

January 30, 2026

Subject:

2025 Annual Groundwater Monitoring and Corrective Action Report
JH Cambell Power Plant
Dry Ash Landfill

Enclosures:

Document	Date
CCR Annual Groundwater Report Requirements: § 257.90(e) Checklist for the JH Campbell Dry Ash Landfill CCR Unit	January 30, 2026
2025 Annual Groundwater Monitoring and Corrective Action Report, JH Campbell Power Plant Dry Ash Landfill	January 30, 2026

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

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

CCR Annual Groundwater Report Requirements: § 257.90(e)
Checklist for the JH Campbell Dry Ash Landfill CCR Unit
2025 Annual Report

Requirement	Reference
At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available:	
(1) A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit;	Figure 2 ⁽¹⁾
(2) Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;	Section 2.1 ⁽¹⁾ Note: No monitoring wells were installed or decommissioned during 2025.
(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) 2025 Annual Groundwater Monitoring and Corrective Action Report JH Campbell Power Plant Dry Ash Landfill. TRC. January 31, 2026.



2025 Annual Groundwater Monitoring and Corrective Action Report

**JH Campbell Power Plant
Dry Ash Landfill**

West Olive, Michigan

January 2026

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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, 2025 to December 31, 2025 and document the status of groundwater monitoring and corrective action for 2025 in accordance with §257.90(e).

Consumers Energy first reported the potential for statistically significant increases (SSIs) for Appendix III constituents in the January 2018 *Annual Groundwater Monitoring Report, JH Campbell Power Plant, Dry Ash Landfill*. The statistical evaluation of the Appendix III indicator parameters confirmed SSIs over background for boron, calcium, chloride, sulfate, and total dissolved solids.

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 2025 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 2026.

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 2025 activities at the Dry Ash Landfill from January 1, 2025 to December 31, 2025. 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. The subsequent assessment monitoring evaluations, including those in the 2025 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. Semiannual assessment monitoring data that has been collected and evaluated in 2025 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

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.

north faces of Cells 1 and 2 and the majority of the eastern half of Cell 2 have been closed 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 2025.

As shown on Figure 2, monitoring wells JHC-MW-15029, JHC-MW-15030, JHC-MW-15032, and JHC-MW-15034 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 the other semiannual event may include, at a minimum, analysis for those constituents in Appendix IV of the CCR Rule that were detected during prior sampling². 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 2025 was performed on April 14 through 16, 2025 and the second semiannual groundwater assessment monitoring event was performed on October 7 through 9, 2025. Samples were collected by Consumers Energy in both events, 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

² Although a reduced analyte list may be used for the second semiannual assessment monitoring event, Consumers Energy has elected to monitor for all Appendix III and Appendix IV constituents in both semiannual events.

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. Samples were unable to be collected from monitoring well MW-B3 during both semiannual monitoring events due to insufficient volume of groundwater available in the well to purge and sample the well in accordance with the QAPP.

A summary of the groundwater data collected during the April and October 2025 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 Appendices A (laboratory reports) and B (field data).

2.2.2 Data Quality Review

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

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 2025 events are provided on Table 1. April and October 2025 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 0.0033 ft/ft in April 2025 and 0.0032 ft/ft in October 2025. 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 0.51 ft/day or 180 ft/year for the April 2025 event, and approximately 0.49 ft/day or 180 ft/year for the October 2025 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 2025 groundwater data in accordance with the assessment monitoring program. The statistical evaluation details are provided in Appendix D (*Statistical Evaluation of April 2025 Assessment Monitoring Sampling Event*) and Appendix E (*Statistical Evaluation of October 2025 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 2024 Annual Reports, the statistical data comparison through the 2024 semiannual assessment monitoring events indicated that no Appendix IV constituents were present at statistically significant levels exceeding the GWPSs. Therefore, assessment monitoring continued in 2025.

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 2025, 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, antimony has not been detected within the last six semiannual events in 2023 through 2025. The unconfirmed single detection for antimony 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. The lower confidence level for antimony has remained below the GWPS. A summary of the confidence intervals for April and October 2025 are provided in Tables 5 and 6 respectively.

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 2026 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 2025. 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 2026 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 2026.

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.
- TRC. January 2019. 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.
- TRC. January 2025. 2024 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.

Tables

Table 1
Summary of Groundwater Elevation Data
JH Campbell – RCRA CCR Monitoring Program
West Olive, Michigan

Well Location	Ground Surface Elevation (ft)	TOC Elevation (ft)	Geologic Unit of Screen Interval	Screen Interval Elevation (ft)	April 14, 2025		October 7, 2025		
					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	19.35	600.63	20.79	599.19	
JHC-MW-15024	613.79	616.62	Sand	606.8 to 596.8	15.25	601.37	16.40	600.22	
JHC-MW-15025	614.14	617.17	Sand	607.1 to 597.1	14.95	602.22	15.98	601.19	
JHC-MW-15026	615.09	618.04	Sand	607.1 to 597.1	16.97	601.07	17.85	600.19	
JHC-MW-15027	614.77	617.30	Sand	604.8 to 594.8	17.75	599.55	18.50	598.80	
JHC-MW-15028	611.02	613.80	Sand	603.0 to 593.0	17.70	596.10	18.21	595.59	
JHC-MW-15029	608.08	610.95	Sand	600.1 to 590.1	14.55	596.40	15.35	595.60	
JHC-MW-15030	604.05	607.17	Sand	600.1 to 590.1	NM		NM		
Landfill									
JHC-MW-15017	613.69	616.61	Sand	603.7 to 593.7	18.36	598.25	19.05	597.56	
JHC-MW-15018	614.26	617.02	Sand	604.3 to 594.3	18.92	598.10	19.56	597.46	
JHC-MW-15031	632.94	635.87	Sand	599.9 to 589.9	44.40	591.47	44.26	591.61	
JHC-MW-15032	611.32	614.29	Sand	598.3 to 588.3	17.99	596.30	19.18	595.11	
JHC-MW-15034	612.90	615.97	Sand	601.9 to 591.9	17.05	598.92	18.45	597.52	
JHC-MW-15035	632.53	634.28	Sand	599.5 to 589.5	42.15	592.13	41.45	592.83	
JHC-MW-15036	617.94	618.34	Sand	597.9 to 587.9	27.63	590.71	27.39	590.95	
JHC-MW-15037	614.28	616.06	Sand	591.3 to 586.3	25.82	590.24	26.19	589.87	
MW-B3	630.51	634.17	Sand	598.5 to 593.5	40.17	594.00	39.91	594.26	
MW-B4	633.80	635.67	Sand	593.8 to 588.8	42.68	592.99	42.97	592.70	
Pond A									
JHC-MW-15006	624.74	627.58	Sand	599.7 to 589.7	35.90	591.68	36.32	591.26	
JHC-MW-15007R ⁽²⁾	625.73	628.26	Sand	595.7 to 585.7	36.98	591.28	37.12	591.14	
JHC-MW-15008R ⁽¹⁾	632.32	634.67	Sand	597.3 to 587.3	43.95	590.72	43.65	591.02	
JHC-MW-15009R ⁽²⁾	632.15	635.05	Sand	595.2 to 585.2	44.10	590.95	43.70	591.35	
JHC-MW-15011R ⁽²⁾	627.73	629.79	Sand	594.7 to 584.7	38.14	591.65	38.73	591.06	
Downgradient Wells									
MW-13	593.40	595.37	Clayey Silt	587.9 to 585.4	Dry		Dry		
MW-14S	587.36	590.98	Sand	582.9 to 577.9	11.54	579.44	11.83	579.15	
PZ-23S	602.84	604.97	Sand	591.8 to 586.8	15.27	589.70	16.02	588.95	
PZ-24S	586.56	590.15	Sand	584.6 to 579.6	8.24	581.91	10.28	579.87	
PZ-40S	589.51	593.25	Sand	585.5 to 575.5	11.30	581.95	13.46	579.79	

Notes:

Survey conducted by Nederveld, November 2015, October 2018, December 2018, August 2019, July 2021, and July 2022.

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.

(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, Field mg/L	Oxidation Reduction Potential, Field mV	pH, Field SU	Specific Conductivity, Field umhos/cm	Temperature, Field °C	Turbidity, Field NTU
JH Campbell Background							
JHC-MW-15023	4/14/2025	0.52	177.7	6.3	191	11.0	2.1
	10/7/2025	1.89	194.0	6.4	168	12.4	1.3
JHC-MW-15024	4/14/2025	2.34	130.6	7.9	293	9.2	1.9
	10/7/2025	1.60	168.9	7.9	292	12.4	1.6
JHC-MW-15025	4/14/2025	6.35	137.9	8.1	348	8.6	2.4
	10/8/2025	5.68	162.3	7.9	371	11.4	1.5
JHC-MW-15026	4/14/2025	7.81	216.8	5.9	43	8.7	3.2
	10/8/2025	6.98	282.3	5.6	53	13.2	1.8
JHC-MW-15027	4/15/2025	8.55	178.2	8.1	182	8.5	2.9
	10/8/2025	9.15	235.7	7.9	212	13.1	2.9
JHC-MW-15028	4/15/2025	8.48	145.9	8.6	118	8.5	2.2
	10/8/2025	8.29	182.5	8.5	135	14.3	1.1
JH Campbell Dry Ash Landfill							
JHC-MW-15017	4/15/2025	1.19	197.8	6.7	318	9.9	0.9
	10/8/2025	1.17	215.5	6.6	510	13.7	1.6
JHC-MW-15018	4/15/2025	1.08	168.1	6.8	393	9.7	1.2
	10/8/2025	1.09	191.8	6.8	508	13.7	1.1
JHC-MW-15031	4/15/2025	3.20	90.1	7.4	274	11.9	1.0
	10/8/2025	5.06	133.7	7.0	597	13.7	1.4
JHC-MW-15035	4/15/2025	0.07	28.9	7.1	502	13.3	0.9
	10/8/2025	0.35	57.4	7.1	577	14.3	1.1
JHC-MW-15036	4/15/2025	1.05	113.4	7.5	330	10.8	2.5
	10/9/2025	2.37	217.5	7.5	382	12.5	3.0
JHC-MW-15037	4/15/2025	4.65	155.1	7.1	461	9.7	1.5
	10/9/2025	3.35	140.7	7.3	492	11.0	2.1
MW-B3	4/15/2025 ⁽¹⁾	--	--	--	--	--	--
	10/8/2025 ⁽²⁾	--	--	--	--	--	--
MW-B4	4/15/2025	0.12	33.4	6.8	635	12.4	1.8
	10/8/2025	0.03	-10.3	7.0	521	15.4	1.4

Notes:

mg/L = Milligrams per Liter

mV = Millivolts

SU = Standard Units

umhos/cm = Micromhos per centimeter

°C = Degrees Celsius

NTU = Nephelometric Turbidity Unit

-- = Not Analyzed

(1) Well location was not sampled due to insufficient quantity of water in the well at the time of sampling.

(2) Sample not valid due to inadequate purge volume.

Table 3
 Summary of Groundwater Sampling Results (Analytical)
 JH Campbell Background - RCRA CCR Monitoring Program
 West Olive, Michigan

		Sample Location:				JHC-MW-15023		JHC-MW-15024		JHC-MW-15025	
		Sample Date:				4/14/2025	10/7/2025	4/14/2025	10/7/2025	4/14/2025	10/8/2025
Constituent	Unit	EPA MCL	MI Residential*	MI Non-Residential*	MI GSI^						
Appendix III⁽¹⁾											
Boron	ug/L	NC	500	500	7,200	33	38	23	27	22	24
Calcium	mg/L	NC	NC	NC	500 ^{EE}	19.0	18.4	31.3	33.0	34.2	31.1
Chloride	mg/L	250**	250 ^E	250 ^E	500 ^{EE}	9.10	5.31	17.0	21.1	35.2	35.7
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	500 ^{EE}	13.1	11.0	6.54	6.57	7.47	8.10
Total Dissolved Solids	mg/L	500**	500 ^E	500 ^E	500	114	111	164	181	208	217
pH, Field	SU	6.5 - 8.5**	6.5 - 8.5^E	6.5 - 8.5^E	6.5 - 9.0	6.3	6.4	7.9	7.9	8.1	7.9
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	35	19	17	19	7	8
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	< 0.144	< 0.436	< 0.144	< 0.355	< 0.170	< 0.443
Radium-228	pCi/L	NC	NC	NC	NC	1.01	< 0.578	< 0.626	1.05	< 0.605	1.30
Radium-226/228	pCi/L	5	NC	NC	NC	1.02	0.681	< 0.626	1.27	< 0.605	1.56
Selenium	ug/L	50	50	50	5.0	2	< 1	2	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.

