						
1	250 mL		A	N						
* Pump rate sh	ould be <500 mL/m	in for low-flow a			II.					



	#B-03 Date 10-15-24 Control Number 24-0859-10 Material: PVC SS Iron Galv. Steel								
Purge Method	d:	Peristaltic	Suk	omersible	Blad	der	Fultz	Baile	er
Depth to Wat	er Tape:		S/N:						
QC SAMPLE:	N	IS/MSD	DUP_		Sonde ID:	15M	19H	20M21G	22J
Depth-to-wat	er T/PVC (ft) _		Depth-To-Bo	ottom T/PVC (ft)		Completed by	CIE	
Time	рН	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%
				n parameters fo	or the last three	readings			
1445	Collec	ted San	Apie						
Total Pump T	ime (min):	_	Total Purge V	olume (gal) :			Review Date:		f
Comments:	Se	y						0	
Bottle	es Filled	Preserva	tive Codes:	A-NONE B-I	HNO3 C-H2SC	04 D - NaOH	E-HCI F		
0	C!	*****	Preservative Code	Filtered Y/N	Overst'ter	Ci	Torre	Preservative Code	Filtered Y/N
Quantity	Size 125mL	Type HDPE	R	Filtered Y/N	Quantity	Size	Туре	code	rintered 1/10
1	125 mL	TIVE	A	14					
	250 mL		A						
2	1-L	1	B	1				4	
	ould be <500 mL/n	nin for low-flow a	nd <1 gal/min for	high Volume.					



Well ID Location <u>JH</u>	EB·03 C Landf	iu_	Date 0-15-24 Control Number 24-0859-11 Well Material: PVC SS Iron Galv. Steel							
Purge Method: Peristaltic Submersible Bladder Fultz Bailer						er				
Depth to Wa	ter Tape:		S/N:							
QC SAMPLE:		IS/MSD	DUP_		Sonde ID:15M19H20M21G22J					
Depth-to-wa	ter T/PVC (ft)		Depth-To-B	ottom T/PVC ((ft) Completed by CIE					
Time	рН	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%	
1400				on parameters fo	or the last three	readings				
1439	Collect	ed Sarv	IPC							
				*						
Total Pump	ime (min):	_	Total Purge V	olume (gal) :		_	Review Date:	10-23-2	4	
Weather:			, otal , algo .	oranie (Bar) i	-		Review By:	- 4	,	
Comments:						- 16 - 16 - 16 - 16 - 16 - 16 - 16 - 16		<i>y</i>		
Bottle	es Filled	Preserva	Preservative	A-NONE B-H	INO3 C - H2SO	4 D - NaOH	E - HCl F	Preservative		
Quantity	Size	Туре	Code	Filtered Y/N	Quantity	Size	Туре	Code	Filtered Y/N	
	125 mL 125 mL 250 mL	HDPE	B A A	7		-4				
2	1-L	*	B	1						
* Pump rate sho	uld be <500 mL/m	in for low-flow a	nd <1 gal/min for	high Volume.						



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

To: JJFirlit, JH Campbell Complex

From: EBlaj, T-258

Date: October 31, 2024

Subject: JH CAMPBELL SOLID WASTE DISPOSAL AREA - GROUNDWATER MONITORING

4th Quarter, 2024 – Background Wells

CC: HDRegister, P22-521 Sarah Holmstrom, Project Manager

ADSantini, P20-215B-REM TRC Companies, Inc.

1540 Eisenhower Place Ann Arbor, MI 48108

Chemistry Project: 24-0857

CE Laboratory Services conducted groundwater monitoring at the JH Campbell Solid Waste Disposal Area during the week of 10/14/2024, for the 4th Quarter requirement, as specified in the Hydrogeological Monitoring Plan for the site. The samples were received for analysis by the Chemistry department on 10/16/2024.

Samples for Radium analysis have been subcontracted to Eurofins/TestAmerica, Inc. and their results are being reported separately. Please note that the subcontracted work is not reported under the CE laboratory scope of accreditation.

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



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

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CASE NARRATIVE

I. Sample Receipt

All samples were received within hold time and in good conditions; no anomalies were noted on the 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. Sample preservation 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 percent recoveries of the field matrix spike & matrix spike duplicate samples are included in the results section. 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	<u>Description</u>
RL	Reporting Limit
ND	Result not detected or below Reporting Limit
NT	Not a 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 *	<u>Description</u> Generic data flag, applicable description added in the corresponding notes section
В	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



Work Order Sample Summary

Customer Name: JH Campbell Complex

Work Order ID: Q4-2024 JHC Background Wells

Date Received: 10/16/2024 **Chemistry Project:** 24-0857

Sample #	Field Sample ID	<u>Matrix</u>	Sample Date	<u>Site</u>
24-0857-01	JHC-MW-15023	Groundwater	10/14/2024 17:06	JHC GW Monitoring - Background Wells
24-0857-02	JHC-MW-15024	Groundwater	10/14/2024 18:56	JHC GW Monitoring - Background Wells
24-0857-03	JHC-MW-15025	Groundwater	10/14/2024 20:11	JHC GW Monitoring - Background Wells
24-0857-04	JHC-MW-15026	Groundwater	10/15/2024 08:56	JHC GW Monitoring - Background Wells
24-0857-05	JHC-MW-15027	Groundwater	10/15/2024 10:31	JHC GW Monitoring - Background Wells
24-0857-06	JHC-MW-15028	Groundwater	10/15/2024 11:50	JHC GW Monitoring - Background Wells
24-0857-07	DUP-01	Groundwater	10/14/2024 00:00	JHC GW Monitoring - Background Wells
24-0857-08	FB-01	Water	10/15/2024 12:22	JHC GW Monitoring - Background Wells
24-0857-09	EB-01	Water	10/15/2024 12:10	JHC GW Monitoring - Background Wells
24-0857-10	JHC-MW-15025 Field MS	Groundwater	10/14/2024 20:11	JHC GW Monitoring - Background Wells
24-0857-11	JHC-MW-15025 Field MSD	Groundwater	10/14/2024 20:11	JHC GW Monitoring - Background Wells



10/31/24



Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0857

 Field Sample ID:
 JHC-MW-15023
 Collect Date:
 10/14/2024

 Lab Sample ID:
 24-0857-01
 Collect Time:
 05:06 PM

Metals by EPA 6020B: CCR Rule App	endix III-IV T	otal Metals	s Ехр	Aliquot #: 24-0	857-01-C01-A01	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Arsenic	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Barium	24		ug/L	5.0	10/21/2024	AB24-1021-08
Beryllium	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Boron	27		ug/L	20.0	10/21/2024	AB24-1021-08
Cadmium	ND		ug/L	0.2	10/21/2024	AB24-1021-08
Calcium	12900		ug/L	1000.0	10/21/2024	AB24-1021-08
Chromium	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Cobalt	ND		ug/L	6.0	10/21/2024	AB24-1021-08
Copper	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Iron	ND		ug/L	20.0	10/21/2024	AB24-1021-08
Lead	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Lithium	ND		ug/L	10.0	10/21/2024	AB24-1021-08
Magnesium	4640		ug/L	1000.0	10/21/2024	AB24-1021-08
Molybdenum	ND		ug/L	5.0	10/21/2024	AB24-1021-08
Nickel	ND		ug/L	2.0	10/21/2024	AB24-1021-08
Potassium	913		ug/L	100.0	10/21/2024	AB24-1021-08
Selenium	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Silver	ND		ug/L	0.2	10/21/2024	AB24-1021-08
Sodium	4480		ug/L	1000.0	10/21/2024	AB24-1021-08
Thallium	ND		ug/L	2.0	10/21/2024	AB24-1021-08
Vanadium	ND		ug/L	2.0	10/21/2024	AB24-1021-08
Zinc	ND		ug/L	10.0	10/21/2024	AB24-1021-08
Mercury by EPA 7470A, Total, Aqueo	us			Aliquot #: 24-0	857-01-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/21/2024	AB24-1021-03
Anions by EPA 300.0 CCR Rule Analy	rte List, CI, F	, SO4, Aqu	ieous	Aliquot #: 24-0	857-01-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	4570		ug/L	1000.0	10/17/2024	AB24-1017-01
Fluoride	ND		ug/L	1000.0	10/17/2024	AB24-1017-01
Sulfate	11300		ug/L	1000.0	10/17/2024	AB24-1017-01
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	857-01-C03-A01	Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	84		mg/L	10.0	10/17/2024	AB24-1017-02
	_	04 0957 Dago I	5 of 25			



Report Date: 10/31/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0857

 Field Sample ID:
 JHC-MW-15023
 Collect Date:
 10/14/2024

 Lab Sample ID:
 24-0857-01
 Collect Time:
 05:06 PM

Alkalinity by SM 2320B	• • • • • • • • • • • • • • • • • • • •			857-01-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	44000	ug/L	10000.0	10/22/2024	AB24-1021-07
Alkalinity Bicarbonate	44000	ug/L	10000.0	10/22/2024	AB24-1021-07
Alkalinity Carbonate	ND	ug/L	10000.0	10/22/2024	AB24-1021-07



10/31/24



Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0857

 Field Sample ID:
 JHC-MW-15024
 Collect Date:
 10/14/2024

 Lab Sample ID:
 24-0857-02
 Collect Time:
 06:56 PM

Metals by EPA 6020B: CCR Rule Appe	ndix III-IV 1	Total Metals	в Ехр	Aliquot #: 24-0	857-02-C01-A01	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Arsenic	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Barium	17		ug/L	5.0	10/21/2024	AB24-1021-08
Beryllium	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Boron	ND		ug/L	20.0	10/21/2024	AB24-1021-08
Cadmium	ND		ug/L	0.2	10/21/2024	AB24-1021-08
Calcium	28200		ug/L	1000.0	10/21/2024	AB24-1021-08
Chromium	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Cobalt	ND		ug/L	6.0	10/21/2024	AB24-1021-08
Copper	2		ug/L	1.0	10/21/2024	AB24-1021-08
Iron	ND		ug/L	20.0	10/21/2024	AB24-1021-08
Lead	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Lithium	ND		ug/L	10.0	10/21/2024	AB24-1021-08
Magnesium	8220		ug/L	1000.0	10/21/2024	AB24-1021-08
Molybdenum	ND		ug/L	5.0	10/21/2024	AB24-1021-08
Nickel	ND		ug/L	2.0	10/21/2024	AB24-1021-08
Potassium	1190		ug/L	100.0	10/21/2024	AB24-1021-08
Selenium	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Silver	ND		ug/L	0.2	10/21/2024	AB24-1021-08
Sodium	23900		ug/L	1000.0	10/21/2024	AB24-1021-08
Thallium	ND		ug/L	2.0	10/21/2024	AB24-1021-08
Vanadium	ND		ug/L	2.0	10/21/2024	AB24-1021-08
Zinc	ND		ug/L	10.0	10/21/2024	AB24-1021-08
Mercury by EPA 7470A, Total, Aqueou	s			Aliquot #: 24-0	857-02-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/21/2024	AB24-1021-03
Anions by EPA 300.0 CCR Rule Analyt	te List, CI, I	F, SO4, Aqı	ueous	Aliquot #: 24-0	857-02-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	26800		ug/L	1000.0	10/17/2024	AB24-1017-01
Fluoride	ND		ug/L	1000.0	10/17/2024	AB24-1017-01
Sulfate	8100		ug/L	1000.0	10/17/2024	AB24-1017-01
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	857-02-C03-A01	Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	174		mg/L	10.0	10/17/2024	AB24-1017-02
	,	04 0957 Daga	7 of 25			



Report Date: 10/31/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0857

 Field Sample ID:
 JHC-MW-15024
 Collect Date:
 10/14/2024

 Lab Sample ID:
 24-0857-02
 Collect Time:
 06:56 PM

Alkalinity by SM 2320B			Aliquot #: 24-0	857-02-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	117000	ug/L	10000.0	10/22/2024	AB24-1021-07
Alkalinity Bicarbonate	117000	ug/L	10000.0	10/22/2024	AB24-1021-07
Alkalinity Carbonate	ND	ug/L	10000.0	10/22/2024	AB24-1021-07



10/31/24



Laboratory Services A CENTURY OF EXCELLENCE

JHC GW Monitoring - Background Wells (395496) Sample Site:

Laboratory Project: 24-0857 Collect Date: Field Sample ID: JHC-MW-15025 10/14/2024 Lab Sample ID: 24-0857-03 Collect Time: 08:11 PM

			Allquot #. 24-0	031-03-C01-A01	Analyst: EE
Result	Flag	Units	RL	Analysis Date	Tracking
ND		ug/L	1.0	10/21/2024	AB24-1021-08
ND		ug/L	1.0	10/21/2024	AB24-1021-08
10		ug/L	5.0	10/21/2024	AB24-1021-08
ND		ug/L	1.0	10/21/2024	AB24-1021-08
21		ug/L	20.0	10/21/2024	AB24-1021-08
ND		ug/L	0.2	10/21/2024	AB24-1021-08
37100		ug/L	1000.0	10/21/2024	AB24-1021-08
ND		ug/L	1.0	10/21/2024	AB24-1021-08
ND		ug/L	6.0	10/21/2024	AB24-1021-08
1		ug/L	1.0	10/21/2024	AB24-1021-08
ND		ug/L	20.0	10/21/2024	AB24-1021-08
ND		ug/L	1.0	10/21/2024	AB24-1021-08
ND		ug/L	10.0	10/21/2024	AB24-1021-08
11100		ug/L	1000.0	10/21/2024	AB24-1021-08
ND		ug/L	5.0	10/21/2024	AB24-1021-08
ND		ug/L	2.0	10/21/2024	AB24-1021-08
1460		ug/L	100.0	10/21/2024	AB24-1021-08
ND		ug/L	1.0	10/21/2024	AB24-1021-08
ND		ug/L	0.2	10/21/2024	AB24-1021-08
26500		ug/L	1000.0	10/21/2024	AB24-1021-08
ND		ug/L	2.0	10/21/2024	AB24-1021-08
ND		ug/L	2.0	10/21/2024	AB24-1021-08
ND		ug/L	10.0	10/21/2024	AB24-1021-08
ıs			Aliquot #: 24-0	857-03-C01-A02	Analyst: CLI
Result	Flag	Units	RL	Analysis Date	Tracking
ND		ug/L	0.2	10/21/2024	AB24-1021-03
te List, CI, F,	SO4, Aqı	ieous	Aliquot #: 24-0	857-03-C02-A01	Analyst: KDF
Result	Flag	Units	RL	Analysis Date	Tracking
43300		ug/L	1000.0	10/17/2024	AB24-1017-01
ND		ug/L	1000.0	10/17/2024	AB24-1017-01
12000		ug/L	1000.0	10/17/2024	AB24-1017-01
			Aliquot #: 24-0	857-03-C03-A01	Analyst: LMC
Result	Flag	Units	RL	Analysis Date	Tracking
215			10.0		AB24-1017-02
	ND ND 10 ND 21 ND 37100 ND ND 11 ND ND 11100 ND ND 1460 ND ND 26500 ND	ND ND ND 10 ND 21 ND 37100 ND ND ND ND ND ND ND ND 11100 ND ND ND ND 1460 ND	ND ug/L ND ug/L 10 ug/L ND ug/L 21 ug/L ND ug/L 37100 ug/L ND ug/L Ug/L Result Flag Units 43300 ug/L ND ug/L Result Flag Units	Result Flag Units RL ND	ND



Report Date: 10/31/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496)

Laboratory Project: **24-0857**Collect Date: 10/14/2024

Field Sample ID: JHC-MW-15025 Lab Sample ID: 24-0857-03

Collect Time: 08:11 PM

Alkalinity by SM 2320B			Aliquot #: 24-0	Analyst: DLS	
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	127000	ug/L	10000.0	10/22/2024	AB24-1021-07
Alkalinity Bicarbonate	127000	ug/L	10000.0	10/22/2024	AB24-1021-07
Alkalinity Carbonate	ND	ug/L	10000.0	10/22/2024	AB24-1021-07



10/31/24



Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0857

 Field Sample ID:
 JHC-MW-15026
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0857-04
 Collect Time:
 08:56 AM

	ndix III-IV To			Aliquot #: 24-0	857-04-C01-A01	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Arsenic	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Barium	9		ug/L	5.0	10/21/2024	AB24-1021-08
Beryllium	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Boron	ND		ug/L	20.0	10/21/2024	AB24-1021-08
Cadmium	ND		ug/L	0.2	10/21/2024	AB24-1021-08
Calcium	4280		ug/L	1000.0	10/21/2024	AB24-1021-08
Chromium	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Cobalt	ND		ug/L	6.0	10/21/2024	AB24-1021-08
Copper	1		ug/L	1.0	10/21/2024	AB24-1021-08
Iron	28		ug/L	20.0	10/21/2024	AB24-1021-08
Lead	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Lithium	ND		ug/L	10.0	10/21/2024	AB24-1021-08
Magnesium	1050		ug/L	1000.0	10/21/2024	AB24-1021-08
Molybdenum	ND		ug/L	5.0	10/21/2024	AB24-1021-08
Nickel	4		ug/L	2.0	10/21/2024	AB24-1021-08
Potassium	557		ug/L	100.0	10/21/2024	AB24-1021-08
Selenium	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Silver	ND		ug/L	0.2	10/21/2024	AB24-1021-08
Sodium	2200		ug/L	1000.0	10/21/2024	AB24-1021-08
Thallium	ND		ug/L	2.0	10/21/2024	AB24-1021-08
Vanadium	ND		ug/L	2.0	10/21/2024	AB24-1021-08
Zinc	ND		ug/L	10.0	10/21/2024	AB24-1021-08
Mercury by EPA 7470A, Total, Aqueous	s			Aliquot #: 24-0	857-04-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/21/2024	AB24-1021-03
Anions by EPA 300.0 CCR Rule Analyt	e List, CI, F,	SO4, Aqı	ieous	Aliquot #: 24-0	857-04-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	3070		ug/L	1000.0	10/17/2024	AB24-1017-01
Fluoride	ND		ug/L	1000.0	10/17/2024	AB24-1017-01
Sulfate	7240		ug/L	1000.0	10/17/2024	AB24-1017-01
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	857-04-C03-A01	Analyst: LMO
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Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking



Report Date: 10/31/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0857

 Field Sample ID:
 JHC-MW-15026
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0857-04
 Collect Time:
 08:56 AM

Alkalinity by SM 2320B			Aliquot #: 24-0	857-04-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	10600	ug/L	10000.0	10/22/2024	AB24-1021-07
Alkalinity Bicarbonate	10600	ug/L	10000.0	10/22/2024	AB24-1021-07
Alkalinity Carbonate	ND	ug/L	10000.0	10/22/2024	AB24-1021-07



10/31/24



Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0857

 Field Sample ID:
 JHC-MW-15027
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0857-05
 Collect Time:
 10:31 AM

Metals by EPA 6020B: CCR Rule Appe	maix III-IV 10	lai Wetais	Exp	Aliquot #: 24-0	857-05-C01-A01	Analyst: EE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Arsenic	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Barium	8		ug/L	5.0	10/21/2024	AB24-1021-08
Beryllium	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Boron	22		ug/L	20.0	10/21/2024	AB24-1021-08
Cadmium	ND		ug/L	0.2	10/21/2024	AB24-1021-08
Calcium	18700		ug/L	1000.0	10/21/2024	AB24-1021-08
Chromium	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Cobalt	ND		ug/L	6.0	10/21/2024	AB24-1021-08
Copper	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Iron	31		ug/L	20.0	10/21/2024	AB24-1021-08
Lead	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Lithium	ND		ug/L	10.0	10/21/2024	AB24-1021-08
Magnesium	4800		ug/L	1000.0	10/21/2024	AB24-1021-08
Molybdenum	ND		ug/L	5.0	10/21/2024	AB24-1021-08
Nickel	ND		ug/L	2.0	10/21/2024	AB24-1021-08
Potassium	478		ug/L	100.0	10/21/2024	AB24-1021-08
Selenium	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Silver	ND		ug/L	0.2	10/21/2024	AB24-1021-08
Sodium	2070		ug/L	1000.0	10/21/2024	AB24-1021-08
Thallium	ND		ug/L	2.0	10/21/2024	AB24-1021-08
Vanadium	ND		ug/L	2.0	10/21/2024	AB24-1021-08
Zinc	ND		ug/L	10.0	10/21/2024	AB24-1021-08
Mercury by EPA 7470A, Total, Aqueou	S			Aliquot #: 24-0	857-05-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/21/2024	AB24-1021-03
Anions by EPA 300.0 CCR Rule Analyt	te List, CI, F,	SO4, Aqı	ieous	Aliquot #: 24-0	857-05-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	1270		ug/L	1000.0	10/17/2024	AB24-1017-01
Fluoride	ND		ug/L	1000.0	10/17/2024	AB24-1017-01
Sulfate	4790		ug/L	1000.0	10/17/2024	AB24-1017-01
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	857-05-C03-A01	Analyst: LMC
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking



Report Date: 10/31/24

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0857

 Field Sample ID:
 JHC-MW-15027
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0857-05
 Collect Time:
 10:31 AM

Alkalinity by SM 2320B		Aliquot #: 24-0	857-05-C04-A01	Analyst: DLS	
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	62200	ug/L	10000.0	10/22/2024	AB24-1021-07
Alkalinity Bicarbonate	62200	ug/L	10000.0	10/22/2024	AB24-1021-07
Alkalinity Carbonate	ND	ug/L	10000.0	10/22/2024	AB24-1021-07



10/31/24



Laboratory Services A CENTURY OF EXCELLENCE

JHC GW Monitoring - Background Wells (395496) Sample Site:

Laboratory Project: 24-0857 Collect Date: Field Sample ID: JHC-MW-15028 10/15/2024 Lab Sample ID: 24-0857-06 Collect Time: 11:50 AM

Metals by EPA 6020B: CCR Rule Appe	ndix III-IV 1	Total Metals	s Ехр	Aliquot #: 24-0	857-06-C01-A01	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Arsenic	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Barium	6		ug/L	5.0	10/21/2024	AB24-1021-08
Beryllium	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Boron	ND		ug/L	20.0	10/21/2024	AB24-1021-08
Cadmium	ND		ug/L	0.2	10/21/2024	AB24-1021-08
Calcium	15000		ug/L	1000.0	10/21/2024	AB24-1021-08
Chromium	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Cobalt	ND		ug/L	6.0	10/21/2024	AB24-1021-08
Copper	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Iron	25		ug/L	20.0	10/21/2024	AB24-1021-08
Lead	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Lithium	ND		ug/L	10.0	10/21/2024	AB24-1021-08
Magnesium	3480		ug/L	1000.0	10/21/2024	AB24-1021-08
Molybdenum	ND		ug/L	5.0	10/21/2024	AB24-1021-08
Nickel	4		ug/L	2.0	10/21/2024	AB24-1021-08
Potassium	389		ug/L	100.0	10/21/2024	AB24-1021-08
Selenium	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Silver	ND		ug/L	0.2	10/21/2024	AB24-1021-08
Sodium	1120		ug/L	1000.0	10/21/2024	AB24-1021-08
Thallium	ND		ug/L	2.0	10/21/2024	AB24-1021-08
Vanadium	ND		ug/L	2.0	10/21/2024	AB24-1021-08
Zinc	ND		ug/L	10.0	10/21/2024	AB24-1021-08
Mercury by EPA 7470A, Total, Aqueou	s			Aliquot #: 24-0	857-06-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/21/2024	AB24-1021-03
Anions by EPA 300.0 CCR Rule Analyt	e List, CI, F	F, SO4, Aqı	ieous	Aliquot #: 24-0	857-06-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	ND		ug/L	1000.0	10/17/2024	AB24-1017-01
Fluoride	ND		ug/L	1000.0	10/17/2024	AB24-1017-01
Sulfate	5230		ug/L	1000.0	10/17/2024	AB24-1017-01
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	857-06-C03-A01	Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	62		mg/L	10.0	10/17/2024	AB24-1017-02
	2	4 0057 Dago 1	5 of 25			



Report Date: 10/31/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0857

 Field Sample ID:
 JHC-MW-15028
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0857-06
 Collect Time:
 11:50 AM

Alkalinity by SM 2320B	Alkalinity by SM 2320B			Aliquot #: 24-0857-06-C04-A01		
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking	
Alkalinity Total	50000	ug/L	10000.0	10/22/2024	AB24-1021-07	
Alkalinity Bicarbonate	50000	ug/L	10000.0	10/22/2024	AB24-1021-07	
Alkalinity Carbonate	ND	ug/L	10000.0	10/22/2024	AB24-1021-07	



10/31/24



Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0857

 Field Sample ID:
 DUP-01
 Collect Date:
 10/14/2024

 Lab Sample ID:
 24-0857-07
 Collect Time:
 12:00 AM

				Allquot #. 24-0	857-07-C01-A01	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Arsenic	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Barium	21		ug/L	5.0	10/21/2024	AB24-1021-08
Beryllium	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Boron	30		ug/L	20.0	10/21/2024	AB24-1021-08
Cadmium	ND		ug/L	0.2	10/21/2024	AB24-1021-08
Calcium	13600		ug/L	1000.0	10/21/2024	AB24-1021-08
Chromium	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Cobalt	ND		ug/L	6.0	10/21/2024	AB24-1021-08
Copper	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Iron	ND		ug/L	20.0	10/21/2024	AB24-1021-08
Lead	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Lithium	ND		ug/L	10.0	10/21/2024	AB24-1021-08
Magnesium	4840		ug/L	1000.0	10/21/2024	AB24-1021-08
Molybdenum	ND		ug/L	5.0	10/21/2024	AB24-1021-08
Nickel	ND		ug/L	2.0	10/21/2024	AB24-1021-08
Potassium	988		ug/L	100.0	10/21/2024	AB24-1021-08
Selenium	1		ug/L	1.0	10/21/2024	AB24-1021-08
Silver	ND		ug/L	0.2	10/21/2024	AB24-1021-08
Sodium	4590		ug/L	1000.0	10/21/2024	AB24-1021-08
Thallium	ND		ug/L	2.0	10/21/2024	AB24-1021-08
Vanadium	ND		ug/L	2.0	10/21/2024	AB24-1021-08
Zinc	ND		ug/L	10.0	10/21/2024	AB24-1021-08
Mercury by EPA 7470A, Total, Aqueous	s			Aliquot #: 24-0	857-07-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/21/2024	AB24-1021-03
Anions by EPA 300.0 CCR Rule Analyte	e List, CI, F,	SO4, Aqı	ieous	Aliquot #: 24-0	857-07-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	4500		ug/L	1000.0	10/17/2024	AB24-1017-01
Fluoride	ND		ug/L	1000.0	10/17/2024	AB24-1017-01
Sulfate	11000		ug/L	1000.0	10/17/2024	AB24-1017-01
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	857-07-C03-A01	Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
raiaillelei(3)		9	•		/ inalyolo Date	



Report Date: 10/31/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0857

 Field Sample ID:
 DUP-01
 Collect Date:
 10/14/2024

 Lab Sample ID:
 24-0857-07
 Collect Time:
 12:00 AM

Alkalinity by SM 2320B			Aliquot #: 24-0	Analyst: DLS	
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	44000	ug/L	10000.0	10/22/2024	AB24-1021-07
Alkalinity Bicarbonate	44000	ug/L	10000.0	10/22/2024	AB24-1021-07
Alkalinity Carbonate	ND	ug/L	10000.0	10/22/2024	AB24-1021-07



10/31/24



Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0857

 Field Sample ID:
 FB-01
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0857-08
 Collect Time:
 12:22 PM

Matrix: Water

Metals by EPA 6020B: CCR Rule Appe	etals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp					Analyst: EB		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking		
Antimony	ND		ug/L	1.0	10/21/2024	AB24-1021-08		
Arsenic	ND		ug/L	1.0	10/21/2024	AB24-1021-08		
Barium	ND		ug/L	5.0	10/21/2024	AB24-1021-08		
Beryllium	ND		ug/L	1.0	10/21/2024	AB24-1021-08		
Boron	ND		ug/L	20.0	10/21/2024	AB24-1021-08		
Cadmium	ND		ug/L	0.2	10/21/2024	AB24-1021-08		
Calcium	ND		ug/L	1000.0	10/21/2024	AB24-1021-08		
Chromium	ND		ug/L	1.0	10/21/2024	AB24-1021-08		
Cobalt	ND		ug/L	6.0	10/21/2024	AB24-1021-08		
Copper	ND		ug/L	1.0	10/21/2024	AB24-1021-08		
Iron	ND		ug/L	20.0	10/21/2024	AB24-1021-08		
Lead	ND		ug/L	1.0	10/21/2024	AB24-1021-08		
Lithium	ND		ug/L	10.0	10/21/2024	AB24-1021-08		
Magnesium	ND		ug/L	1000.0	10/21/2024	AB24-1021-08		
Molybdenum	ND		ug/L	5.0	10/21/2024	AB24-1021-08		
Nickel	ND		ug/L	2.0	10/21/2024	AB24-1021-08		
Potassium	ND		ug/L	100.0	10/21/2024	AB24-1021-08		
Selenium	ND		ug/L	1.0	10/21/2024	AB24-1021-08		
Silver	ND		ug/L	0.2	10/21/2024	AB24-1021-08		
Sodium	ND		ug/L	1000.0	10/21/2024	AB24-1021-08		
Thallium	ND		ug/L	2.0	10/21/2024	AB24-1021-08		
Vanadium	ND		ug/L	2.0	10/21/2024	AB24-1021-08		
Zinc	ND		ug/L	10.0	10/21/2024	AB24-1021-08		
Mercury by EPA 7470A, Total, Aqueou	ıs			Aliquot #: 24-0	857-08-C01-A02	Analyst: CLE		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking		
Mercury	ND		ug/L	0.2	10/21/2024	AB24-1021-03		
Anions by EPA 300.0 CCR Rule Analy	te List, CI, F,	SO4, Aqu	ieous	Aliquot #: 24-0	857-08-C02-A01	Analyst: KDR		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking		
Chloride	ND		ug/L	1000.0	10/17/2024	AB24-1017-01		
Fluoride	ND		ug/L	1000.0	10/17/2024	AB24-1017-01		
Sulfate	ND		ug/L	1000.0 10/17/2024		AB24-1017-01		
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	857-08-C03-A01	Analyst: LMC		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking		
Total Dissolved Solids	ND		mg/L	10.0	10/17/2024	AB24-1017-02		
	24-1	0857 Page 1	9 of 25					



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Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0857

 Field Sample ID:
 EB-01
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0857-09
 Collect Time:
 12:10 PM

Matrix: Water

		tal Metals		Allquot #: 24-0	857-09-C01-A01	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Arsenic	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Barium	ND		ug/L	5.0	10/21/2024	AB24-1021-08
Beryllium	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Boron	ND		ug/L	20.0	10/21/2024	AB24-1021-08
Cadmium	ND		ug/L	0.2	10/21/2024	AB24-1021-08
Calcium	ND		ug/L	1000.0	10/21/2024	AB24-1021-08
Chromium	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Cobalt	ND		ug/L	6.0	10/21/2024	AB24-1021-08
Copper	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Iron	ND		ug/L	20.0	10/21/2024	AB24-1021-08
Lead	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Lithium	ND		ug/L	10.0	10/21/2024	AB24-1021-08
Magnesium	ND		ug/L	1000.0	10/21/2024	AB24-1021-08
Molybdenum	ND		ug/L	5.0	10/21/2024	AB24-1021-08
Nickel	ND		ug/L	2.0	10/21/2024	AB24-1021-08
Potassium	ND		ug/L	100.0	10/21/2024	AB24-1021-08
Selenium	ND		ug/L	1.0	10/21/2024	AB24-1021-08
Silver	ND		ug/L	0.2	10/21/2024	AB24-1021-08
Sodium	ND		ug/L	1000.0	10/21/2024	AB24-1021-08
Thallium	ND		ug/L	2.0	10/21/2024	AB24-1021-08
Vanadium	ND		ug/L	2.0	10/21/2024	AB24-1021-08
Zinc	ND		ug/L	10.0	10/21/2024	AB24-1021-08
Mercury by EPA 7470A, Total, Aqueou	s			Aliquot #: 24-0	857-09-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/21/2024	AB24-1021-03
Anions by EPA 300.0 CCR Rule Analyt	e List, CI, F,	SO4, Aqı	ieous	Aliquot #: 24-0	857-09-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	ND		ug/L	1000.0	10/17/2024	AB24-1017-01
Fluoride	ND		ug/L	1000.0	10/17/2024	AB24-1017-01
Sulfate	ND		ug/L	1000.0	10/17/2024	AB24-1017-01
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	857-09-C03-A01	Analyst: LMC
	Result	Flag	Units	RL	Analysis Date	Tracking
Parameter(s)	Result	ı ıug	Ullita	IXE.	Allalysis Date	Hacking



10/31/24

Report Date:



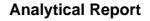
Laboratory Services A CENTURY OF EXCELLENCE

JHC GW Monitoring - Background Wells (395496) Sample Site: Laboratory Project: 24-0857

Matrix: Groundwater

Field Sample ID: JHC-MW-15025 Field MS Collect Date: 10/14/2024 Lab Sample ID: 24-0857-10 Collect Time: 08:11 PM

Metals by EPA 6020B: CCR Rule Ap	y EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Alic				Analyst: EB		
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking		
Antimony	107	%	1.0	10/21/2024	AB24-1021-08		
Arsenic	109	%	1.0	10/21/2024	AB24-1021-08		
Barium	104	%	5.0	10/21/2024	AB24-1021-08		
Beryllium	101	%	1.0	10/21/2024	AB24-1021-08		
Boron	107	%	20.0	10/21/2024	AB24-1021-08		
Cadmium	107	%	0.2	10/21/2024	AB24-1021-08		
Calcium	104	%	1000.0	10/21/2024	AB24-1021-08		
Chromium	109	%	1.0	10/21/2024	AB24-1021-08		
Cobalt	110	%	6.0	10/21/2024	AB24-1021-08		
Copper	110	%	1.0	10/21/2024	AB24-1021-08		
Iron	108	%	20.0	10/21/2024	AB24-1021-08		
Lead	103	%	1.0	10/21/2024	AB24-1021-08		
Lithium	100	%	10.0	10/21/2024	AB24-1021-08		
Magnesium	111	%	1000.0	10/21/2024	AB24-1021-08		
Molybdenum	108	%	5.0	10/21/2024	AB24-1021-08		
Nickel	112	%	2.0	10/21/2024	AB24-1021-08		
Potassium	105	%	100.0	10/21/2024	AB24-1021-08		
Selenium	107	%	1.0	10/21/2024	AB24-1021-08		
Silver	99.0	%	0.2	10/21/2024	AB24-1021-08		
Sodium	107	%	1000.0	10/21/2024	AB24-1021-08		
Thallium	105	%	2.0	10/21/2024	AB24-1021-08		
Vanadium	113	%	2.0	10/21/2024	AB24-1021-08		
Zinc	114	%	10.0	10/21/2024	AB24-1021-08		
Mercury by EPA 7470A, Total, Aque	eous		Aliquot #: 24-0	857-10-C01-A02	Analyst: CLE		
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking		
Mercury	91.0	%	0.2	10/21/2024	AB24-1021-03		
Anions by EPA 300.0 CCR Rule Ana	alvte List, Cl, F,	SO4, Aqueous	Aliquot #: 24-0	9857-10-C02-A01	Analyst: KDR		
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking		
Chloride	114	%	1000.0	10/17/2024	AB24-1017-01		
Fluoride	99	%	1000.0	10/17/2024	AB24-1017-01		
Sulfate	100	%	1000.0	10/17/2024	AB24-1017-01		



10/31/24



Laboratory Services A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Background Wells (395496) Laboratory Project: 24-0857

Field Sample ID: JHC-MW-15025 Field MSD

Lab Sample ID: Matrix: Groundwater

Collect Date: 10/14/2024 24-0857-11 Collect Time: 08:11 PM

Metals by EPA 6020B: CCR Rule	letals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 24-08					
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking	
Antimony	106	%	1.0	10/21/2024	AB24-1021-08	
Arsenic	106	%	1.0	10/21/2024	AB24-1021-08	
Barium	106	%	5.0	10/21/2024	AB24-1021-08	
Beryllium	103	%	1.0	10/21/2024	AB24-1021-08	
Boron	101	%	20.0	10/21/2024	AB24-1021-08	
Cadmium	108	%	0.2	10/21/2024	AB24-1021-08	
Calcium	105	%	1000.0	10/21/2024	AB24-1021-08	
Chromium	108	%	1.0	10/21/2024	AB24-1021-08	
Cobalt	108	%	6.0	10/21/2024	AB24-1021-08	
Copper	107	%	1.0	10/21/2024	AB24-1021-08	
Iron	106	%	20.0	10/21/2024	AB24-1021-08	
Lead	104	%	1.0	10/21/2024	AB24-1021-08	
Lithium	102	%	10.0	10/21/2024	AB24-1021-08	
Magnesium	101	%	1000.0	10/21/2024	AB24-1021-08	
Molybdenum	110	%	5.0	10/21/2024	AB24-1021-08	
Nickel	108	%	2.0	10/21/2024	AB24-1021-08	
Potassium	103	%	100.0	10/21/2024	AB24-1021-08	
Selenium	107	%	1.0	10/21/2024	AB24-1021-08	
Silver	102	%	0.2	10/21/2024	AB24-1021-08	
Sodium	107	%	1000.0	10/21/2024	AB24-1021-08	
Thallium	106	%	2.0	10/21/2024	AB24-1021-08	
Vanadium	109	%	2.0	10/21/2024	AB24-1021-08	
Zinc	110	%	10.0	10/21/2024	AB24-1021-08	
Mercury by EPA 7470A, Total, A	queous		Aliquot #: 24-0	857-11-C01-A02	Analyst: CLE	
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking	
Mercury	96.0	%	0.2	10/21/2024	AB24-1021-03	
Anions by EPA 300.0 CCR Rule	Analyte List, Cl, F,	SO4, Aqueous	Aliquot #: 24-0)857-11-C02-A01	Analyst: KDR	
Parameter(s)	Result	Flag Units	•	Analysis Date	Tracking	
Chloride	113	%	1000.0	10/17/2024	AB24-1017-01	
Fluoride	100	%	1000.0	10/17/2024	AB24-1017-01	
Sulfate	101	%	1000.0	10/17/2024	AB24-1017-01	



Report Date: 10/31/24

Data Qualifiers	Exception Summary
	No exceptions occurred.

CONSUMERS ENERGY

Chemistry Department

General Standard Operating Procedure

PROC CHEM-1.2.01 PAGE 1 OF 2 **REVISION 5** ATTACHMENT A

TITLE: SA	AMPLE :	LOG-IN –	SHIPMENT	INSPEC	CTION FORM
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			on Date: 10.16.14		
ample Origin/Project Name:	JHC C	34 - 2024	background We	eus	
hipment Delivered By: Enter	r the type of	shipment carr	ier.		
			UPS		
			Other/Carry In (whom)	LMO	***************************************
hipping Containers: Enter th					
Cooler	Cardboard B	ox		-	
Loose/Unpackaged Co	ontainers	*	Other	,	
Condition of Shipment: Enter	r the as-rece	ived condition	of the shipment container.		
Damaged Shipment O			Dented		ting
hipment Security: Enter if a	ny of the sh	ipping contain	ers were opened before recei	pt.	
Shipping Containers R	Received: O	pened	Sealed 🗸	N/A	
nclosed Documents: Enter the	he type of d	ocuments encl	osed with the shipment.		
CoC Wo:	rk Request		Air Data Sheet	Other	
emperature of Containers: 1	Measure the	temperature o	f several sample containers.		
_		-	°C Samples Receive	ed on Ice: Yes	/ No
3.40000 // 15 ' '	on LSOL	1725 / (2.21.25		
M&TE # and Expiration					
M&TE # and Expiration	ners: Enter	the type and to	tal number of sample contain	ners received.	
Tumber and Type of Contain <u>Container Type</u>	Water		otal number of sample contain	Broken	Leaking
Tumber and Type of Contain <u>Container Type</u> VOA (40mL or 60mL)	Water	Soil	•		<u>Leaking</u>
Number and Type of Contain Container Type VOA (40mL or 60mL) Quart/Liter (g / p)	Water (4	Soil	Other		<u>Leaking</u>
Container Type VOA (40mL or 60mL) Quart/Liter (g / p) 9-oz (amber glass jar)	Water (4	Soil	Other		<u>Leakin</u> ;
Container Type VOA (40mL or 60mL) Quart/Liter (g/p) 9-oz (amber glass)	Water (4	Soil	Other		<u>Leakin</u>
Container Type VOA (40mL or 60mL) Quart/Liter (g / p) 9-oz (amber glass jar) 2-oz (amber glass) 125 mL (plastic)	Water (4	Soil	Other		<u>Leakin</u>
Container Type VOA (40mL or 60mL) Quart/Liter (g / p) 9-oz (amber glass jar) 2-oz (amber glass) 125 mL (plastic) 24 mL vial (glass)	Water (4	Soil	Other		Leakin
Container Type VOA (40mL or 60mL) Quart/Liter (g / p) 9-oz (amber glass jar) 2-oz (amber glass) 125 mL (plastic)	Water (4	Soil	Other		Leakin

CHAIN OF CUSTODY



CONSUMERS ENERGY COMPANY – LABORATORY SERVICES

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

SAMPLING SITE / CU	STOMER:			PROJECT NUMBER:	SAP CC or W	O#:							A	NAL	YSI	OA REOLUBEMENT.			
JHC Q4-2024 Back	kground Wells			24-0857 REQUESTER: Bethany Swanberg						(Atta	ch Lis	st if N	Iore S	Space	is Needed)	i) QA REQUIREMENT:			
SAMPLING TEAM:	rmo			TURNAROUND TIME REQUIRED:															□ NPDES
				□ 24 HR □ 48 HR □ 3 DAYS □ S		HER_					- 1								⊠ TNI
SEND REPORT TO:	Joseph Firlit			email:	phone:	none:													☐ ISO 17025
COPY TO:	JR Register			MATRIX CODES: GW = Groundwater OX = Othe	r		CO	NTA	AINI	ERS						Ŋ.			☐ 10 CFR 50 APP. B
	TRC			WW = Wastewater SL = Slud W = Water / Aqueous Liquid A = Air		#	P	RES	ERV	ATI	VE	Metals			7	226	228		☐ INTERNAL INFO
LAB	SAMPLE COLL	ECTION	MATRIX	S = Soil / General Solid WP = Wi O = Oil WT = Ge	pe neral Waste	TOTAL #	9	3	3 E		H	al Me	Anions	S	Alkalinity	Radium 2	Radium 2		□ OTHER
SAMPLE ID	DATE	TIME	MAT	FIELD SAMPLE ID / LO	CATION	TO	Non	HNC	NaO	HCI	MeOH	Total	Ani	TDS	Alk	Rac	Rac		REMARKS
24-0857-01	10.14.24	1704	GW	JHC-MW-15023		7	4	3				x	x	x	x	x	x		
-02	10.14.24	1854	GW	JHC-MW-15024		7	4	3				x	x	x	x	x	x		
-03	10.14.24	2011	GW	JHC-MW-15025		7	4	3				х	x	x	x	x	x		
-04	10.15.24	0856	GW	JHC-MW-15026		7	4	3				x	x	x	x	x	х		
-05	10.15.24	1031	GW	JHC-MW-15027		7	4	3				x	x	x	x	x	x		
-06	10.15.24	1150	GW	JHC-MW-15028		7	4	3				x	x	x	x	x	x		
-07	10.14.24	_	GW	DUP-01		7	4	3				x	x	x	x	x	x		
-08	10.15.24	1222	W	FB-01		5	2	3				х	x	x		x	х		
-09	10.15.24	1210	W	EB-01		5	2	3				x	х	x		x	x		
-10	16.14.24	2011	GW	JHC-MW-15025 MS		2	1	1				x	x						
-11	10.14.24	2011	GW	JHC-MW-15025 MSD		2	1	1				х	x						
RELINQUISHED BY:	Storson	1	DATE/	,	RECEIVED BY:							CO	MME	ENTS					
RELINQUISHED BY:			DATE/	ΓΙΜΕ:	RECEIVED BY:							1							E#: _L\$627723 ue Date:



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

To: JJFirlit, JH Campbell Complex

From: EBlaj, T-258

Date: October 31, 2024

Subject: JH CAMPBELL SOLID WASTE DISPOSAL AREA – GROUNDWATER MONITORING

4th Quarter, 2024 – Landfill Wells

CC: HDRegister, P22-521 Sarah Holmstrom, Project Manager

ADSantini, P20-215B-REM TRC Companies, Inc.

1540 Eisenhower Place Ann Arbor, MI 48108

Chemistry Project: 24-0859

CE Laboratory Services conducted groundwater monitoring at the JH Campbell Solid Waste Disposal Area during the week of 10/14/2024, for the 4th Quarter requirement, as specified in the Hydrogeological Monitoring Plan for the site. The samples were received for analysis by the Chemistry department on 10/16/2024.

Samples for Radium analysis have been subcontracted to Eurofins/TestAmerica, Inc. and their results are being reported separately. Please note that the subcontracted work is not reported under the CE laboratory scope of accreditation.

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



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

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CASE NARRATIVE

I. Sample Receipt

All samples were received within hold time and in good conditions; no anomalies were noted on the 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. Sample preservation 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 percent recoveries of the field matrix spike & matrix spike duplicate samples are included in the results section. 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	Not a 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 *	<u>Description</u>
	Generic data flag, applicable description added in the corresponding notes section
В	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
Н	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



Work Order Sample Summary

Customer Name: JH Campbell Complex Work Order ID: Q4-2024 Landfill Wells

Date Received: 10/16/2024 **Chemistry Project:** 24-0859

Sample #	Field Sample ID	<u>Matrix</u>	Sample Date	<u>Site</u>
24-0859-01	JHC-MW-15017	Groundwater	10/15/2024 08:56	JHC GW Monitoring - Landfill Wells
24-0859-02	JHC-MW-15018	Groundwater	10/15/2024 10:01	JHC GW Monitoring - Landfill Wells
24-0859-03	JHC-MW-15031	Groundwater	10/15/2024 14:21	JHC GW Monitoring - Landfill Wells
24-0859-04	MW-B3	Groundwater	10/15/2024 11:11	JHC GW Monitoring - Landfill Wells
24-0859-05	MW-B4	Groundwater	10/15/2024 12:16	JHC GW Monitoring - Landfill Wells
24-0859-06	JHC-MW-15035	Groundwater	10/15/2024 13:01	JHC GW Monitoring - Landfill Wells
24-0859-07	JHC-MW-15036	Groundwater	10/15/2024 14:51	JHC GW Monitoring - Landfill Wells
24-0859-08	JHC-MW-15037	Groundwater	10/15/2024 16:11	JHC GW Monitoring - Landfill Wells
24-0859-09	DUP-03	Groundwater	10/15/2024 00:00	JHC GW Monitoring - Landfill Wells
24-0859-10	FB-03	Water	10/15/2024 14:45	JHC GW Monitoring - Landfill Wells
24-0859-11	EB-03	Water	10/15/2024 14:39	JHC GW Monitoring - Landfill Wells
24-0859-12	MW-B4 MS	Groundwater	10/15/2024 12:16	JHC GW Monitoring - Landfill Wells
24-0859-13	MW-B4 MSD	Groundwater	10/15/2024 12:16	JHC GW Monitoring - Landfill Wells



10/31/24



Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0859

 Field Sample ID:
 JHC-MW-15017
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0859-01
 Collect Time:
 08:56 AM

	S			-	859-01-C01-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/21/2024	AB24-1021-03
Metals by EPA 6020B: CCR Rule Appe	ndix III-IV To	tal Metals	з Ехр	Aliquot #: 24-0	859-01-C01-A02	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Arsenic	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Barium	20		ug/L	5.0	10/22/2024	AB24-1022-06
Beryllium	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Boron	116		ug/L	20.0	10/22/2024	AB24-1022-06
Cadmium	ND		ug/L	0.2	10/22/2024	AB24-1022-06
Calcium	52000		ug/L	1000.0	10/22/2024	AB24-1022-06
Chromium	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Cobalt	ND		ug/L	6.0	10/22/2024	AB24-1022-06
Copper	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Iron	ND		ug/L	20.0	10/22/2024	AB24-1022-06
Lead	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Lithium	ND		ug/L	10.0	10/22/2024	AB24-1022-06
Magnesium	10600		ug/L	1000.0	10/22/2024	AB24-1022-06
Molybdenum	ND		ug/L	5.0	10/22/2024	AB24-1022-06
Nickel	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Potassium	1660		ug/L	100.0	10/22/2024	AB24-1022-06
Selenium	14		ug/L	1.0	10/22/2024	AB24-1022-06
Silver	ND		ug/L	0.2	10/22/2024	AB24-1022-06
Sodium	13800		ug/L	1000.0	10/22/2024	AB24-1022-06
Thallium	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Vanadium	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Zinc	ND		ug/L	10.0	10/22/2024	AB24-1022-06
Anions by EPA 300.0 CCR Rule Analyt	e List. Cl. F.	SO4. Agu	ieous	Aliguot #: 24-0	859-01-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	16900	-	ug/L	1000.0	10/17/2024	AB24-1017-01
Fluoride	ND		ug/L	1000.0	10/17/2024	AB24-1017-01
Sulfate	34300		ug/L	1000.0	10/17/2024	AB24-1017-01
Total Dissolved Solids by SM 2540C				Alignot #: 24 C	1850-01-C03-A04	Analyst: I MA
Parameter(s)	Result	Flag	Units	RL	859-01-C03-A01 Analysis Date	Analyst: LMO Tracking
	INCOURT	ı ıay	Unito	114	Allary 313 Date	i i ackilly
Total Dissolved Solids	242		mg/L	10.0	10/17/2024	AB24-1017-03



Report Date: 10/31/24

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0859

 Field Sample ID:
 JHC-MW-15017
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0859-01
 Collect Time:
 08:56 AM

Alkalinity by SM 2320B			Aliquot #: 24-0	859-01-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	150000	ug/L	10000.0	10/22/2024	AB24-1021-09
Alkalinity Bicarbonate	150000	ug/L	10000.0	10/22/2024	AB24-1021-09
Alkalinity Carbonate	ND	ug/L	10000.0	10/22/2024	AB24-1021-09



10/31/24



Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0859

 Field Sample ID:
 JHC-MW-15018
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0859-02
 Collect Time:
 10:01 AM

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
. ,		riag			•	
Mercury	ND		ug/L	0.2	10/21/2024	AB24-1021-03
Metals by EPA 6020B: CCR Rule Ap	pendix III-IV To	tal Metals	s Ехр	Aliquot #: 24-0	859-02-C01-A02	Analyst: EE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Arsenic	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Barium	27		ug/L	5.0	10/22/2024	AB24-1022-06
Beryllium	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Boron	174		ug/L	20.0	10/22/2024	AB24-1022-06
Cadmium	ND		ug/L	0.2	10/22/2024	AB24-1022-06
Calcium	61700		ug/L	1000.0	10/22/2024	AB24-1022-06
Chromium	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Cobalt	ND		ug/L	6.0	10/22/2024	AB24-1022-06
Copper	1		ug/L	1.0	10/22/2024	AB24-1022-06
Iron	ND		ug/L	20.0	10/22/2024	AB24-1022-06
Lead	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Lithium	ND		ug/L	10.0	10/22/2024	AB24-1022-06
Magnesium	20900		ug/L	1000.0	10/22/2024	AB24-1022-06
Molybdenum	ND		ug/L	5.0	10/22/2024	AB24-1022-06
Nickel	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Potassium	1350		ug/L	100.0	10/22/2024	AB24-1022-06
Selenium	14		ug/L	1.0	10/22/2024	AB24-1022-06
Silver	ND		ug/L	0.2	10/22/2024	AB24-1022-06
Sodium	21100		ug/L	1000.0	10/22/2024	AB24-1022-06
Thallium	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Vanadium	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Zinc	ND		ug/L	10.0	10/22/2024	AB24-1022-06
Anions by EPA 300.0 CCR Rule Ana	lyte List, Cl, F,	SO4, Aqu	ieous	Aliquot #: 24-0	859-02-C02-A01	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	30300	_	ug/L	1000.0	10/17/2024	AB24-1017-01
Fluoride	ND		ug/L	1000.0	10/17/2024	AB24-1017-01
Sulfate	37900		ug/L	1000.0	10/17/2024	AB24-1017-01
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	859-02-C03-A01	Analyst: LMC
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	314	3			10/17/2024	AB24-1017-03



Report Date: 10/31/24

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0859

 Field Sample ID:
 JHC-MW-15018
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0859-02
 Collect Time:
 10:01 AM

Alkalinity by SM 2320B			Aliquot #: 24-0	859-02-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	200000	ug/L	10000.0	10/22/2024	AB24-1021-09
Alkalinity Bicarbonate	200000	ug/L	10000.0	10/22/2024	AB24-1021-09
Alkalinity Carbonate	ND	ug/L	10000.0	10/22/2024	AB24-1021-09



10/31/24



Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0859

 Field Sample ID:
 JHC-MW-15031
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0859-03
 Collect Time:
 02:21 PM

Mercury by EPA 7470A, Total, Aqueou				-)859-03-C01-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/21/2024	AB24-1021-03
Metals by EPA 6020B: CCR Rule Appe	endix III-IV To	tal Metals	з Ехр	Aliquot #: 24-0	0859-03-C01-A02	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Arsenic	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Barium	16		ug/L	5.0	10/22/2024	AB24-1022-06
Beryllium	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Boron	80		ug/L	20.0	10/22/2024	AB24-1022-06
Cadmium	ND		ug/L	0.2	10/22/2024	AB24-1022-06
Calcium	67700		ug/L	1000.0	10/22/2024	AB24-1022-06
Chromium	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Cobalt	ND		ug/L	6.0	10/22/2024	AB24-1022-06
Copper	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Iron	ND		ug/L	20.0	10/22/2024	AB24-1022-06
Lead	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Lithium	ND		ug/L	10.0	10/22/2024	AB24-1022-06
Magnesium	16100		ug/L	1000.0	10/22/2024	AB24-1022-06
Molybdenum	ND		ug/L	5.0	10/22/2024	AB24-1022-06
Nickel	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Potassium	1210		ug/L	100.0	10/22/2024	AB24-1022-06
Selenium	3		ug/L	1.0	10/22/2024	AB24-1022-06
Silver	ND		ug/L	0.2	10/22/2024	AB24-1022-06
Sodium	7850		ug/L	1000.0	10/22/2024	AB24-1022-06
Thallium	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Vanadium	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Zinc	ND		ug/L	10.0	10/22/2024	AB24-1022-06
Anions by EPA 300.0 CCR Rule Analys	te List. Cl. F.	SO4. Agu	ieous	Alignot #- 24-0	0859-03-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	2770	9	ug/L	1000.0	10/17/2024	AB24-1017-01
Fluoride	ND		ug/L	1000.0	10/17/2024	AB24-1017-01 AB24-1017-01
Sulfate	21200		ug/L	1000.0	10/17/2024	AB24-1017-01 AB24-1017-01
			~ _	1000.0		
Total Dissolved Solids by SM 2540C				•	0859-03-C03-A01	Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	269		mg/L	10.0	10/17/2024	AB24-1017-03



Report Date: 10/31/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0859

 Field Sample ID:
 JHC-MW-15031
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0859-03
 Collect Time:
 02:21 PM

Alkalinity by SM 2320B			Aliquot #: 24-0	Analyst: DLS	
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	246000	ug/L	10000.0	10/22/2024	AB24-1021-09
Alkalinity Bicarbonate	246000	ug/L	10000.0	10/22/2024	AB24-1021-09
Alkalinity Carbonate	ND	ug/L	10000.0	10/22/2024	AB24-1021-09



10/31/24



Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0859

Field Sample ID: MW-B3 Collect Date: 10/15/2024
Lab Sample ID: 24-0859-04 Collect Time: 11:11 AM

Mercury by EPA 7470A, Total,	Aqueous			Aliquot #: 24-0859-04-C01-A01		Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/22/2024	AB24-1021-03
Metals by EPA 6020B: CCR Ru	le Appendix III-IV To	tal Metals	s Ехр	Aliquot #: 24-0)859-04-C01-A02	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Arsenic	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Barium	57		ug/L	5.0	10/22/2024	AB24-1022-06
Beryllium	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Boron	146		ug/L	20.0	10/22/2024	AB24-1022-06
Cadmium	ND		ug/L	0.2	10/22/2024	AB24-1022-06
Calcium	56900		ug/L	1000.0	10/22/2024	AB24-1022-06
Chromium	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Cobalt	ND		ug/L	6.0	10/22/2024	AB24-1022-06
Copper	2		ug/L	1.0	10/22/2024	AB24-1022-06
Iron	ND		ug/L	20.0	10/22/2024	AB24-1022-06
Lead	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Lithium	19		ug/L	10.0	10/22/2024	AB24-1022-06
Magnesium	20300		ug/L	1000.0	10/22/2024	AB24-1022-06
Molybdenum	ND		ug/L	5.0	10/22/2024	AB24-1022-06
Nickel	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Potassium	2110		ug/L	100.0	10/22/2024	AB24-1022-06
Selenium	4		ug/L	1.0	10/22/2024	AB24-1022-06
Silver	ND		ug/L	0.2	10/22/2024	AB24-1022-06
Sodium	13800		ug/L	1000.0	10/22/2024	AB24-1022-06
Thallium	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Vanadium	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Zinc	ND		ug/L	10.0	10/22/2024	AB24-1022-06
Anions by EPA 300.0 CCR Rule	e Analyte List, Cl, F,	SO4, Aqu	ieous	Aliquot #: 24-0)859-04-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	20000		ug/L	1000.0	10/17/2024	AB24-1017-01
Fluoride	ND		ug/L	1000.0	10/17/2024	AB24-1017-01
Sulfate	66600		ug/L	1000.0	10/17/2024	AB24-1017-01
Total Dissolved Solids by SM 2	2540C			Aliquot #: 24-0)859-04-C03-A01	Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	323		mg/L	10.0	10/17/2024	AB24-1017-03
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Report Date: 10/31/24

Laboratory Services
A CENTURY OF EXCELLENCE

24-0859-04

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0859
Field Sample ID: MW-B3 Collect Date: 10/15/2024

Collect Date: 10/15/2024
Collect Time: 11:11 AM

Matrix: Groundwater

Lab Sample ID:

Alkalinity by SM 2320B			Aliquot #: 24-0	Analyst: DLS	
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	168000	ug/L	10000.0	10/22/2024	AB24-1021-09
Alkalinity Bicarbonate	168000	ug/L	10000.0	10/22/2024	AB24-1021-09
Alkalinity Carbonate	ND	ug/L	10000.0	10/22/2024	AB24-1021-09



10/31/24



Laboratory Services A CENTURY OF EXCELLENCE

Sample Site:

JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0859 Field Sample ID: MW-B4 Collect Date: 10/15/2024 Lab Sample ID: 24-0859-05 Collect Time: 12:16 PM

Mercury by EPA 7470A, Total, Aque	ous			Aliquot #: 24-0)859-05-C01-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/22/2024	AB24-1021-03
Metals by EPA 6020B: CCR Rule Ap	pendix III-IV To	tal Metals	з Ехр	Aliquot #: 24-0	859-05-C01-A02	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Arsenic	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Barium	39		ug/L	5.0	10/22/2024	AB24-1022-06
Beryllium	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Boron	331		ug/L	20.0	10/22/2024	AB24-1022-06
Cadmium	ND		ug/L	0.2	10/22/2024	AB24-1022-06
Calcium	79100		ug/L	1000.0	10/22/2024	AB24-1022-06
Chromium	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Cobalt	ND		ug/L	6.0	10/22/2024	AB24-1022-06
Copper	2		ug/L	1.0	10/22/2024	AB24-1022-06
Iron	ND		ug/L	20.0	10/22/2024	AB24-1022-06
Lead	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Lithium	ND		ug/L	10.0	10/22/2024	AB24-1022-06
Magnesium	15700		ug/L	1000.0	10/22/2024	AB24-1022-06
Molybdenum	ND		ug/L	5.0	10/22/2024	AB24-1022-06
Nickel	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Potassium	2430		ug/L	100.0	10/22/2024	AB24-1022-06
Selenium	4		ug/L	1.0	10/22/2024	AB24-1022-06
Silver	ND		ug/L	0.2	10/22/2024	AB24-1022-06
Sodium	15600		ug/L	1000.0	10/22/2024	AB24-1022-06
Thallium	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Vanadium	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Zinc	ND		ug/L	10.0	10/22/2024	AB24-1022-06
Anions by EPA 300.0 CCR Rule Ana	alyte List, Cl, F,	SO4, Aqu	ieous	Aliquot #: 24-0	859-05-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	11500		ug/L	1000.0	10/17/2024	AB24-1017-01
Fluoride	ND		ug/L	1000.0	10/17/2024	AB24-1017-01
Sulfate	25500		ug/L	1000.0	10/17/2024	AB24-1017-01
Total Dissolved Solids by SM 25400				Aliquot #: 24-0	859-05-C03-A01	Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	332		mg/L	10.0	10/17/2024	AB24-1017-03



Report Date: 10/31/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0859

 Field Sample ID:
 MW-B4
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0859-05
 Collect Time:
 12:16 PM

Alkalinity by SM 2320B			Aliquot #: 24-0	Analyst: DLS	
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	267000	ug/L	10000.0	10/22/2024	AB24-1021-09
Alkalinity Bicarbonate	267000	ug/L	10000.0	10/22/2024	AB24-1021-09
Alkalinity Carbonate	ND	ug/L	10000.0	10/22/2024	AB24-1021-09



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Laboratory Services A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project:

24-0859 Field Sample ID: JHC-MW-15035 Collect Date: 10/15/2024 Lab Sample ID: 24-0859-06 Collect Time: 01:01 PM