Table 3
 Summary of Groundwater Sampling Results (Analytical)
 JH Campbell Background - RCRA CCR Monitoring Program
 West Olive, Michigan

		Sample Location:				JHC-MW-15026		JHC-MW-15027		JHC-MW-15028	
		Sample Date:				4/15/2025	10/8/2025	4/15/2025	10/8/2025	4/15/2025	10/8/2025
Constituent	Unit	EPA MCL	MI Residential*	MI Non-Residential*	MI GSI^						
Appendix III⁽¹⁾											
Boron	ug/L	NC	500	500	7,200	< 20	< 20	22	29	< 20	< 20
Calcium	mg/L	NC	NC	NC	500 ^{EE}	3.45	3.93	25.4	29.7	16.4	19.6
Chloride	mg/L	250 ^{**}	250 ^E	250 ^E	500 ^{EE}	3.36	4.23	1.80	1.17	1.05	< 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	500 ^{EE}	6.48	7.39	5.70	5.50	4.67	5.62
Total Dissolved Solids	mg/L	500 ^{**}	500 ^E	500 ^E	500	37	59	123	139	66	88
pH, Field	SU	6.5 - 8.5^{**}	6.5 - 8.5^E	6.5 - 8.5^E	6.5 - 9.0	5.9	5.6	8.1	7.9	8.6	8.5
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	9	13	< 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	< 0.213	< 0.476	< 0.224	< 0.586	< 0.140	< 0.365
Radium-228	pCi/L	NC	NC	NC	NC	< 0.600	1.02	< 0.520	0.837	< 0.513	< 0.649
Radium-226/228	pCi/L	5	NC	NC	NC	< 0.600	1.20	< 0.520	1.01	< 0.513	< 0.649
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.

Table 4
 Summary of Groundwater Sampling Results (Analytical)
 JH Campbell Dry Ash Landfill - RCRA CCR Monitoring Program
 West Olive, Michigan

		Sample Location:					JHC-MW-15017		JHC-MW-15018		JHC-MW-15031		JHC-MW-15035	
		Sample Date:					4/15/2025	10/8/2025	4/15/2025	10/8/2025	4/15/2025	10/8/2025	4/15/2025	10/8/2025
Constituent	Unit	UTL	EPA MCL	MI Residential*	MI Non-Residential*	MI GSI^								
Appendix III⁽¹⁾														
Boron	ug/L	51	NC	500	500	7,200	100	192	83	94	41	83	68	66
Calcium	mg/L	46	NC	NC	NC	500 ^{EE}	44.1	73.4	51.3	73.3	41.9	93.8	78.5	90.2
Chloride	mg/L	43	250 ^{**}	250 ^E	250 ^E	500 ^{EE}	9.41	12.5	19.9	16.0	2.27	2.82	5.07	5.19
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	500 ^{EE}	22.8	42.3	23.7	21.9	14.0	22.1	25.4	23.5
Total Dissolved Solids	mg/L	258	500 ^{**}	500 ^E	500 ^E	500	202	350	239	324	170	369	309	360
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	6.6	6.8	6.8	7.4	7.0	7.1	7.1
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	18	28	19	29	10	24	16	16
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	3	< 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	< 0.184	< 0.305	< 0.146	< 0.292	< 0.168	< 0.276	< 0.138	< 0.384
Radium-228	pCi/L	NA	NC	NC	NC	NC	1.17	< 0.936	1.16	1.02	< 0.676	1.34	0.796	2.74
Radium-226/228	pCi/L	1.93	5	NC	NC	NC	1.13	< 0.936	1.23	1.10	< 0.676	1.48	0.853	2.75
Selenium	ug/L	5	50	50	50	5.0	10	19	9	11	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.

UTL - Upper Tolerance Limit of the background data set. Appendix III UTLs established in TRC's technical memorandum dated

January 15, 2018. Appendix IV UTLs established in TRC's technical memorandum dated October 15, 2018.

* = 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.

(2) Not sampled due to insufficient quantity of water.

(3) Sample not valid due to inadequate purge volume.

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 4
 Summary of Groundwater Sampling Results (Analytical)
 JH Campbell Dry Ash Landfill - RCRA CCR Monitoring Program
 West Olive, Michigan

Sample Location:							JHC-MW-15036		JHC-MW-15037		MW-B3		MW-B4	
Sample Date:							4/15/2025	10/9/2025	4/15/2025	10/9/2025	4/15/2025 ⁽²⁾	10/8/2025 ⁽³⁾	4/15/2025	10/8/2025
Constituent	Unit	UTL	EPA MCL	MI Residential*	MI Non-Residential*	MI GSI [^]								
Appendix III⁽¹⁾														
Boron	ug/L	51	NC	500	500	7,200	72	73	138	166	--	--	401	282
Calcium	mg/L	46	NC	NC	NC	500 ^{EE}	49.8	52.3	69.4	73.1	--	--	97.3	76.6
Chloride	mg/L	43	250 ^{**}	250 ^E	250 ^E	500 ^{EE}	2.34	5.48	1.91	1.38	--	--	11.0	7.60
Fluoride	ug/L	1,000	4,000	NC	NC	NC	< 1,000	< 1,000	< 1,000	< 1,000	--	--	< 1,000	< 1,000
Sulfate	mg/L	14	250 ^{**}	250 ^E	250 ^E	500 ^{EE}	22.3	17.6	56.3	25.2	--	--	28.5	19.5
Total Dissolved Solids	mg/L	258	500 ^{**}	500 ^E	500 ^E	500	204	239	308	328	--	--	402	338
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	7.5	7.5	7.1	7.3	--	--	6.8	7.0
Appendix IV⁽¹⁾														
Antimony	ug/L	2	6	6.0	6.0	130	< 1	< 1	< 1	< 1	--	--	< 1	< 1
Arsenic	ug/L	1	10	10	10	10	< 1	< 1	< 1	< 1	--	--	< 1	< 1
Barium	ug/L	35	2,000	2,000	2,000	820	8	8	14	11	--	--	50	37
Beryllium	ug/L	1	4	4.0	4.0	18	< 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
Chromium	ug/L	2	100	100	100	11	< 1	< 1	< 1	< 1	--	--	2	< 1
Cobalt	ug/L	15	NC	40	100	100	< 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
Lead	ug/L	1	NC	4.0	4.0	39	< 1	< 1	< 1	< 1	--	--	< 1	< 1
Lithium	ug/L	10	NC	170	350	440	< 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
Molybdenum	ug/L	5	NC	73	210	3,200	< 5	< 5	< 5	< 5	--	--	< 5	< 5
Radium-226	pCi/L	NA	NC	NC	NC	NC	< 0.162	< 0.340	< 0.164	< 0.342	--	--	< 0.177	< 0.342
Radium-228	pCi/L	NA	NC	NC	NC	NC	< 0.655	1.64	< 0.689	< 0.756	--	--	0.628	1.21
Radium-226/228	pCi/L	1.93	5	NC	NC	NC	< 0.655	1.88	< 0.689	< 0.756	--	--	0.709	1.27
Selenium	ug/L	5	50	50	50	5.0	1	2	7	5	--	--	2	2
Thallium	ug/L	2	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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January 15, 2018. Appendix IV UTLs established in TRC's technical memorandum dated October 15, 2018.

* = Michigan Part 201 Generic Drinking Water Cleanup Criteria, December 30, 2013, updated October 12, 2023.

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[^] = 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}.

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(1) 40 CFR Part 257 Appendix III Detection Monitoring Constituents and Appendix IV Assessment Monitoring Constituents.

(2) Not sampled due to insufficient quantity of water.

(3) Sample not valid due to inadequate purge volume.

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 2025
 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 ($\alpha = 0.01$) 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 2025
 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.

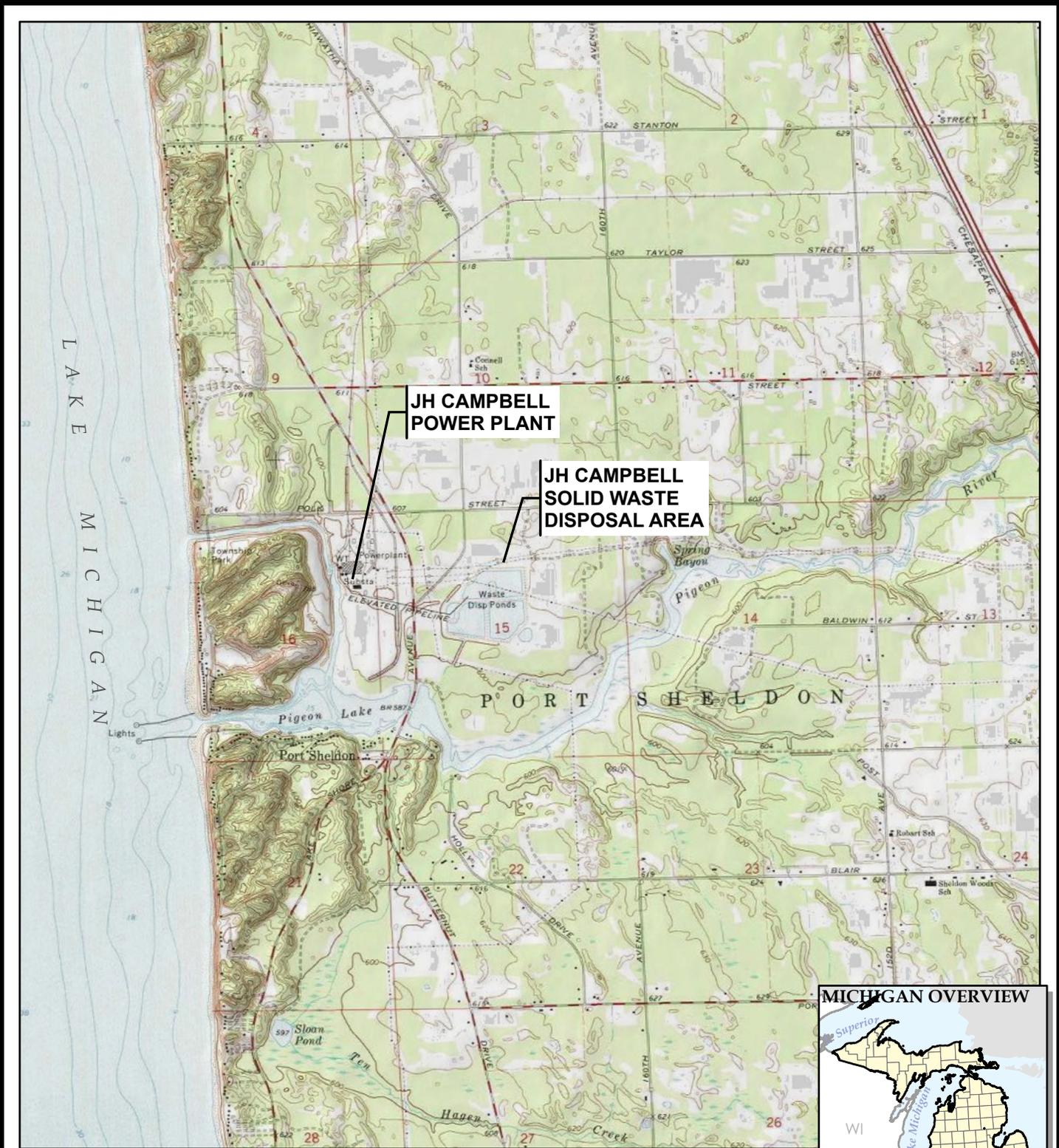
GWPS - Groundwater Protection Standard as established in TRC's Technical Memorandum dated October 15, 2018.

UCL - Upper Confidence Limit ($\alpha = 0.01$) 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.

Figures



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.