Mercury by EPA 7470A, Total, Aqueous				Aliquot #: 24-0859-06-C01-A01		
Result	Flag	Units	RL	Analysis Date	Tracking	
ND		ug/L	0.2	10/22/2024	AB24-1021-03	
ndix III-IV To	tal Metals	з Ехр	Aliquot #: 24-0	9859-06-C01-A02	Analyst: EB	
Result	Flag	Units	RL	Analysis Date	Tracking	
ND		ug/L	1.0	10/22/2024	AB24-1022-06	
ND		ug/L	1.0	10/22/2024	AB24-1022-06	
14		ug/L	5.0	10/22/2024	AB24-1022-06	
ND		ug/L	1.0	10/22/2024	AB24-1022-06	
55		ug/L	20.0	10/22/2024	AB24-1022-06	
ND		ug/L	0.2	10/22/2024	AB24-1022-06	
66500		ug/L	1000.0	10/22/2024	AB24-1022-06	
ND		ug/L	1.0	10/22/2024	AB24-1022-06	
ND		ug/L	6.0	10/22/2024	AB24-1022-06	
1		ug/L	1.0	10/22/2024	AB24-1022-06	
25		ug/L	20.0	10/22/2024	AB24-1022-06	
ND		ug/L	1.0	10/22/2024	AB24-1022-06	
ND		ug/L	10.0	10/22/2024	AB24-1022-06	
13800		ug/L	1000.0	10/22/2024	AB24-1022-06	
ND		ug/L	5.0	10/22/2024	AB24-1022-06	
ND		ug/L	2.0	10/22/2024	AB24-1022-06	
1950		ug/L	100.0	10/22/2024	AB24-1022-06	
ND		ug/L	1.0	10/22/2024	AB24-1022-06	
ND		ug/L	0.2	10/22/2024	AB24-1022-06	
8990		ug/L	1000.0	10/22/2024	AB24-1022-06	
ND		ug/L	2.0	10/22/2024	AB24-1022-06	
ND		ug/L	2.0	10/22/2024	AB24-1022-06	
ND		ug/L	10.0	10/22/2024	AB24-1022-06	
e List, CI, F,	SO4, Aqu	ieous	Aliquot #: 24-0	859-06-C02-A01	Analyst: KDR	
Result	Flag	Units	RL	Analysis Date	Tracking	
5610		ug/L	1000.0	10/17/2024	AB24-1017-01	
ND		ug/L	1000.0	10/17/2024	AB24-1017-01	
28400		ug/L	1000.0	10/17/2024	AB24-1017-01	
			Aliquot #: 24-0	0859-06-C03-A01	Analyst: LMO	
Result	Flag	Units	RL	Analysis Date	Tracking	
268		mg/L	10.0	10/17/2024	AB24-1017-03	
	Result ND ndix III-IV To Result ND ND 14 ND 55 ND 66500 ND ND 125 ND ND 13800 ND ND 13800 ND ND 1950 ND ND 1950 ND ND ND 1950 ND ND ND ND 1950 ND ND ND 1950 ND ND ND 28400 Result	Result Flag ND Ill-IV Total Metals Result Flag ND ND ND 14 ND 66500 ND ND 1 25 ND ND 13800 ND ND ND ND ND ND ND ND ND ND ND Sesult Flag 5610 ND 28400 Result Flag	Result Flag Units ND ug/L	Result Flag Units RL ND ug/L 0.2 Indix III-IV Total Metals Exp Aliquot #: 24-0 Result Flag Units RL ND ug/L 1.0 ND ug/L 1.0 ND ug/L 5.0 ND ug/L 5.0 ND ug/L 20.0 ND ug/L 0.2 66500 ug/L 1000.0 ND ug/L 1.0 ND ug/L 2.0 ND ug/L 2	Result Flag bug/L O.2 10/22/2024 ND ug/L 0.2 10/22/2024 Indix III-IV Total Metals Exp Aliquot #: 24-0859-06-C01-A02 Result Flag bug/L RL analysis Date ND ug/L ug/L 1.0 10/22/2024 ND ug/L ug/L 1.0 10/22/2024 14 ug/L ug/L 5.0 10/22/2024 ND ug/L ug/L 1.0 10/22/2024 55 ug/L ug/L 20.0 10/22/2024 ND ug/L ug/L 1.0 10/22/2024 ND ug/L 1.0 10/22/2024	



Report Date: 10/31/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0859

 Field Sample ID:
 JHC-MW-15035
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0859-06
 Collect Time:
 01:01 PM

Alkalinity by SM 2320B			Aliquot #: 24-0	859-06-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	218000	ug/L	10000.0	10/22/2024	AB24-1021-09
Alkalinity Bicarbonate	218000	ug/L	10000.0	10/22/2024	AB24-1021-09
Alkalinity Carbonate	ND	ug/L	10000.0	10/22/2024	AB24-1021-09



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Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0859

 Field Sample ID:
 JHC-MW-15036
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0859-07
 Collect Time:
 02:51 PM

	IS			-	859-07-C01-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/22/2024	AB24-1021-03
Metals by EPA 6020B: CCR Rule Appe	endix III-IV To	tal Metals	s Ехр	Aliquot #: 24-0	859-07-C01-A02	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Arsenic	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Barium	6		ug/L	5.0	10/22/2024	AB24-1022-06
Beryllium	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Boron	56		ug/L	20.0	10/22/2024	AB24-1022-06
Cadmium	ND		ug/L	0.2	10/22/2024	AB24-1022-06
Calcium	37200		ug/L	1000.0	10/22/2024	AB24-1022-06
Chromium	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Cobalt	ND		ug/L	6.0	10/22/2024	AB24-1022-06
Copper	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Iron	ND		ug/L	20.0	10/22/2024	AB24-1022-06
Lead	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Lithium	ND		ug/L	10.0	10/22/2024	AB24-1022-06
Magnesium	10600		ug/L	1000.0	10/22/2024	AB24-1022-06
Molybdenum	ND		ug/L	5.0	10/22/2024	AB24-1022-06
Nickel	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Potassium	1290		ug/L	100.0	10/22/2024	AB24-1022-06
Selenium	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Silver	ND		ug/L	0.2	10/22/2024	AB24-1022-06
Sodium	5910		ug/L	1000.0	10/22/2024	AB24-1022-06
Thallium	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Vanadium	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Zinc	ND		ug/L	10.0	10/22/2024	AB24-1022-06
Anions by EPA 300.0 CCR Rule Analys	te List. Cl. F.	SO4. Agu	ieous	Aliguot #: 24-0	859-07-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	6770	J	ug/L	1000.0	10/17/2024	AB24-1017-01
Fluoride	ND		ug/L	1000.0	10/17/2024	AB24-1017-01
Sulfate	17200		ug/L	1000.0	10/17/2024	AB24-1017-01
Total Dissolved Solids by SM 2540C				Aliquet #: 24 C	1850-07-C03 A04	Analyst I MO
Parameter(s)	Result	Flag	Units	RL	859-07-C03-A01 Analysis Date	Analyst: LMO Tracking
• •		ı iug			-	_
Total Dissolved Solids	164		mg/L	10.0	10/17/2024	AB24-1017-03



Report Date: 10/31/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0859

 Field Sample ID:
 JHC-MW-15036
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0859-07
 Collect Time:
 02:51 PM

Alkalinity by SM 2320B			Aliquot #: 24-0	859-07-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	130000	ug/L	10000.0	10/22/2024	AB24-1021-09
Alkalinity Bicarbonate	130000	ug/L	10000.0	10/22/2024	AB24-1021-09
Alkalinity Carbonate	ND	ug/L	10000.0	10/22/2024	AB24-1021-09



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Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0859

 Field Sample ID:
 JHC-MW-15037
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0859-08
 Collect Time:
 04:11 PM

Mercury by EPA 7470A, Total, Aqueou				-)859-08-C01-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/22/2024	AB24-1021-03
Metals by EPA 6020B: CCR Rule Appe	endix III-IV To	tal Metals	з Ехр	Aliquot #: 24-0	0859-08-C01-A02	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Arsenic	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Barium	13		ug/L	5.0	10/22/2024	AB24-1022-06
Beryllium	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Boron	178		ug/L	20.0	10/22/2024	AB24-1022-06
Cadmium	ND		ug/L	0.2	10/22/2024	AB24-1022-06
Calcium	85600		ug/L	1000.0	10/22/2024	AB24-1022-06
Chromium	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Cobalt	ND		ug/L	6.0	10/22/2024	AB24-1022-06
Copper	1		ug/L	1.0	10/22/2024	AB24-1022-06
Iron	ND		ug/L	20.0	10/22/2024	AB24-1022-06
Lead	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Lithium	ND		ug/L	10.0	10/22/2024	AB24-1022-06
Magnesium	17200		ug/L	1000.0	10/22/2024	AB24-1022-06
Molybdenum	ND		ug/L	5.0	10/22/2024	AB24-1022-06
Nickel	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Potassium	1940		ug/L	100.0	10/22/2024	AB24-1022-06
Selenium	5		ug/L	1.0	10/22/2024	AB24-1022-06
Silver	ND		ug/L	0.2	10/22/2024	AB24-1022-06
Sodium	4430		ug/L	1000.0	10/22/2024	AB24-1022-06
Thallium	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Vanadium	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Zinc	ND		ug/L	10.0	10/22/2024	AB24-1022-06
Anions by EPA 300.0 CCR Rule Analy	te List. Cl. F.	SO4. Agu	ieous	Aliguot #: 24-0	0859-08-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	1740	-	ug/L	1000.0	10/18/2024	AB24-1017-01
Fluoride	ND		ug/L	1000.0	10/18/2024	AB24-1017-01
Sulfate	24500		ug/L	1000.0	10/18/2024	AB24-1017-01
Total Dissolved Solids by SM 2540C				Aliquet #: 24 C	1950_09_C02_A04	Analysti I MO
Parameter(s)	Result	Flag	Units	RL	0859-08-C03-A01 Analysis Date	Analyst: LMO Tracking
` ,		ı iag			-	· ·
Total Dissolved Solids	338		mg/L	10.0	10/17/2024	AB24-1017-03



Report Date: 10/31/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0859

 Field Sample ID:
 JHC-MW-15037
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0859-08
 Collect Time:
 04:11 PM

Alkalinity by SM 2320B			Aliquot #: 24-0	859-08-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	273000	ug/L	10000.0	10/22/2024	AB24-1021-09
Alkalinity Bicarbonate	273000	ug/L	10000.0	10/22/2024	AB24-1021-09
Alkalinity Carbonate	ND	ug/L	10000.0	10/22/2024	AB24-1021-09



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Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0859

 Field Sample ID:
 DUP-03
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0859-09
 Collect Time:
 12:00 AM

Mercury by EPA 7470A, Total, Aqueou				-	859-09-C01-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/22/2024	AB24-1021-03
Metals by EPA 6020B: CCR Rule Appe	ndix III-IV To	tal Metals	s Ехр	Aliquot #: 24-0	859-09-C01-A02	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Arsenic	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Barium	26		ug/L	5.0	10/22/2024	AB24-1022-06
Beryllium	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Boron	165		ug/L	20.0	10/22/2024	AB24-1022-06
Cadmium	ND		ug/L	0.2	10/22/2024	AB24-1022-06
Calcium	59500		ug/L	1000.0	10/22/2024	AB24-1022-06
Chromium	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Cobalt	ND		ug/L	6.0	10/22/2024	AB24-1022-06
Copper	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Iron	ND		ug/L	20.0	10/22/2024	AB24-1022-06
Lead	ND		ug/L	1.0	10/22/2024	AB24-1022-06
Lithium	ND		ug/L	10.0	10/22/2024	AB24-1022-06
Magnesium	19700		ug/L	1000.0	10/22/2024	AB24-1022-06
Molybdenum	ND		ug/L	5.0	10/22/2024	AB24-1022-06
Nickel	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Potassium	1270		ug/L	100.0	10/22/2024	AB24-1022-06
Selenium	14		ug/L	1.0	10/22/2024	AB24-1022-06
Silver	ND		ug/L	0.2	10/22/2024	AB24-1022-06
Sodium	20100		ug/L	1000.0	10/22/2024	AB24-1022-06
Thallium	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Vanadium	ND		ug/L	2.0	10/22/2024	AB24-1022-06
Zinc	ND		ug/L	10.0	10/22/2024	AB24-1022-06
Anions by EPA 300.0 CCR Rule Analyt	e List. Cl. F.	SO4. Agu	ieous	Aliguot #: 24-0	859-09-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	29800	J	ug/L	1000.0	10/18/2024	AB24-1017-01
Fluoride	ND		ug/L	1000.0	10/18/2024	AB24-1017-01
Sulfate	37000		ug/L	1000.0	10/18/2024	AB24-1017-01
Total Dissolved Colida by CM 25400				Allmune # 04.0	0050 00 000 404	Amakasta 1980
Total Dissolved Solids by SM 2540C Parameter(s)	Result	Elac	Hnite	Aliquot #: 24-0 RL	0859-09-C03-A01	Analyst: LMO Tracking
· ,		Flag	Units		Analysis Date	J
Total Dissolved Solids	320		mg/L	10.0	10/17/2024	AB24-1017-03



Report Date: 10/31/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496)

Laboratory Project: **24-0859**Collect Date: 10/15/2024

 Field Sample ID:
 DUP-03
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0859-09
 Collect Time:
 12:00 AM

Alkalinity by SM 2320B			Aliquot #: 24-0	859-09-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	202000	ug/L	10000.0	10/22/2024	AB24-1021-09
Alkalinity Bicarbonate	202000	ug/L	10000.0	10/22/2024	AB24-1021-09
Alkalinity Carbonate	ND	ug/L	10000.0	10/22/2024	AB24-1021-09



10/31/24



Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0859

 Field Sample ID:
 FB-03
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0859-10
 Collect Time:
 02:45 PM

Matrix: Water

Mercury ND ug/L 0.2 10/22/2024 AB24-1021-03 Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 24-0859-10-C01-A02 Analysis EB Parameter(s) Result Flag Units RL Analysis Date Tracking Antimony ND ug/L 1.0 10/22/2024 AB24-1022-06 Arsenic ND ug/L 1.0 10/22/2024 AB24-1022-06 Beryllum ND ug/L 5.0 10/22/2024 AB24-1022-06 Beron ND ug/L 20.0 10/22/2024 AB24-1022-06 Cadmium ND ug/L 0.0 10/22/2024 AB24-1022-06 Cadmium ND ug/L 1.0 10/22/2024 AB24-1022-06 Cadmium ND ug/L 1.0 10/22/2024 AB24-1022-06 Cobalt ND ug/L 1.0 10/22/2024 AB24-1022-06 Cobalt ND ug/L 1.0 10/22/2024 AB24-1022-06 Cop	Mercury by EPA 7470A, Total,	Aqueous		Aliquot #: 24-0	0859-10-C01-A01	Analyst: CLE
Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 24-0859-10-C01-A02 Analyst: EB Parameter(s) Result Flag Units RL Analyst: EB Tracking Antimony ND u.g/L 1.0 10/22/2024 AB24-1022-06 Arsenic ND u.g/L 5.0 10/22/2024 AB24-1022-06 Barrium ND u.g/L 5.0 10/22/2024 AB24-1022-06 Beryllium ND u.g/L 1.0 10/22/2024 AB24-1022-06 Borron ND u.g/L 0.2 10/22/2024 AB24-1022-06 Cadmium ND u.g/L 0.2 10/22/2024 AB24-1022-06 Calcium ND u.g/L 1.0 10/22/2024 AB24-1022-06 Calcium ND u.g/L 1.0 10/22/2024 AB24-1022-06 Cobalt ND u.g/L 1.0 10/22/2024 AB24-1022-06 Cobalt ND u.g/L 1.0 10/22/2024 AB24-1022-06	Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Parameter(s) Result Flag Units RIQUOTE Tacking Tacking	Mercury	ND	ug/L	0.2	10/22/2024	AB24-1021-03
Parameter(s) Result Flag Units RL Analysis Date Tracking Antimony ND ug/L 1.0 10/22/2024 AB24-1022-06 Arsenic ND ug/L 5.0 10/22/2024 AB24-1022-06 Barium ND ug/L 5.0 10/22/2024 AB24-1022-06 Beryllium ND ug/L 1.0 10/22/2024 AB24-1022-06 Boron ND ug/L 20.0 10/22/2024 AB24-1022-06 Cadmium ND ug/L 0.2 10/22/2024 AB24-1022-06 Cadmium ND ug/L 1.0 10/22/2024 AB24-1022-06 Cadmium ND ug/L 1.0 10/22/2024 AB24-1022-06 Chromium ND ug/L 1.0 10/22/2024 AB24-1022-06 Cobalt ND ug/L 1.0 10/22/2024 AB24-1022-06 Copper ND ug/L 1.0 10/22/2024 AB24-1022-06 Iron	Metals by EPA 6020B: CCR Ru	le Appendix III-IV To	tal Metals Exp	Aliauot #: 24-0)859-10-C01-A02	Analyst: EB
Arsenic ND ug/L 1.0 10/22/2024 AB24-1022-06 Barium ND ug/L 5.0 10/22/2024 AB24-1022-06 Beryllium ND ug/L 20.0 10/22/2024 AB24-1022-06 Boron ND ug/L 20.0 10/22/2024 AB24-1022-06 Cadmium ND ug/L 1000.0 10/22/2024 AB24-1022-06 Calcium ND ug/L 1000.0 10/22/2024 AB24-1022-06 Chromium ND ug/L 1.0 10/22/2024 AB24-1022-06 Cobalt ND ug/L 6.0 10/22/2024 AB24-1022-06 Copper ND ug/L 1.0 10/22/2024 AB24-1022-06 Iron ND ug/L 1.0 10/22/2024 AB24-1022-06 Lead ND ug/L 1.0 10/22/2024 AB24-1022-06 Lithium ND ug/L 1.0 10/22/2024 AB24-1022-06 Magnesium ND	Parameter(s)	Result	Flag Units	•		Tracking
Barium ND ug/L 5.0 10/22/2024 AB24-1022-06 Beryllium ND ug/L 1.0 10/22/2024 AB24-1022-06 Boron ND ug/L 20.0 10/22/2024 AB24-1022-06 Cadmium ND ug/L 0.2 10/22/2024 AB24-1022-06 Calcium ND ug/L 1000.0 10/22/2024 AB24-1022-06 Chromium ND ug/L 6.0 10/22/2024 AB24-1022-06 Cobalt ND ug/L 1.0 10/22/2024 AB24-1022-06 Copper ND ug/L 1.0 10/22/2024 AB24-1022-06 Iron ND ug/L 1.0 10/22/2024 AB24-1022-06 Lead ND ug/L 1.0 10/22/2024 AB24-1022-06 Lead ND ug/L 1.0 10/22/2024 AB24-1022-06 Magnesium ND ug/L 1.0 10/22/2024 AB24-1022-06 Molybdenum ND <td< td=""><td>Antimony</td><td>ND</td><td>ug/L</td><td>1.0</td><td>10/22/2024</td><td>AB24-1022-06</td></td<>	Antimony	ND	ug/L	1.0	10/22/2024	AB24-1022-06
Beryllium ND ug/L 1.0 10/22/2024 AB24-1022-06 Boron ND ug/L 20.0 10/22/2024 AB24-1022-06 Cadmium ND ug/L 0.2 10/22/2024 AB24-1022-06 Calcium ND ug/L 1000 10/22/2024 AB24-1022-06 Chromium ND ug/L 1.0 10/22/2024 AB24-1022-06 Cobalt ND ug/L 6.0 10/22/2024 AB24-1022-06 Copper ND ug/L 20.0 10/22/2024 AB24-1022-06 Iron ND ug/L 20.0 10/22/2024 AB24-1022-06 Lead ND ug/L 1.0 10/22/2024 AB24-1022-06 Lead ND ug/L 1.0 10/22/2024 AB24-1022-06 Lithium ND ug/L 10.0 10/22/2024 AB24-1022-06 Malgoresium ND ug/L 5.0 10/22/2024 AB24-1022-06 Molybdenum ND	Arsenic	ND	ug/L	1.0	10/22/2024	AB24-1022-06
Boron ND ug/L 20.0 10/22/2024 AB24-1022-06 Cadmium ND ug/L 0.2 10/22/2024 AB24-1022-06 Calcium ND ug/L 1000.0 10/22/2024 AB24-1022-06 Chromium ND ug/L 1.0 10/22/2024 AB24-1022-06 Cobalt ND ug/L 1.0 10/22/2024 AB24-1022-06 Copper ND ug/L 1.0 10/22/2024 AB24-1022-06 Iron ND ug/L 1.0 10/22/2024 AB24-1022-06 Lead ND ug/L 1.0 10/22/2024 AB24-1022-06 Lithium ND ug/L 1.0 10/22/2024 AB24-1022-06 Magnesium ND ug/L 1.0 10/22/2024 AB24-1022-06 Molybdenum ND ug/L 5.0 10/22/2024 AB24-1022-06 Nickel ND ug/L 1.0 10/22/2024 AB24-1022-06 Potassium ND	Barium	ND	ug/L	5.0	10/22/2024	AB24-1022-06
Cadmium ND ug/L 0.2 10/22/2024 AB24-1022-06 Calcium ND ug/L 1000.0 10/22/2024 AB24-1022-06 Chromium ND ug/L 1.0 10/22/2024 AB24-1022-06 Cobalt ND ug/L 6.0 10/22/2024 AB24-1022-06 Copper ND ug/L 1.0 10/22/2024 AB24-1022-06 Iron ND ug/L 1.0 10/22/2024 AB24-1022-06 Lead ND ug/L 1.0 10/22/2024 AB24-1022-06 Lead ND ug/L 10.0 10/22/2024 AB24-1022-06 Lead ND ug/L 10.0 10/22/2024 AB24-1022-06 Magnesium ND ug/L 100.0 10/22/2024 AB24-1022-06 Molybdenum ND ug/L 5.0 10/22/2024 AB24-1022-06 Mickel ND ug/L 1.0 10/22/2024 AB24-1022-06 Silver ND	Beryllium	ND	ug/L	1.0	10/22/2024	AB24-1022-06
Calcium ND ug/L 1000.0 10/22/2024 AB24-1022-06 Chromium ND ug/L 1.0 10/22/2024 AB24-1022-06 Cobalt ND ug/L 6.0 10/22/2024 AB24-1022-06 Copper ND ug/L 1.0 10/22/2024 AB24-1022-06 Iron ND ug/L 1.0 10/22/2024 AB24-1022-06 Lead ND ug/L 1.0 10/22/2024 AB24-1022-06 Lithium ND ug/L 10.0 10/22/2024 AB24-1022-06 Magnesium ND ug/L 100.0 10/22/2024 AB24-1022-06 Molybdenum ND ug/L 5.0 10/22/2024 AB24-1022-06 Mickel ND ug/L 2.0 10/22/2024 AB24-1022-06 Potassium ND ug/L 1.0 10/22/2024 AB24-1022-06 Selenium ND ug/L 1.0 10/22/2024 AB24-1022-06 Sodium ND	Boron	ND	ug/L	20.0	10/22/2024	AB24-1022-06
Chromium ND ug/L 1.0 10/22/2024 AB24-1022-06 Cobalt ND ug/L 6.0 10/22/2024 AB24-1022-06 Copper ND ug/L 1.0 10/22/2024 AB24-1022-06 Iron ND ug/L 20.0 10/22/2024 AB24-1022-06 Lead ND ug/L 1.0 10/22/2024 AB24-1022-06 Lead ND ug/L 10.0 10/22/2024 AB24-1022-06 Magnesium ND ug/L 1000.0 10/22/2024 AB24-1022-06 Molybdenum ND ug/L 5.0 10/22/2024 AB24-1022-06 Mickel ND ug/L 2.0 10/22/2024 AB24-1022-06 Potassium ND ug/L 100.0 10/22/2024 AB24-1022-06 Selenium ND ug/L 1.0 10/22/2024 AB24-1022-06 Silver ND ug/L 0.2 10/22/2024 AB24-1022-06 Thallium ND	Cadmium	ND	ug/L	0.2	10/22/2024	AB24-1022-06
Cobalt ND ug/L 6.0 10/22/2024 AB24-1022-06 Copper ND ug/L 1.0 10/22/2024 AB24-1022-06 Iron ND ug/L 20.0 10/22/2024 AB24-1022-06 Lead ND ug/L 1.0 10/22/2024 AB24-1022-06 Lithium ND ug/L 10.0 10/22/2024 AB24-1022-06 Magnesium ND ug/L 100.0 10/22/2024 AB24-1022-06 Molybdenum ND ug/L 5.0 10/22/2024 AB24-1022-06 Nickel ND ug/L 2.0 10/22/2024 AB24-1022-06 Potassium ND ug/L 100.0 10/22/2024 AB24-1022-06 Selenium ND ug/L 1.0 10/22/2024 AB24-1022-06 Silver ND ug/L 0.2 10/22/2024 AB24-1022-06 Sodium ND ug/L 1000.0 10/22/2024 AB24-1022-06 Vanadium ND	Calcium	ND	ug/L	1000.0	10/22/2024	AB24-1022-06
Copper ND ug/L 1.0 10/22/2024 AB24-1022-06 Iron ND ug/L 20.0 10/22/2024 AB24-1022-06 Lead ND ug/L 1.0 10/22/2024 AB24-1022-06 Lithium ND ug/L 10.0 10/22/2024 AB24-1022-06 Magnesium ND ug/L 1000.0 10/22/2024 AB24-1022-06 Molybdenum ND ug/L 5.0 10/22/2024 AB24-1022-06 Mickel ND ug/L 2.0 10/22/2024 AB24-1022-06 Potassium ND ug/L 1.00 10/22/2024 AB24-1022-06 Selenium ND ug/L 1.0 10/22/2024 AB24-1022-06 Silver ND ug/L 0.2 10/22/2024 AB24-1022-06 Sodium ND ug/L 1.000.0 10/22/2024 AB24-1022-06 Vanadium ND ug/L 2.0 10/22/2024 AB24-1022-06 Vanium ND	Chromium	ND	ug/L	1.0	10/22/2024	AB24-1022-06
Iron	Cobalt	ND	ug/L	6.0	10/22/2024	AB24-1022-06
Lead ND ug/L 1.0 10/22/2024 AB24-1022-06 Lithium ND ug/L 10.0 10/22/2024 AB24-1022-06 Magnesium ND ug/L 1000.0 10/22/2024 AB24-1022-06 Molybdenum ND ug/L 5.0 10/22/2024 AB24-1022-06 Nickel ND ug/L 2.0 10/22/2024 AB24-1022-06 Potassium ND ug/L 100.0 10/22/2024 AB24-1022-06 Selenium ND ug/L 1.0 10/22/2024 AB24-1022-06 Silver ND ug/L 1.0 10/22/2024 AB24-1022-06 Sodium ND ug/L 100.0 10/22/2024 AB24-1022-06 Thallium ND ug/L 2.0 10/22/2024 AB24-1022-06 Vanadium ND ug/L 2.0 10/22/2024 AB24-1022-06 Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous Aliquot #: 24-0859-10-C02-A01 Analyst: KDR Parameter(s)	Copper	ND	ug/L	1.0	10/22/2024	AB24-1022-06
Lithium ND ug/L 10.0 10/22/2024 AB24-1022-06 Magnesium ND ug/L 1000.0 10/22/2024 AB24-1022-06 Molybdenum ND ug/L 5.0 10/22/2024 AB24-1022-06 Nickel ND ug/L 2.0 10/22/2024 AB24-1022-06 Potassium ND ug/L 100.0 10/22/2024 AB24-1022-06 Selenium ND ug/L 1.0 10/22/2024 AB24-1022-06 Silver ND ug/L 0.2 10/22/2024 AB24-1022-06 Sodium ND ug/L 1000.0 10/22/2024 AB24-1022-06 Thallium ND ug/L 2.0 10/22/2024 AB24-1022-06 Vanadium ND ug/L 2.0 10/22/2024 AB24-1022-06 Zinc ND ug/L 10.0 10/22/2024 AB24-1022-06 Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous Aliquot #: 24-0859-10-C02-A01 Analysis: KDR Parameter(s)	Iron	ND	ug/L	20.0	10/22/2024	AB24-1022-06
Magnesium ND ug/L 1000.0 10/22/2024 AB24-1022-06 Molybdenum ND ug/L 5.0 10/22/2024 AB24-1022-06 Nickel ND ug/L 2.0 10/22/2024 AB24-1022-06 Potassium ND ug/L 100.0 10/22/2024 AB24-1022-06 Selenium ND ug/L 1.0 10/22/2024 AB24-1022-06 Silver ND ug/L 0.2 10/22/2024 AB24-1022-06 Sodium ND ug/L 1000.0 10/22/2024 AB24-1022-06 Thallium ND ug/L 2.0 10/22/2024 AB24-1022-06 Vanadium ND ug/L 2.0 10/22/2024 AB24-1022-06 Zinc ND ug/L 10.0 10/22/2024 AB24-1022-06 Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous Aliquot #: 24-0859-10-C02-A01 Analyst: KDR Parameter(s) Result Flag Units RL Analysis Date Tracking	Lead	ND	ug/L	1.0	10/22/2024	AB24-1022-06
Molybdenum ND ug/L 5.0 10/22/2024 AB24-1022-06 Nickel ND ug/L 2.0 10/22/2024 AB24-1022-06 Potassium ND ug/L 100.0 10/22/2024 AB24-1022-06 Selenium ND ug/L 1.0 10/22/2024 AB24-1022-06 Silver ND ug/L 0.2 10/22/2024 AB24-1022-06 Sodium ND ug/L 1000.0 10/22/2024 AB24-1022-06 Thallium ND ug/L 2.0 10/22/2024 AB24-1022-06 Vanadium ND ug/L 2.0 10/22/2024 AB24-1022-06 Zinc ND ug/L 10.0 10/22/2024 AB24-1022-06 Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous Aliquot #: 24-0859-10-C02-A01 Analyst: KDR Parameter(s) Result Flag Units RL Analysis Date Tracking Chloride ND ug/L 1000.0 10/18/2024 AB24-1017-01	Lithium	ND	ug/L	10.0	10/22/2024	AB24-1022-06
Nickel ND ug/L 2.0 10/22/2024 AB24-1022-06 Potassium ND ug/L 100.0 10/22/2024 AB24-1022-06 Selenium ND ug/L 1.0 10/22/2024 AB24-1022-06 Silver ND ug/L 0.2 10/22/2024 AB24-1022-06 Sodium ND ug/L 1000.0 10/22/2024 AB24-1022-06 Thallium ND ug/L 2.0 10/22/2024 AB24-1022-06 Vanadium ND ug/L 2.0 10/22/2024 AB24-1022-06 Zinc ND ug/L 10.0 10/22/2024 AB24-1022-06 Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous Aliquot #: 24-0859-10-C02-A01 Analyst: KDR Parameter(s) Result Flag Units RL Analysis Date Tracking Chloride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Fluoride ND ug/L 1000.0 10/18/2024 AB24-1017-01	Magnesium	ND	ug/L	1000.0	10/22/2024	AB24-1022-06
Potassium ND ug/L 100.0 10/22/2024 AB24-1022-06 Selenium ND ug/L 1.0 10/22/2024 AB24-1022-06 Silver ND ug/L 0.2 10/22/2024 AB24-1022-06 Sodium ND ug/L 1000.0 10/22/2024 AB24-1022-06 Thallium ND ug/L 2.0 10/22/2024 AB24-1022-06 Vanadium ND ug/L 2.0 10/22/2024 AB24-1022-06 Zinc ND ug/L 10.0 10/22/2024 AB24-1022-06 Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 24-0859-10-C02-A01 Analyst: KDR Parameter(s) Result Flag Units RL Analysis Date Tracking Chloride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Fluoride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Sulfate ND ug/L 1000.0 10/18/2024 AB24-1017-01 <t< td=""><td>Molybdenum</td><td>ND</td><td>ug/L</td><td>5.0</td><td>10/22/2024</td><td>AB24-1022-06</td></t<>	Molybdenum	ND	ug/L	5.0	10/22/2024	AB24-1022-06
Selenium ND ug/L 1.0 10/22/2024 AB24-1022-06 Silver ND ug/L 0.2 10/22/2024 AB24-1022-06 Sodium ND ug/L 1000.0 10/22/2024 AB24-1022-06 Thallium ND ug/L 2.0 10/22/2024 AB24-1022-06 Vanadium ND ug/L 2.0 10/22/2024 AB24-1022-06 Zinc ND ug/L 10.0 10/22/2024 AB24-1022-06 Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous Aliquot #: 24-0859-10-C02-A01 Analyst: KDR Parameter(s) Result Flag Units RL Analysis Date Tracking Chloride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Fluoride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Sulfate ND ug/L 1000.0 10/18/2024 AB24-1017-01 Total Dissolved Solids by SM 2540C Aliquot #: 24-0859-10-C03-A01 Analysis Date Tracking	Nickel	ND	ug/L	2.0	10/22/2024	AB24-1022-06
Silver ND ug/L 0.2 10/22/2024 AB24-1022-06 Sodium ND ug/L 1000.0 10/22/2024 AB24-1022-06 Thallium ND ug/L 2.0 10/22/2024 AB24-1022-06 Vanadium ND ug/L 2.0 10/22/2024 AB24-1022-06 Zinc ND ug/L 10.0 10/22/2024 AB24-1022-06 Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous Aliquot #: 24-0859-10-C02-A01 Analyst: KDR Parameter(s) Result Flag Units RL Analysis Date Tracking Chloride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Fluoride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Sulfate ND ug/L 1000.0 10/18/2024 AB24-1017-01 Total Dissolved Solids by SM 2540C Aliquot #: 24-0859-10-C03-A01 Analyst: LMO Parameter(s) Result Flag Units RL Analysis Date <t< td=""><td>Potassium</td><td>ND</td><td>ug/L</td><td>100.0</td><td>10/22/2024</td><td>AB24-1022-06</td></t<>	Potassium	ND	ug/L	100.0	10/22/2024	AB24-1022-06
Sodium ND ug/L 1000.0 10/22/2024 AB24-1022-06 Thallium ND ug/L 2.0 10/22/2024 AB24-1022-06 Vanadium ND ug/L 2.0 10/22/2024 AB24-1022-06 Zinc ND ug/L 10.0 10/22/2024 AB24-1022-06 Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous Aliquot #: 24-0859-10-C02-A01 Analyst: KDR Parameter(s) Result Flag Units RL Analysis Date Tracking Chloride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Fluoride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Sulfate ND ug/L 1000.0 10/18/2024 AB24-1017-01 Total Dissolved Solids by SM 2540C Aliquot #: 24-0859-10-C03-A01 Analysis LMO Parameter(s) Result Flag Units RL Analysis Date Tracking	Selenium	ND	ug/L	1.0	10/22/2024	AB24-1022-06
Thallium ND ug/L 2.0 10/22/2024 AB24-1022-06 Vanadium ND ug/L 2.0 10/22/2024 AB24-1022-06 Zinc ND ug/L 10.0 10/22/2024 AB24-1022-06 Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous Aliquot #: 24-0859-10-C02-A01 Analyst: KDR Parameter(s) Result Flag Units RL Analysis Date Tracking Chloride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Fluoride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Sulfate ND ug/L 1000.0 10/18/2024 AB24-1017-01 Total Dissolved Solids by SM 2540C Aliquot #: 24-0859-10-C03-A01 Analyst: LMO Parameter(s) Result Flag Units RL Analysis Date Tracking	Silver	ND	ug/L	0.2	10/22/2024	AB24-1022-06
Vanadium ND ug/L ug/L ug/L 2.0 10/22/2024 AB24-1022-06 AB24-1022-06 AB24-1022-06 Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous Aliquot #: 24-0859-10-C02-A01 Analyst: KDR Parameter(s) Result Flag Units RL Analysis Date Tracking Chloride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Fluoride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Sulfate ND ug/L 1000.0 10/18/2024 AB24-1017-01 Total Dissolved Solids by SM 2540C Aliquot #: 24-0859-10-C03-A01 Analyst: LMO Parameter(s) Result Flag Units RL Analysis Date Tracking	Sodium	ND	ug/L	1000.0	10/22/2024	AB24-1022-06
Zinc ND ug/L 10.0 10/22/2024 AB24-1022-06 Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous Aliquot #: 24-0859-10-C02-A01 Analyst: KDR Parameter(s) Result Flag Units RL Analysis Date Tracking Chloride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Fluoride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Sulfate ND ug/L 1000.0 10/18/2024 AB24-1017-01 Total Dissolved Solids by SM 2540C Aliquot #: 24-0859-10-C03-A01 Analyst: LMO Parameter(s) Result Flag Units RL Analysis Date Tracking	Thallium	ND	ug/L	2.0	10/22/2024	AB24-1022-06
Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous Aliquot #: 24-0859-10-C02-A01 Analyst: KDR Parameter(s) Result Flag Units RL Analysis Date Tracking Chloride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Fluoride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Sulfate ND ug/L 1000.0 10/18/2024 AB24-1017-01 Total Dissolved Solids by SM 2540C Aliquot #: 24-0859-10-C03-A01 Analyst: LMO Parameter(s) Result Flag Units RL Analysis Date Tracking	Vanadium	ND	ug/L	2.0	10/22/2024	AB24-1022-06
Parameter(s) Result Flag Units RL Analysis Date Tracking Chloride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Fluoride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Sulfate ND ug/L 1000.0 10/18/2024 AB24-1017-01 Total Dissolved Solids by SM 2540C Parameter(s) Result Flag Units RL Analysis Date Tracking	Zinc	ND	ug/L	10.0	10/22/2024	AB24-1022-06
Parameter(s) Result Flag Units RL Analysis Date Tracking Chloride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Fluoride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Sulfate ND ug/L 1000.0 10/18/2024 AB24-1017-01 Total Dissolved Solids by SM 2540C Aliquot #: 24-0859-10-C03-A01 Analyst: LMO Parameter(s) Result Flag Units RL Analysis Date Tracking	Anions by EPA 300.0 CCR Rule	Analyte List, Cl, F,	SO4, Aqueous	Aliquot #: 24-0)859-10-C02-A01	Analyst: KDR
Fluoride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Sulfate ND ug/L 1000.0 10/18/2024 AB24-1017-01 Total Dissolved Solids by SM 2540C Aliquot #: 24-0859-10-C03-A01 Analyst: LMO Parameter(s) Result Flag Units RL Analysis Date Tracking						Tracking
Fluoride ND ug/L 1000.0 10/18/2024 AB24-1017-01 Sulfate ND ug/L 1000.0 10/18/2024 AB24-1017-01 Total Dissolved Solids by SM 2540C Aliquot #: 24-0859-10-C03-A01 Analyst: LMO Parameter(s) Result Flag Units RL Analysis Date Tracking	Chloride	ND	ug/L	1000.0	10/18/2024	AB24-1017-01
Sulfate ND ug/L 1000.0 10/18/2024 AB24-1017-01 Total Dissolved Solids by SM 2540C Aliquot #: 24-0859-10-C03-A01 Analyst: LMO Parameter(s) Result Flag Units RL Analysis Date Tracking			_			
Parameter(s) Result Flag Units RL Analysis Date Tracking			_			
Parameter(s) Result Flag Units RL Analysis Date Tracking	Total Dissolved Solids by SM 2	540C		Aliquot #: 24-0)859-10-C03-A01	Analyst: LMO
Total Dissolved Solids ND mg/L 10.0 10/17/2024 AB24-1017-03			Flag Units	-		Tracking
	Total Dissolved Solids	ND	mg/L	10.0	10/17/2024	AB24-1017-03