1540 Eisenhower Place
Ann Arbor, MI 48108-3284
Phone: 734.971.7080
www.trccompanies.com

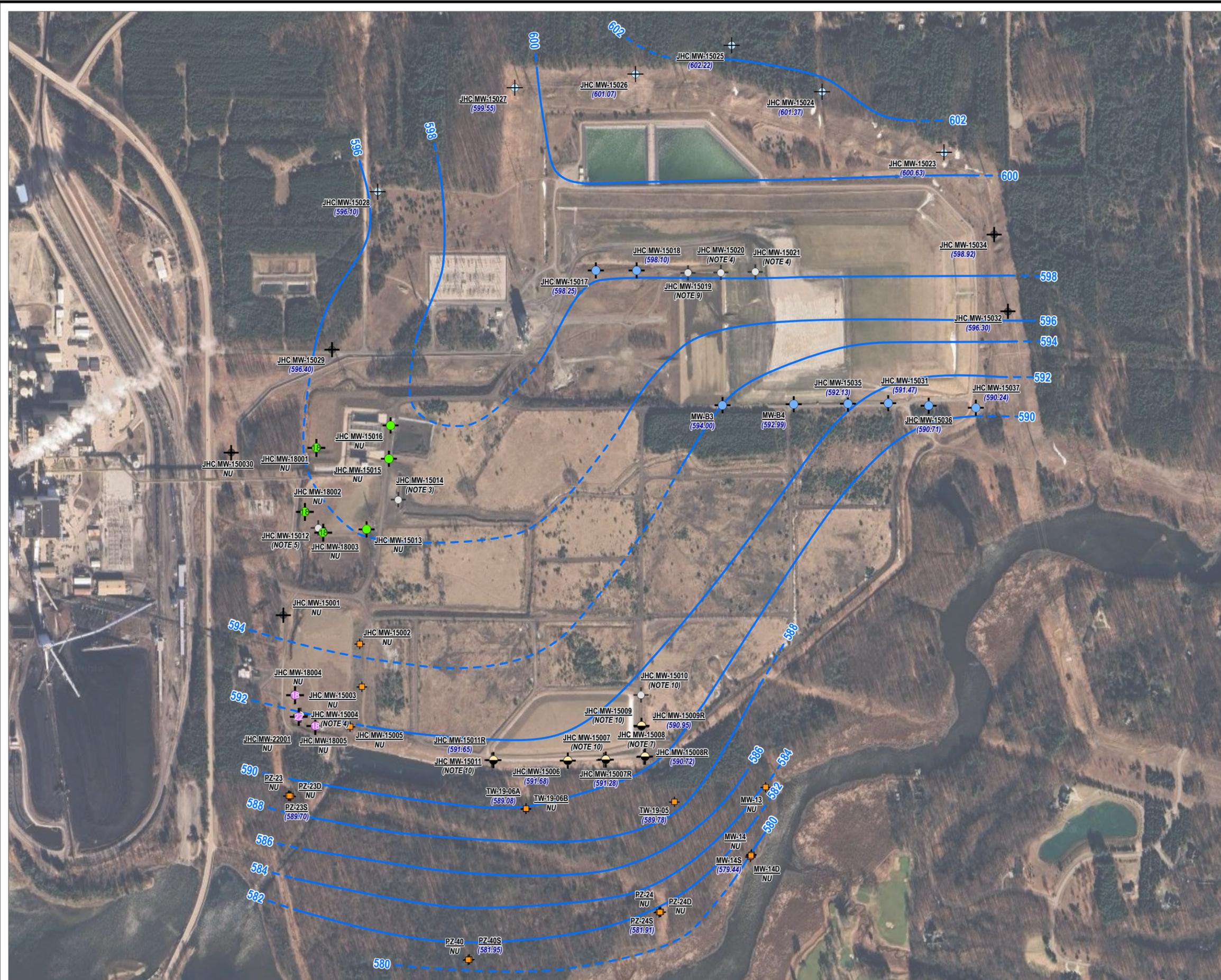
PROJECT:
**CONSUMERS ENERGY COMPANY
JH CAMPBELL POWER PLANT
WEST OLIVE, MICHIGAN**

TITLE:
SITE LOCATION MAP

DRAWN BY:	A. FOJTIK
CHECKED BY:	H. SCHNAIDT
APPROVED BY:	S. HOLMSTROM
DATE:	OCTOBER 2025
PROJ. NO.:	634689.0000
FILE:	T:\1-PROJECTS\Consumers_Energy\464090_JHC\2-APRX\464090_JHC.aprx

FIGURE 1

Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl. Map Rotation: 0
 Saved By: AFOJTIK on 7/9/2025 12:06:02 PM. File Path: T:\HPR\JEC\Consumers_Energy\464090_JHC.aprx. Layout Name: JHC_GWEL_Apr2025



LEGEND

- BACKGROUND MONITORING WELL
- DOWNGRADENT BOTTOM ASH POND 3 N/S MONITORING WELL
- DOWNGRADENT LANDFILL MONITORING WELL
- DOWNGRADENT POND A MONITORING WELL
- MONITORING WELL (STATIC WATER LEVEL ONLY)
- DECOMMISSIONED
- DOWNGRADENT BOTTOM ASH POND 1/2 N/S MONITORING WELL (2018)
- DOWNGRADENT BOTTOM ASH POND 1/2 N/S MONITORING WELL (2022)
- DOWNGRADENT BOTTOM ASH POND 3 N/S MONITORING WELL (2018)
- NATURE AND EXTENT/DOWNGRADENT MONITORING WELLS
- GROUNDWATER ELEVATION CONTOUR (2' INTERVAL, DASHED WHERE INFERRED)
- NU** NOT USED/NOT APPLICABLE

NOTES:

1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO, 2024.
2. WELL LOCATIONS BASED ON SURVEY DATA THROUGH JUNE 15, 2022.
3. MONITORING WELL DECOMMISSIONED NOVEMBER 13, 2017.
4. MONITORING WELL DECOMMISSIONED JUNE 14, 2018.
5. MONITORING WELL DECOMMISSIONED OCTOBER 10, 2018.
6. JHC-MW-1800X MONITORING WELLS INSTALLED IN DECEMBER 2018.
7. MONITORING WELL DECOMMISSIONED JUNE 24, 2019.
8. JHC-MW-15008R AND TW-19-XX MONITORING WELLS INSTALLED IN JUNE 2019.
9. MONITORING WELLS DECOMMISSIONED MAY 25, 2021.
10. MONITORING WELLS DECOMMISSIONED AND REPLACED JULY 20-22, 2021.
11. JHC-MW-22001 MONITORING WELL INSTALLED MAY 12, 2022.
12. STATIC WATER ELEVATIONS IN NORTH AMERICAN VERTICAL DATUM 1988, NAVD 88.



1:8,400
 1" = 700'



PROJECT: CONSUMERS ENERGY COMPANY JH CAMPBELL POWER PLANT WEST OLIVE, MICHIGAN	
TITLE: GROUNDWATER CONTOUR MAP APRIL 2025	
DRAWN BY: A. FOJTIK	PROJ. NO.: 634689.0000
CHECKED BY: H. SCHNAIDT	FIGURE 3
APPROVED BY: S. HOLMSTROM	
DATE: JULY 2025	
1540 EISENHOWER PLACE ANN ARBOR, MI 48108-3284 PHONE: 734.971.7080	
FILE:	464090_JHC.aprx

Appendix A

Analytical Data

To: JFirlit, JH Campbell Complex

From: EBlaj, T-258

Date: April 30, 2025

Subject: JH CAMPBELL SOLID WASTE DISPOSAL AREA – GROUNDWATER MONITORING
2nd Quarter, 2025 – Background Wells

CC: HDRegister, P22-521
ADSantini, P20-215B-REM

Sarah Holmstrom, Project Manager
TRC Companies, Inc.
1540 Eisenhower Place
Ann Arbor, MI 48108

Chemistry Project: 25-0223

CE Laboratory Services conducted groundwater monitoring at the JH Campbell Solid Waste Disposal Area during the week of 04/14/2025, 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 04/16/2025.

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 accreditation specified in the listed certificate. The information contained in this report is the sole property of Consumers Energy. It cannot be reproduced except in full, and with consent from Consumers Energy, or the customer for which this report was issued.

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:

<u>Acronym</u>	<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

<u>Qualifier</u>	<u>Description</u>
*	Generic data flag, applicable description added in the corresponding notes section
B	The analyte was detected in the LRB at a level which is significant relative to sample result

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

Work Order Sample Summary

Customer Name: JH Campbell Complex
Work Order ID: Q2-2025 JHC Background Wells
Date Received: 4/16/2025
Chemistry Project: 25-0223

<u>Sample #</u>	<u>Field Sample ID</u>	<u>Matrix</u>	<u>Sample Date</u>	<u>Site</u>
25-0223-01	JHC-MW-15023	Groundwater	04/14/2025 15:06	JHC GW Monitoring - Background Wells
25-0223-02	JHC-MW-15024	Groundwater	04/14/2025 17:11	JHC GW Monitoring - Background Wells
25-0223-03	JHC-MW-15025	Groundwater	04/14/2025 18:11	JHC GW Monitoring - Background Wells
25-0223-04	JHC-MW-15026	Groundwater	04/15/2025 19:21	JHC GW Monitoring - Background Wells
25-0223-05	JHC-MW-15027	Groundwater	04/15/2025 10:46	JHC GW Monitoring - Background Wells
25-0223-06	JHC-MW-15028	Groundwater	04/15/2025 12:51	JHC GW Monitoring - Background Wells
25-0223-07	DUP-01	Groundwater	04/14/2025 00:00	JHC GW Monitoring - Background Wells
25-0223-08	FB-01	Water	04/15/2025 13:23	JHC GW Monitoring - Background Wells
25-0223-09	EB-01	Water	04/15/2025 13:35	JHC GW Monitoring - Background Wells
25-0223-10	JHC-MW-15025 Field MS	Groundwater	04/14/2025 18:11	JHC GW Monitoring - Background Wells
25-0223-11	JHC-MW-15025 Field MSD	Groundwater	04/14/2025 18:11	JHC GW Monitoring - Background Wells

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **JHC-MW-15023**
 Lab Sample ID: 25-0223-01
 Matrix: Groundwater

Laboratory Project: **25-0223**
 Collect Date: 04/14/2025
 Collect Time: 03:06 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0223-01-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/21/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0223-01-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Arsenic	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Barium	35		ug/L	5.0	04/21/2025	AB25-0421-06
Beryllium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Boron	33		ug/L	20.0	04/21/2025	AB25-0421-06
Cadmium	ND		ug/L	0.2	04/21/2025	AB25-0421-06
Calcium	19000		ug/L	1000.0	04/21/2025	AB25-0421-06
Chromium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Cobalt	ND		ug/L	6.0	04/21/2025	AB25-0421-06
Copper	1		ug/L	1.0	04/21/2025	AB25-0421-06
Iron	ND		ug/L	20.0	04/21/2025	AB25-0421-06
Lead	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Lithium	ND		ug/L	10.0	04/21/2025	AB25-0421-06
Magnesium	6680		ug/L	1000.0	04/21/2025	AB25-0421-06
Molybdenum	ND		ug/L	5.0	04/21/2025	AB25-0421-06
Nickel	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Potassium	1180		ug/L	100.0	04/21/2025	AB25-0421-06
Selenium	2		ug/L	1.0	04/21/2025	AB25-0421-06
Silver	ND		ug/L	0.2	04/21/2025	AB25-0421-06
Sodium	6220		ug/L	1000.0	04/21/2025	AB25-0421-06
Thallium	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Vanadium	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Zinc	ND		ug/L	10.0	04/21/2025	AB25-0421-06

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0223-01-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	9100		ug/L	1000.0	04/18/2025	AB25-0417-01
Fluoride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Sulfate	13100		ug/L	1000.0	04/18/2025	AB25-0417-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0223-01-C03-A01 Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	114		mg/L	10.0	04/17/2025	AB25-0417-05



Analytical Report

Report Date: 04/30/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
Field Sample ID: **JHC-MW-15023**
Lab Sample ID: 25-0223-01
Matrix: Groundwater