10/31/24

Report Date:



Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0859

 Field Sample ID:
 EB-03
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0859-11
 Collect Time:
 02:39 PM

Matrix: Water

Mercury by EPA 7470A, Total,	Aqueous		Aliquot #: 24-0	0859-11-C01-A01	Analyst: CLE
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Mercury	ND	ug/L	0.2	10/22/2024	AB24-1021-03
Metals by EPA 6020B: CCR Ru	le Appendix III-IV To	tal Metals Exp	Aliauot #: 24-0	0859-11-C01-A02	Analyst: EB
Parameter(s)	Result	Flag Units	•	Analysis Date	Tracking
Antimony	ND	ug/L	1.0	10/22/2024	AB24-1022-06
Arsenic	ND	ug/L	1.0	10/22/2024	AB24-1022-06
Barium	ND	ug/L	5.0	10/22/2024	AB24-1022-06
Beryllium	ND	ug/L	1.0	10/22/2024	AB24-1022-06
Boron	ND	ug/L	20.0	10/22/2024	AB24-1022-06
Cadmium	ND	ug/L	0.2	10/22/2024	AB24-1022-06
Calcium	ND	ug/L	1000.0	10/22/2024	AB24-1022-06
Chromium	ND	ug/L	1.0	10/22/2024	AB24-1022-06
Cobalt	ND	ug/L	6.0	10/22/2024	AB24-1022-06
Copper	1	ug/L	1.0	10/22/2024	AB24-1022-06
Iron	ND	ug/L	20.0	10/22/2024	AB24-1022-06
Lead	ND	ug/L	1.0	10/22/2024	AB24-1022-06
Lithium	ND	ug/L	10.0	10/22/2024	AB24-1022-06
Magnesium	ND	ug/L	1000.0	10/22/2024	AB24-1022-06
Molybdenum	ND	ug/L	5.0	10/22/2024	AB24-1022-06
Nickel	ND	ug/L	2.0	10/22/2024	AB24-1022-06
Potassium	ND	ug/L	100.0	10/22/2024	AB24-1022-06
Selenium	ND	ug/L	1.0	10/22/2024	AB24-1022-06
Silver	ND	ug/L	0.2	10/22/2024	AB24-1022-06
Sodium	ND	ug/L	1000.0	10/22/2024	AB24-1022-06
Thallium	ND	ug/L	2.0	10/22/2024	AB24-1022-06
Vanadium	ND	ug/L	2.0	10/22/2024	AB24-1022-06
Zinc	ND	ug/L	10.0	10/22/2024	AB24-1022-06
Anions by EPA 300.0 CCR Rule	e Analyte List, Cl, F,	SO4, Aqueous	Aliquot #: 24-0)859-11-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag Units		Analysis Date	Tracking
Chloride	ND	ug/L	1000.0	10/18/2024	AB24-1017-01
Fluoride	ND	ug/L	1000.0	10/18/2024	AB24-1017-01
Sulfate	ND	ug/L	1000.0	10/18/2024	AB24-1017-01
Total Dissolved Solids by SM 2	2540C		Aliquot #: 24-0	0859-11-C03-A01	Analyst: LMO
Parameter(s)	Result	Flag Units	-	Analysis Date	Tracking
Total Dissolved Solids	ND	mg/L	10.0	10/17/2024	AB24-1017-03



10/31/24



Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0859

 Field Sample ID:
 MW-B4 MS
 Collect Date:
 10/15/2024

 Lab Sample ID:
 24-0859-12
 Collect Time:
 12:16 PM

Mercury by EPA 7470A, Total, Aqueo	us		Aliquot #: 24-0	859-12-C01-A01	Analyst: CLE
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Mercury	94.0	%	0.2	10/22/2024	AB24-1021-03
Metals by EPA 6020B: CCR Rule App	endix III-IV To	otal Metals Exp	Aliquot #: 24-0)859-12-C01-A02	Analyst: EB
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Antimony	98	%	1.0	10/22/2024	AB24-1022-06
Arsenic	104	%	1.0	10/22/2024	AB24-1022-06
Barium	103	%	5.0	10/22/2024	AB24-1022-06
Beryllium	101	%	1.0	10/22/2024	AB24-1022-06
Boron	108	%	20.0	10/22/2024	AB24-1022-06
Cadmium	98.4	%	0.2	10/22/2024	AB24-1022-06
Calcium	105	%	1000.0	10/22/2024	AB24-1022-06
Chromium	98	%	1.0	10/22/2024	AB24-1022-06
Cobalt	98	%	6.0	10/22/2024	AB24-1022-06
Copper	98	%	1.0	10/22/2024	AB24-1022-06
Iron	104	%	20.0	10/22/2024	AB24-1022-06
Lead	101	%	1.0	10/22/2024	AB24-1022-06
Lithium	105	%	10.0	10/22/2024	AB24-1022-06
Magnesium	96.3	%	1000.0	10/22/2024	AB24-1022-06
Molybdenum	109	%	5.0	10/22/2024	AB24-1022-06
Nickel	99	%	2.0	10/22/2024	AB24-1022-06
Potassium	104	%	100.0	10/22/2024	AB24-1022-06
Selenium	106	%	1.0	10/22/2024	AB24-1022-06
Silver	97.6	%	0.2	10/22/2024	AB24-1022-06
Sodium	107	%	1000.0	10/22/2024	AB24-1022-06
Thallium	102	%	2.0	10/22/2024	AB24-1022-06
Vanadium	102	%	2.0	10/22/2024	AB24-1022-06
Zinc	104	%	10.0	10/22/2024	AB24-1022-06
Anions by EPA 300.0 CCR Rule Analy	yte List, Cl, F,	SO4, Aqueous	Aliquot #: 24-0	859-12-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag Units		Analysis Date	Tracking
Chloride	103	%	1000.0	10/18/2024	AB24-1017-01
Fluoride	100	%	1000.0	10/18/2024	AB24-1017-01
Sulfate	101	%	1000.0	10/18/2024	AB24-1017-01



10/31/24



Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: JHC GW Monitoring - Landfill Wells (395496) Laboratory Project: 24-0859

Field Sample ID: MW-B4 MSD
Lab Sample ID: 24-0859-13

Collect Date: 10/15/2024
Collect Time: 12:16 PM

Mercury by EPA 7470A, Tota	l, Aqueous		Aliquot #: 24-0	0859-13-C01-A01	Analyst: CLE
Parameter(s)	Result	Flag Unit	ts RL	Analysis Date	Tracking
Mercury	94.0	%	0.2	10/22/2024	AB24-1021-03
Metals by EPA 6020B: CCR F	Rule Appendix III-IV Tota	al Metals Exp	Aliquot #: 24-0)859-13-C01-A02	Analyst: EB
Parameter(s)	Result	Flag Unit	ts RL	Analysis Date	Tracking
Antimony	95	%	1.0	10/22/2024	AB24-1022-06
Arsenic	103	%	1.0	10/22/2024	AB24-1022-06
Barium	101	%	5.0	10/22/2024	AB24-1022-06
Beryllium	99	%	1.0	10/22/2024	AB24-1022-06
Boron	114	%	20.0	10/22/2024	AB24-1022-06
Cadmium	99.1	%	0.2	10/22/2024	AB24-1022-06
Calcium	109	%	1000.0	10/22/2024	AB24-1022-06
Chromium	98	%	1.0	10/22/2024	AB24-1022-06
Cobalt	100	%	6.0	10/22/2024	AB24-1022-06
Copper	101	%	1.0	10/22/2024	AB24-1022-06
Iron	108	%	20.0	10/22/2024	AB24-1022-06
Lead	102	%	1.0	10/22/2024	AB24-1022-06
Lithium	103	%	10.0	10/22/2024	AB24-1022-06
Magnesium	106	%	1000.0	10/22/2024	AB24-1022-06
Molybdenum	108	%	5.0	10/22/2024	AB24-1022-06
Nickel	102	%	2.0	10/22/2024	AB24-1022-06
Potassium	105	%	100.0	10/22/2024	AB24-1022-06
Selenium	107	%	1.0	10/22/2024	AB24-1022-06
Silver	101	%	0.2	10/22/2024	AB24-1022-06
Sodium	111	%	1000.0	10/22/2024	AB24-1022-06
Thallium	106	%	2.0	10/22/2024	AB24-1022-06
Vanadium	100	%	2.0	10/22/2024	AB24-1022-06
Zinc	104	%	10.0	10/22/2024	AB24-1022-06
Anions by EPA 300.0 CCR R	ule Analyte List, Cl. F. S	604. Aqueous	Aliquot #· 24-0	0859-13-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag Unit	•	Analysis Date	Tracking
Chloride	103	%		10/18/2024	AB24-1017-01
			1000.0		
Fluoride	99	%	1000.0	10/18/2024	AB24-1017-01
Sulfate	101	%	1000.0	10/18/2024	AB24-1017-01



Report Date: 10/31/24

Data Qualifiers	Exception Summary
	No exceptions occurred.

CONSUMERS ENERGY

Chemistry Department

General Standard Operating Procedure

PROC CHEM-1.2.01 PAGE 1 OF 2 REVISION 5 ATTACHMENT A

	59	Inspection	on Date: 10.15-24	Inspection By:	lmo
Sample Origin/Project Name:)HC	a4 Land	Fil wells		
Shipment Delivered By: Enter	r the type of	f shipment carr	ier.		
Inter-Company Mail_	- 1000 mm 1 mm 1 mm 1 mm 1 mm 1 mm 1 mm	FedEx	UPS	USPS _	
Tracking Number:		· · · · · ·	Other/Carry In (who	n) <u>CLB</u>	
Shipping Containers: Enter the	ne type and	number of ship	pping containers received.		
Cooler	Cardboard B	Box	Custom Case	Envelope/M	Iailer
Loose/Unpackaged Co	ontainers	*	Other		
Condition of Shipment: Enter	r the as-rece	eived condition	of the shipment container		
Damaged Shipment O	bserved: N	one	Dented	Leak	cing
Other					
Shipment Security: Enter if a	ny of the sh	ipping containe	ers were opened before rec	eipt.	
Shipping Containers R	Leceived: C	pened	_ Sealed	N/A	
Enclosed Documents: Enter the	•				
*			•	Out	
			Air Data Sheet		
Temperature of Containers: 1	Measure the	temperature o	f several sample container	S.	
As-Received Tempera	ture Range	6.9-3.Ce	°C Samples Recei	ved on Ice: Yes	No
M&TE # and Expiration	on LS O	27723/ (0.27.25		
Number and Type of Contain	ers: Enter	the type and to	tal number of sample cont	ainers received.	
Container Type	<u>Water</u>	Soil	<u>Other</u>	<u>Broken</u>	<u>Leakin</u> ;
VOA (40mL or 60mL)	18	· .			Married Town Marriagon (Marriagon)
Quart/Liter (g/6)	22				
9-oz (amber glass jar)			***************************************		
2-oz (amber glass)		Management			
125 mL (plastic)	24			Participation	
	11			6	
24 mL vial (glass)		***************************************			
24 mL vial (glass) 250 mL (plastic) Other	•				

CHAIN OF CUSTODY



CONSUMERS ENERGY COMPANY - LABORATORY SERVICES

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

Page 1 of 2

SAMPLING SITE / CUSTOMER:			PROJECT NUMBER: SAP CC or WO									Α	NAI	YSI	With a section of the least section						
JHC Q4-2024 Landfill Wells					24-0859 REQUESTE		R: Bethany Swanberg							ANALYSIS REQUESTED (Attach List if More Space is Needed) QA REQU							
SAMPLING TEAM:			TURNAROUND TIME REQUIRED:															□ NPDES			
CLE + LMO			□ 24 HR □ 48 HR □ 3 DAYS □ ST.	ANDARD ⊠ O	THER_													⊠ TNI			
SEND REPORT TO: Joseph Firlit email:															□ ISO 17025						
(COPY TO: JR Register			MATRIX CODES: GW = Groundwater OX = Other			C	ONT	AIN	ERS									☐ 10 CFR 50 APP. B		
		TRC			WW = Wastewater SL = Sludg W = Water / Aqueous Liquid A = Air S = Soil / General Solid WP = Wipe		#]	PRES	SERV	ATI	VE	etals			ty (t)	226	228		☐ INTERNAL INFO	
	LAB	SAMPLE COLL	ECTION	MATRIX		ipe eneral Waste		9)3	TO H		H	Total Metals	Anions	S	Alkalinity	Radium	Radium		□ OTHER	
SA	AMPLE ID	DATE	TIME	MAT	FIELD SAMPLE ID / LOC	CATION	TOTAL	Non	HI	H ₂ Si NaO	HCI	MeOH	Tot	Ani	TDS	Alk	Rac	Rac		REMARKS	
2	4-0859-01	10.15.24	0856	GW	JHC-MW-15017		7	4	3				x	x	x	x	x	x			
	-02	10.15.24	1001	GW	JHC-MW-15018		7	4	3				x	x	x	x	x	x			
	-03	10.15.24		GW	JHC-MW-15031		7	4	3				x	x	x	x	x	x			
	-04	10.15.24		GW	MW-B3		7	4	3				х	x	x	x	x	х			
	-05	10.15.24	15 / 15	GW	MW-B4		7	4	3				х	x	х	x	х	х			
	-06	10.15.24		GW	JHC-MW-15035 (MW-B5)		7	4	3				х	х	x	x	x	x		1	
	-07	10.15.24		GW	JHC-MW-15036 (MW-B6)		7	4	3				x	x	x	x	x	x			
	-08	10.15.24		GW	JHC-MW-15037 (MW-B7)		7	4	3				х	x	x	x	x	x			
	-09	10 - 15 - 24	_	GW	DUP-03		7	4	3	18			x	x	x	x	x	x			
	-10	10.15.24	1445	W	FB-03	4	5	2	3				х	x	x		х	x	Ĩ		
	-11	10.15.24		W	EB-03		5	2	3				x	x	x		x	х			
	-12	10.15.24		GW	MW-B4 MS		2	1	1				x	x							
RELIN	QUISHED BY:		I	DATE/	TIME: R	ECEIVED BY:	2	1	_				СО	MME	ENTS						
RELIN	QUISHED BY:			DATE/		ECEIVED BY:		_												#: LS027723	

24-0859 Page 29 of 30

CHAIN OF CUSTODY



CONSUMERS ENERGY COMPANY – LABORATORY SERVICES

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Page 2 of 2

SAMPLING SITE / CU	JSTOMER:			PROJECT NUMBER:	SAP CC or Wo	O#:												STED	QA REQUIREMENT:
JHC Q4-2024 Lan	dfill Wells			24-0859	REQUESTER:	Betha	any	Swa	nbe	rg			(Atta	ch Lis	st if N	Iore S	Space i	s Needed)	QA REQUIREMENT:
SAMPLING TEAM:	- 25			TURNAROUND TIME REQUIRED:	ratenda 4 v.	Cara													□ NPDES
CI	e			□ 24 HR □ 48 HR □ 3 DAYS □	STANDARD Ø OTI	HER _	_				<u> </u>								⊠ TNI
SEND REPORT TO:	Joseph Firlit			email:	phone:														□ ISO 17025
COPY TO:	JR Register			MATRIX CODES: GW = Groundwater OX = Oth	er		CO	NTA	AINI	ERS									☐ 10 CFR 50 APP. B
	TRC			WW = Wastewater SL = Slu W = Water / Aqueous Liquid A = Air		##	P	RES	ERV	ATI	VE	etals			y	226	228		☐ INTERNAL INFO
LAB	SAMPLE COLL	ECTION	RIX	S = Soil / General Solid WP = W O = Oil WT = G	eneral Waste	TOTAL#	43	3	7 H		H	Total Metals	Anions	S	Alkalinity	Radium 226	Radium 228		□ OTHER
SAMPLE ID	DATE	TIME	MATRIX	FIELD SAMPLE ID / LO	OCATION	TO	Non	HNC	NaOH	HCI	MeOH	Tot	Ani	TDS	Alk	Rac	Rac		REMARKS
24-0859-13	10.15.24	1216	GW	MW-B4 MSD		2	1	1				x	x						
											H								
RELINQUISHED BY:	*		DATE/	TIME:	RECEIVED BY:						_	CO	MME	ENTS					
No com					Tuni I	2	1												
RELINQUISHED BY:			/ O -/(6-24/1210 TIME:	RECEIVED BY:	erlan						Red	eived	l on I	ce?	Yes		o M&TE	#: LS027723
					24 0950 Daga 20 of 3	20						Ter	npera	ture:	0.0	-3	0 °C	Cal. Du	ue Date: <u>W. 27.25</u>

ANALYTICAL REPORT

PREPARED FOR

Attn: Emil Blaj Consumers Energy 135 W Trail Street Jackson, Michigan 49201

Generated 11/27/2024 5:36:02 PM

JOB DESCRIPTION

JH Campbell Background Wells

JOB NUMBER

160-55984-1

Eurofins St. Louis 13715 Rider Trail North Earth City MO 63045



Eurofins St. Louis

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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Authorization

Generated 11/27/2024 5:36:02 PM

Authorized for release by Jayna Awalt, Project Manager II Jayna.Awalt@et.eurofinsus.com Designee for Micha Korrinhizer, Project Manager Micha.Korrinhizer@et.eurofinsus.com (314)298-8566

Client: Consumers Energy Project/Site: JH Campbell Background Wells Laboratory Job ID: 160-55984-1

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QC Association Summary	20
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4

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9

10

Case Narrative

Client: Consumers Energy

Project: JH Campbell Background Wells

Job ID: 160-55984-1 Eurofins St. Louis

Job Narrative 160-55984-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition, all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method.

Eurofins Environment Testing attests to the validity of the laboratory data generated by Eurofins facilities reported herein. All analyses performed by Eurofins Environment Testing facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins Environment Testing's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report.

Calculations are performed before rounding to avoid round-off errors in calculated results.

Proper preservation was noted for the methods performed on these samples, unless otherwise detailed below.

All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy or unless requested as wet weight by the client.

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

The matrix for the Method Blank and LCS/LCSD is as close to the samples as can be reasonably achieved. Detailed information can be found in the most current revision of the associated SOP.

The method blank (MB) z-score is within limits, unless stated otherwise below, and is stored in the level IV raw data.

This laboratory report is confidential and is intended for the sole use of Eurofins Environment Testing and its client.

No additional analytical or quality issues were noted, other than those described below or in the Definitions/ Glossary page.

Receipt

The samples were received on 10/24/2024 9:50 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved. The temperature of the cooler at receipt time was 19.8°C.

Receipt Exceptions

The following sample was received at the laboratory without a sample collection time documented on the chain of custody: DUP-01 (160-55984-7). The laboratory was instructed to use a sample collection time of 12:00am. Samplers name is not on the COC. JHC-MW-15023 (160-55984-1), JHC-MW-15024 (160-55984-2), JHC-MW-15025 (160-55984-3), JHC-MW-15026 (160-55984-4), JHC-MW-15027 (160-55984-5), JHC-MW-15028 (160-55984-6), DUP-01 (160-55984-7), FB-01 (160-55984-8) and EB-01 (160-55984-9)

Method 903.0 - Radium-226 (GFPC)

Samples JHC-MW-15023 (160-55984-1), JHC-MW-15024 (160-55984-2), JHC-MW-15025 (160-55984-3), JHC-MW-15026 (160-55984-4), JHC-MW-15027 (160-55984-5), JHC-MW-15028 (160-55984-6), DUP-01 (160-55984-7), FB-01 (160-55984-8) and EB-01 (160-55984-9) were analyzed for Radium-226 (GFPC). The samples were prepared on 10/28/2024 and analyzed on 11/19/2024.

Method 904.0 - Radium-228 (GFPC)

Samples JHC-MW-15023 (160-55984-1), JHC-MW-15024 (160-55984-2), JHC-MW-15025 (160-55984-3), JHC-MW-15026 (160-55984-4), JHC-MW-15027 (160-55984-5), JHC-MW-15028 (160-55984-6), DUP-01 (160-55984-7), FB-01 (160-55984-8) and EB-01 (160-55984-9) were analyzed for Radium-228 (GFPC). The samples were prepared on 10/28/2024 and 11/19/2024 and analyzed on 11/14/2024 and 11/27/2024.

Eurofins St. Louis

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Job ID: 160-55984-1

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Case Narrative

Client: Consumers Energy

Project: JH Campbell Background Wells

Job ID: 160-55984-1 (Continued)

Eurofins St. Louis

Job ID: 160-55984-1

Method Ra226_Ra228 - Combined Radium-226 and Radium-228

Samples JHC-MW-15023 (160-55984-1), JHC-MW-15024 (160-55984-2), JHC-MW-15025 (160-55984-3), JHC-MW-15026 (160-55984-4), JHC-MW-15027 (160-55984-5), JHC-MW-15028 (160-55984-6), DUP-01 (160-55984-7), FB-01 (160-55984-8) and EB-01 (160-55984-9) were analyzed for Combined Radium-226 and Radium-228. The samples were analyzed on 11/27/2024.

Eurofins St. Louis

Page 5 of 21 11/27/2024

Client Information Phone Client Contact Phone Emil Big Phone Company Due Date F Company TAT Reque Address TAT Reque 135 W Trail Street TAT Reque City TAT Reque Jackson TAT Reque State. Zip. Complianc Phone Phone 617-788-5888 PO # # 241 Email WO # Project Name Project Name Dioport # Project #	Phone			Lab PM	W			Carrier Tracking No(s)		
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Samulo Idantification	2	Sample		Matrix (w=water S=soild, O=wasteloit,	erform MS/M: MSM maden 33.0 - Radium-S	Z-muibsЯ - 0.4(3556R3228_GF		otal Number o	
	Sample Date		Preservation Code	BT=Tissue, A=Air)	a X	200	28 2		Special Instructions/Not	tructions/
JHC-MW-15023	10/14/24	1706		Water	×	-	: ×		2	
JHC-MW-15024	10/14/24	1856		Water	×	×	×		2	
JHC-MW-15025	10/14/24	2011		Water	×	×	×		2	
JHC-MW-15026	10/15/24	0856		Water	×	×	×		2	
JHC-MW-15027	10/15/24	1031		Water	×	×	×		2	
JHC-MW-15028	10/15/24	1150		Water	×	×	×		2	
DUP-01	10/14/24	,		Water	×	×	×		2	
FB-01	10/15/24	1222		Water	×	×	×		2	
EB-01	10/15/24	1210		Water	×	×	×		2	
Possible Hazard Identification Non-Hazard Plammable Skin Irritant Poison R	A Linknown		tecipoloibea		Sample	Dispo.	le Disposal (A fee may be ass	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	stained longer than 1 m	nonth)
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linquished by:		Date:			Time:			Method of Shipment		
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Environment Testing

Login Sample Receipt Checklist

Client: Consumers Energy Job Number: 160-55984-1

Login Number: 55984 List Source: Eurofins St. Louis

List Number: 1

Creator: Pinette, Meadow L

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Samplers name is not on the COC
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	False	No ttime on COC or sample containers on sample 7
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

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Definitions/Glossary

Client: Consumers Energy Job ID: 160-55984-1

Project/Site: JH Campbell Background Wells

Qualifiers

Rad

Qualifier **Qualifier Description**

Result is less than the sample detection limit.

Glossary

Abbreviation These commonly used abbreviations may or may not be present in this report.

Listed under the "D" column to designate that the result is reported on a dry weight basis

Percent Recovery %R **CFL** Contains Free Liquid CFU Colony Forming Unit CNF Contains No Free Liquid

Duplicate Error Ratio (normalized absolute difference) **DER**

Dil Fac **Dilution Factor**

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

Estimated Detection Limit (Dioxin) **EDL** LOD Limit of Detection (DoD/DOE) LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level" MDA Minimum Detectable Activity (Radiochemistry) MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit ML Minimum Level (Dioxin) MPN Most Probable Number Method Quantitation Limit MQL

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive QC **Quality Control**

Relative Error Ratio (Radiochemistry) **RER**

Reporting Limit or Requested Limit (Radiochemistry) RL

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin) **TEQ** Toxicity Equivalent Quotient (Dioxin)

Too Numerous To Count **TNTC**

Method Summary

Client: Consumers Energy

Project/Site: JH Campbell Background Wells

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Job ID: 160-55984-1

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Sample Summary

Client: Consumers Energy Project/Site: JH Campbell Background Wells

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-55984-1	JHC-MW-15023	Water	10/14/24 17:06	10/24/24 09:50
160-55984-2	JHC-MW-15024	Water	10/14/24 18:56	10/24/24 09:50
160-55984-3	JHC-MW-15025	Water	10/14/24 20:11	10/24/24 09:50
160-55984-4	JHC-MW-15026	Water	10/15/24 08:56	10/24/24 09:50
160-55984-5	JHC-MW-15027	Water	10/15/24 10:31	10/24/24 09:50
160-55984-6	JHC-MW-15028	Water	10/15/24 11:50	10/24/24 09:50
160-55984-7	DUP-01	Water	10/14/24 00:00	10/24/24 09:50
160-55984-8	FB-01	Water	10/15/24 12:22	10/24/24 09:50
160-55984-9	EB-01	Water	10/15/24 12:10	10/24/24 09:50

Job ID: 160-55984-1

Client: Consumers Energy Job ID: 160-55984-1

Project/Site: JH Campbell Background Wells

Client Sample ID: JHC-MW-15023

Lab Sample ID: 160-55984-1

Date Collected: 10/14/24 17:06 **Matrix: Water** Date Received: 10/24/24 09:50

Method: EPA 90	3.0 - Radium	-226 (GFP	C)							
		·	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0956	U	0.0891	0.0895	1.00	0.137	pCi/L	10/28/24 08:50	11/19/24 14:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.6		30 - 110					10/28/24 08:50	11/19/24 14:09	

			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.451	U	0.350	0.352	1.00	0.541	pCi/L	10/28/24 08:55	11/14/24 11:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.6		30 - 110					10/28/24 08:55	11/14/24 11:38	1
Y Carrier	80.4		30 - 110					10/28/24 08:55	11/14/24 11:38	1

Method: TAL-STL F	Ra226_Ra	228 - Com	bined Radi	ium-226 ar	nd Radiur	n-228				
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.546		0.361	0.363	5.00	0.541	pCi/L		11/27/24 17:01	1

Client Sample ID: JHC-MW-15024 Lab Sample ID: 160-55984-2 Date Collected: 10/14/24 18:56 **Matrix: Water** Date Received: 10/24/24 09:50

Method: EPA 903.0	- Radium	-226 (GFP	C)							
		•	Count	Total						
A	Deculé	O!!fi	Uncert.	Uncert.	DI	MDC	1114	Duamanad	A a l a al	Dil Faa
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL _	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0662	U	0.104	0.104	1.00	0.178	pCi/L	10/28/24 08:50	11/19/24 14:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.0		30 - 110					10/28/24 08:50	11/19/24 14:09	1

Method: EPA 90	4.0 - Radium	-228 (GFP	C)							
		•	Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.467	U	0.384	0.386	1.00	0.601	pCi/L	10/28/24 08:55	11/14/24 11:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.0		30 - 110					10/28/24 08:55	11/14/24 11:38	1
Y Carrier	81.9		30 - 110					10/28/24 08:55	11/14/24 11:38	1

Lab Sample ID: 160-55984-2

Matrix: Water

Date Collected: 10/14/24 18:56 Date Received: 10/24/24 09:50

	_		Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.533	U	0.398	0.400	5.00	0.601	pCi/L		11/27/24 17:01	1

Client Sample ID: JHC-MW-15025

Date Collected: 10/14/24 20:11 Date Received: 10/24/24 09:50 Lab Sample ID: 160-55984-3

Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.128		0.0857	0.0864	1.00	0.112	pCi/L	10/28/24 08:50	11/19/24 17:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.5		30 - 110					10/28/24 08:50	11/19/24 17:24	1

Method: EPA 904	.0 - Radium	-228 (GFP	C)							
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.586		0.386	0.390	1.00	0.573	pCi/L	10/28/24 08:55	11/14/24 11:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.5		30 - 110					10/28/24 08:55	11/14/24 11:38	1
Y Carrier	77.4		30 - 110					10/28/24 08:55	11/14/24 11:38	1

Method: TAL-STL Ra226 Ra228 - Combined Radium-226 and Radium-228

Method. IAL-STE	Nazzo_ina	220 - 00111	Dilled Kaul	uiii-220 aii	u itauiui	11-220				
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.714		0.395	0.399	5.00	0.573	pCi/L		11/27/24 17:01	1

Client Sample ID: JHC-MW-15026

Lab Sample ID: 160-55984-4 Date Collected: 10/15/24 08:56 **Matrix: Water** Date Received: 10/24/24 09:50

Me	ethod:	EPA	903.0 -	Radiu	m-226	(GFPC)

		•	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0526	U	0.0663	0.0665	1.00	0.109	pCi/L	10/28/24 08:50	11/19/24 17:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.4		30 - 110					10/28/24 08:50	11/19/24 17:24	1

Client: Consumers Energy

Project/Site: JH Campbell Background Wells

Client Sample ID: JHC-MW-15026

Lab Sample ID: 160-55984-4

Date Collected: 10/15/24 08:56 **Matrix: Water** Date Received: 10/24/24 09:50

Method: EDA 904.0 - Radium-228 (GEDC)

u - Kaululli	-220 (GFP	U)							
		Count	Total						
		Uncert.	Uncert.						
Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
0.497	U	0.394	0.397	1.00	0.617	pCi/L	10/28/24 08:55	11/14/24 11:38	1
%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
94.4		30 - 110					10/28/24 08:55	11/14/24 11:38	1
80.0		30 - 110					10/28/24 08:55	11/14/24 11:38	1
	Result	Result Qualifier	Count Uncert.	Count Uncert. Uncert. Uncert. (2σ+/-) (2σ+/-) 0.497 U 0.394 0.397 WYield Qualifier Limits 30 - 110	Count Uncert. Uncert. Uncert.	Count Uncert. Uncert. Uncert. Count Uncert. Uncert. Uncert.	Count Uncert. Uncert. Variety Variety	Count Uncert. Total Uncert. Value Qualifier (2σ+/-) (2σ+/-) RL MDC Unit Prepared 0.497 U 0.394 0.397 1.00 0.617 pCi/L 10/28/24 08:55 WYield Qualifier Limits Prepared 94.4 30 - 110 10/28/24 08:55	Name

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226	0.550	U	0.400	0.403	5.00	0.617	pCi/L		11/27/24 17:01	1

Client Sample ID: JHC-MW-15027

Lab Sample ID: 160-55984-5 Date Collected: 10/15/24 10:31 **Matrix: Water**

Date Received: 10/24/24 09:50

226 + 228

Method: EPA 90	3.0 - Radium	-226 (GFP	C)							
		•	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0590	U	0.0633	0.0636	1.00	0.0985	pCi/L	10/28/24 08:50	11/19/24 17:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.3		30 - 110					10/28/24 08:50	11/19/24 17:24	1

Method: EPA 90	4.0 - Radium	-228 (GFP	C)							
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.828		0.391	0.399	1.00	0.528	pCi/L	10/28/24 08:55	11/14/24 11:40	1
	0/15.11		,							

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	88.3		30 - 110	10/28/24 08:55	11/14/24 11:40	1
Y Carrier	81.1		30 - 110	10/28/24 08:55	11/14/24 11:40	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

		Count	iotai						
		Uncert.	Uncert.						
Analyte	Result Quali	fier (2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium	0.887	0.396	0.404	5.00	0.528	pCi/L		11/27/24 17:01	1

Job ID: 160-55984-1

Project/Site: JH Campbell Background Wells

Client Sample ID: JHC-MW-15028

Lab Sample ID: 160-55984-6 Date Collected: 10/15/24 11:50 **Matrix: Water**

Date Received: 10/24/24 09:50

Client: Consumers Energy

Method: EPA 903.	0 - Radium	-226 (GFP	C)							
		•	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0172	U	0.0594	0.0594	1.00	0.116	pCi/L	10/28/24 08:50	11/19/24 17:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.5		30 - 110					10/28/24 08:50	11/19/24 17:25	1

Method: EPA 90	4.0 - Radium	-228 (GFP	C)							
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.113	U	0.319	0.320	1.00	0.566	pCi/L	10/28/24 08:55	11/14/24 11:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.5		30 - 110					10/28/24 08:55	11/14/24 11:40	1
Y Carrier	79.3		30 - 110					10/28/24 08:55	11/14/24 11:40	1

Method: TAL-STL R	a226_Ra	228 - Con	nbined Radi	um-226 a	nd Radiui	m-228				
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226	0.130	U	0.324	0.325	5.00	0.566	pCi/L		11/27/24 17:01	1
+ 228										

Client Sample ID: DUP-01 Lab Sample ID: 160-55984-7 Date Collected: 10/14/24 00:00 **Matrix: Water** Date Received: 10/24/24 09:50

Method: EPA 9	03.0 - Radium	-226 (GFP	C)							
		·	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.00494	U	0.0520	0.0520	1.00	0.113	pCi/L	10/28/24 08:50	11/19/24 17:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.8		30 - 110					10/28/24 08:50	11/19/24 17:25	1

Method: EPA 90	4.0 - Radium	-228 (GFP	C)							
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.508	U	0.379	0.382	1.00	0.576	pCi/L	11/19/24 08:45	11/27/24 12:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.1		30 - 110					11/19/24 08:45	11/27/24 12:05	1
Y Carrier	76.6		30 - 110					11/19/24 08:45	11/27/24 12:05	1

Client: Consumers Energy

+ 228

Project/Site: JH Campbell Background Wells

Client Sample ID: DUP-01

Lab Sample ID: 160-55984-7

Matrix: Water

Date Collected: 10/14/24 00:00 Date Received: 10/24/24 09:50

Method: TAL-STL Ra226 Ra228 - Combined Radium-226 and Radium-228

Mictiloa. IAL OIL I	u		ibilica itaai	am LLO am	a itaaiai	II LLU			
			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226	0.503	U	0.383	0.386	5.00	0.576 pCi/L		11/27/24 17:00	1

Lab Sample ID: 160-55984-8 Client Sample ID: FB-01

Date Collected: 10/15/24 12:22 **Matrix: Water**

Date Received: 10/24/24 09:50

Method: EPA 903.0 - Radium-226 (GFPC) Count Total Uncert. Uncert. Analyte Result Qualifier $(2\sigma + / -)$ $(2\sigma + / -)$ RL **MDC** Unit Prepared Analyzed Dil Fac Radium-226 0.00368 U 0.0544 0.0544 1.00 0.115 pCi/L 10/28/24 08:50 11/19/24 17:25 Carrier **%Yield Qualifier** Limits Prepared Analyzed Dil Fac Ba Carrier 91.9 30 - 110 10/28/24 08:50 11/19/24 17:25

Method: EPA 904.0 - Radium-228 (GFPC) Count Total Uncert. Uncert. Analyte Result Qualifier $(2\sigma + / -)$ $(2\sigma + / -)$ RL **MDC** Unit Prepared Analyzed Dil Fac Radium-228 10/28/24 08:55 11/14/24 11:40 0.524 U 0.373 0.376 1.00 0.565 pCi/L Carrier **%Yield Qualifier** Limits Prepared Analyzed Dil Fac Ba Carrier 91.9 30 - 110 10/28/24 08:55 11/14/24 11:40 Y Carrier 78.1 30 - 110 10/28/24 08:55 11/14/24 11:40

Method: TAL-STL Ra226 Ra228 - Combined Radium-226 and Radium-228

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC Uni	it Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.527	U	0.377	0.380	5.00	0.565 pCi	i/L	11/27/24 17:01	1

Client Sample ID: EB-01 Lab Sample ID: 160-55984-9

Date Collected: 10/15/24 12:10 Date Received: 10/24/24 09:50

Method: EPA 903.0 - Radium-226 (GFPC) Count Total Uncert. Uncert. Result Qualifier Analyte $(2\sigma + / -)$ $(2\sigma + / -)$ **MDC** Unit RL Prepared Analyzed Dil Fac Radium-226 10/28/24 08:50 11/19/24 17:26 0.00529 U 0.0553 0.0553 1.00 0.115 pCi/L **%Yield Qualifier** Limits Carrier Prepared Analyzed Dil Fac Ba Carrier 96.8 30 - 110 10/28/24 08:50 11/19/24 17:26

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Matrix: Water

Client Sample Results

Client: Consumers Energy Job ID: 160-55984-1

Project/Site: JH Campbell Background Wells

Client Sample ID: EB-01 Lab Sample ID: 160-55984-9

Date Collected: 10/15/24 12:10 Matrix: Water Date Received: 10/24/24 09:50

Method: EPA 90	4.0 - Radium	-228 (GFP	C)							
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.285	U	0.280	0.281	1.00	0.447	pCi/L	10/28/24 08:55	11/14/24 11:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.8		30 - 110					10/28/24 08:55	11/14/24 11:40	1
Y Carrier	82.2		30 - 110					10/28/24 08:55	11/14/24 11:40	1

Method: TAL-STL R	a226_Ra	228 - Com	bined Radi	um-226 an	d Radiur	n-228				
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.290	U	0.285	0.286	5.00	0.447	pCi/L		11/27/24 17:01	1

Client: Consumers Energy Job ID: 160-55984-1

Project/Site: JH Campbell Background Wells

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-685406/1-A

Lab Sample ID: LCS 160-685406/2-A

Matrix: Water

Matrix: Water

Analysis Batch: 689273

Analysis Batch: 689273

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 685406

MB MB Uncert. Uncert. Analyte Result Qualifier $(2\sigma + / -)$ $(2\sigma + / -)$ RL **MDC** Unit Prepared Analyzed Dil Fac Radium-226 0.04219 Ū 0.0735 0.0736 1.00 0.130 pCi/L 10/28/24 08:50 11/19/24 14:08

Total

Count

MB

Carrier **%Yield Qualifier** Limits Prepared Analyzed Dil Fac Ba Carrier 90.2 30 - 110 10/28/24 08:50 11/19/24 14:08

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 685406

Total LCS LCS %Rec **Spike** Uncert. Analyte Added Result Qual $(2\sigma + / -)$ RL **MDC** Unit %Rec Limits Radium-226 9.58 9.532 1.05 1.00 0.139 pCi/L 100 75 - 125

LCS LCS Carrier %Yield Qualifier Limits Ba Carrier 86.8 30 - 110

Lab Sample ID: 160-55983-B-1-C DU **Client Sample ID: Duplicate**

Matrix: Water

Y Carrier

Analysis Batch: 689273

Prep Type: Total/NA Prep Batch: 685406 Total

Sample Sample DU DU **RER** Uncert. Analyte Result Qual $(2\sigma + / -)$ RL **MDC** Unit Result Qual RER Limit -0.0420 U -0.01553 U Radium-226 0.0695 1.00 0.148 pCi/L 0.17

DU DU Carrier %Yield Qualifier Limits Ba Carrier 94.1 30 - 110

Method: 904.0 - Radium-228 (GFPC)

80.0

Lab Sample ID: MB 160-685409/1-A Client Sample ID: Method Blank **Matrix: Water** Prep Type: Total/NA Analysis Batch: 688581

Total

Count

30 - 110

MB MB Uncert. Uncert. Analyte Result Qualifier $(2\sigma + / -)$ $(2\sigma + / -)$ RL **MDC** Unit Prepared Dil Fac Analyzed

Radium-228 0.528 0.533 1.00 pCi/L 10/28/24 08:55 11/14/24 12:37 0.8472 0.791 MB MB Carrier %Yield Qualifier Limits Prepared Dil Fac Analyzed Ba Carrier 90.2 30 - 110 10/28/24 08:55 11/14/24 12:37

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Prep Batch: 685409

10/28/24 08:55 11/14/24 12:37

Job ID: 160-55984-1

Client: Consumers Energy

Project/Site: JH Campbell Background Wells

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-685409/2-A

Matrix: Water

Analysis Batch: 688429

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 685409

Spike LCS LCS Uncert. %Rec **MDC** Unit Analyte Added Result Qual $(2\sigma + / -)$ RL%Rec Limits Radium-228 8.34 9.177 1.53 1.00 0.900 pCi/L 110 75 - 125

LCS LCS

Carrier %Yield Qualifier Limits Ba Carrier 86.8 30 - 110 Y Carrier 81.1 30 - 110

Lab Sample ID: 160-55983-B-1-D DU

Total

Matrix: Water

Analysis Batch: 688581

Client Sample ID: Duplicate

Prep Type: Total/NA **Prep Batch: 685409**

10

Total Sample Sample DU DU Uncert. **RER** Analyte RL **MDC** Unit Result Qual Result Qual $(2\sigma + / -)$ RER Limit Radium-228 1.19 0.9230 0.519 1.00 0.750 pCi/L 0.24

DU DU

Carrier %Yield Qualifier Limits 30 - 110 Ba Carrier 94 1 Y Carrier 82.6 30 - 110

Lab Sample ID: MB 160-689277/1-A **Client Sample ID: Method Blank**

Matrix: Water

Analysis Batch: 690739

Prep Type: Total/NA

Prep Batch: 689277

MB MB Uncert. Uncert. Analyte Result Qualifier $(2\sigma + / -)$ $(2\sigma + / -)$ RL **MDC** Unit Prepared Analyzed Dil Fac Radium-228 0.7175 0.390 0.395 1.00 0.549 pCi/L 11/19/24 08:45 11/27/24 12:04

Total

Count

MΒ ΜB Carrier %Yield Qualifier Limits Prepared Analyzed Dil Fac Ba Carrier 93.4 30 - 110 11/19/24 08:45 11/27/24 12:04 Y Carrier 78.5 30 - 110 11/19/24 08:45 11/27/24 12:04

Lab Sample ID: LCS 160-689277/2-A

Matrix: Water

Analysis Batch: 690739

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 689277

Total Spike LCS LCS

Uncert. %Rec Added Analyte Result Qual $(2\sigma + / -)$ RL MDC Unit %Rec Limits Radium-228 8.31 10.10 1.41 1.00 0.544 pCi/L 122 75 - 125

LCS LCS

Carrier %Yield Qualifier Limits Ba Carrier 85.0 30 - 110 Y Carrier 78.1 30 - 110

QC Sample Results

Client: Consumers Energy Job ID: 160-55984-1

Project/Site: JH Campbell Background Wells

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: 380-122119-B-1-B DU

Matrix: Water

Analysis Batch: 690739

Client Sample ID: Duplicate

Prep Type: Total/NA

Prep Batch: 689277

					Total						
	Sample	Sample	DU	DU	Uncert.						RER
Analyte	Result	Qual	Result	Qual	(2σ+/-)	RL	MDC	Unit		RER	Limit
Radium-228	0.334	U	-0.02550	U	0.315	1.00	0.372	pCi/L	 	0.54	1

DU DU

Carrier	%Yield	Qualifier	Limits
Ba Carrier	77.2		30 - 110
Y Carrier	78.9		30 - 110

QC Association Summary

Client: Consumers Energy Project/Site: JH Campbell Background Wells

Prep Batch: 685406

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-55984-1	JHC-MW-15023	Total/NA	Water	PrecSep-21	
160-55984-2	JHC-MW-15024	Total/NA	Water	PrecSep-21	
160-55984-3	JHC-MW-15025	Total/NA	Water	PrecSep-21	
160-55984-4	JHC-MW-15026	Total/NA	Water	PrecSep-21	
160-55984-5	JHC-MW-15027	Total/NA	Water	PrecSep-21	
160-55984-6	JHC-MW-15028	Total/NA	Water	PrecSep-21	
160-55984-7	DUP-01	Total/NA	Water	PrecSep-21	
160-55984-8	FB-01	Total/NA	Water	PrecSep-21	
160-55984-9	EB-01	Total/NA	Water	PrecSep-21	
MB 160-685406/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-685406/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
160-55983-B-1-C DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 685409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-55984-1	JHC-MW-15023	Total/NA	Water	PrecSep_0	
160-55984-2	JHC-MW-15024	Total/NA	Water	PrecSep_0	
160-55984-3	JHC-MW-15025	Total/NA	Water	PrecSep_0	
160-55984-4	JHC-MW-15026	Total/NA	Water	PrecSep_0	
160-55984-5	JHC-MW-15027	Total/NA	Water	PrecSep_0	
160-55984-6	JHC-MW-15028	Total/NA	Water	PrecSep_0	
160-55984-8	FB-01	Total/NA	Water	PrecSep_0	
160-55984-9	EB-01	Total/NA	Water	PrecSep_0	
MB 160-685409/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-685409/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
160-55983-B-1-D DU	Duplicate	Total/NA	Water	PrecSep_0	

Prep Batch: 689277

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-55984-7	DUP-01	Total/NA	Water	PrecSep_0	
MB 160-689277/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-689277/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
380-122119-B-1-B DU	Duplicate	Total/NA	Water	PrecSep 0	

Job ID: 160-55984-1

Project/Site: JH Campbell Background Wells

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water Prep Type: Total/NA

			Percent Yield (Acceptance Limits)
		Ва	
Lab Sample ID	Client Sample ID	(30-110)	
160-55983-B-1-C DU	Duplicate	94.1	
160-55984-1	JHC-MW-15023	95.6	
160-55984-2	JHC-MW-15024	88.0	
160-55984-3	JHC-MW-15025	87.5	
160-55984-4	JHC-MW-15026	94.4	
160-55984-5	JHC-MW-15027	88.3	
160-55984-6	JHC-MW-15028	90.5	
160-55984-7	DUP-01	99.8	
160-55984-8	FB-01	91.9	
160-55984-9	EB-01	96.8	
LCS 160-685406/2-A	Lab Control Sample	86.8	
	Method Blank	90.2	

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water Prep Type: Total/NA

				Percent Yield (Acceptance Limits)
		Ва	Υ	
Lab Sample ID	Client Sample ID	(30-110)	(30-110)	
160-55983-B-1-D DU	Duplicate	94.1	82.6	
160-55984-1	JHC-MW-15023	95.6	80.4	
160-55984-2	JHC-MW-15024	88.0	81.9	
160-55984-3	JHC-MW-15025	87.5	77.4	
160-55984-4	JHC-MW-15026	94.4	80.0	
160-55984-5	JHC-MW-15027	88.3	81.1	
160-55984-6	JHC-MW-15028	90.5	79.3	
160-55984-7	DUP-01	89.1	76.6	
160-55984-8	FB-01	91.9	78.1	
160-55984-9	EB-01	96.8	82.2	
380-122119-B-1-B DU	Duplicate	77.2	78.9	
LCS 160-685409/2-A	Lab Control Sample	86.8	81.1	
LCS 160-689277/2-A	Lab Control Sample	85.0	78.1	
MB 160-685409/1-A	Method Blank	90.2	80.0	
MB 160-689277/1-A	Method Blank	93.4	78.5	

Ba = Ba Carrier

Y = Y Carrier

ANALYTICAL REPORT

PREPARED FOR

Attn: Emil Blaj Consumers Energy 135 W Trail Street Jackson, Michigan 49201

Generated 11/19/2024 4:36:35 PM

JOB DESCRIPTION

JH Campbell Landfill Wells

JOB NUMBER

160-55982-1

Eurofins St. Louis 13715 Rider Trail North Earth City MO 63045



Eurofins St. Louis

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins TestAmerica Project Manager.

Authorization

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Authorized for release by Casey Robertson, Project Manager Casey.Robertson@et.eurofinsus.com Designee for Micha Korrinhizer, Project Manager

Micha.Korrinhizer@et.eurofinsus.com (314)298-8566

Client: Consumers Energy Project/Site: JH Campbell Landfill Wells Laboratory Job ID: 160-55982-1

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Case Narrative

Client: Consumers Energy
Project: JH Campbell Landfill Wells

Job ID: 160-55982-1

Project: Jri Campbell Landilli Wells

Job Narrative 160-55982-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition, all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method.

Eurofins Environment Testing attests to the validity of the laboratory data generated by Eurofins facilities reported herein. All analyses performed by Eurofins Environment Testing facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins Environment Testing's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report.

Calculations are performed before rounding to avoid round-off errors in calculated results.

Proper preservation was noted for the methods performed on these samples, unless otherwise detailed below.

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

The matrix for the Method Blank and LCS/LCSD is as close to the samples as can be reasonably achieved. Detailed information can be found in the most current revision of the associated SOP.

This laboratory report is confidential and is intended for the sole use of Eurofins Environment Testing and its client.

Receipt

The samples were received on 10/24/2024 9:50 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved. The temperature of the cooler at receipt time was 19.9°C.

Receipt Exceptions

The following sample was received at the laboratory without a sample collection time documented on the chain of custody: DUP-03 (160-55982-9). The client was contacted, and the laboratory was instructed to use a sample collection time of 12:00am. Samplers name is not on the COC. JHC-MW-15017 (160-55982-1), JHC-MW-15018 (160-55982-2), JHC-MW-15031 (160-55982-3), MW-B3 (160-55982-4), MW-B4 (160-55982-5), JHC-MW-15035 (160-55982-6), JHC-MW-15036 (160-55982-7), JHC-MW-15037 (160-55982-8), DUP-03 (160-55982-9), FB-03 (160-55982-10) and EB-03 (160-55982-11)

Method 903.0 - Radium-226 (GFPC)

Samples JHC-MW-15017 (160-55982-1), JHC-MW-15018 (160-55982-2), JHC-MW-15031 (160-55982-3), MW-B3 (160-55982-4), MW-B4 (160-55982-5), JHC-MW-15035 (160-55982-6), JHC-MW-15036 (160-55982-7), JHC-MW-15037 (160-55982-8), DUP-03 (160-55982-9), FB-03 (160-55982-10) and EB-03 (160-55982-11) were analyzed for Radium-226 (GFPC). The samples were prepared on 10/28/2024 and analyzed on 11/19/2024.

Method 904.0 - Radium-228 (GFPC)

Samples JHC-MW-15017 (160-55982-1), JHC-MW-15018 (160-55982-2), JHC-MW-15031 (160-55982-3), MW-B3 (160-55982-4), MW-B4 (160-55982-5), JHC-MW-15035 (160-55982-6), JHC-MW-15036 (160-55982-7), JHC-MW-15037 (160-55982-8), DUP-03 (160-55982-9), FB-03 (160-55982-10) and EB-03 (160-55982-11) were analyzed for Radium-228 (GFPC). The samples were prepared on 10/28/2024 and analyzed on 11/14/2024.

Method Ra226_Ra228 - Combined Radium-226 and Radium-228

Samples JHC-MW-15017 (160-55982-1), JHC-MW-15018 (160-55982-2), JHC-MW-15031 (160-55982-3), MW-B3 (160-55982-4), MW-B4 (160-55982-5), JHC-MW-15035 (160-55982-6), JHC-MW-15036 (160-55982-7), JHC-MW-15037 (160-55982-8), DUP-03 (160-55982-9), FB-03 (160-55982-10) and EB-03 (160-55982-11) were analyzed for Combined Radium-226 and Radium-228. The samples were analyzed on 11/19/2024.

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Job ID: 160-55982-1

Eurofins St. Louis

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Case Narrative

Client: Consumers Energy Project: JH Campbell Landfill Wells

Job ID: 160-55982-1 (Continued) Eurofins St. Louis

Job ID: 160-55982-1

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

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	Sampler Phone One Date Requested:								COC No	
	Phone Due Date Requeste			Lab PM: Korrinhizer, Micha L	r. Micha	-	Carrier Tracking No(s	cking No(s):	160 11004 5005 1	
	Due Date Requeste			E-Mail Micha Kor	rinhizer	@et eur	E-Mail. State of Origin Micha Korrinhizer@et eurofinsus com	gin:	Page:	
	Due Date Requeste	PWSID	SID:	_			Analysis Reguested		Job #:	
888		ij				uc			Preservation Codes:	
88	TAT Requested (days):	ys): 22 BD		T		lculatio			N- None	
888	Compliance Project:					528 ca				
	PO# PR #24101083 / PO4400121591	PO440012159	_	(-68/82				
	wo# 24-0859				las	eA be	160-55982 Chain of Custody	Custody		
Project Name. JH Campbell Landfill Wells	Project # 24-0859				PC)				is	
	SSOW#:				49) 9ZZ				of cont	
Sample Identification	,	Sample (C=		Matrix (w=water, S=solid, S=solid, Bild Filtered S=waste/oil, G=waste/oil, G=waste/	S-muibsA - 0.80	7-muibsЯ - 0.40			отай Митрег о	
	Campie Care	1	Preservation Code	1 ×	6	- 000			Special Instructions/Note:	uctions/Not
JHC-MW-15017	10/15/24	0856	3	Water		-			2	
JHC-MW-15018	10/15/24	1001	3	Water	×	×			2	
JHC-MW-15031	10/15/24	1421	3	Water	×	×			2	
MW-B3	10/15/24	1111	8	Water	×	×			2	
MW-B4	10/15/24	1216	8	Water	×	×			2	
JHC-MW-15035	10/15/24	1301	8	Water	×	×			2	
JHC-MW-15036	10/15/24	1451	3	Water	×	×			2	
JHC-MW-15037	10/15/24	1611	8	Water	×	×			2	
DUP-03	10/15/24		^	Water	×	×			2	
FB-03	10/15/24	1445	3	Water	×	×			2	
EB-03	10/15/24	1439	3	Water	×	×			2	
Possible Hazard Identification Non-Hazard Flammable Skin Irritant Poison B	n B Unknown		Radiological	Sa	mple D	le Disposal (A t Return To Client	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	f samples are reta	tained longer than 1 mo	onth)
	EQUIS EDD for TRO			Sp	ecial In	struction	Requireme		O LOANIO	MORRIES
linquished by:		Date:		Time:			Metho	Method of Shipment:		
7	Date/Time:	का कर	30	<u>ال</u> د م	Received by	kd by	uPS	Date/Time:	8	Company
)	Date/Time:		Сотралу	уп	Received by	d by	M. Pinette	2 730	4 202409CO	が形ん
Kelinquished by	Date/Time.		Company	ny	Received by	d by:	Meadow Pinette	.Date/Time:	4	mpany

Login Sample Receipt Checklist

Client: Consumers Energy Job Number: 160-55982-1

Login Number: 55982 List Source: Eurofins St. Louis

List Number: 1

Creator: Pinette, Meadow L

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Samplers name is not on the COC
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	False	No time on COC or sample containers for sample 9
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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Definitions/Glossary

Client: Consumers Energy Job ID: 160-55982-1

Project/Site: JH Campbell Landfill Wells

Qualifiers

Rad

Qualifier **Qualifier Description**

Result is less than the sample detection limit.

Glossary

Abbreviation These commonly used abbreviations may or may not be present in this report.