Laboratory Project: **25-0223**
Collect Date: 04/14/2025
Collect Time: 03:06 PM

Alkalinity by SM 2320B

Aliquot #: 25-0223-01-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	53900		ug/L	10000.0	04/17/2025	AB25-0417-04
Alkalinity Bicarbonate	53900		ug/L	10000.0	04/17/2025	AB25-0417-04
Alkalinity Carbonate	ND		ug/L	10000.0	04/17/2025	AB25-0417-04

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **JHC-MW-15024**
 Lab Sample ID: 25-0223-02
 Matrix: Groundwater

Laboratory Project: **25-0223**
 Collect Date: 04/14/2025
 Collect Time: 05:11 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0223-02-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/21/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0223-02-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Arsenic	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Barium	17		ug/L	5.0	04/21/2025	AB25-0421-06
Beryllium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Boron	23		ug/L	20.0	04/21/2025	AB25-0421-06
Cadmium	ND		ug/L	0.2	04/21/2025	AB25-0421-06
Calcium	31300		ug/L	1000.0	04/21/2025	AB25-0421-06
Chromium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Cobalt	ND		ug/L	6.0	04/21/2025	AB25-0421-06
Copper	2		ug/L	1.0	04/21/2025	AB25-0421-06
Iron	ND		ug/L	20.0	04/21/2025	AB25-0421-06
Lead	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Lithium	ND		ug/L	10.0	04/21/2025	AB25-0421-06
Magnesium	8600		ug/L	1000.0	04/21/2025	AB25-0421-06
Molybdenum	ND		ug/L	5.0	04/21/2025	AB25-0421-06
Nickel	3		ug/L	2.0	04/21/2025	AB25-0421-06
Potassium	963		ug/L	100.0	04/21/2025	AB25-0421-06
Selenium	2		ug/L	1.0	04/21/2025	AB25-0421-06
Silver	ND		ug/L	0.2	04/21/2025	AB25-0421-06
Sodium	14600		ug/L	1000.0	04/21/2025	AB25-0421-06
Thallium	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Vanadium	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Zinc	ND		ug/L	10.0	04/21/2025	AB25-0421-06

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0223-02-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	17000		ug/L	1000.0	04/18/2025	AB25-0417-01
Fluoride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Sulfate	6540		ug/L	1000.0	04/18/2025	AB25-0417-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0223-02-C03-A01 Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	164		mg/L	10.0	04/17/2025	AB25-0417-05



Analytical Report

Report Date: 04/30/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
Field Sample ID: **JHC-MW-15024**
Lab Sample ID: 25-0223-02
Matrix: Groundwater

Laboratory Project: **25-0223**
Collect Date: 04/14/2025
Collect Time: 05:11 PM

Alkalinity by SM 2320B

Aliquot #: 25-0223-02-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	112000		ug/L	10000.0	04/17/2025	AB25-0417-04
Alkalinity Bicarbonate	112000		ug/L	10000.0	04/17/2025	AB25-0417-04
Alkalinity Carbonate	ND		ug/L	10000.0	04/17/2025	AB25-0417-04

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **JHC-MW-15025**
 Lab Sample ID: 25-0223-03
 Matrix: Groundwater

Laboratory Project: **25-0223**
 Collect Date: 04/14/2025
 Collect Time: 06:11 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0223-03-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/21/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0223-03-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Arsenic	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Barium	7		ug/L	5.0	04/21/2025	AB25-0421-06
Beryllium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Boron	22		ug/L	20.0	04/21/2025	AB25-0421-06
Cadmium	ND		ug/L	0.2	04/21/2025	AB25-0421-06
Calcium	34200		ug/L	1000.0	04/21/2025	AB25-0421-06
Chromium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Cobalt	ND		ug/L	6.0	04/21/2025	AB25-0421-06
Copper	1		ug/L	1.0	04/21/2025	AB25-0421-06
Iron	ND		ug/L	20.0	04/21/2025	AB25-0421-06
Lead	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Lithium	ND		ug/L	10.0	04/21/2025	AB25-0421-06
Magnesium	9670		ug/L	1000.0	04/21/2025	AB25-0421-06
Molybdenum	ND		ug/L	5.0	04/21/2025	AB25-0421-06
Nickel	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Potassium	1170		ug/L	100.0	04/21/2025	AB25-0421-06
Selenium	1		ug/L	1.0	04/21/2025	AB25-0421-06
Silver	ND		ug/L	0.2	04/21/2025	AB25-0421-06
Sodium	20000		ug/L	1000.0	04/21/2025	AB25-0421-06
Thallium	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Vanadium	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Zinc	ND		ug/L	10.0	04/21/2025	AB25-0421-06

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0223-03-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	35200		ug/L	1000.0	04/18/2025	AB25-0417-01
Fluoride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Sulfate	7470		ug/L	1000.0	04/18/2025	AB25-0417-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0223-03-C03-A01 Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	208		mg/L	10.0	04/17/2025	AB25-0417-05



Analytical Report

Report Date: 04/30/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
Field Sample ID: **JHC-MW-15025**
Lab Sample ID: 25-0223-03
Matrix: Groundwater

Laboratory Project: **25-0223**
Collect Date: 04/14/2025
Collect Time: 06:11 PM

Alkalinity by SM 2320B

Aliquot #: 25-0223-03-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	114000		ug/L	10000.0	04/17/2025	AB25-0417-04
Alkalinity Bicarbonate	114000		ug/L	10000.0	04/17/2025	AB25-0417-04
Alkalinity Carbonate	ND		ug/L	10000.0	04/17/2025	AB25-0417-04

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **JHC-MW-15026**
 Lab Sample ID: 25-0223-04
 Matrix: Groundwater

Laboratory Project: **25-0223**
 Collect Date: 04/15/2025
 Collect Time: 07:21 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0223-04-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/21/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0223-04-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Arsenic	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Barium	8		ug/L	5.0	04/21/2025	AB25-0421-06
Beryllium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Boron	ND		ug/L	20.0	04/21/2025	AB25-0421-06
Cadmium	ND		ug/L	0.2	04/21/2025	AB25-0421-06
Calcium	3450		ug/L	1000.0	04/21/2025	AB25-0421-06
Chromium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Cobalt	ND		ug/L	6.0	04/21/2025	AB25-0421-06
Copper	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Iron	35		ug/L	20.0	04/21/2025	AB25-0421-06
Lead	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Lithium	ND		ug/L	10.0	04/21/2025	AB25-0421-06
Magnesium	ND		ug/L	1000.0	04/21/2025	AB25-0421-06
Molybdenum	ND		ug/L	5.0	04/21/2025	AB25-0421-06
Nickel	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Potassium	443		ug/L	100.0	04/21/2025	AB25-0421-06
Selenium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Silver	ND		ug/L	0.2	04/21/2025	AB25-0421-06
Sodium	3120		ug/L	1000.0	04/21/2025	AB25-0421-06
Thallium	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Vanadium	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Zinc	ND		ug/L	10.0	04/21/2025	AB25-0421-06

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0223-04-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	3360		ug/L	1000.0	04/18/2025	AB25-0417-01
Fluoride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Sulfate	6480		ug/L	1000.0	04/18/2025	AB25-0417-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0223-04-C03-A01 Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	37		mg/L	10.0	04/17/2025	AB25-0417-05



Analytical Report

Report Date: 04/30/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
Field Sample ID: **JHC-MW-15026**
Lab Sample ID: 25-0223-04
Matrix: Groundwater

Laboratory Project: **25-0223**
Collect Date: 04/15/2025
Collect Time: 07:21 PM

Alkalinity by SM 2320B

Aliquot #: 25-0223-04-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	ND		ug/L	10000.0	04/17/2025	AB25-0417-04
Alkalinity Bicarbonate	ND		ug/L	10000.0	04/17/2025	AB25-0417-04
Alkalinity Carbonate	ND		ug/L	10000.0	04/17/2025	AB25-0417-04

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **JHC-MW-15027**
 Lab Sample ID: 25-0223-05
 Matrix: Groundwater

Laboratory Project: **25-0223**
 Collect Date: 04/15/2025
 Collect Time: 10:46 AM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0223-05-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/21/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0223-05-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Arsenic	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Barium	9		ug/L	5.0	04/21/2025	AB25-0421-06
Beryllium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Boron	22		ug/L	20.0	04/21/2025	AB25-0421-06
Cadmium	ND		ug/L	0.2	04/21/2025	AB25-0421-06
Calcium	25400		ug/L	1000.0	04/21/2025	AB25-0421-06
Chromium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Cobalt	ND		ug/L	6.0	04/21/2025	AB25-0421-06
Copper	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Iron	ND		ug/L	20.0	04/21/2025	AB25-0421-06
Lead	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Lithium	ND		ug/L	10.0	04/21/2025	AB25-0421-06
Magnesium	6040		ug/L	1000.0	04/21/2025	AB25-0421-06
Molybdenum	ND		ug/L	5.0	04/21/2025	AB25-0421-06
Nickel	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Potassium	413		ug/L	100.0	04/21/2025	AB25-0421-06
Selenium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Silver	ND		ug/L	0.2	04/21/2025	AB25-0421-06
Sodium	2030		ug/L	1000.0	04/21/2025	AB25-0421-06
Thallium	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Vanadium	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Zinc	ND		ug/L	10.0	04/21/2025	AB25-0421-06

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0223-05-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	1800		ug/L	1000.0	04/18/2025	AB25-0417-01
Fluoride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Sulfate	5700		ug/L	1000.0	04/18/2025	AB25-0417-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0223-05-C03-A01 Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	123		mg/L	10.0	04/17/2025	AB25-0417-05



Analytical Report

Report Date: 04/30/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
Field Sample ID: **JHC-MW-15027**
Lab Sample ID: 25-0223-05
Matrix: Groundwater

Laboratory Project: **25-0223**
Collect Date: 04/15/2025
Collect Time: 10:46 AM

Alkalinity by SM 2320B

Aliquot #: 25-0223-05-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	73900		ug/L	10000.0	04/17/2025	AB25-0417-04
Alkalinity Bicarbonate	73900		ug/L	10000.0	04/17/2025	AB25-0417-04
Alkalinity Carbonate	ND		ug/L	10000.0	04/17/2025	AB25-0417-04

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **JHC-MW-15028**
 Lab Sample ID: 25-0223-06
 Matrix: Groundwater

Laboratory Project: **25-0223**
 Collect Date: 04/15/2025
 Collect Time: 12:51 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0223-06-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/21/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0223-06-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Arsenic	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Barium	ND		ug/L	5.0	04/21/2025	AB25-0421-06
Beryllium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Boron	ND		ug/L	20.0	04/21/2025	AB25-0421-06
Cadmium	ND		ug/L	0.2	04/21/2025	AB25-0421-06
Calcium	16400		ug/L	1000.0	04/21/2025	AB25-0421-06
Chromium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Cobalt	ND		ug/L	6.0	04/21/2025	AB25-0421-06
Copper	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Iron	39		ug/L	20.0	04/21/2025	AB25-0421-06
Lead	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Lithium	ND		ug/L	10.0	04/21/2025	AB25-0421-06
Magnesium	3870		ug/L	1000.0	04/21/2025	AB25-0421-06
Molybdenum	ND		ug/L	5.0	04/21/2025	AB25-0421-06
Nickel	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Potassium	300		ug/L	100.0	04/21/2025	AB25-0421-06
Selenium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Silver	ND		ug/L	0.2	04/21/2025	AB25-0421-06
Sodium	1020		ug/L	1000.0	04/21/2025	AB25-0421-06
Thallium	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Vanadium	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Zinc	ND		ug/L	10.0	04/21/2025	AB25-0421-06

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0223-06-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	1050		ug/L	1000.0	04/18/2025	AB25-0417-01
Fluoride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Sulfate	4670		ug/L	1000.0	04/18/2025	AB25-0417-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0223-06-C03-A01 Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	66		mg/L	10.0	04/17/2025	AB25-0417-05



Analytical Report

Report Date: 04/30/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
Field Sample ID: **JHC-MW-15028**
Lab Sample ID: 25-0223-06
Matrix: Groundwater

Laboratory Project: **25-0223**
Collect Date: 04/15/2025
Collect Time: 12:51 PM

Alkalinity by SM 2320B

Aliquot #: 25-0223-06-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	53900		ug/L	10000.0	04/17/2025	AB25-0417-04
Alkalinity Bicarbonate	53900		ug/L	10000.0	04/17/2025	AB25-0417-04
Alkalinity Carbonate	ND		ug/L	10000.0	04/17/2025	AB25-0417-04