Listed under the "D" column to designate that the result is reported on a dry weight basis

Percent Recovery %R **CFL** Contains Free Liquid CFU Colony Forming Unit CNF Contains No Free Liquid

Duplicate Error Ratio (normalized absolute difference) **DER**

Dil Fac **Dilution Factor**

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

Estimated Detection Limit (Dioxin) **EDL** LOD Limit of Detection (DoD/DOE) LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level" MDA Minimum Detectable Activity (Radiochemistry) MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit ML Minimum Level (Dioxin) MPN Most Probable Number Method Quantitation Limit MQL

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive QC **Quality Control**

Relative Error Ratio (Radiochemistry) **RER**

Reporting Limit or Requested Limit (Radiochemistry) RL

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin) **TEQ** Toxicity Equivalent Quotient (Dioxin)

Too Numerous To Count **TNTC**

Method Summary

Client: Consumers Energy

Project/Site: JH Campbell Landfill Wells

Laboratory Method **Method Description** Protocol 903.0 Radium-226 (GFPC) EPA EET SL Radium-228 (GFPC) EPA 904.0 **EET SL** Ra226_Ra228 Combined Radium-226 and Radium-228 TAL-STL EET SL PrecSep_0 Preparation, Precipitate Separation None EET SL

Protocol References:

EPA = US Environmental Protection Agency

None = None

PrecSep-21

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Preparation, Precipitate Separation (21-Day In-Growth)

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Job ID: 160-55982-1

EET SL

None

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Sample Summary

Client: Consumers Energy Project/Site: JH Campbell Landfill Wells

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-55982-1	JHC-MW-15017	Water	10/15/24 08:56	10/24/24 09:50
160-55982-2	JHC-MW-15018	Water	10/15/24 10:01	10/24/24 09:50
160-55982-3	JHC-MW-15031	Water	10/15/24 14:21	10/24/24 09:50
160-55982-4	MW-B3	Water	10/15/24 11:11	10/24/24 09:50
160-55982-5	MW-B4	Water	10/15/24 12:16	10/24/24 09:50
160-55982-6	JHC-MW-15035	Water	10/15/24 13:01	10/24/24 09:50
160-55982-7	JHC-MW-15036	Water	10/15/24 14:51	10/24/24 09:50
160-55982-8	JHC-MW-15037	Water	10/15/24 16:11	10/24/24 09:50
160-55982-9	DUP-03	Water	10/15/24 00:00	10/24/24 09:50
160-55982-10	FB-03	Water	10/15/24 14:45	10/24/24 09:50
160-55982-11	EB-03	Water	10/15/24 14:39	10/24/24 09:50

Job ID: 160-55982-1

Job ID: 160-55982-1

Client: Consumers Energy

Project/Site: JH Campbell Landfill Wells

Client Sample ID: JHC-MW-15017

Lab Sample ID: 160-55982-1 Date Collected: 10/15/24 08:56

Matrix: Water

Date Received: 10/24/24 09:50

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0556	U	0.0765	0.0766	1.00	0.129	pCi/L	10/28/24 07:52	11/19/24 07:59	1
Carrier Ba Carrier	% Yield 89.2	Qualifier	20 - 110					Prepared 10/28/24 07:52	Analyzed 11/19/24 07:59	Dil Fac

Method: EPA 904.0 - Radium-228 (GFPC)

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.605		0.391	0.395	1.00	0.579	pCi/L	10/28/24 07:58	11/14/24 11:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.2		30 - 110					10/28/24 07:58	11/14/24 11:55	1
Y Carrier	78.9		30 - 110					10/28/24 07:58	11/14/24 11:55	1

Method: TAL-STL Ra226 Ra228 - Combined Radium-226 and Radium-228

momour in the orien	tallota		Dilloa Itaa	ann zzo an	a rtaarar					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.661		0.398	0.402	5.00	0.579	pCi/L		11/19/24 12:39	1

Client Sample ID: JHC-MW-15018

Lab Sample ID: 160-55982-2 Date Collected: 10/15/24 10:01 **Matrix: Water** Date Received: 10/24/24 09:50

Wethou. LFA 90		`	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0652	U	0.0886	0.0888	1.00	0.149	pCi/L	10/28/24 07:52	11/19/24 07:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.8		30 - 110					10/28/24 07:52	11/19/24 07:58	1

Method:		ana n	Padium '	ו סכר	CEDC
Methou.	EFA	3U4.U -	Naululli-	220 I	GFFGI

mothod: El7(00+ic	, itaaiaiii		•,							
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.00790	U	0.362	0.362	1.00	0.677	pCi/L	10/28/24 07:58	11/14/24 11:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.8		30 - 110					10/28/24 07:58	11/14/24 11:55	1
Y Carrier	70.7		30 - 110					10/28/24 07:58	11/14/24 11:55	1

Project/Site: JH Campbell Landfill Wells

Client Sample ID: JHC-MW-15018

Date Collected: 10/15/24 10:01 Date Received: 10/24/24 09:50 Lab Sample ID: 160-55982-2

Matrix: Water

Method: TAL-STL Ra226_	Ra228 - Combined Radium-226 and Radium-228
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			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0573	U	0.373	0.373	5.00	0.677	pCi/L		11/19/24 12:39	1

Client Sample ID: JHC-MW-15031

Date Collected: 10/15/24 14:21 Date Received: 10/24/24 09:50

Lab Sample ID: 160-55982-3

Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.123	U	0.120	0.120	1.00	0.189	pCi/L	10/28/24 07:52	11/19/24 07:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.6		30 - 110					10/28/24 07:52	11/19/24 07:58	1

Method: EPA 904.	0 - Radium	-228 (GFP	C)							
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0829	U	0.347	0.347	1.00	0.627	pCi/L	10/28/24 07:58	11/14/24 11:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.6		30 - 110					10/28/24 07:58	11/14/24 11:55	1
Y Carrier	73.6		30 - 110					10/28/24 07:58	11/14/24 11:55	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

	_		Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.206	U	0.367	0.367	5.00	0.627	pCi/L		11/19/24 12:39	1

Client Sample ID: MW-B3 Lab Sample ID: 160-55982-4 **Matrix: Water**

Date Collected: 10/15/24 11:11 Date Received: 10/24/24 09:50

Method: EPA 90	3.0 - Radium	-226 (GFP	C)							
		·	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.147	U	0.109	0.110	1.00	0.160	pCi/L	10/28/24 07:52	11/19/24 09:35	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.3		30 - 110					10/28/24 07:52	11/19/24 09:35	1

Job ID: 160-55982-1

Client: Consumers Energy Project/Site: JH Campbell Landfill Wells

Client Sample ID: MW-B3 Lab Sample ID: 160-55982-4 Date Collected: 10/15/24 11:11

Matrix: Water

Date Received: 10/24/24 09:50

Method: EPA 90	4.0 - Radium	-228 (GFP	C)							
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.285	U	0.355	0.356	1.00	0.588	pCi/L	10/28/24 07:58	11/14/24 11:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.3		30 - 110					10/28/24 07:58	11/14/24 11:56	1
Y Carrier	74.0		30 - 110					10/28/24 07:58	11/14/24 11:56	1

Method: TAL-STL R	a226_Ra	228 - Com	bined Radi	um-226 an	d Radiur	n-228				
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.432	U	0.371	0.373	5.00	0.588	pCi/L		11/19/24 12:39	1

Client Sample ID: MW-B4 Lab Sample ID: 160-55982-5 Date Collected: 10/15/24 12:16 **Matrix: Water** Date Received: 10/24/24 09:50

Method: EPA 903	.0 - Radium	-226 (GFP	C)							
		•	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.279		0.116	0.119	1.00	0.122	pCi/L	10/28/24 07:52	11/19/24 09:35	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.7		30 - 110					10/28/24 07:52	11/19/24 09:35	1

Method: EPA 904.	0 - Radium	-228 (GFP	C)							
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.171	U	0.292	0.292	1.00	0.504	pCi/L	10/28/24 07:58	11/14/24 11:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.7		30 - 110					10/28/24 07:58	11/14/24 11:56	1
Y Carrier	75.1		30 - 110					10/28/24 07:58	11/14/24 11:56	1

Method: TAL-STL R	a226_Ra	228 - Com	bined Radi	um-226 an	d Radiur	n-228				
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.450	U	0.314	0.315	5.00	0.504	pCi/L		11/19/24 12:39	1

Job ID: 160-55982-1

Client: Consumers Energy Project/Site: JH Campbell Landfill Wells

Client Sample ID: JHC-MW-15035

Lab Sample ID: 160-55982-6 Date Collected: 10/15/24 13:01

Matrix: Water

Date Received: 10/24/24 09:50

Method: EPA 903.	0 - Radium	-226 (GFP	C)							
		•	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.253		0.112	0.115	1.00	0.127	pCi/L	10/28/24 07:52	11/19/24 09:35	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.4		30 - 110					10/28/24 07:52	11/19/24 09:35	1

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.334	U	0.353	0.354	1.00	0.574	pCi/L	10/28/24 07:58	11/14/24 11:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.4		30 - 110					10/28/24 07:58	11/14/24 11:56	1
Y Carrier	84.1		30 - 110					10/28/24 07:58	11/14/24 11:56	1

Method: TAL-STL F	Ra226_Ra	228 - Com	bined Radi	um-226 ar	nd Radiur	n-228				
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.587		0.370	0.372	5.00	0.574	pCi/L		11/19/24 12:39	1

Client Sample ID: JHC-MW-15036 Lab Sample ID: 160-55982-7 Date Collected: 10/15/24 14:51 **Matrix: Water**

Date Received: 10/24/24 09:50

			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fa
Radium-226	0.180		0.110	0.112	1.00	0.149	pCi/L	10/28/24 07:52	11/19/24 09:35	
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fa
Ba Carrier	87.0		30 - 110					10/28/24 07:52	11/19/24 09:35	

Method: EPA 90)4.0 - Radium	-228 (GFP	C)							
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.483	U	0.481	0.483	1.00	0.772	pCi/L	10/28/24 07:58	11/14/24 13:31	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.0		30 - 110					10/28/24 07:58	11/14/24 13:31	1
Y Carrier	70.7		30 - 110					10/28/24 07:58	11/14/24 13:31	1

Eurofins St. Louis

11/19/2024

Client Sample ID: JHC-MW-15036

Date Collected: 10/15/24 14:51 Date Received: 10/24/24 09:50 Lab Sample ID: 160-55982-7

Matrix: Water

Method: TAL-STL Ra226_	Ra228 - Combined Radium-226 and Radium-228
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	_		Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.663	U	0.493	0.496	5.00	0.772	pCi/L		11/19/24 12:39	1

Client Sample ID: JHC-MW-15037

Date Collected: 10/15/24 16:11 Date Received: 10/24/24 09:50

Lab Sample ID: 160-55982-8

Matrix: Water

Method: EPA 903	3.0 - Radium	-226 (GFP	C)							
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.145	U	0.108	0.109	1.00	0.159	pCi/L	10/28/24 07:52	11/19/24 09:35	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.6		30 - 110					10/28/24 07:52	11/19/24 09:35	1

			•,							
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.150	U	0.308	0.309	1.00	0.541	pCi/L	10/28/24 07:58	11/14/24 13:31	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.6		30 - 110					10/28/24 07:58	11/14/24 13:31	1
Y Carrier	82.6		30 - 110					10/28/24 07:58	11/14/24 13:31	1

Method: TAL-STL Ra226 Ra228 - Combined Radium-226 and Radium-228

	_		Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.295	U	0.326	0.328	5.00	0.541	pCi/L		11/19/24 12:39	1

Client Sample ID: DUP-03 Lab Sample ID: 160-55982-9 **Matrix: Water**

Date Collected: 10/15/24 00:00 Date Received: 10/24/24 09:50

Method: EPA 90	3.0 - Radium	-226 (GFP	C)							
		·	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.198		0.110	0.112	1.00	0.141	pCi/L	10/28/24 07:52	11/19/24 09:35	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.0		30 - 110					10/28/24 07:52	11/19/24 09:35	1

Client: Consumers Energy

Project/Site: JH Campbell Landfill Wells

Client Sample ID: DUP-03

Lab Sample ID: 160-55982-9

Matrix: Water

Dil Fac

Date Collected: 10/15/24 00:00 Date Received: 10/24/24 09:50

Method: EPA 90	Method: EPA 904.0 - Radium-228 (GFPC)											
			Count Uncert.	Total Uncert.								
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed			
Radium-228	-0.0755	U	0.335	0.335	1.00	0.659	pCi/L	10/28/24 07:58	11/14/24 13:31			

Carrier	%Yield Qu	ıalifier Limits	Prepared Analyze	ed Dil Fac
Ba Carrier	91.0	30 - 110	10/28/24 07:58 11/14/24 1	3:31 1
Y Carrier	75.9	30 - 110	10/28/24 07:58 11/14/24 1	3:31 1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228 Count Total Uncert. Uncert. Result Qualifier $(2\sigma + / -)$ $(2\sigma + / -)$ RL **MDC** Unit Prepared Dil Fac Analyzed 0.123 U 0.353 0.353 5.00 0.659 pCi/L 11/19/24 12:39 Combined Radium 226 + 228

Client Sample ID: FB-03

Date Collected: 10/15/24 14:45

Date Received: 10/24/24 09:50

Lab Sample ID: 160-55982-10

Matrix: Water

Method: EPA 90	3.0 - Radium	-226 (GFP	C)							
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0146	U	0.0740	0.0740	1.00	0.143	pCi/L	10/28/24 07:52	11/19/24 09:35	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.9		30 - 110					10/28/24 07:52	11/19/24 09:35	1

Method: EPA 90)4.0 - Radium	-228 (GFP	C)							
		•	Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0204	U	0.396	0.396	1.00	0.744	pCi/L	10/28/24 07:58	11/14/24 13:31	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.9		30 - 110					10/28/24 07:58	11/14/24 13:31	1
Y Carrier	74.8		30 - 110					10/28/24 07:58	11/14/24 13:31	1

Method: TAL-STL F	Ra226_Ra	228 - Com	bined Radi	um-226 an	d Radiur	n-228				
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.00573	U	0.403	0.403	5.00	0.744	pCi/L		11/19/24 12:39	1

Client Sample Results

Client: Consumers Energy Job ID: 160-55982-1

Project/Site: JH Campbell Landfill Wells

Client Sample ID: EB-03 Lab Sample ID: 160-55982-11

Date Collected: 10/15/24 14:39 **Matrix: Water** Date Received: 10/24/24 09:50

Method: EPA 903	3.0 - Radium	-226 (GFP	C)							
		•	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.242		0.110	0.112	1.00	0.124	pCi/L	10/28/24 07:52	11/19/24 09:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.0		30 - 110					10/28/24 07:52	11/19/24 09:41	1

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
		Qualifier	` _	``						Diriac
Radium-228	1.05		0.506	0.515	1.00	0.704	pCI/L	10/28/24 07:58	11/14/24 13:31	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.0		30 - 110					10/28/24 07:58	11/14/24 13:31	1
Y Carrier	78.1		30 - 110					10/28/24 07:58	11/14/24 13:31	1

Method: TAL-STL F	Ra226_Ra	228 - Com	bined Radi	um-226 an	d Radiun	n-228				
	_		Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.29		0.518	0.527	5.00	0.704	pCi/L		11/19/24 12:39	1

11/19/2024

Client: Consumers Energy Job ID: 160-55982-1

Project/Site: JH Campbell Landfill Wells

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-685395/1-A

Matrix: Water

Matrix: Water

Matrix: Water

Analysis Batch: 689273

Analysis Batch: 689274

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 685395

MB MB Uncert. Uncert. Analyte Result Qualifier $(2\sigma + / -)$ $(2\sigma + / -)$ RL **MDC** Unit Prepared Analyzed Dil Fac Radium-226 -0.003610 Ū 0.0684 0.0684 1.00 0.141 pCi/L 10/28/24 07:52 11/19/24 07:51

Total

Count

MB

Carrier %Yield Qualifier Limits Prepared Analyzed Dil Fac Ba Carrier 93.9 30 - 110 10/28/24 07:52 11/19/24 07:51

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 685395

10

Total

LCS LCS %Rec **Spike** Uncert. Analyte Added Result Qual $(2\sigma + / -)$ RL **MDC** Unit %Rec Limits Radium-226 9.58 9.816 1.08 1.00 0.137 pCi/L 102 75 - 125

LCS LCS

Lab Sample ID: LCS 160-685395/2-A

Carrier %Yield Qualifier Limits Ba Carrier 86.6 30 - 110

Lab Sample ID: 160-55979-A-2-B DU **Client Sample ID: Duplicate**

Prep Type: Total/NA **Analysis Batch: 689273** Prep Batch: 685395

Total

DU DU **RER** Sample Sample Uncert. Analyte Result Qual $(2\sigma + / -)$ RL **MDC** Unit Result Qual RER Limit 0.06475 U Radium-226 0.166 0.0810 1.00 0.133 pCi/L 0.55

DU DU

Carrier %Yield Qualifier Limits Ba Carrier 85.8 30 - 110

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-685396/1-A

Matrix: Water

Analysis Batch: 688561

Client Sample ID: Method Blank Prep Type: Total/NA

Prep Batch: 685396

MB MB Uncert. Uncert. Analyte Result Qualifier $(2\sigma + / -)$ $(2\sigma + / -)$ RL **MDC** Unit Prepared Dil Fac Analyzed Radium-228 0.1208 Ū 0.324 0.324 1.00 0.572 pCi/L 10/28/24 07:58 11/14/24 11:55

Total

Count

MB MB

Carrier %Yield Qualifier Limits Prepared Dil Fac Analyzed Ba Carrier 93.9 30 - 110 10/28/24 07:58 11/14/24 11:55 30 - 110 Y Carrier 80.4 10/28/24 07:58 11/14/24 11:55

QC Sample Results

Client: Consumers Energy Job ID: 160-55982-1

Project/Site: JH Campbell Landfill Wells

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-685396/2-A

Analysis Batch: 688561

Matrix: Water

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 685396

Total LCS LCS %Rec Spike Uncert. Analyte Added Result Qual $(2\sigma + / -)$ RL**MDC** Unit %Rec Limits Radium-228 8.34 10.41 1.46 1.00 0.615 pCi/L 125 75 - 125

LCS LCS

%Yield Qualifier Carrier Limits Ba Carrier 86.6 30 - 110 Y Carrier 73.3 30 - 110

Lab Sample ID: 160-55979-A-2-D DU **Client Sample ID: Duplicate**

Analysis Batch: 688562

Prep Batch: 685396

Matrix: Water Prep Type: Total/NA

Total

Sample Sample DU DU Uncert. **RER** Limit Analyte Result Qual Result Qual $(2\sigma + / -)$ RL **MDC** Unit RER 0.123 Ū 0.51 Radium-228 0.5132 U 1.00 0.593 pCi/L 0.390

DU DU

Carrier %Yield Qualifier Limits Ba Carrier 30 - 110 85.8 76.6 30 - 110 Y Carrier

11/19/2024

10

QC Association Summary

Client: Consumers Energy Project/Site: JH Campbell Landfill Wells

Job ID: 160-55982-1

Prep Batch: 685395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-55982-1	JHC-MW-15017	Total/NA	Water	PrecSep-21	
160-55982-2	JHC-MW-15018	Total/NA	Water	PrecSep-21	
160-55982-3	JHC-MW-15031	Total/NA	Water	PrecSep-21	
160-55982-4	MW-B3	Total/NA	Water	PrecSep-21	
160-55982-5	MW-B4	Total/NA	Water	PrecSep-21	
160-55982-6	JHC-MW-15035	Total/NA	Water	PrecSep-21	
160-55982-7	JHC-MW-15036	Total/NA	Water	PrecSep-21	
160-55982-8	JHC-MW-15037	Total/NA	Water	PrecSep-21	
160-55982-9	DUP-03	Total/NA	Water	PrecSep-21	
160-55982-10	FB-03	Total/NA	Water	PrecSep-21	
160-55982-11	EB-03	Total/NA	Water	PrecSep-21	
MB 160-685395/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-685395/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
160-55979-A-2-B DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 685396

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-55982-1	JHC-MW-15017	Total/NA	Water	PrecSep_0	
160-55982-2	JHC-MW-15018	Total/NA	Water	PrecSep_0	
160-55982-3	JHC-MW-15031	Total/NA	Water	PrecSep_0	
160-55982-4	MW-B3	Total/NA	Water	PrecSep_0	
160-55982-5	MW-B4	Total/NA	Water	PrecSep_0	
160-55982-6	JHC-MW-15035	Total/NA	Water	PrecSep_0	
160-55982-7	JHC-MW-15036	Total/NA	Water	PrecSep_0	
160-55982-8	JHC-MW-15037	Total/NA	Water	PrecSep_0	
160-55982-9	DUP-03	Total/NA	Water	PrecSep_0	
160-55982-10	FB-03	Total/NA	Water	PrecSep_0	
160-55982-11	EB-03	Total/NA	Water	PrecSep_0	
MB 160-685396/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-685396/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
160-55979-A-2-D DU	Duplicate	Total/NA	Water	PrecSep 0	

Job ID: 160-55982-1

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water Prep Type: Total/NA

			Percent Yield (Acceptance Limits)
		Ва	
ab Sample ID	Client Sample ID	(30-110)	
60-55979-A-2-B DU	Duplicate	85.8	
60-55982-1	JHC-MW-15017	89.2	
60-55982-2	JHC-MW-15018	88.8	
60-55982-3	JHC-MW-15031	86.6	
60-55982-4	MW-B3	87.3	
60-55982-5	MW-B4	90.7	
60-55982-6	JHC-MW-15035	93.4	
60-55982-7	JHC-MW-15036	87.0	
60-55982-8	JHC-MW-15037	94.6	
60-55982-9	DUP-03	91.0	
60-55982-10	FB-03	92.9	
60-55982-11	EB-03	99.0	
CS 160-685395/2-A	Lab Control Sample	86.6	
/IB 160-685395/1-A	Method Blank	93.9	
Tracer/Carrier Legend	i		

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water Prep Type: Total/NA

				Percent Yield (Acceptance Limits)
		Ва	Υ	
Lab Sample ID	Client Sample ID	(30-110)	(30-110)	
160-55979-A-2-D DU	Duplicate	85.8	76.6	
160-55982-1	JHC-MW-15017	89.2	78.9	
160-55982-2	JHC-MW-15018	88.8	70.7	
160-55982-3	JHC-MW-15031	86.6	73.6	
160-55982-4	MW-B3	87.3	74.0	
160-55982-5	MW-B4	90.7	75.1	
160-55982-6	JHC-MW-15035	93.4	84.1	
160-55982-7	JHC-MW-15036	87.0	70.7	
160-55982-8	JHC-MW-15037	94.6	82.6	
160-55982-9	DUP-03	91.0	75.9	
160-55982-10	FB-03	92.9	74.8	
160-55982-11	EB-03	99.0	78.1	
LCS 160-685396/2-A	Lab Control Sample	86.6	73.3	
MB 160-685396/1-A	Method Blank	93.9	80.4	

Ba = Ba Carrier

Y = Y Carrier



Appendix B Data Quality Review

Laboratory Data Quality Review Groundwater Monitoring Event April 2024 Consumers Energy JH Campbell Background Wells

Groundwater samples were collected by Consumers Energy (CE) Laboratory Services for the April 2024 sampling event. Samples were analyzed for total metals, anions, alkalinity, and total dissolved solids by CE Laboratory Services in Jackson, Michigan. Samples were analyzed for radium by Eurofins St. Louis, located in Earth City, Missouri. The laboratory analytical results were reported in laboratory sample delivery groups (SDGs) 24-0278 and 160-53901-1.

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

■ JHC-MW-15023

■ JHC-MW-15024

■ JHC-MW-15025

■ JHC-MW-15026

■ JHC-MW-15027

■ JHC-MW-15028

Each sample was analyzed for the following constituents:

Analyte Group	Method
Anions (Fluoride, Chloride, Sulfate)	EPA 300.0
Alkalinity (Total, Bicarbonate, Carbonate)	SM 2320B
Total Dissolved Solids (TDS)	SM 2540C
Total Metals	SW846 6020B/7470A
Radium (Ra-226, Ra-228, Combined Ra-226 & Ra-228)	EPA 903.0/904.0

Note that in addition to the Appendix III and IV analytes, samples were also analyzed for additional constituents including iron, copper, nickel, silver, vanadium, and zinc as part of the Michigan HMP program and magnesium, sodium, potassium, and bicarbonate, carbonate, and total alkalinity to support additional geochemistry evaluations as needed.

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) and the Department of Energy Evaluation of Radiochemical Data Usability (USDOE, 1997). 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 method blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCS/LCSDs are used to assess the accuracy and precision of the analytical method using a clean matrix;
- 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:
- Percent recoveries for carriers, where applicable, for radiochemistry only. Carriers are used to assess the chemical yield for the preparation and/or instrument efficiency:
- 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;
- Overall usability of the data.

It should be noted that results for method blanks and LCSs were not provided for review by CE Laboratory Services. 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 for the total metals, anions, alkalinity, and TDS analyses.

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 and IV constituents as well as alkalinity will be utilized for the purposes of an assessment monitoring program.
- Data are usable for the purposes of the assessment monitoring program.
- When the data are evaluated through an assessment monitoring statistical program, findings below may be used to support the removal of outliers.

QA/QC Sample Summary

- Target analytes (radium only) were not detected in the method blanks.
- One equipment blank (EB-01) and one field blank (FB-01) were collected. Target analytes were not detected in these blank samples with the following exceptions.

- Radium-226 (0.467 +/- 0.178 pCi/L) and radium-226/228 (0.678 +/- 0.358 pCi/L) were detected in sample FB-01 at the listed concentrations. Potential false positive exists for positive radium-226 and/or radium-226/228 results with normalized absolute differences <1.96, as summarized in Attachment A.
- LCS recoveries for target analytes (radium only) were within laboratory QC limits.
- MS and MSD analyses were performed on sample JHC-MW-15025 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 all recoveries were within the acceptance limits, there is no impact on data usability due to this issue.
- Laboratory duplicate analyses were not performed on a sample from this data set.
- Samples DUP-01/JHC-MW-15026 were submitted as the field duplicate pair with this data set; all criteria were met.
- Carrier recoveries were within 40-110%.

Attachment A

Summary of Data Non-Conformances for Groundwater Analytical Data
JH Campbell Background

CCR Monitoring Program

West Olive, Michigan

Samples	Collection Date	Analyte	Non-Conformance/Issue
JHC-MW-15027	4/15/2024	Radium-226 and	
JHC-10100-13027	4/15/2024	Radium-226/228	Field blank contamination; potential false positive.
JHC-MW-15025	4/15/2024	Radium-226/228	

Laboratory Data Quality Review Groundwater Monitoring Event April 2024 Consumers Energy JH Campbell Landfill Wells

Groundwater samples were collected by Consumers Energy (CE) Laboratory Services for the April 2024 sampling event. Samples were analyzed for total metals, anions, alkalinity, and total dissolved solids by CE Laboratory Services in Jackson, Michigan. Samples were analyzed for radium by Eurofins St. Louis, located in Earth City, Missouri. The laboratory analytical results were reported in laboratory sample delivery groups (SDGs) 24-0280 and 160-53902-1.

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

Landfill Wells:

JHC-MW-15017
 JHC-MW-15018
 JHC-MW-15031

MW-B3
 MW-B4
 JHC-MW-15035

JHC-MW-15036JHC-MW-15037

Each sample was analyzed for one or more of the following constituents:

Analyte Group	Method
Anions (Fluoride, Chloride, Sulfate)	EPA 300.0
Alkalinity (Total, Bicarbonate, Carbonate)	SM 2320B
Total Dissolved Solids (TDS)	SM 2540C
Total Metals	SW846 6020B/7470A
Radium (Ra-226, Ra-228, Combined Ra-226 & Ra-228)	EPA 903.0/904.0

Note that in addition to the Appendix III and IV analytes, samples were also analyzed for additional constituents including iron, copper, nickel, silver, vanadium, and zinc as part of the Michigan HMP program and magnesium, sodium, potassium, and bicarbonate, carbonate, and total alkalinity to support additional geochemistry evaluations as needed.

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) and the Department of Energy Evaluation of Radiochemical Data Usability (USDOE, 1997). 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 method blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCS/LCSDs are used to assess the accuracy and precision of the analytical method using a clean matrix;
- 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:
- Percent recoveries for carriers, where applicable, for radiochemistry only. Carriers are used to assess the chemical yield for the preparation and/or instrument efficiency;
- 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;
- Overall usability of the data.

It should be noted that results for method blanks and LCSs were not provided for review by CE Laboratory Services. 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 for the total metals, anions, alkalinity, and TDS analyses.

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 and IV constituents as well as alkalinity will be utilized for the purposes of an assessment monitoring program.
- Data are usable for the purposes of the assessment monitoring program.
- When the data are evaluated through an assessment monitoring statistical program, findings below may be used to support the removal of outliers.

QA/QC Sample Summary

- Target analytes (radium only) were not detected in the method blanks with the following exception.
 - Radium-228 (0.7566 +/- 0.368 pCi/L) was detected in the method blank (160-659261/1-A) associated with samples EB-03 and FB-03. Results for radium-228 were nondetect in the associated samples; thus, there is no impact on the data usability.
- One equipment blank (EB-03) and one field blank (FB-03) were collected. Target analytes were not detected in these blank samples.
- LCS recoveries for target analytes (radium only) were within laboratory QC limits.
- MS and MSD analyses were performed on sample MW-B4 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 all recoveries were within the acceptance limits, there is no impact on data usability due to this issue.
- A laboratory duplicate analysis was performed on sample MW-B3 for radium-226 and radium-228; all criteria were met.
- Samples DUP-03/JHC-MW-15037 were submitted as the field duplicate pair with this data set; all criteria were met.
- Carrier recoveries were within 40-110%.

Laboratory Data Quality Review Groundwater Monitoring Event October 2024 Consumers Energy JH Campbell Background Wells

Groundwater samples were collected by Consumers Energy (CE) Laboratory Services for the October 2024 sampling event. Samples were analyzed for total metals, anions, alkalinity, and total dissolved solids by CE Laboratory Services in Jackson, Michigan. The laboratory analytical results were reported in laboratory sample delivery group (SDG) 24-0857.

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

■ JHC-MW-15023 ■ JHC-MW-15024 ■ JHC-MW-15025

■ JHC-MW-15026 ■ JHC-MW-15027 ■ JHC-MW-15028

Each sample was analyzed for the following constituents:

Analyte Group	Method
Anions (Fluoride, Chloride, Sulfate)	EPA 300.0
Alkalinity (Total, Bicarbonate, Carbonate)	SM 2320B
Total Dissolved Solids (TDS)	SM 2540C
Total Metals	SW846 6020B/7470A

Note that in addition to the Appendix III and IV analytes, samples were also analyzed for additional constituents including iron, copper, nickel, silver, vanadium, and zinc as part of the Michigan HMP program and magnesium, sodium, potassium, and bicarbonate, carbonate, and total alkalinity to support additional geochemistry evaluations as needed.

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 method blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures;

- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCS/LCSDs are used to assess the accuracy and precision of the analytical method using a clean matrix;
- 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;
- Overall usability of the data.

It should be noted that results for method blanks and LCSs were not provided for review by CE Laboratory Services. 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 for the total metals, anions, alkalinity, and TDS analyses.

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 and IV constituents as well as alkalinity, iron, copper, magnesium, nickel, potassium, silver, sodium, vanadium, and zinc will be utilized for the purposes of an assessment monitoring program.
- Data are usable for the purposes of the assessment monitoring program.
- When the data are evaluated through an assessment 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 JHC-MW-15025 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 all recoveries were within the acceptance limits, there is no impact on data usability due to this issue.
- Laboratory duplicate analyses were not performed on a sample from this data set.

•	Samples DUP-01/JHC-MW-15023 were submitted as the field duplicate pair with this data set; all criteria were met.

Laboratory Data Quality Review Groundwater Monitoring Event October 2024 Consumers Energy JH Campbell Landfill and Leachate Wells

Groundwater and leachate samples were collected by Consumers Energy (CE) Laboratory Services for the October 2024 sampling event. Samples were analyzed for total metals, anions, alkalinity, and/or total dissolved solids by CE Laboratory Services in Jackson, Michigan. The laboratory analytical results were reported in laboratory sample delivery groups (SDGs) 24-0859 and 24-0861.

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

Landfill Wells:

JHC-MW-15017
 JHC-MW-15018
 JHC-MW-15031

MW-B3
 MW-B4
 JHC-MW-15035

■ JHC-MW-15036 ■ JHC-MW-15037

Each sample was analyzed for one or more of the following constituents:

Analyte Group	Method
	Mourod
Anions (Fluoride, Chloride, Sulfate)	EPA 300.0
Alkalinity (Total, Bicarbonate, Carbonate)	SM 2320B
Total Dissolved Solids (TDS)	SM 2540C
Total Metals	SW846 6020B/7470A

Note that in addition to the Appendix III and IV analytes, samples were also analyzed for additional constituents including iron, copper, nickel, silver, vanadium, and zinc as part of the Michigan HMP program and magnesium, sodium, potassium, and bicarbonate, carbonate, and total alkalinity to support additional geochemistry evaluations as needed.

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 method blank, equipment blanks, and field blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCS/LCSDs are used to assess the accuracy and precision of the analytical method using a clean matrix;
- 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;
- Overall usability of the data.

It should be noted that results for method blanks and LCSs were not provided for review by CE Laboratory Services. 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 for the total metals, anions, alkalinity, and TDS analyses.

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 and IV constituents as well as alkalinity, iron, copper, manganese, magnesium, nickel, potassium, silver, sodium, vanadium, and zinc will be utilized for the purposes of an assessment monitoring program.
- Data are usable for the purposes of the assessment monitoring program.
- When the data are evaluated through an assessment monitoring statistical program, findings below may be used to support the removal of outliers.