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **DUP-01**
 Lab Sample ID: 25-0223-07
 Matrix: Groundwater

Laboratory Project: **25-0223**
 Collect Date: 04/14/2025
 Collect Time: 12:00 AM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0223-07-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/21/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0223-07-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Arsenic	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Barium	35		ug/L	5.0	04/21/2025	AB25-0421-06
Beryllium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Boron	32		ug/L	20.0	04/21/2025	AB25-0421-06
Cadmium	ND		ug/L	0.2	04/21/2025	AB25-0421-06
Calcium	19400		ug/L	1000.0	04/21/2025	AB25-0421-06
Chromium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Cobalt	ND		ug/L	6.0	04/21/2025	AB25-0421-06
Copper	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Iron	ND		ug/L	20.0	04/21/2025	AB25-0421-06
Lead	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Lithium	ND		ug/L	10.0	04/21/2025	AB25-0421-06
Magnesium	7020		ug/L	1000.0	04/21/2025	AB25-0421-06
Molybdenum	ND		ug/L	5.0	04/21/2025	AB25-0421-06
Nickel	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Potassium	1210		ug/L	100.0	04/21/2025	AB25-0421-06
Selenium	2		ug/L	1.0	04/21/2025	AB25-0421-06
Silver	ND		ug/L	0.2	04/21/2025	AB25-0421-06
Sodium	6350		ug/L	1000.0	04/21/2025	AB25-0421-06
Thallium	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Vanadium	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Zinc	ND		ug/L	10.0	04/21/2025	AB25-0421-06

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0223-07-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	8950		ug/L	1000.0	04/18/2025	AB25-0417-01
Fluoride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Sulfate	12800		ug/L	1000.0	04/18/2025	AB25-0417-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0223-07-C03-A01 Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	117		mg/L	10.0	04/17/2025	AB25-0417-05



Analytical Report

Report Date: 04/30/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
Field Sample ID: **DUP-01**
Lab Sample ID: 25-0223-07
Matrix: Groundwater

Laboratory Project: **25-0223**
Collect Date: 04/14/2025
Collect Time: 12:00 AM

Alkalinity by SM 2320B

Aliquot #: 25-0223-07-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	55400		ug/L	10000.0	04/17/2025	AB25-0417-04
Alkalinity Bicarbonate	55400		ug/L	10000.0	04/17/2025	AB25-0417-04
Alkalinity Carbonate	ND		ug/L	10000.0	04/17/2025	AB25-0417-04

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **FB-01**
 Lab Sample ID: 25-0223-08
 Matrix: Water

Laboratory Project: **25-0223**
 Collect Date: 04/15/2025
 Collect Time: 01:23 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0223-08-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/21/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0223-08-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Arsenic	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Barium	ND		ug/L	5.0	04/21/2025	AB25-0421-06
Beryllium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Boron	ND		ug/L	20.0	04/21/2025	AB25-0421-06
Cadmium	ND		ug/L	0.2	04/21/2025	AB25-0421-06
Calcium	ND		ug/L	1000.0	04/21/2025	AB25-0421-06
Chromium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Cobalt	ND		ug/L	6.0	04/21/2025	AB25-0421-06
Copper	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Iron	ND		ug/L	20.0	04/21/2025	AB25-0421-06
Lead	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Lithium	ND		ug/L	10.0	04/21/2025	AB25-0421-06
Magnesium	ND		ug/L	1000.0	04/21/2025	AB25-0421-06
Molybdenum	ND		ug/L	5.0	04/21/2025	AB25-0421-06
Nickel	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Potassium	ND		ug/L	100.0	04/21/2025	AB25-0421-06
Selenium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Silver	ND		ug/L	0.2	04/21/2025	AB25-0421-06
Sodium	ND		ug/L	1000.0	04/21/2025	AB25-0421-06
Thallium	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Vanadium	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Zinc	ND		ug/L	10.0	04/21/2025	AB25-0421-06

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0223-08-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Fluoride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Sulfate	ND		ug/L	1000.0	04/18/2025	AB25-0417-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0223-08-C03-A01 Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	ND		mg/L	10.0	04/17/2025	AB25-0417-05

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **EB-01**
 Lab Sample ID: 25-0223-09
 Matrix: Water

Laboratory Project: **25-0223**
 Collect Date: 04/15/2025
 Collect Time: 01:35 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0223-09-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/21/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0223-09-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Arsenic	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Barium	ND		ug/L	5.0	04/21/2025	AB25-0421-06
Beryllium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Boron	ND		ug/L	20.0	04/21/2025	AB25-0421-06
Cadmium	ND		ug/L	0.2	04/21/2025	AB25-0421-06
Calcium	ND		ug/L	1000.0	04/21/2025	AB25-0421-06
Chromium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Cobalt	ND		ug/L	6.0	04/21/2025	AB25-0421-06
Copper	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Iron	ND		ug/L	20.0	04/21/2025	AB25-0421-06
Lead	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Lithium	ND		ug/L	10.0	04/21/2025	AB25-0421-06
Magnesium	ND		ug/L	1000.0	04/21/2025	AB25-0421-06
Molybdenum	ND		ug/L	5.0	04/21/2025	AB25-0421-06
Nickel	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Potassium	ND		ug/L	100.0	04/21/2025	AB25-0421-06
Selenium	ND		ug/L	1.0	04/21/2025	AB25-0421-06
Silver	ND		ug/L	0.2	04/21/2025	AB25-0421-06
Sodium	ND		ug/L	1000.0	04/21/2025	AB25-0421-06
Thallium	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Vanadium	ND		ug/L	2.0	04/21/2025	AB25-0421-06
Zinc	ND		ug/L	10.0	04/21/2025	AB25-0421-06

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0223-09-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Fluoride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Sulfate	ND		ug/L	1000.0	04/18/2025	AB25-0417-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0223-09-C03-A01 Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	ND		mg/L	10.0	04/17/2025	AB25-0417-05

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **JHC-MW-15025 Field MS**
 Lab Sample ID: 25-0223-10
 Matrix: Groundwater

Laboratory Project: **25-0223**
 Collect Date: 04/14/2025
 Collect Time: 06:11 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0223-10-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	98.0		%	0.2	04/21/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0223-10-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	105		%	1.0	04/21/2025	AB25-0421-06
Arsenic	106		%	1.0	04/21/2025	AB25-0421-06
Barium	102		%	5.0	04/21/2025	AB25-0421-06
Beryllium	103		%	1.0	04/21/2025	AB25-0421-06
Boron	106		%	20.0	04/21/2025	AB25-0421-06
Cadmium	108		%	0.2	04/21/2025	AB25-0421-06
Calcium	102		%	1000.0	04/21/2025	AB25-0421-06
Chromium	108		%	1.0	04/21/2025	AB25-0421-06
Cobalt	106		%	6.0	04/21/2025	AB25-0421-06
Copper	100		%	1.0	04/21/2025	AB25-0421-06
Iron	107		%	20.0	04/21/2025	AB25-0421-06
Lead	100		%	1.0	04/21/2025	AB25-0421-06
Lithium	104		%	10.0	04/21/2025	AB25-0421-06
Magnesium	106		%	1000.0	04/21/2025	AB25-0421-06
Molybdenum	106		%	5.0	04/21/2025	AB25-0421-06
Nickel	102		%	2.0	04/21/2025	AB25-0421-06
Potassium	103		%	100.0	04/21/2025	AB25-0421-06
Selenium	105		%	1.0	04/21/2025	AB25-0421-06
Silver	106		%	0.2	04/21/2025	AB25-0421-06
Sodium	111		%	1000.0	04/21/2025	AB25-0421-06
Thallium	103		%	2.0	04/21/2025	AB25-0421-06
Vanadium	109		%	2.0	04/21/2025	AB25-0421-06
Zinc	108		%	10.0	04/21/2025	AB25-0421-06

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0223-10-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	107		%	1000.0	04/18/2025	AB25-0417-01
Fluoride	97		%	1000.0	04/18/2025	AB25-0417-01
Sulfate	97		%	1000.0	04/18/2025	AB25-0417-01

Laboratory Services

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Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **JHC-MW-15025 Field MSD**
 Lab Sample ID: 25-0223-11
 Matrix: Groundwater

Laboratory Project: **25-0223**
 Collect Date: 04/14/2025
 Collect Time: 06:11 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0223-11-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	100.0		%	0.2	04/21/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0223-11-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	106		%	1.0	04/21/2025	AB25-0421-06
Arsenic	106		%	1.0	04/21/2025	AB25-0421-06
Barium	105		%	5.0	04/21/2025	AB25-0421-06
Beryllium	101		%	1.0	04/21/2025	AB25-0421-06
Boron	105		%	20.0	04/21/2025	AB25-0421-06
Cadmium	111		%	0.2	04/21/2025	AB25-0421-06
Calcium	102		%	1000.0	04/21/2025	AB25-0421-06
Chromium	107		%	1.0	04/21/2025	AB25-0421-06
Cobalt	106		%	6.0	04/21/2025	AB25-0421-06
Copper	101		%	1.0	04/21/2025	AB25-0421-06
Iron	106		%	20.0	04/21/2025	AB25-0421-06
Lead	101		%	1.0	04/21/2025	AB25-0421-06
Lithium	100		%	10.0	04/21/2025	AB25-0421-06
Magnesium	105		%	1000.0	04/21/2025	AB25-0421-06
Molybdenum	109		%	5.0	04/21/2025	AB25-0421-06
Nickel	101		%	2.0	04/21/2025	AB25-0421-06
Potassium	100		%	100.0	04/21/2025	AB25-0421-06
Selenium	104		%	1.0	04/21/2025	AB25-0421-06
Silver	106		%	0.2	04/21/2025	AB25-0421-06
Sodium	108		%	1000.0	04/21/2025	AB25-0421-06
Thallium	104		%	2.0	04/21/2025	AB25-0421-06
Vanadium	112		%	2.0	04/21/2025	AB25-0421-06
Zinc	104		%	10.0	04/21/2025	AB25-0421-06

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0223-11-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	107		%	1000.0	04/18/2025	AB25-0417-01
Fluoride	98		%	1000.0	04/18/2025	AB25-0417-01
Sulfate	97		%	1000.0	04/18/2025	AB25-0417-01



Analytical Report

Report Date: 04/30/25

Laboratory Services
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Data Qualifiers	Exception Summary
-----------------	-------------------

No exceptions occurred.

TITLE: SAMPLE LOG-IN – SHIPMENT INSPECTION FORM

Project Number: 25-0223 Inspection Date: 4.16.25 Inspection By: UMO
4.15.25
UMO 04.18.25

Sample Origin/Project Name: JHC Q2-2025 Background wells

Shipment Delivered By: Enter the type of shipment carrier.

Inter-Company Mail _____ FedEx _____ UPS _____ USPS _____
Tracking Number: _____ Other/Carry In (whom) UMO

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

Cooler Cardboard Box _____ Custom Case _____ Envelope/Mailer _____
Loose/Unpackaged Containers _____ Other _____

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

Damaged Shipment Observed: None Dented _____ Leaking _____
Other _____

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

Shipping Containers Received: Opened _____ Sealed N/A _____

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

CoC Work Request _____ Air Data Sheet _____ Other _____

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

As-Received Temperature Range 0-9-3.3 °C Samples Received on Ice: Yes No _____

M&TE # and Expiration LS027723 / 06.27.25

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

Container Type	Water	Soil	Other	Broken	Leaking
VOA (40mL or 60mL)	<u>14</u>	_____	_____	_____	_____
Quart/Liter (g/p)	<u>18</u>	_____	_____	_____	_____
9-oz (amber glass jar)	_____	_____	_____	_____	_____
2-oz (amber glass)	_____	_____	_____	_____	_____
125 mL (plastic)	<u>22</u>	_____	_____	_____	_____
24 mL vial (glass)	_____	_____	_____	_____	_____
250 mL (plastic)	<u>9</u>	_____	_____	_____	_____
Other	_____	_____	_____	_____	_____

All sample pH meeting criteria? Yes No _____ N/A _____ pH paper lot # 210224 Exp. Date 12.1.26

Indicate if an Exception Report (Page 2 of 2) is needed: Yes _____ No

CHAIN OF CUSTODY



CONSUMERS ENERGY COMPANY – LABORATORY SERVICES

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

SAMPLING SITE / CUSTOMER: JHC Q2-2025 Background Wells			PROJECT NUMBER: 25-0223		SAP CC or WO#: REQUESTER: JR Register		ANALYSIS REQUESTED (Attach List if More Space is Needed)						QA REQUIREMENT: <input type="checkbox"/> NPDES <input checked="" type="checkbox"/> TNI <input type="checkbox"/> ISO 17025 <input type="checkbox"/> 10 CFR 50 APP. B <input type="checkbox"/> INTERNAL INFO <input type="checkbox"/> OTHER _____	
SAMPLING TEAM: LMO			TURNAROUND TIME REQUIRED: <input type="checkbox"/> 24 HR <input type="checkbox"/> 48 HR <input type="checkbox"/> 3 DAYS <input type="checkbox"/> STANDARD <input checked="" type="checkbox"/> OTHER _____											
SEND REPORT TO:	Joseph Firlit		email:		phone:		Total Metals	Anions	TDS	Alkalinity	Radium 226	Radium 228	REMARKS	
COPY TO:	JR Register TRC		MATRIX CODES: GW = Groundwater OX = Other WW = Wastewater SL = Sludge W = Water / Aqueous Liquid A = Air S = Soil / General Solid WP = Wipe O = Oil WT = General Waste		CONTAINERS									
LAB SAMPLE ID	SAMPLE COLLECTION		MATRIX	FIELD SAMPLE ID / LOCATION			TOTAL #	PRESERVATIVE						
	DATE	TIME						None	HNO ₃	H ₂ SO ₄	NaOH	HCl	MeOH	
25-0223-01	4.14.25	1506	GW	JHC-MW-15023			7	4	3					
-02	4.14.25	1711	GW	JHC-MW-15024			7	4	3					
-03	4.14.25	1811	GW	JHC-MW-15025			7	4	3					
-04	4.15.25	1921	GW	JHC-MW-15026			7	4	3					
-05	4.15.25	1046	GW	JHC-MW-15027			7	4	3					
-06	4.15.25	1251	GW	JHC-MW-15028			7	4	3					
-07	4.15.25 EB043025	—	GW	DUP-01			7	4	3					
-08	4.15.25	1323	W	FB-01			5	2	3					
-09	4.15.25	1335	W	EB-01			5	2	3					
-10	4.14.25	1811	GW	JHC-MW-15025 MS			2	1	1					
-11	4.14.25	1811	GW	JHC-MW-15025 MSD			2	1	1					

RELINQUISHED BY: <i>Leana Okoser</i>		DATE/TIME: 04-16-25 1030		RECEIVED BY: <i>J</i>		COMMENTS: Received on Ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No M&TE #: <u>LS029723</u> Temperature: <u>0.9-3.3</u> °C Cal. Due Date: <u>06-27-25</u>					
RELINQUISHED BY:		DATE/TIME:		RECEIVED BY:							

 **ANALYTICAL REPORT****PREPARED FOR**

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

Generated 5/28/2025 6:29:55 PM

JOB DESCRIPTION

JH Campbell Background Wells

JOB NUMBER

160-57889-1

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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5/28/2025 6:29:55 PM

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



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Case Narrative

Client: Consumers Energy
Project: JH Campbell Background Wells

Job ID: 160-57889-1

Job ID: 160-57889-1

Eurofins St. Louis

CASE NARRATIVE

Client: Consumers Energy

Project: JH Campbell CCR Groundwater Testing

Report Number: 160-57889-1

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.

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 4/25/2025 12:05 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved. The temperatures of the 4 coolers at receipt time were 20.8°C, 21.4°C, 22.3°C and 22.4°C.

Receipt Exceptions

The samplers name is not listed on the COC.

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): JHC-MW-15026 (160-57889-4). The container labels list a collection date of 4/14/25, while the COC lists 4/15/25. Logged in the collection time on the COC.

The following samples were received at the laboratory without a sample collection time documented on the chain of custody: JHC-MW-15023 (160-57889-1), JHC-MW-15024 (160-57889-2), JHC-MW-15025 (160-57889-3), JHC-MW-15026 (160-57889-4), JHC-MW-15027 (160-57889-5), JHC-MW-15028 (160-57889-6), DUP-01 (160-57889-7), FB-01 (160-57889-8) and EB-01 (160-57889-9). A time of 12:00am was used to log the sample.

Method 903.0 - Radium-226 (GFPC)

Samples JHC-MW-15023 (160-57889-1), JHC-MW-15024 (160-57889-2), JHC-MW-15025 (160-57889-3), JHC-MW-15026 (160-57889-4), JHC-MW-15027 (160-57889-5), JHC-MW-15028 (160-57889-6), DUP-01 (160-57889-7), FB-01 (160-57889-8) and EB-01 (160-57889-9) were analyzed for Radium-226 (GFPC). The samples were prepared on 4/30/2025 and analyzed on 5/27/2025.

Method 904.0 - Radium-228 (GFPC)

Samples JHC-MW-15023 (160-57889-1), JHC-MW-15024 (160-57889-2), JHC-MW-15025 (160-57889-3), JHC-MW-15026 (160-57889-4), JHC-MW-15027 (160-57889-5), JHC-MW-15028 (160-57889-6), DUP-01 (160-57889-7), FB-01 (160-57889-8) and EB-01 (160-57889-9) were analyzed for Radium-228 (GFPC). The samples were prepared on 4/30/2025 and analyzed on 5/24/2025.

Eurofins St. Louis

Case Narrative

Client: Consumers Energy
Project: JH Campbell Background Wells

Job ID: 160-57889-1

Job ID: 160-57889-1 (Continued)

Eurofins St. Louis

Method Ra226_Ra228 - Combined Radium-226 and Radium-228

Samples JHC-MW-15023 (160-57889-1), JHC-MW-15024 (160-57889-2), JHC-MW-15025 (160-57889-3), JHC-MW-15026 (160-57889-4), JHC-MW-15027 (160-57889-5), JHC-MW-15028 (160-57889-6), DUP-01 (160-57889-7), FB-01 (160-57889-8) and EB-01 (160-57889-9) were analyzed for Combined Radium-226 and Radium-228. The samples were analyzed on 5/28/2025.

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Eurofins St. Louis

Login Sample Receipt Checklist

Client: Consumers Energy

Job Number: 160-57889-1

Login Number: 57889

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.	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	The samplers name is not listed on the COC.
There are no discrepancies between the containers received and the COC.	False	Collection date for sample 4 does not match. Logged in per the COC
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 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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

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

Job ID: 160-57889-1

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

Method Summary

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

Job ID: 160-57889-1

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



Sample Summary

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

Job ID: 160-57889-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-57889-1	JHC-MW-15023	Water	04/14/25 15:06	04/25/25 12:05
160-57889-2	JHC-MW-15024	Water	04/14/25 17:11	04/25/25 12:05
160-57889-3	JHC-MW-15025	Water	04/14/25 18:11	04/25/25 12:05
160-57889-4	JHC-MW-15026	Water	04/15/25 19:21	04/25/25 12:05
160-57889-5	JHC-MW-15027	Water	04/15/25 10:46	04/25/25 12:05
160-57889-6	JHC-MW-15028	Water	04/15/25 12:51	04/25/25 12:05
160-57889-7	DUP-01	Water	04/14/25 00:00	04/25/25 12:05
160-57889-8	FB-01	Water	04/15/25 13:23	04/25/25 12:05
160-57889-9	EB-01	Water	04/15/25 13:35	04/25/25 12:05

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Client Sample Results

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

Job ID: 160-57889-1

Client Sample ID: JHC-MW-15023

Lab Sample ID: 160-57889-1

Date Collected: 04/14/25 15:06

Matrix: Water

Date Received: 04/25/25 12:05

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00529	U	0.0701	0.0701	1.00	0.144	pCi/L	04/30/25 12:58	05/27/25 12:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.4		30 - 110					04/30/25 12:58	05/27/25 12:16	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	1.01		0.408	0.418	1.00	0.527	pCi/L	04/30/25 13:04	05/24/25 10:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.4		30 - 110					04/30/25 13:04	05/24/25 10:37	1
Y Carrier	78.9		30 - 110					04/30/25 13:04	05/24/25 10:37	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.02		0.414	0.424	5.00	0.527	pCi/L		05/28/25 11:41	1

Client Sample ID: JHC-MW-15024

Lab Sample ID: 160-57889-2

Date Collected: 04/14/25 17:11

Matrix: Water

Date Received: 04/25/25 12:05

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0566	U	0.0841	0.0842	1.00	0.144	pCi/L	04/30/25 12:58	05/27/25 12:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.5		30 - 110					04/30/25 12:58	05/27/25 12:17	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	-0.00469	U	0.337	0.337	1.00	0.626	pCi/L	04/30/25 13:04	05/24/25 10:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.5		30 - 110					04/30/25 13:04	05/24/25 10:37	1
Y Carrier	76.3		30 - 110					04/30/25 13:04	05/24/25 10:37	1

Client Sample Results

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

Job ID: 160-57889-1

Client Sample ID: JHC-MW-15024

Lab Sample ID: 160-57889-2

Date Collected: 04/14/25 17:11

Matrix: Water

Date Received: 04/25/25 12:05

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0519	U	0.347	0.347	5.00	0.626	pCi/L		05/28/25 11:41	1

Client Sample ID: JHC-MW-15025

Lab Sample ID: 160-57889-3

Date Collected: 04/14/25 18:11

Matrix: Water

Date Received: 04/25/25 12:05

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0130	U	0.0855	0.0855	1.00	0.170	pCi/L	04/30/25 12:58	05/27/25 12:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.9		30 - 110					04/30/25 12:58	05/27/25 12:17	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	0.417	U	0.381	0.383	1.00	0.605	pCi/L	04/30/25 13:04	05/24/25 10:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.9		30 - 110					04/30/25 13:04	05/24/25 10:37	1
Y Carrier	77.0		30 - 110					04/30/25 13:04	05/24/25 10:37	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.429	U	0.390	0.392	5.00	0.605	pCi/L		05/28/25 11:41	1

Client Sample ID: JHC-MW-15026

Lab Sample ID: 160-57889-4

Date Collected: 04/15/25 19:21

Matrix: Water

Date Received: 04/25/25 12:05

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0286	U	0.104	0.104	1.00	0.213	pCi/L	04/30/25 12:58	05/27/25 12:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.9		30 - 110					04/30/25 12:58	05/27/25 12:17	1

Client Sample Results

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

Job ID: 160-57889-1

Client Sample ID: JHC-MW-15026

Lab Sample ID: 160-57889-4

Date Collected: 04/15/25 19:21

Matrix: Water

Date Received: 04/25/25 12:05

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	0.351	U	0.369	0.370	1.00	0.600	pCi/L	04/30/25 13:04	05/24/25 10:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.9		30 - 110					04/30/25 13:04	05/24/25 10:37	1
Y Carrier	78.9		30 - 110					04/30/25 13:04	05/24/25 10:37	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.322	U	0.383	0.384	5.00	0.600	pCi/L		05/28/25 11:41	1

Client Sample ID: JHC-MW-15027

Lab Sample ID: 160-57889-5

Date Collected: 04/15/25 10:46

Matrix: Water

Date Received: 04/25/25 12:05

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0766	U	0.129	0.130	1.00	0.224	pCi/L	04/30/25 12:58	05/27/25 12:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.1		30 - 110					04/30/25 12:58	05/27/25 12:17	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	-0.102	U	0.260	0.260	1.00	0.520	pCi/L	04/30/25 13:04	05/24/25 10:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.1		30 - 110					04/30/25 13:04	05/24/25 10:37	1
Y Carrier	80.0		30 - 110					04/30/25 13:04	05/24/25 10:37	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0257	U	0.290	0.291	5.00	0.520	pCi/L		05/28/25 11:41	1