QA/QC Sample Summary

 One equipment blank (EB-03) and one field blank (FB-03) were collected. Target analytes were not detected in these blank samples with the following exception.

- Copper (1 μg/L) was detected in sample EB-03 at the listed concentration. Potential
 false positive exists for positive copper results that were associated with this equipment
 blank that were less than 10x the blank concentration, as summarized in Attachment A.
- MS and MSD analyses were performed on sample MW-B4 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 all recoveries were within the acceptance limits, there is no impact on data usability due to this issue.
- Laboratory duplicate analyses were not performed on a sample from this data set.
- Samples DUP-03/JHC-MW-15018 were submitted as the field duplicate pair with this data set; all criteria were met.
- The RL for cadmium in samples C2S, CS3, and C3P was raised to 0.5 μg/L. Samples C2S, C3S, and C3P were non-detect for cadmium at the stated RL, which was above the project-requested RL of 0.2 μg/L.

Attachment A

Summary of Data Non-Conformances for Groundwater Analytical Data JH Campbell Landfill and Leachate Wells West Olive, Michigan

Samples	Collection Date	Analyte	Non-Conformance/Issue
JHC-MW-15018	10/15/2024		
JHC-MW-15035	10/15/2024		
JHC-MW-15037	10/15/2024	Copper	Equipment blank contamination; potential false positive exists for the listed results.
MW-B3	10/15/2024		
MW-B4	10/15/2024		



Appendix C April 2024 Assessment Monitoring Statistical Evaluation



Date: July 17, 2024

To: Harold D. Register, Jr., Consumers Energy

From: Sarah Holmstrom, TRC

Kristin Lowery, TRC Henry Schnaidt, TRC Rebecca Paalanen, TRC

Project No.: 553811.0001.0000 Phase 1 Task 2

Subject: Statistical Evaluation of April 2024 Assessment Monitoring Sampling Event

JH Campbell Dry Ash Landfill, Consumers Energy Company, West Olive, Michigan

During the statistical evaluation of the initial assessment monitoring event (June 2018), no Appendix IV constituents were present at statistically significant levels exceeding the Groundwater Protection Standards (GWPSs). Therefore, Consumers Energy Company (Consumers Energy) is continuing semiannual assessment monitoring in accordance with §257.95 of the CCR Rule¹ at the JH Campbell Power Plant Dry Ash Landfill. The first semiannual assessment monitoring event for 2024 was conducted on April 15 through April 17, 2024. In accordance with §257.95, the assessment monitoring data must be compared to GWPSs to determine whether or not Appendix IV constituents are detected at statistically significant levels above the GWPSs. GWPSs were established in accordance with §257.95(h), as described in the October 15, 2018, Groundwater Protection Standards technical memorandum, which was also included in the 2018, Annual Groundwater Monitoring Report (TRC, January 2019). The following narrative describes the methods employed and the results obtained.

The statistical evaluation of the first semiannual assessment monitoring event of 2024 data indicates no constituents are present at statistically significant levels that exceed the GWPSs at the Dry Ash Landfill monitoring wells.

Constituent GWPS # Downgradient Wells Observed

No constituents are present at statistically significant levels above the GWPSs.

These results are consistent with the results of the previous assessment monitoring data statistical evaluations and concentrations remain above background levels. Consumers Energy will continue semiannual assessment monitoring per §257.95 and continue to execute the self-implementing groundwater compliance schedule in conformance with §257.90 - §257.98.

¹ USEPA final rule for the regulation and management of Coal Combustion Residuals (CCR) under the Resource Conservation and Recovery Act (RCRA) published April 17, 2015, as amended.

Assessment Monitoring Statistical Evaluation

The compliance well network at the JHC Dry Ash Landfill CCR Unit currently consists of eight monitoring wells (JHC-MW-15017, JHC-MW-15018, JHC-MW-15031, JHC-MW-15035 through JHC-MW-15037, MW-B3, and MW-B4) located on the south perimeter of the landfill Cells 1 through 6.

Following the semiannual assessment monitoring sampling event, compliance well data for the Dry Ash Landfill were evaluated in accordance with the Groundwater Statistical Evaluation Plan (Stats Plan) (TRC, October 2017). An assessment monitoring program was developed to evaluate concentrations of CCR constituents present in the uppermost aquifer relative to acceptable levels (i.e., GWPSs). To evaluate whether or not a GWPS exceedance is statistically significant, the difference in concentration observed at the downgradient wells during a given assessment monitoring event compared to the GWPS must be large enough, after accounting for variability in the sample data, that the result is unlikely to have occurred merely by chance. Consistent with the Unified Guidance², the preferred method for comparisons to a fixed standard are confidence limits. An exceedance of the standard occurs when the 99 percent lower confidence level of the downgradient data exceeds the GWPS. Based on the number of historical observations in the representative sample population, the population mean, the population standard deviation, and a selected confidence level (i.e., 99 percent), an upper and lower confidence limit is calculated. The actual mean concentration of the population, with 99 percent confidence, will fall between the lower and upper confidence limits.

The concentrations observed in the downgradient wells are deemed to be a statistically significant exceedance when the 99 percent lower confidence limit of the downgradient data exceeds the GWPS. If the confidence interval straddles the GWPS (i.e. the lower confidence level is below the GWPS but the upper confidence level is above), the statistical test result indicates that there is insufficient confidence that the measured concentrations are different from the GWPS and thus there is no compelling evidence that the measured concentration is a result of a release from the CCR unit versus the inherent variability of the sample data. This statistical approach is consistent with the statistical methods for assessment monitoring presented in §257.93(f) and (g). Statistical evaluation methodologies built into the CCR Rule, and numerous other federal rules, are key in determining whether or not individually measured data points represent a concentration increase over the baseline or a fixed standard (such as a GWPS in an assessment monitoring program).

For each detected constituent, the concentrations from each well were first compared directly to the GWPS, as shown on Table 1. Monitoring wells MW-B3 and MW-B4 were not part of the CCR monitoring program prior to 2022; they were previously monitored under the old HMP which deviates from the sampling and analysis procedures included in the November 2021 sample and analysis plan (SAP) that is used for the semiannual assessment monitoring program. Constituent-well combinations that included a direct exceedance of the GWPS within the past eight monitoring events (October 2020 through April 2024) were retained for further analysis (Attachment 1). Direct comparison GWPS exceedances include the following constituent well combinations:

Antimony in JHC-MW-15035.

² USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance. Office of Conservation and Recovery. EPA 530/R-09-007.

Groundwater data were then evaluated utilizing SanitasTM statistical software. SanitasTM is a software tool that is commercially available for performing statistical evaluations consistent with procedures outlined in the Unified Guidance. Within the SanitasTM statistical program, confidence limits were selected to perform the statistical comparison of compliance data to a fixed standard. Parametric or non-parametric confidence intervals were calculated, as appropriate, for each of the constituents using a 99 percent confidence level for each individual statistical test, i.e., a significance level (α) of 0.01. The following narrative describes the methods employed, the results obtained and the SanitasTM output files are included as an attachment.

The statistical data evaluation included the following steps:

- Review of data quality checklists for the data sets;
- Graphical representation of the monitoring data as time versus concentration by well-constituent pair;
- Outlier testing of individual data points that appear from the graphical representations as potential outliers;
- Evaluation of visual trends apparent in the graphical representations for statistical significance;
- Evaluation of percentage of non-detects for each well-constituent pair;
- Distribution of the data; and
- Calculation of the confidence intervals for each cumulative dataset.

The results of these evaluations are presented and discussed below.

Initially, results for the past eight events were observed visually for potential trends and outliers (timeseries plots in Attachment 1). No significant trends were noted. The single detection for antimony has not been confirmed by consecutive detections and is considered an outlier; however, the detection has conservatively been maintained in the analysis and will eventually roll out of the window of the eight most recent data points.

Data from each round were evaluated for completeness, overall quality, and usability and were deemed appropriate for the purposes of the groundwater monitoring program, except as noted in Table 1. The SanitasTM software was then used to test compliance at the downgradient monitoring wells using the confidence interval method for the most recent eight sampling events. Eight independent sampling events provide an appropriate density of data as recommended per the Unified Guidance yet are collected recently enough to provide an indication of current conditions. The tests were run with a per-well significance of $\alpha = 0.01$. The software outputs are included in Attachment 1 along with data reports showing the values used for the evaluation. The percentage of non-detect observations are also included in Attachment 1. Non-detect data were handled in accordance with the HMP for the purposes of calculating the confidence intervals.

The Sanitas[™] software generates an output that includes graphs of the parametric or non-parametric confidence intervals for each well along with notes on data transformations, as appropriate. The data distributions are as follows:

Distribution	Constituent-Well Combinations
Non-Parametric (non-detects)	Antimony at JHC-MW-15035

The confidence interval test compares the lower confidence limit to the GWPS. The results of the assessment monitoring statistical evaluation for the downgradient wells indicate that no constituents are present at statistically significant concentrations above the GWPS. Consumers Energy will continue executing the self-implementing groundwater compliance schedule in conformance with §257.90 - §257.98.

Attachments

Table 1 Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation

Attachment 1 Sanitas™ Output

Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation JH Campbell Landfill – RCRA CCR Monitoring Program West Olive Michigan

					11000 01110, 11	norngan							
	Sa	ample Location:	JHC-MW-15017										
	Sample Date:	10/21/2020	4/13/2021	4/13/2021	10/21/2021	4/12/2022	10/20/2022	4/12/2023	10/17/2023	4/16/2024			
Constituent	Unit	GWPS											
Appendix III					Field Dup								
Boron	ug/L	NA	210	148	151	167	161	163	179	108	121		
Calcium	mg/L	NA	54.9	61.1	60.4	58.5	60.6	61.6	60.5	53.0	52.5		
Chloride	mg/L	NA	37.4	31.0	30.8	29.9	25.4	24.1	16.4	19.2	17.6		
Fluoride	ug/L	NA	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000		
Sulfate	mg/L	NA	62.9	43.6	43.4	46.4	39.2	43.2	48	38.3	34.1		

292

6.5

< 1

< 1

28

< 1

< 0.2

< 1

< 6

< 1,000

< 1

< 10

< 0.2

< 5

0.660

20

< 2

276

6.8

< 1

< 1

24

< 1

< 0.2

< 6

< 1,000

< 1

< 10

< 0.2

< 5

< 0.376

18

< 2

313

6.4

< 1

< 1

28

< 1

< 0.2

< 1

< 6

< 1,000

< 1

< 10

< 0.2

< 5

< 0.627

19

< 2

287

6.6

< 1

< 1

38

< 1

< 0.2

< 1

< 6

< 1,000

< 1

< 10

< 0.2

25

< 0.533

21

< 2

293

6.9

< 1

< 1

21

< 1

< 0.2

< 1

< 6

< 1,000

< 1

< 10

< 0.2

< 5

< 0.531

13

< 2

238

6.7

< 1

< 1

22

< 1

< 0.2

< 1

< 6

< 1,000

< 1

< 10

< 0.2

< 5

0.656

12

< 2

303

< 1

< 1

25

< 1

< 0.2

< 1

< 6

< 1,000

< 1

< 10

< 0.2

5

< 0.497

13

< 2

Thallium

Notes: ug/L - micrograms per liter; mg/L - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

mg/L

ug/L

pCi/L

NA - not applicable.

NU - sample results are unusable.

Total Dissolved Solids

pH, Field

Antimony

Arsenic

Barium

Beryllium

Cadmium

Chromium

Cobalt

Fluoride

Lithium

Mercury

Molybdenum

Selenium

Radium-226/228

Lead

Appendix IV

-- - not analyzed.

GWPS - Groundwater Protection Standard. GWPS is the higher of the Maximum Contaminant Level/Regional

NA

NA

6

10

2,000

4

5

100

15

4,000

15

40

2

100

5

50

NU⁽²⁾

5.9

< 1

< 1

22

< 1

< 0.2

< 15

< 1,000

< 1

< 10

< 0.2

21

0.574

15

< 2

296

6.1

< 1

< 1

25

< 1

< 0.2

< 1

< 6

< 1,000

< 1

< 10

< 0.2

< 0.354

14

< 2

Screening Level and Upper Tolerance Limit as established in TRC's Technical Memorandum dated October 15, 2018.

Bold value indicates an exceedance of the GWPS. Data from downgradient monitoring wells are screened against the

GWPS for evaluation purposes only. Confidence intervals will be used to determine compliance per the HMP.

- (1) April 2019 result not used for assessment monitoring.
- (2) Total dissolved solids data for the October 2020 event contained errors introduced by the laboratory materials manufacturer and were determined to be unusable.

Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation JH Campbell Landfill – RCRA CCR Monitoring Program

West Olive, Michigan

	Sa	ample Location:		JHC-MW-15018										
		Sample Date:	10/21/2020	10/21/2020	4/13/2021	10/21/2021	4/13/2022	10/20/2022	4/11/2023	10/17/2023	4/16/2024			
Constituent	Unit	GWPS												
Appendix III				Field Dup										
Boron	ug/L	NA	167	165	258	327	287	269	153	122	96			
Calcium	mg/L	NA	65.0	68.1	85.2	62.7	65.9	59.6	40.6	30.2	44.6			
Chloride	mg/L	NA	35.9	34.5	34.2	25.9	28.8	25.5	14.9	13.3	20.8			
Fluoride	ug/L	NA	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000			
Sulfate	mg/L	NA	59.0	55.7	56.7	73.2	58.7	53.6	33.4	22.1	26.7			
Total Dissolved Solids	mg/L	NA	NU ⁽²⁾	NU ⁽²⁾	375	329	300	316	194	192	266			
pH, Field	SU	NA	6.0		5.9	6.0	5.9	5.9	6.2	6.5	6.6			
Appendix IV														
Antimony	ug/L	6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
Arsenic	ug/L	10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
Barium	ug/L	2,000	77	78	57	61	45	31	49	15	27			
Beryllium	ug/L	4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
Cadmium	ug/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2			
Chromium	ug/L	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
Cobalt	ug/L	15	< 15	< 15	< 6	< 6	< 6	< 6	< 6	< 6	< 6			
Fluoride	ug/L	4,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000			
Lead	ug/L	15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
Lithium	ug/L	40	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10			
Mercury	ug/L	2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2			
Molybdenum	ug/L	100	< 5	< 5	< 5	< 5	< 5	6	< 5	< 5	< 5			
Radium-226/228	pCi/L	5	0.747	0.926	< 0.439	0.616	0.343	0.682	< 0.607	0.623	< 0.499			
Selenium	ug/L	50	14	13	21	20	18	19	14	5	11			
Thallium	ug/L	2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2			

Notes:

ug/L - micrograms per liter; mg/L - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

NA - not applicable.

NU - sample results are unusable.

-- - not analyzed.

GWPS - Groundwater Protection Standard. GWPS is the higher of the Maximum Contaminant Level/Regional

Screening Level and Upper Tolerance Limit as established in TRC's Technical Memorandum dated October 15, 2018.

Bold value indicates an exceedance of the GWPS. Data from downgradient monitoring wells are screened against the

GWPS for evaluation purposes only. Confidence intervals will be used to determine compliance per the HMP.

- (1) April 2019 result not used for assessment monitoring.
- (2) Total dissolved solids data for the October 2020 event contained errors introduced by the laboratory materials manufacturer and were determined to be unusable.

Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation JH Campbell Landfill – RCRA CCR Monitoring Program West Olive, Michigan

[,								
	Sa	ample Location:	JHC-MW-15031										
		Sample Date:	10/21/2020	4/13/2021	10/22/2021	4/12/2022	10/20/2022	4/12/2023	4/12/2023	10/17/2023	4/16/2024		
Constituent	Unit	GWPS											
Appendix III									Field Dup				
Boron	ug/L	NA	114	51	64	58	56	50	56	64	42		
Calcium	mg/L	NA	56.1	49.7	54.2	59.8	49.6	52.9	54	56.4	35.1		
Chloride	mg/L	NA	25.0	9.49	7.56	10.4	3.28	2.82	2.74	3.19	1.91		
Fluoride	ug/L	NA	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000		
Sulfate	mg/L	NA	35.1	27.7	21.3	27.5	16	21.3	21.3	18.5	12.3		
Total Dissolved Solids	mg/L	NA	NU ⁽²⁾	180	< 10	220	215	205	205	255	148		
pH, Field	SU	NA	6.4	7.1	7.3	7.1	7.5	7.1		7.2	7.2		
Appendix IV													
Antimony	ug/L	6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		
Arsenic	ug/L	10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		
Barium	ug/L	2,000	20	15	15	14	12	13	13	15	11		
Beryllium	ug/L	4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		
Cadmium	ug/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2		
Chromium	ug/L	100	3	< 1	< 1	1	< 1	< 1	< 1	< 1	< 1		
Cobalt	ug/L	15	< 15	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6		
Fluoride	ug/L	4,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000		
Lead	ug/L	15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		
Lithium	ug/L	40	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10		
Mercury	ug/L	2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2		
Molybdenum	ug/L	100	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5		
Radium-226/228	pCi/L	5	< 0.412	< 0.502	< 0.435	< 0.456	< 0.576	0.498	< 0.618	< 0.678	< 0.796		
Selenium	ug/L	50	3	3	3	3	2	3	3	3	2		
Thallium	ug/L	2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2		

Notes:

ug/L - micrograms per liter; mg/L - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

NA - not applicable.

NU - sample results are unusable.

-- - not analyzed.

GWPS - Groundwater Protection Standard. GWPS is the higher of the Maximum Contaminant Level/Regional

Screening Level and Upper Tolerance Limit as established in TRC's Technical Memorandum dated October 15, 2018.

Bold value indicates an exceedance of the GWPS. Data from downgradient monitoring wells are screened against the

GWPS for evaluation purposes only. Confidence intervals will be used to determine compliance per the HMP.

- (1) April 2019 result not used for assessment monitoring.
- (2) Total dissolved solids data for the October 2020 event contained errors introduced by the laboratory materials manufacturer and were determined to be unusable.

Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation JH Campbell Landfill – RCRA CCR Monitoring Program West Olive, Michigan

	Sa	ample Location:	JHC-MW-15035										
		Sample Date:	10/22/2020	4/14/2021	10/22/2021	4/12/2022	10/20/2022	4/12/2023	10/17/2023	4/16/2024			
Constituent	Unit	GWPS											
Appendix III													
Boron	ug/L	NA	60	52	73	81	59	67	95	63			
Calcium	mg/L	NA	65.7	56.8	82.0	79.2	64.2	94.5	97.5	76.5			
Chloride	mg/L	NA	10.9	9.07	14.0	9.35	7.98	9.27	12.50	7.67			
Fluoride	ug/L	NA	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000			
Sulfate	mg/L	NA	19.6	17.5	26.2	25.7	29.4	31	41.5	24.8			
Total Dissolved Solids	mg/L	NA	NU ⁽²⁾	240	365	320	272	355	422	304			
pH, Field	SU	NA	7.2	7.3	7.2	7.2	7.4	7.0	7.0	7.2			
Appendix IV													
Antimony	ug/L	6	< 1	< 1	< 1	< 1	7	< 1	< 1	< 1			
Arsenic	ug/L	10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
Barium	ug/L	2,000	13	12	19	17	14	19	22	15			
Beryllium	ug/L	4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
Cadmium	ug/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2			
Chromium	ug/L	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
Cobalt	ug/L	15	< 15	< 6	< 6	< 6	< 6	< 6	< 6	< 6			
Fluoride	ug/L	4,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000			
Lead	ug/L	15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
Lithium	ug/L	40	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10			
Mercury	ug/L	2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2			
Molybdenum	ug/L	100	< 5	< 5	< 5	< 5	< 5	32	< 5	< 5			
Radium-226/228	pCi/L	5	< 0.647	< 0.425	0.728	< 0.378	< 0.450	< 0.539	< 0.592	2.00			
Selenium	ug/L	50	2	2	2	3	3	1	< 1	1			
Thallium	ug/L	2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2			

Notes:

ug/L - micrograms per liter; mg/L - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

NA - not applicable.

NU - sample results are unusable.

-- - not analyzed.

GWPS - Groundwater Protection Standard. GWPS is the higher of the Maximum Contaminant Level/Regional Screening Level and Upper Tolerance Limit as established in TRC's Technical Memorandum dated October 15, 2018.

Bold value indicates an exceedance of the GWPS. Data from downgradient monitoring wells are screened against the

GWPS for evaluation purposes only. Confidence intervals will be used to determine compliance per the HMP.

- (1) April 2019 result not used for assessment monitoring.
- (2) Total dissolved solids data for the October 2020 event contained errors introduced by the laboratory materials manufacturer and were determined to be unusable.

Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation JH Campbell Landfill – RCRA CCR Monitoring Program

West Olive, Michigan

		1.1. 0										
	5	ample Location:	40/00/000	44440004	10/00/000	111010000		N-15036	10/00/0000	444040000	1011-10000	444040004
		Sample Date:	10/22/2020	4/14/2021	10/22/2021	4/12/2022	4/12/2022	10/20/2022	10/20/2022	4/10/2023	10/17/2023	4/16/2024
Constituent	Unit	GWPS										
Appendix III							Field Dup		Field Dup			
Boron	ug/L	NA	81	80	76	94	94	48	48	93	68	86
Calcium	mg/L	NA	59.3	52.1	39.5	57.6	57.0	32.8	33.8	52.1	35.9	57.3
Chloride	mg/L	NA	10.4	9.50	5.71	9.20	9.13	9.60	9.66	4.01	4.73	3.04
Fluoride	ug/L	NA	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Sulfate	mg/L	NA	21.9	21.0	14.5	19.2	19.1	15.3	14.7	18.3	18.7	33.6
Total Dissolved Solids	mg/L	NA	NU ⁽²⁾	229	169	238	246	163	164	207	182	244
pH, Field	SU	NA	7.3	7.1	7.6	7.4		7.3		7.4	7.7	7.3
Appendix IV												
Antimony	ug/L	6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Arsenic	ug/L	10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Barium	ug/L	2,000	9	8	7	9	10	6	6	8	6	9
Beryllium	ug/L	4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	ug/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium	ug/L	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cobalt	ug/L	15	< 15	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6
Fluoride	ug/L	4,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Lead	ug/L	15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Lithium	ug/L	40	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Mercury	ug/L	2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Molybdenum	ug/L	100	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Radium-226/228	pCi/L	5	< 0.554	< 0.486	< 0.386	< 0.395	< 0.398	< 0.616	0.591	< 0.505	< 0.497	0.701
Selenium	ug/L	50	< 1	< 1	1	2	2	< 1	< 1	< 1	< 1	2
Thallium	ug/L	2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2

Notes:

ug/L - micrograms per liter; mg/L - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

NA - not applicable.

NU - sample results are unusable.

-- - not analyzed.

GWPS - Groundwater Protection Standard. GWPS is the higher of the Maximum Contaminant Level/Regional Screening Level and Upper Tolerance Limit as established in TRC's Technical Memorandum dated October 15, 2018.

Bold value indicates an exceedance of the GWPS. Data from downgradient monitoring wells are screened against the

GWPS for evaluation purposes only. Confidence intervals will be used to determine compliance per the HMP.

All metals were analyzed as total unless otherwise specified.

(1) April 2019 result not used for assessment monitoring.

(2) Total dissolved solids data for the October 2020 event contained errors introduced by the laboratory materials manufacturer and were determined to be unusable.

Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation JH Campbell Landfill – RCRA CCR Monitoring Program

West Olive, Michigan

		ample Legation:		JHC-MW-15037								
Sample Location:			10/22/2020	4/14/2021	10/22/2021	4/12/2022	10/20/2022	4/11/2023	10/16/2023	10/16/2022	4/15/2024	4/45/2024
	1	Sample Date:	10/22/2020	4/14/2021	10/22/2021	4/12/2022	10/20/2022	4/11/2023	10/16/2023	10/16/2023	4/15/2024	4/15/2024
Constituent	Unit	GWPS										
Appendix III										Field Dup		Field Dup
Boron	ug/L	NA	185	112	118	170	118	107	133	139	110	109
Calcium	mg/L	NA	93.4	59.0	61.7	85.1	52.3	67.8	78.0	78.8	57.1	57.5
Chloride	mg/L	NA	7.52	21.3	7.05	6.92	1.78	1.36	< 1	1.09	1.60	1.55
Fluoride	ug/L	NA	< 1,000	< 1,000	1,490	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Sulfate	mg/L	NA	53.5	17.2	17.7	42.8	24.1	24.4	37.2	37.4	22.1	23.4
Total Dissolved Solids	mg/L	NA	NU ⁽²⁾	254	249	359	270	264	336	337	240	249
pH, Field	SU	NA	7.0	6.7	7.2	7.2	6.7	7.1	7.2		7.2	
Appendix IV												
Antimony	ug/L	6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Arsenic	ug/L	10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Barium	ug/L	2,000	14	10	11	18	12	13	13	13	10	10
Beryllium	ug/L	4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	ug/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium	ug/L	100	< 1	< 1	< 1	1	< 1	1	< 1	< 1	< 1	< 1
Cobalt	ug/L	15	< 15	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6
Fluoride	ug/L	4,000	< 1,000	< 1,000	1,490	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Lead	ug/L	15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Lithium	ug/L	40	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Mercury	ug/L	2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Molybdenum	ug/L	100	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Radium-226/228	pCi/L	5	< 0.535	< 0.465	< 0.397	< 0.312	0.671	< 0.533	< 0.669	< 0.533	< 0.728	1.14
Selenium	ug/L	50	12	4	5	19	4	6	8	8	5	5
Thallium	ug/L	2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2

Notes:

ug/L - micrograms per liter; mg/L - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

NA - not applicable.

NU - sample results are unusable.

-- - not analyzed.

GWPS - Groundwater Protection Standard. GWPS is the higher of the Maximum Contaminant Level/Regional Screening Level and Upper Tolerance Limit as established in TRC's Technical Memorandum dated October 15, 2018.

Bold value indicates an exceedance of the GWPS. Data from downgradient monitoring wells are screened against the

GWPS for evaluation purposes only. Confidence intervals will be used to determine compliance per the HMP.

All metals were analyzed as total unless otherwise specified.

(1) April 2019 result not used for assessment monitoring.

(2) Total dissolved solids data for the October 2020 event contained errors introduced by the laboratory materials manufacturer and were determined to be unusable.

Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation JH Campbell Landfill – RCRA CCR Monitoring Program

West Olive, Michigan

	S	ample Location:	MW-B3					MW-B4				
	_	Sample Date:	4/12/2022	10/20/2022	4/12/2023	10/17/2023	4/16/2024	4/12/2022	10/20/2022	4/12/2023	10/17/2023	4/16/2024
Constituent	Unit	GWPS										
Appendix III												
Boron	ug/L	NA	92	74	93	129	119	178	274	279	230	263
Calcium	mg/L	NA	95.8	70.1	76.8	53.7	68.6	52.5	83.5	88.7	57	77.7
Chloride	mg/L	NA	6.65	24.2	16.5	20.7	18.6	19.6	34.5	20.2	12.2	17
Fluoride	ug/L	NA	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Sulfate	mg/L	NA	24.1	73.8	71.9	62.3	72.2	18.5	28.9	24.1	18.4	22.1
Total Dissolved Solids	mg/L	NA	348	383	330	316	343	245	410	353	274	330
pH, Field	SU	NA	6.5	6.1	6.0	6.0	6.1	7.2	6.9	6.9	7.1	6.9
Appendix IV												
Antimony	ug/L	6	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Arsenic	ug/L	10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Barium	ug/L	2,000	70	69	80	60	74	29	54	44	28	41
Beryllium	ug/L	4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	ug/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium	ug/L	100	1	< 1	< 1	< 1	< 1	2	< 1	< 1	< 1	< 1
Cobalt	ug/L	15	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6
Fluoride	ug/L	4,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Lead	ug/L	15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Lithium	ug/L	40	12	12	16	17	18	< 10	< 10	< 10	< 10	< 10
Mercury	ug/L	2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Molybdenum	ug/L	100	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Radium-226/228	pCi/L	5	0.558	< 0.571	< 0.473	< 0.596	1.25	< 0.410	< 0.486	0.738	< 0.654	0.873
Selenium	ug/L	50	29	7	8	4	6	4	2	3	3	2
Thallium	ug/L	2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2

Notes:

ug/L - micrograms per liter; mg/L - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

NA - not applicable.

NU - sample results are unusable.

-- - not analyzed.

GWPS - Groundwater Protection Standard. GWPS is the higher of the Maximum Contaminant Level/Regional Screening Level and Upper Tolerance Limit as established in TRC's Technical Memorandum dated October 15, 2018.

Bold value indicates an exceedance of the GWPS. Data from downgradient monitoring wells are screened against the

GWPS for evaluation purposes only. Confidence intervals will be used to determine compliance per the HMP.

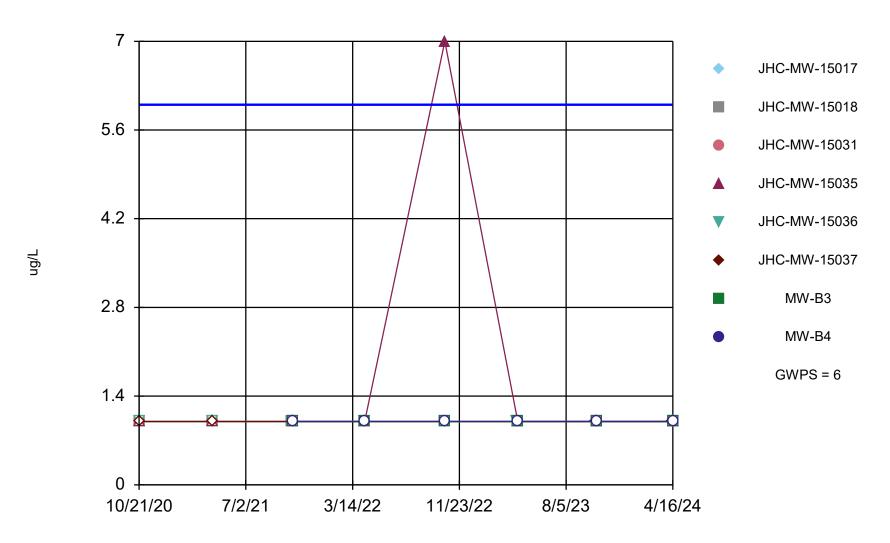
All metals were analyzed as total unless otherwise specified.

(1) April 2019 result not used for assessment monitoring.

(2) Total dissolved solids data for the October 2020 event contained errors introduced by the laboratory materials manufacturer and were determined to be unusable.