Client Sample Results

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

Job ID: 160-57889-1

Client Sample ID: JHC-MW-15028

Lab Sample ID: 160-57889-6

Date Collected: 04/15/25 12:51

Matrix: Water

Date Received: 04/25/25 12:05

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0116	U	0.0695	0.0695	1.00	0.140	pCi/L	04/30/25 12:58	05/27/25 14:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.9		30 - 110					04/30/25 12:58	05/27/25 14:23	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	0.263	U	0.311	0.312	1.00	0.513	pCi/L	04/30/25 13:04	05/24/25 10:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.9		30 - 110					04/30/25 13:04	05/24/25 10:37	1
Y Carrier	78.1		30 - 110					04/30/25 13:04	05/24/25 10:37	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.274	U	0.319	0.320	5.00	0.513	pCi/L		05/28/25 11:41	1

Client Sample ID: DUP-01

Lab Sample ID: 160-57889-7

Date Collected: 04/14/25 00:00

Matrix: Water

Date Received: 04/25/25 12:05

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0835	U	0.101	0.102	1.00	0.166	pCi/L	04/30/25 12:58	05/27/25 14:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.7		30 - 110					04/30/25 12:58	05/27/25 14:23	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	0.559	U	0.411	0.415	1.00	0.633	pCi/L	04/30/25 13:04	05/24/25 10:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.7		30 - 110					04/30/25 13:04	05/24/25 10:41	1
Y Carrier	75.9		30 - 110					04/30/25 13:04	05/24/25 10:41	1

Client Sample Results

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

Job ID: 160-57889-1

Client Sample ID: DUP-01
Date Collected: 04/14/25 00:00
Date Received: 04/25/25 12:05

Lab Sample ID: 160-57889-7
Matrix: Water

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.643		0.423	0.427	5.00	0.633	pCi/L		05/28/25 11:41	1

Client Sample ID: FB-01
Date Collected: 04/15/25 13:23
Date Received: 04/25/25 12:05

Lab Sample ID: 160-57889-8
Matrix: Water

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0325	U	0.106	0.106	1.00	0.223	pCi/L	04/30/25 12:58	05/27/25 14:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.1		30 - 110					04/30/25 12:58	05/27/25 14:23	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	0.328	U	0.374	0.375	1.00	0.613	pCi/L	04/30/25 13:04	05/24/25 10:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.1		30 - 110					04/30/25 13:04	05/24/25 10:42	1
Y Carrier	74.4		30 - 110					04/30/25 13:04	05/24/25 10:42	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.296	U	0.389	0.390	5.00	0.613	pCi/L		05/28/25 11:41	1

Client Sample ID: EB-01
Date Collected: 04/15/25 13:35
Date Received: 04/25/25 12:05

Lab Sample ID: 160-57889-9
Matrix: Water

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0671	U	0.104	0.104	1.00	0.179	pCi/L	04/30/25 12:58	05/27/25 14:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.1		30 - 110					04/30/25 12:58	05/27/25 14:23	1

Client Sample Results

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

Job ID: 160-57889-1

Client Sample ID: EB-01

Lab Sample ID: 160-57889-9

Date Collected: 04/15/25 13:35

Matrix: Water

Date Received: 04/25/25 12:05

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	0.355	U	0.337	0.339	1.00	0.539	pCi/L	04/30/25 13:04	05/24/25 10:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.1		30 - 110					04/30/25 13:04	05/24/25 10:42	1
Y Carrier	78.9		30 - 110					04/30/25 13:04	05/24/25 10:42	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.422	U	0.353	0.355	5.00	0.539	pCi/L		05/28/25 11:41	1

QC Sample Results

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

Job ID: 160-57889-1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-715330/1-A
Matrix: Water
Analysis Batch: 719413

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 715330

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.01156	U	0.0724	0.0724	1.00	0.148	pCi/L	04/30/25 12:58	05/27/25 12:16	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	88.0		30 - 110		04/30/25 12:58	05/27/25 12:16	1			

Lab Sample ID: LCS 160-715330/2-A
Matrix: Water
Analysis Batch: 719413

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 715330

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	9.58	9.175		1.07	1.00	0.230	pCi/L	96	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	87.7		30 - 110						

Lab Sample ID: 160-57889-1 DU
Matrix: Water
Analysis Batch: 719413

Client Sample ID: JHC-MW-15023
Prep Type: Total/NA
Prep Batch: 715330

Analyte	Sample		DU	DU	Total	RL	MDC	Unit	RER	RER Limit
	Result	Sample Qual	Result	Qual	Uncert. (2σ+/-)					
Radium-226	0.00529	U	0.03923	U	0.0989	1.00	0.181	pCi/L	0.20	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	96.4		30 - 110							

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-715332/1-A
Matrix: Water
Analysis Batch: 719073

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 715332

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	-0.08847	U	0.272	0.272	1.00	0.544	pCi/L	04/30/25 13:04	05/24/25 10:37	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	88.0		30 - 110		04/30/25 13:04	05/24/25 10:37	1			
Y Carrier	74.8		30 - 110		04/30/25 13:04	05/24/25 10:37	1			

QC Sample Results

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

Job ID: 160-57889-1

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

Lab Sample ID: LCS 160-715332/2-A
Matrix: Water
Analysis Batch: 719073

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 715332

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-228	9.42	11.22		1.48	1.00	0.563	pCi/L	119	75 - 125	
LCS LCS										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	87.7		30 - 110							
Y Carrier	78.5		30 - 110							

Lab Sample ID: 160-57889-1 DU
Matrix: Water
Analysis Batch: 719073

Client Sample ID: JHC-MW-15023
Prep Type: Total/NA
Prep Batch: 715332

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
										1
Radium-228	1.01		0.7231		0.399	1.00	0.566	pCi/L	0.35	1
DU DU										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	96.4		30 - 110							
Y Carrier	79.6		30 - 110							

QC Association Summary

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

Job ID: 160-57889-1

Rad

Prep Batch: 715330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-57889-1	JHC-MW-15023	Total/NA	Water	PrecSep-21	
160-57889-2	JHC-MW-15024	Total/NA	Water	PrecSep-21	
160-57889-3	JHC-MW-15025	Total/NA	Water	PrecSep-21	
160-57889-4	JHC-MW-15026	Total/NA	Water	PrecSep-21	
160-57889-5	JHC-MW-15027	Total/NA	Water	PrecSep-21	
160-57889-6	JHC-MW-15028	Total/NA	Water	PrecSep-21	
160-57889-7	DUP-01	Total/NA	Water	PrecSep-21	
160-57889-8	FB-01	Total/NA	Water	PrecSep-21	
160-57889-9	EB-01	Total/NA	Water	PrecSep-21	
MB 160-715330/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-715330/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
160-57889-1 DU	JHC-MW-15023	Total/NA	Water	PrecSep-21	

Prep Batch: 715332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-57889-1	JHC-MW-15023	Total/NA	Water	PrecSep_0	
160-57889-2	JHC-MW-15024	Total/NA	Water	PrecSep_0	
160-57889-3	JHC-MW-15025	Total/NA	Water	PrecSep_0	
160-57889-4	JHC-MW-15026	Total/NA	Water	PrecSep_0	
160-57889-5	JHC-MW-15027	Total/NA	Water	PrecSep_0	
160-57889-6	JHC-MW-15028	Total/NA	Water	PrecSep_0	
160-57889-7	DUP-01	Total/NA	Water	PrecSep_0	
160-57889-8	FB-01	Total/NA	Water	PrecSep_0	
160-57889-9	EB-01	Total/NA	Water	PrecSep_0	
MB 160-715332/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-715332/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
160-57889-1 DU	JHC-MW-15023	Total/NA	Water	PrecSep_0	

Tracer/Carrier Summary

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

Job ID: 160-57889-1

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba	
		(30-110)	
160-57889-1	JHC-MW-15023	93.4	
160-57889-1 DU	JHC-MW-15023	96.4	
160-57889-2	JHC-MW-15024	89.5	
160-57889-3	JHC-MW-15025	84.9	
160-57889-4	JHC-MW-15026	93.9	
160-57889-5	JHC-MW-15027	92.1	
160-57889-6	JHC-MW-15028	96.9	
160-57889-7	DUP-01	88.7	
160-57889-8	FB-01	81.1	
160-57889-9	EB-01	94.1	
LCS 160-715330/2-A	Lab Control Sample	87.7	
MB 160-715330/1-A	Method Blank	88.0	

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba	Y
		(30-110)	(30-110)
160-57889-1	JHC-MW-15023	93.4	78.9
160-57889-1 DU	JHC-MW-15023	96.4	79.6
160-57889-2	JHC-MW-15024	89.5	76.3
160-57889-3	JHC-MW-15025	84.9	77.0
160-57889-4	JHC-MW-15026	93.9	78.9
160-57889-5	JHC-MW-15027	92.1	80.0
160-57889-6	JHC-MW-15028	96.9	78.1
160-57889-7	DUP-01	88.7	75.9
160-57889-8	FB-01	81.1	74.4
160-57889-9	EB-01	94.1	78.9
LCS 160-715332/2-A	Lab Control Sample	87.7	78.5
MB 160-715332/1-A	Method Blank	88.0	74.8

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

To: JFirlit, JH Campbell Complex

From: EBlaj, T-258

Date: April 30, 2025

Subject: JH CAMPBELL SOLID WASTE DISPOSAL AREA – GROUNDWATER MONITORING
2nd Quarter, 2025 – Landfill Wells

CC: HDRegister, P22-521
ADSantini, P20-215B-REM

Sarah Holmstrom, Project Manager
TRC Companies, Inc.
1540 Eisenhower Place
Ann Arbor, MI 48108

Chemistry Project: 25-0225

CE Laboratory Services conducted groundwater monitoring at the JH Campbell Solid Waste Disposal Area during the week of 04/14/2025, for the 2nd Quarter requirement, as specified in the Hydrogeological Monitoring Plan for the site. Samples were not collected from MW-B3; the well was dry. All other samples were received for analysis by the Chemistry department on 04/16/2025.

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 accreditation specified in the listed certificate. The information contained in this report is the sole property of Consumers Energy. It cannot be reproduced except in full, and with consent from Consumers Energy, or the customer for which this report was issued.

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:

<u>Acronym</u>	<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

<u>Qualifier</u>	<u>Description</u>
*	Generic data flag, applicable description added in the corresponding notes section
B	The analyte was detected in the LRB at a level which is significant relative to sample result

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

Work Order Sample Summary

Customer Name: JH Campbell Complex
Work Order ID: Q2-2025 Landfill Wells
Date Received: 4/16/2025
Chemistry Project: 25-0225

<u>Sample #</u>	<u>Field Sample ID</u>	<u>Matrix</u>	<u>Sample Date</u>	<u>Site</u>
25-0225-01	JHC-MW-15017	Groundwater	04/15/2025 10:01	JHC GW Monitoring - Landfill Wells
25-0225-02	JHC-MW-15018	Groundwater	04/15/2025 11:31	JHC GW Monitoring - Landfill Wells
25-0225-03	JHC-MW-15031	Groundwater	04/15/2025 15:51	JHC GW Monitoring - Landfill Wells
25-0225-04	MW-B3	Not Collected		JHC GW Monitoring - Landfill Wells
25-0225-05	MW-B4	Groundwater	04/15/2025 13:51	JHC GW Monitoring - Landfill Wells
25-0225-06	JHC-MW-15035	Groundwater	04/15/2025 14:51	JHC GW Monitoring - Landfill Wells
25-0225-07	JHC-MW-15036	Groundwater	04/15/2025 16:51	JHC GW Monitoring - Landfill Wells
25-0225-08	JHC-MW-15037	Groundwater	04/15/2025 17:48	JHC GW Monitoring - Landfill Wells
25-0225-09	DUP-03	Groundwater	04/15/2025 00:00	JHC GW Monitoring - Landfill Wells
25-0225-10	FB-03	Water	04/15/2025 18:40	JHC GW Monitoring - Landfill Wells
25-0225-11	EB-03	Water	04/15/2025 18:48	JHC GW Monitoring - Landfill Wells
25-0225-12	MW-B4 MS	Groundwater	04/15/2025 13:51	JHC GW Monitoring - Landfill Wells
25-0225-13	MW-B4 MSD	Groundwater	04/15/2025 13:51	JHC GW Monitoring - Landfill Wells