Attachment 1 Sanitas[™] Output

Antimony Comparison to GWPS



Time Series Analysis Run 6/13/2024 2:48 PM

Client: Consumers Energy Data: 2Q24_JHC_Sanitas

Summary Report

Constituent: Antimony, Total Analysis Run 6/13/2024 2:46 PM Client: Consumers Energy Data: 2Q24_JHC_Sanitas

For observations made between 10/21/2020 and 4/16/2024, a summary of the selected data set:

Observations = 60 NDs = 96% Wells = 8 Minimum Value = 1 Maximum Value = 7

Mean Value = 1.1 Median Value = 1

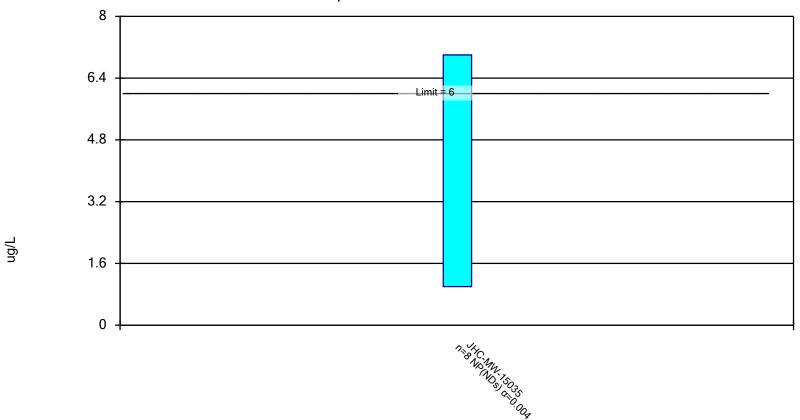
Standard Deviation = 0.7746 Coefficient of Variation = 0.7042

Skewness = 7.551

<u>Well</u>	#Obs.	<u>NDs</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	Std.Dev.	<u>CV</u>	<u>Skewness</u>
JHC-MW-15017	8	100%	1	1	1	1	0	0	NaN
JHC-MW-15018	8	100%	1	1	1	1	0	0	NaN
JHC-MW-15031	8	100%	1	1	1	1	0	0	NaN
JHC-MW-15035	8	87%	1	7	1.75	1	2.121	1.212	2.268
JHC-MW-15036	8	100%	1	1	1	1	0	0	NaN
JHC-MW-15037	8	100%	1	1	1	1	0	0	NaN
MW-B3	6	83%	1	1	1	1	0	0	NaN
MW-B4	6	100%	1	1	1	1	0	0	NaN

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Antimony, Total Analysis Run 6/13/2024 2:43 PM

Client: Consumers Energy Data: 2Q24_JHC_Sanitas

Confidence Interval

Constituent: Antimony, Total (ug/L) Analysis Run 6/13/2024 2:44 PM

Client: Consumers Energy Data: 2Q24_JHC_Sanitas

	JHC-MW-15035
10/22/2020	<1
4/14/2021	<1
10/22/2021	<1
4/12/2022	<1
10/20/2022	7
4/12/2023	<1
10/17/2023	<1
4/16/2024	<1
Mean	1.75
Std. Dev.	2.121
Upper Lim.	7
Lower Lim.	1



Appendix D October 2024 Assessment Monitoring Statistical Evaluation



Date: January 30, 2025

To: Harold D. Register, Jr., Consumers Energy

From: Sarah Holmstrom, TRC

Kristin Lowery, TRC Henry Schnaidt, TRC

Project No.: 553811.0001.0000 Phase 1 Task 2

Subject: Statistical Evaluation of October 2024 Assessment Monitoring Sampling Event

JH Campbell Dry Ash Landfill, Consumers Energy Company, West Olive, Michigan

During the statistical evaluation of the initial assessment monitoring event (June 2018), no Appendix IV constituents were present at statistically significant levels exceeding the Groundwater Protection Standards (GWPSs). Therefore, Consumers Energy Company (Consumers Energy) is continuing semiannual assessment monitoring in accordance with §257.95 of the CCR Rule¹ at the JH Campbell Power Plant Dry Ash Landfill. The second semiannual assessment monitoring event for 2024 was conducted on October 14 through October 15, 2024. In accordance with §257.95, the assessment monitoring data must be compared to GWPSs to determine whether or not Appendix IV constituents are detected at statistically significant levels above the GWPSs. GWPSs were established in accordance with §257.95(h), as described in the October 15, 2018, Groundwater Protection Standards technical memorandum, which was also included in the 2018, Annual Groundwater Monitoring Report (TRC, January 2019). The following narrative describes the methods employed and the results obtained.

The statistical evaluation of the second semiannual assessment monitoring event of 2024 data indicates no constituents are present at statistically significant levels that exceed the GWPSs at the Dry Ash Landfill monitoring wells.

Constituent GWPS # Downgradient Wells Observed

No constituents are present at statistically significant levels above the GWPSs.

These results are consistent with the results of the previous assessment monitoring data statistical evaluations and concentrations remain above background levels. Consumers Energy will continue semiannual assessment monitoring per §257.95 and continue to execute the self-implementing groundwater compliance schedule in conformance with §257.90 - §257.98.

¹ USEPA final rule for the regulation and management of Coal Combustion Residuals (CCR) under the Resource Conservation and Recovery Act (RCRA) published April 17, 2015, as amended.

Assessment Monitoring Statistical Evaluation

The compliance well network at the JHC Dry Ash Landfill CCR Unit currently consists of eight monitoring wells (JHC-MW-15017, JHC-MW-15018, JHC-MW-15031, JHC-MW-15035 through JHC-MW-15037, MW-B3, and MW-B4) located on the south perimeter of the landfill Cells 1 through 6.

Following the semiannual assessment monitoring sampling event, compliance well data for the Dry Ash Landfill were evaluated in accordance with the Groundwater Statistical Evaluation Plan (Stats Plan) (TRC, October 2017). An assessment monitoring program was developed to evaluate concentrations of CCR constituents present in the uppermost aquifer relative to acceptable levels (i.e., GWPSs). To evaluate whether or not a GWPS exceedance is statistically significant, the difference in concentration observed at the downgradient wells during a given assessment monitoring event compared to the GWPS must be large enough, after accounting for variability in the sample data, that the result is unlikely to have occurred merely by chance. Consistent with the Unified Guidance², the preferred method for comparisons to a fixed standard are confidence limits. Based on the number of historical observations in the representative sample population, the population mean, the population standard deviation, and a selected confidence level (i.e., 99 percent), an upper and lower confidence limit is calculated. The actual mean concentration of the population, with 99 percent confidence, will fall between the lower and upper confidence limits.

The concentrations observed in the downgradient wells are deemed to be a statistically significant exceedance when the 99 percent lower confidence limit of the downgradient data exceeds the GWPS. If the confidence interval straddles the GWPS (i.e. the lower confidence level is below the GWPS but the upper confidence level is above), the statistical test result indicates that there is insufficient confidence that the measured concentrations are different from the GWPS. This statistical approach is consistent with the statistical methods for assessment monitoring presented in §257.93(f) and (g). Statistical evaluation methodologies built into the CCR Rule, and numerous other federal rules, are key in determining whether or not individually measured data points represent a concentration increase over the baseline or a fixed standard (such as a GWPS in an assessment monitoring program).

For each detected constituent, the concentrations from each well were first compared directly to the GWPS, as shown on Table 1. Constituent-well combinations that included a direct exceedance of the GWPS within the past eight monitoring events (April 2021 through October 2024)³ were retained for further analysis (Attachment 1). Direct comparison GWPS exceedances include the following constituent well combination:

Antimony in JHC-MW-15035.

Groundwater data were then evaluated utilizing Sanitas[™] statistical software. Sanitas[™] is a software tool that is commercially available for performing statistical evaluations consistent with procedures outlined in the Unified Guidance. Within the Sanitas[™] statistical program, confidence limits were

² USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance. Office of Conservation and Recovery. EPA 530/R-09-007.

³ Monitoring wells MW-B3 and MW-B4 were not part of the CCR monitoring program prior to 2022; they were previously monitored under the old HMP which deviates from the sampling and analysis procedures included in the November 2021 sample and analysis plan (SAP) that is used for the semiannual assessment monitoring program.

selected to perform the statistical comparison of compliance data to a fixed standard. Parametric or non-parametric confidence intervals were calculated, as appropriate, for each of the constituents using a 99 percent confidence level for each individual statistical test, i.e., a significance level (α) of 0.01. The following narrative describes the methods employed, the results obtained and the Sanitas[™] output files are included as an attachment.

The statistical data evaluation included the following steps:

- Review of data quality checklists for the data sets;
- Graphical representation of the monitoring data as time versus concentration by well-constituent pair;
- Outlier testing of individual data points that appear from the graphical representations as potential outliers;
- Evaluation of visual trends apparent in the graphical representations for statistical significance;
- Evaluation of percentage of non-detects for each well-constituent pair;
- Distribution of the data; and
- Calculation of the confidence intervals for each cumulative dataset.

The results of these evaluations are presented and discussed below.

Initially, results for the past eight events were observed visually for potential trends and outliers (timeseries plots in Attachment 1). No significant trends were noted. The single detection for antimony has not been confirmed by consecutive detections and is considered an outlier; however, the detection has conservatively been maintained in the analysis and will eventually roll out of the window of the eight most recent data points.

Data from each round were evaluated for completeness, overall quality, and usability and were deemed appropriate for the purposes of the groundwater monitoring program, except as noted in Table 1. The SanitasTM software was then used to test compliance at the downgradient monitoring wells using the confidence interval method for the most recent eight sampling events. Eight independent sampling events provide an appropriate density of data as recommended per the Unified Guidance yet are collected recently enough to provide an indication of current conditions. The tests were run with a per-well significance of $\alpha = 0.01$. The software outputs are included in Attachment 1 along with data reports showing the values used for the evaluation. The percentage of non-detect observations are also included in Attachment 1. Non-detect data were handled in accordance with the HMP for the purposes of calculating the confidence intervals.

The Sanitas[™] software generates an output that includes graphs of the parametric or non-parametric confidence intervals for each well along with notes on data transformations, as appropriate. The data distributions are as follows:

Distribution	Constituent-Well Combinations
Non-Parametric (non-detects)	Antimony at JHC-MW-15035

The confidence interval test compares the lower confidence limit to the GWPS. The results of the assessment monitoring statistical evaluation for the downgradient wells indicate that no constituents are present at statistically significant concentrations above the GWPS. Consumers Energy will continue executing the self-implementing groundwater compliance schedule in conformance with §257.90 - §257.98.

Attachments

Table 1 Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation

Attachment 1 Sanitas™ Output

Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation JH Campbell Landfill – RCRA CCR Monitoring Program

West Olive, Michigan

	9	ample Location:			11000 0 1110, 11		JHC-MW-15017	7			
	3.	Sample Date:	4/13/2021	4/13/2021	10/21/2021	4/12/2022	10/20/2022	4/12/2023	10/17/2023	4/16/2024	10/15/2024
		Sample Date.	4/13/2021	4/13/2021	10/21/2021	4/12/2022	10/20/2022	4/12/2023	10/11/2023	4/10/2024	10/13/2024
Constituent	Unit	GWPS									
Appendix III				Field Dup							
Boron	ug/L	NA	148	151	167	161	163	179	108	121	116
Calcium	mg/L	NA	61.1	60.4	58.5	60.6	61.6	60.5	53.0	52.5	52.0
Chloride	mg/L	NA	31.0	30.8	29.9	25.4	24.1	16.4	19.2	17.6	16.9
Fluoride	ug/L	NA	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Sulfate	mg/L	NA	43.6	43.4	46.4	39.2	43.2	48	38.3	34.1	34.3
Total Dissolved Solids	mg/L	NA	296	303	292	276	313	287	293	238	242
pH, Field	SU	NA	6.1		6.5	6.8	6.4	6.6	6.9	6.7	6.7
Appendix IV											
Antimony	ug/L	6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Arsenic	ug/L	10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Barium	ug/L	2,000	25	25	28	24	28	38	21	22	20
Beryllium	ug/L	4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	ug/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium	ug/L	100	< 1	< 1	< 1	2	< 1	< 1	< 1	< 1	< 1
Cobalt	ug/L	15	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6
Fluoride	ug/L	4,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Lead	ug/L	15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Lithium	ug/L	40	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Mercury	ug/L	2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Molybdenum	ug/L	100	5	5	< 5	< 5	< 5	25	< 5	< 5	< 5
Radium-226/228	pCi/L	5	< 0.354	< 0.497	0.660	< 0.376	< 0.627	< 0.533	< 0.531	0.656	0.661
Selenium	ug/L	50	14	13	20	18	19	21	13	12	14
Thallium	ug/L	2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2

Notes:

ug/L - micrograms per liter; mg/L - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

NA - not applicable.

NU - sample results are unusable.

-- - not analyzed.

GWPS - Groundwater Protection Standard. GWPS is the higher of the Maximum Contaminant Level/Regional

Screening Level and Upper Tolerance Limit as established in TRC's Technical Memorandum dated October 15, 2018.

Bold value indicates an exceedance of the GWPS. Data from downgradient monitoring wells are screened against the

GWPS for evaluation purposes only. Confidence intervals will be used to determine compliance per the HMP.

Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation JH Campbell Landfill – RCRA CCR Monitoring Program

West Olive, Michigan

	S	ample Location:					JHC-MW-15018	3			
		Sample Date:	4/13/2021	10/21/2021	4/13/2022	10/20/2022	4/11/2023	10/17/2023	4/16/2024	10/15/2024	10/15/2024
Constituent	Unit	GWPS									
Appendix III											Field Dup
Boron	ug/L	NA	258	327	287	269	153	122	96	174	165
Calcium	mg/L	NA	85.2	62.7	65.9	59.6	40.6	30.2	44.6	61.7	59.5
Chloride	mg/L	NA	34.2	25.9	28.8	25.5	14.9	13.3	20.8	30.3	29.8
Fluoride	ug/L	NA	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Sulfate	mg/L	NA	56.7	73.2	58.7	53.6	33.4	22.1	26.7	37.9	37.0
Total Dissolved Solids	mg/L	NA	375	329	300	316	194	192	266	314	320
pH, Field	SU	NA	5.9	6.0	5.9	5.9	6.2	6.5	6.6	6.6	
Appendix IV											
Antimony	ug/L	6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Arsenic	ug/L	10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Barium	ug/L	2,000	57	61	45	31	49	15	27	27	26
Beryllium	ug/L	4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	ug/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium	ug/L	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cobalt	ug/L	15	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6
Fluoride	ug/L	4,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Lead	ug/L	15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Lithium	ug/L	40	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Mercury	ug/L	2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Molybdenum	ug/L	100	< 5	< 5	< 5	6	< 5	< 5	< 5	< 5	< 5
Radium-226/228	pCi/L	5	< 0.439	0.616	0.343	0.682	< 0.607	0.623	< 0.499	< 0.677	< 0.659
Selenium	ug/L	50	21	20	18	19	14	5	11	14	14
Thallium	ug/L	2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2

Notes:

ug/L - micrograms per liter; mg/L - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

NA - not applicable.

NU - sample results are unusable.

-- - not analyzed.

GWPS - Groundwater Protection Standard. GWPS is the higher of the Maximum Contaminant Level/Regional

Screening Level and Upper Tolerance Limit as established in TRC's Technical Memorandum dated October 15, 2018.

Bold value indicates an exceedance of the GWPS. Data from downgradient monitoring wells are screened against the

GWPS for evaluation purposes only. Confidence intervals will be used to determine compliance per the HMP.

Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation JH Campbell Landfill – RCRA CCR Monitoring Program

West Olive, Michigan

	S	ample Location:					JHC-MW-15031				
		Sample Date:	4/13/2021	10/22/2021	4/12/2022	10/20/2022	4/12/2023	4/12/2023	10/17/2023	4/16/2024	10/15/2024
Constituent	Unit	GWPS									
Appendix III								Field Dup			
Boron	ug/L	NA	51	64	58	56	50	56	64	42	80
Calcium	mg/L	NA	49.7	54.2	59.8	49.6	52.9	54.0	56.4	35.1	67.7
Chloride	mg/L	NA	9.49	7.56	10.4	3.28	2.82	2.74	3.19	1.91	2.77
Fluoride	ug/L	NA	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Sulfate	mg/L	NA	27.7	21.3	27.5	16.0	21.3	21.3	18.5	12.3	21.2
Total Dissolved Solids	mg/L	NA	180	< 10	220	215	205	205	255	148	269
pH, Field	SU	NA	7.1	7.3	7.1	7.5	7.1		7.2	7.2	7.3
Appendix IV											
Antimony	ug/L	6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Arsenic	ug/L	10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Barium	ug/L	2,000	15	15	14	12	13	13	15	11	16
Beryllium	ug/L	4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	ug/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium	ug/L	100	< 1	< 1	1	< 1	< 1	< 1	< 1	< 1	< 1
Cobalt	ug/L	15	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6
Fluoride	ug/L	4,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Lead	ug/L	15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Lithium	ug/L	40	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Mercury	ug/L	2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Molybdenum	ug/L	100	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Radium-226/228	pCi/L	5	< 0.502	< 0.435	< 0.456	< 0.576	0.498	< 0.618	< 0.678	< 0.796	< 0.627
Selenium	ug/L	50	3	3	3	2	3	3	3	2	3
Thallium	ug/L	2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2

Notes:

ug/L - micrograms per liter; mg/L - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

NA - not applicable.

NU - sample results are unusable.

-- - not analyzed.

GWPS - Groundwater Protection Standard. GWPS is the higher of the Maximum Contaminant Level/Regional

Screening Level and Upper Tolerance Limit as established in TRC's Technical Memorandum dated October 15, 2018.

Bold value indicates an exceedance of the GWPS. Data from downgradient monitoring wells are screened against the

GWPS for evaluation purposes only. Confidence intervals will be used to determine compliance per the HMP.

Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation JH Campbell Landfill – RCRA CCR Monitoring Program

West Olive, Michigan

	S	ample Location:	JHC-MW-15035									
		Sample Date:	4/14/2021	10/22/2021	4/12/2022	10/20/2022	4/12/2023	10/17/2023	4/16/2024	10/15/2024		
Constituent	Unit	GWPS										
Appendix III												
Boron	ug/L	NA	52	73	81	59	67	95	63	55		
Calcium	mg/L	NA	56.8	82.0	79.2	64.2	94.5	97.5	76.5	66.5		
Chloride	mg/L	NA	9.07	14.0	9.35	7.98	9.27	12.5	7.67	5.61		
Fluoride	ug/L	NA	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000		
Sulfate	mg/L	NA	17.5	26.2	25.7	29.4	31.0	41.5	24.8	28.4		
Total Dissolved Solids	mg/L	NA	240	365	320	272	355	422	304	268		
pH, Field	SU	NA	7.3	7.2	7.2	7.4	7.0	7.0	7.2	7.3		
Appendix IV												
Antimony	ug/L	6	< 1	< 1	< 1	7	< 1	< 1	< 1	< 1		
Arsenic	ug/L	10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		
Barium	ug/L	2,000	12	19	17	14	19	22	15	14		
Beryllium	ug/L	4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		
Cadmium	ug/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2		
Chromium	ug/L	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		
Cobalt	ug/L	15	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6		
Fluoride	ug/L	4,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000		
Lead	ug/L	15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		
Lithium	ug/L	40	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10		
Mercury	ug/L	2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2		
Molybdenum	ug/L	100	< 5	< 5	< 5	< 5	32	< 5	< 5	< 5		
Radium-226/228	pCi/L	5	< 0.425	0.728	< 0.378	< 0.450	< 0.539	< 0.592	2.00	0.587		
Selenium	ug/L	50	2	2	3	3	1	< 1	1	< 1		
Thallium	ug/L	2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2		

Notes:

 $\mbox{ug/L}$ - micrograms per liter; $\mbox{mg/L}$ - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

NA - not applicable.

NU - sample results are unusable.

-- - not analyzed.

GWPS - Groundwater Protection Standard. GWPS is the higher of the Maximum Contaminant Level/Regional

Screening Level and Upper Tolerance Limit as established in TRC's Technical Memorandum dated October 15, 2018.

Bold value indicates an exceedance of the GWPS. Data from downgradient monitoring wells are screened against the

GWPS for evaluation purposes only. Confidence intervals will be used to determine compliance per the HMP.

Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation JH Campbell Landfill – RCRA CCR Monitoring Program

West Olive, Michigan

						Olive, Michigan						
	S	ample Location:					JHC-M\	N-15036	<u> </u>		<u> </u>	
		Sample Date:	4/14/2021	10/22/2021	4/12/2022	4/12/2022	10/20/2022	10/20/2022	4/10/2023	10/17/2023	4/16/2024	10/15/2024
Constituent	Unit	GWPS										
Appendix III						Field Dup		Field Dup				
Boron	ug/L	NA	80	76	94	94	48	48	93	68	86	56
Calcium	mg/L	NA	52.1	39.5	57.6	57.0	32.8	33.8	52.1	35.9	57.3	37.2
Chloride	mg/L	NA	9.50	5.71	9.20	9.13	9.60	9.66	4.01	4.73	3.04	6.77
Fluoride	ug/L	NA	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Sulfate	mg/L	NA	21.0	14.5	19.2	19.1	15.3	14.7	18.3	18.7	33.6	17.2
Total Dissolved Solids	mg/L	NA	229	169	238	246	163	164	207	182	244	164
pH, Field	SU	NA	7.1	7.6	7.4		7.3		7.4	7.7	7.3	7.8
Appendix IV												
Antimony	ug/L	6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Arsenic	ug/L	10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Barium	ug/L	2,000	8	7	9	10	6	6	8	6	9	6
Beryllium	ug/L	4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	ug/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium	ug/L	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cobalt	ug/L	15	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6
Fluoride	ug/L	4,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Lead	ug/L	15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Lithium	ug/L	40	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Mercury	ug/L	2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Molybdenum	ug/L	100	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Radium-226/228	pCi/L	5	< 0.486	< 0.386	< 0.395	< 0.398	< 0.616	0.591	< 0.505	< 0.497	0.701	< 0.722
Selenium	ug/L	50	< 1	1	2	2	< 1	< 1	< 1	< 1	2	< 1
Thallium	ug/L	2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2

Notes:

ug/L - micrograms per liter; mg/L - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

NA - not applicable.

NU - sample results are unusable.

-- - not analyzed.

GWPS - Groundwater Protection Standard. GWPS is the higher of the Maximum Contaminant Level/Regional

Screening Level and Upper Tolerance Limit as established in TRC's Technical Memorandum dated October 15, 2018.

Bold value indicates an exceedance of the GWPS. Data from downgradient monitoring wells are screened against the

GWPS for evaluation purposes only. Confidence intervals will be used to determine compliance per the HMP.

Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation JH Campbell Landfill – RCRA CCR Monitoring Program

West Olive, Michigan

	S	ample Location:				ouro, monigan	JHC-M	W-15037				
		Sample Date:	4/14/2021	10/22/2021	4/12/2022	10/20/2022	4/11/2023	10/16/2023	10/16/2023	4/15/2024	4/15/2024	10/15/2024
Constituent	Unit	GWPS										
Appendix III									Field Dup		Field Dup	
Boron	ug/L	NA	112	118	170	118	107	133	139	110	109	178
Calcium	mg/L	NA	59.0	61.7	85.1	52.3	67.8	78.0	78.8	57.1	57.5	85.6
Chloride	mg/L	NA	21.3	7.05	6.92	1.78	1.36	< 1.00	1.09	1.60	1.55	1.74
Fluoride	ug/L	NA	< 1,000	1,490	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Sulfate	mg/L	NA	17.2	17.7	42.8	24.1	24.4	37.2	37.4	22.1	23.4	24.5
Total Dissolved Solids	mg/L	NA	254	249	359	270	264	336	337	240	249	338
pH, Field	SU	NA	6.7	7.2	7.2	6.7	7.1	7.2		7.2		7.2
Appendix IV												
Antimony	ug/L	6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Arsenic	ug/L	10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Barium	ug/L	2,000	10	11	18	12	13	13	13	10	10	13
Beryllium	ug/L	4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	ug/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium	ug/L	100	< 1	< 1	1	< 1	1	< 1	< 1	< 1	< 1	< 1
Cobalt	ug/L	15	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6
Fluoride	ug/L	4,000	< 1,000	1,490	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Lead	ug/L	15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Lithium	ug/L	40	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Mercury	ug/L	2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Molybdenum	ug/L	100	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Radium-226/228	pCi/L	5	< 0.465	< 0.397	< 0.312	0.671	< 0.533	< 0.669	< 0.533	< 0.728	1.14	< 0.541
Selenium	ug/L	50	4	5	19	4	6	8	8	5	5	5
Thallium	ug/L	2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2

Notes:

ug/L - micrograms per liter; mg/L - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

NA - not applicable.

NU - sample results are unusable.

-- - not analyzed.

GWPS - Groundwater Protection Standard. GWPS is the higher of the Maximum Contaminant Level/Regional

Screening Level and Upper Tolerance Limit as established in TRC's Technical Memorandum dated October 15, 2018.

Bold value indicates an exceedance of the GWPS. Data from downgradient monitoring wells are screened against the

GWPS for evaluation purposes only. Confidence intervals will be used to determine compliance per the HMP.

Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation

JH Campbell Landfill – RCRA CCR Monitoring Program

West Olive, Michigan

	S	Sample Location: MW-B3								MW-B4					
		Sample Date:	4/12/2022	10/20/2022	4/12/2023	10/17/2023	4/16/2024	10/15/2024	4/12/2022	10/20/2022	4/12/2023	10/17/2023	4/16/2024	10/15/2024	
Constituent	Unit	GWPS													
Appendix III															
Boron	ug/L	NA	92	74	93	129	119	146	178	274	279	230	263	331	
Calcium	mg/L	NA	95.8	70.1	76.8	53.7	68.6	56.9	52.5	83.5	88.7	57.0	77.7	79.1	
Chloride	mg/L	NA	6.65	24.2	16.5	20.7	18.6	20.0	19.6	34.5	20.2	12.2	17.0	11.5	
Fluoride	ug/L	NA	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	
Sulfate	mg/L	NA	24.1	73.8	71.9	62.3	72.2	66.6	18.5	28.9	24.1	18.4	22.1	25.5	
Total Dissolved Solids	mg/L	NA	348	383	330	316	343	323	245	410	353	274	330	332	
pH, Field	SU	NA	6.5	6.1	6.0	6.0	6.1	6.1	7.2	6.9	6.9	7.1	6.9	7.0	
Appendix IV															
Antimony	ug/L	6	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Arsenic	ug/L	10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Barium	ug/L	2,000	70	69	80	60	74	57	29	54	44	28	41	39	
Beryllium	ug/L	4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Cadmium	ug/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	
Chromium	ug/L	100	1	< 1	< 1	< 1	< 1	< 1	2	< 1	< 1	< 1	< 1	< 1	
Cobalt	ug/L	15	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	
Fluoride	ug/L	4,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	
Lead	ug/L	15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Lithium	ug/L	40	12	12	16	17	18	19	< 10	< 10	< 10	< 10	< 10	< 10	
Mercury	ug/L	2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	
Molybdenum	ug/L	100	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	
Radium-226/228	pCi/L	5	0.558	< 0.571	< 0.473	< 0.596	1.25	< 0.588	< 0.410	< 0.486	0.738	< 0.654	0.873	< 0.504	
Selenium	ug/L	50	29	7	8	4	6	4	4	2	3	3	2	4	
Thallium	ug/L	2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	

Notes:

ug/L - micrograms per liter; mg/L - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

NA - not applicable.

NU - sample results are unusable.

-- - not analyzed.

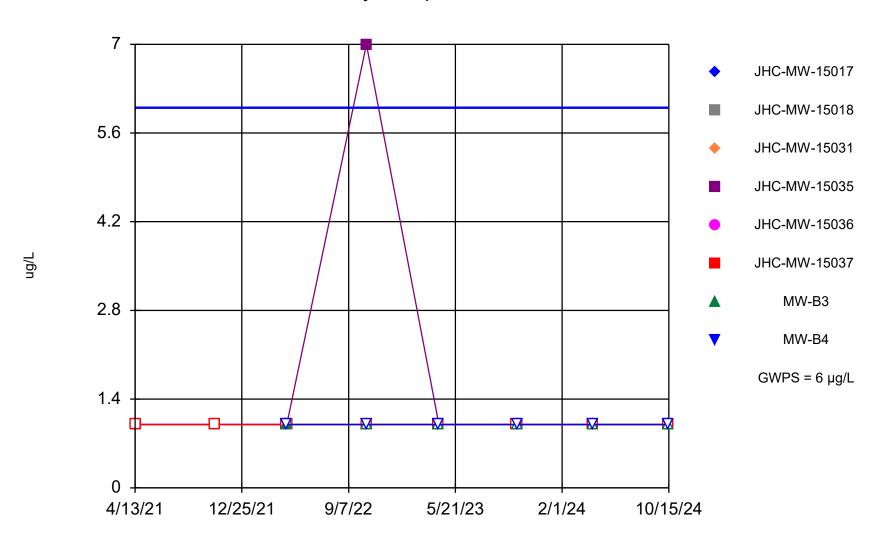
GWPS - Groundwater Protection Standard. GWPS is the higher of the Maximum Contaminant Level/Regional Screening Level and Upper Tolerance Limit as established in TRC's Technical Memorandum dated October 15, 2018.

Bold value indicates an exceedance of the GWPS. Data from downgradient monitoring wells are screened against the

GWPS for evaluation purposes only. Confidence intervals will be used to determine compliance per the HMP.

Attachment 1 Sanitas[™] Output

Antimony Comparison to GWPS



Time Series Analysis Run 12/3/2024 9:40 PM

Client: Consumers Energy Data: 4Q24_JHC_Sanitas

Summary Report

Constituent: Antimony, Total Analysis Run 12/3/2024 9:43 PM
Client: Consumers Energy Data: 4Q24_JHC_Sanitas

For observations made between 4/13/2021 and 10/15/2024, a summary of the selected data set:

Observations = 60 NDs = 96% Wells = 8 Minimum Value = 1 Maximum Value = 7

Mean Value = 1.1

Median Value = 1

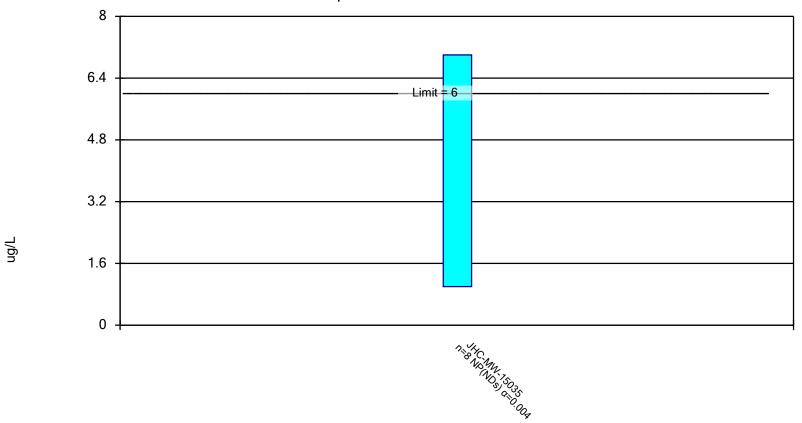
Standard Deviation = 0.7746 Coefficient of Variation = 0.7042

Skewness = 7.551

Well	#Obs.	<u>NDs</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	Std.Dev.	<u>CV</u>	<u>Skewness</u>
JHC-MW-15017	8	100%	1	1	1	1	0	0	NaN
JHC-MW-15018	8	100%	1	1	1	1	0	0	NaN
JHC-MW-15031	8	100%	1	1	1	1	0	0	NaN
JHC-MW-15035	8	87%	1	7	1.75	1	2.121	1.212	2.268
JHC-MW-15036	8	100%	1	1	1	1	0	0	NaN
JHC-MW-15037	8	100%	1	1	1	1	0	0	NaN
MW-B3	6	83%	1	1	1	1	0	0	NaN
MW-B4	6	100%	1	1	1	1	0	0	NaN

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Antimony, Total Analysis Run 12/3/2024 9:44 PM

Client: Consumers Energy Data: 4Q24_JHC_Sanitas

Confidence Interval

Constituent: Antimony, Total (ug/L) Analysis Run 12/3/2024 9:45 PM

Client: Consumers Energy Data: 4Q24_JHC_Sanitas

	JHC-MW-15035
4/14/2021	<1
10/22/2021	<1
4/12/2022	<1
10/20/2022	7
4/12/2023	<1
10/17/2023	<1
4/16/2024	<1
10/15/2024	<1
Mean	1.75
Std. Dev.	2.121
Upper Lim.	7
Lower Lim.	1