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **JHC-MW-15017**
 Lab Sample ID: 25-0225-01
 Matrix: Groundwater

Laboratory Project: **25-0225**
 Collect Date: 04/15/2025
 Collect Time: 10:01 AM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0225-01-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/22/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0225-01-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Arsenic	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Barium	18		ug/L	5.0	04/22/2025	AB25-0422-02
Beryllium	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Boron	100		ug/L	20.0	04/22/2025	AB25-0422-02
Cadmium	ND		ug/L	0.2	04/22/2025	AB25-0422-02
Calcium	44100		ug/L	1000.0	04/22/2025	AB25-0422-02
Chromium	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Cobalt	ND		ug/L	6.0	04/22/2025	AB25-0422-02
Copper	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Iron	23		ug/L	20.0	04/22/2025	AB25-0422-02
Lead	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Lithium	ND		ug/L	10.0	04/22/2025	AB25-0422-02
Magnesium	8690		ug/L	1000.0	04/22/2025	AB25-0422-02
Molybdenum	ND		ug/L	5.0	04/22/2025	AB25-0422-02
Nickel	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Potassium	1490		ug/L	100.0	04/22/2025	AB25-0422-02
Selenium	10		ug/L	1.0	04/22/2025	AB25-0422-02
Silver	ND		ug/L	0.2	04/22/2025	AB25-0422-02
Sodium	11500		ug/L	1000.0	04/22/2025	AB25-0422-02
Thallium	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Vanadium	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Zinc	ND		ug/L	10.0	04/22/2025	AB25-0422-02

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0225-01-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	9410		ug/L	1000.0	04/18/2025	AB25-0417-01
Fluoride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Sulfate	22800		ug/L	1000.0	04/18/2025	AB25-0417-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0225-01-C03-A01 Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	202		mg/L	10.0	04/17/2025	AB25-0417-05



Analytical Report

Report Date: 04/30/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
Field Sample ID: **JHC-MW-15017**
Lab Sample ID: 25-0225-01
Matrix: Groundwater

Laboratory Project: **25-0225**
Collect Date: 04/15/2025
Collect Time: 10:01 AM

Alkalinity by SM 2320B

Aliquot #: 25-0225-01-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	133000		ug/L	10000.0	04/21/2025	AB25-0421-03
Alkalinity Bicarbonate	133000		ug/L	10000.0	04/21/2025	AB25-0421-03
Alkalinity Carbonate	ND		ug/L	10000.0	04/21/2025	AB25-0421-03

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **JHC-MW-15018**
 Lab Sample ID: 25-0225-02
 Matrix: Groundwater

Laboratory Project: **25-0225**
 Collect Date: 04/15/2025
 Collect Time: 11:31 AM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0225-02-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/22/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0225-02-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Arsenic	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Barium	19		ug/L	5.0	04/22/2025	AB25-0422-02
Beryllium	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Boron	83		ug/L	20.0	04/22/2025	AB25-0422-02
Cadmium	ND		ug/L	0.2	04/22/2025	AB25-0422-02
Calcium	51300		ug/L	1000.0	04/22/2025	AB25-0422-02
Chromium	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Cobalt	ND		ug/L	6.0	04/22/2025	AB25-0422-02
Copper	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Iron	ND		ug/L	20.0	04/22/2025	AB25-0422-02
Lead	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Lithium	ND		ug/L	10.0	04/22/2025	AB25-0422-02
Magnesium	12300		ug/L	1000.0	04/22/2025	AB25-0422-02
Molybdenum	ND		ug/L	5.0	04/22/2025	AB25-0422-02
Nickel	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Potassium	1280		ug/L	100.0	04/22/2025	AB25-0422-02
Selenium	9		ug/L	1.0	04/22/2025	AB25-0422-02
Silver	ND		ug/L	0.2	04/22/2025	AB25-0422-02
Sodium	16300		ug/L	1000.0	04/22/2025	AB25-0422-02
Thallium	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Vanadium	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Zinc	ND		ug/L	10.0	04/22/2025	AB25-0422-02

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0225-02-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	19900		ug/L	1000.0	04/18/2025	AB25-0417-01
Fluoride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Sulfate	23700		ug/L	1000.0	04/18/2025	AB25-0417-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0225-02-C03-A01 Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	239		mg/L	10.0	04/17/2025	AB25-0417-05



Analytical Report

Report Date: 04/30/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
Field Sample ID: **JHC-MW-15018**
Lab Sample ID: 25-0225-02
Matrix: Groundwater

Laboratory Project: **25-0225**
Collect Date: 04/15/2025
Collect Time: 11:31 AM

Alkalinity by SM 2320B

Aliquot #: 25-0225-02-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	159000		ug/L	10000.0	04/21/2025	AB25-0421-03
Alkalinity Bicarbonate	159000		ug/L	10000.0	04/21/2025	AB25-0421-03
Alkalinity Carbonate	ND		ug/L	10000.0	04/21/2025	AB25-0421-03

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **JHC-MW-15031**
 Lab Sample ID: 25-0225-03
 Matrix: Groundwater

Laboratory Project: **25-0225**
 Collect Date: 04/15/2025
 Collect Time: 03:51 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0225-03-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/22/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0225-03-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Arsenic	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Barium	10		ug/L	5.0	04/22/2025	AB25-0422-02
Beryllium	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Boron	41		ug/L	20.0	04/22/2025	AB25-0422-02
Cadmium	ND		ug/L	0.2	04/22/2025	AB25-0422-02
Calcium	41900		ug/L	1000.0	04/22/2025	AB25-0422-02
Chromium	3		ug/L	1.0	04/22/2025	AB25-0422-02
Cobalt	ND		ug/L	6.0	04/22/2025	AB25-0422-02
Copper	2		ug/L	1.0	04/22/2025	AB25-0422-02
Iron	36		ug/L	20.0	04/22/2025	AB25-0422-02
Lead	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Lithium	ND		ug/L	10.0	04/22/2025	AB25-0422-02
Magnesium	8980		ug/L	1000.0	04/22/2025	AB25-0422-02
Molybdenum	ND		ug/L	5.0	04/22/2025	AB25-0422-02
Nickel	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Potassium	856		ug/L	100.0	04/22/2025	AB25-0422-02
Selenium	2		ug/L	1.0	04/22/2025	AB25-0422-02
Silver	ND		ug/L	0.2	04/22/2025	AB25-0422-02
Sodium	3300		ug/L	1000.0	04/22/2025	AB25-0422-02
Thallium	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Vanadium	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Zinc	ND		ug/L	10.0	04/22/2025	AB25-0422-02

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0225-03-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	2270		ug/L	1000.0	04/18/2025	AB25-0417-01
Fluoride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Sulfate	14000		ug/L	1000.0	04/18/2025	AB25-0417-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0225-03-C03-A01 Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	170		mg/L	10.0	04/17/2025	AB25-0417-05



Analytical Report

Report Date: 04/30/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
Field Sample ID: **JHC-MW-15031**
Lab Sample ID: 25-0225-03
Matrix: Groundwater

Laboratory Project: **25-0225**
Collect Date: 04/15/2025
Collect Time: 03:51 PM

Alkalinity by SM 2320B

Aliquot #: 25-0225-03-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	135000		ug/L	10000.0	04/21/2025	AB25-0421-03
Alkalinity Bicarbonate	135000		ug/L	10000.0	04/21/2025	AB25-0421-03
Alkalinity Carbonate	ND		ug/L	10000.0	04/21/2025	AB25-0421-03

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **MW-B4**
 Lab Sample ID: 25-0225-05
 Matrix: Groundwater

Laboratory Project: **25-0225**
 Collect Date: 04/15/2025
 Collect Time: 01:51 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0225-05-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/22/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0225-05-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Arsenic	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Barium	50		ug/L	5.0	04/22/2025	AB25-0422-02
Beryllium	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Boron	401		ug/L	20.0	04/22/2025	AB25-0422-02
Cadmium	ND		ug/L	0.2	04/22/2025	AB25-0422-02
Calcium	97300		ug/L	1000.0	04/22/2025	AB25-0422-02
Chromium	2		ug/L	1.0	04/22/2025	AB25-0422-02
Cobalt	ND		ug/L	6.0	04/22/2025	AB25-0422-02
Copper	3		ug/L	1.0	04/22/2025	AB25-0422-02
Iron	38		ug/L	20.0	04/22/2025	AB25-0422-02
Lead	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Lithium	ND		ug/L	10.0	04/22/2025	AB25-0422-02
Magnesium	20300		ug/L	1000.0	04/22/2025	AB25-0422-02
Molybdenum	ND		ug/L	5.0	04/22/2025	AB25-0422-02
Nickel	4		ug/L	2.0	04/22/2025	AB25-0422-02
Potassium	2040		ug/L	100.0	04/22/2025	AB25-0422-02
Selenium	2		ug/L	1.0	04/22/2025	AB25-0422-02
Silver	ND		ug/L	0.2	04/22/2025	AB25-0422-02
Sodium	15300		ug/L	1000.0	04/22/2025	AB25-0422-02
Thallium	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Vanadium	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Zinc	45		ug/L	10.0	04/22/2025	AB25-0422-02

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0225-05-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	11000		ug/L	1000.0	04/18/2025	AB25-0417-01
Fluoride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Sulfate	28500		ug/L	1000.0	04/18/2025	AB25-0417-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0225-05-C03-A01 Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	402		mg/L	10.0	04/17/2025	AB25-0417-05



Analytical Report

Report Date: 04/30/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
Field Sample ID: **MW-B4**
Lab Sample ID: 25-0225-05
Matrix: Groundwater

Laboratory Project: **25-0225**
Collect Date: 04/15/2025
Collect Time: 01:51 PM

Alkalinity by SM 2320B

Aliquot #: 25-0225-05-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	329000		ug/L	10000.0	04/21/2025	AB25-0421-03
Alkalinity Bicarbonate	329000		ug/L	10000.0	04/21/2025	AB25-0421-03
Alkalinity Carbonate	ND		ug/L	10000.0	04/21/2025	AB25-0421-03

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **JHC-MW-15035**
 Lab Sample ID: 25-0225-06
 Matrix: Groundwater

Laboratory Project: **25-0225**
 Collect Date: 04/15/2025
 Collect Time: 02:51 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0225-06-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/22/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0225-06-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Arsenic	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Barium	16		ug/L	5.0	04/22/2025	AB25-0422-02
Beryllium	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Boron	68		ug/L	20.0	04/22/2025	AB25-0422-02
Cadmium	ND		ug/L	0.2	04/22/2025	AB25-0422-02
Calcium	78500		ug/L	1000.0	04/22/2025	AB25-0422-02
Chromium	1		ug/L	1.0	04/22/2025	AB25-0422-02
Cobalt	ND		ug/L	6.0	04/22/2025	AB25-0422-02
Copper	1		ug/L	1.0	04/22/2025	AB25-0422-02
Iron	20		ug/L	20.0	04/22/2025	AB25-0422-02
Lead	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Lithium	ND		ug/L	10.0	04/22/2025	AB25-0422-02
Magnesium	14800		ug/L	1000.0	04/22/2025	AB25-0422-02
Molybdenum	ND		ug/L	5.0	04/22/2025	AB25-0422-02
Nickel	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Potassium	2120		ug/L	100.0	04/22/2025	AB25-0422-02
Selenium	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Silver	ND		ug/L	0.2	04/22/2025	AB25-0422-02
Sodium	9630		ug/L	1000.0	04/22/2025	AB25-0422-02
Thallium	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Vanadium	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Zinc	12		ug/L	10.0	04/22/2025	AB25-0422-02

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0225-06-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	5070		ug/L	1000.0	04/18/2025	AB25-0417-01
Fluoride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Sulfate	25400		ug/L	1000.0	04/18/2025	AB25-0417-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0225-06-C03-A01 Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	309		mg/L	10.0	04/17/2025	AB25-0417-05



Analytical Report

Report Date: 04/30/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
Field Sample ID: **JHC-MW-15035**
Lab Sample ID: 25-0225-06
Matrix: Groundwater

Laboratory Project: **25-0225**
Collect Date: 04/15/2025
Collect Time: 02:51 PM

Alkalinity by SM 2320B

Aliquot #: 25-0225-06-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	260000		ug/L	10000.0	04/21/2025	AB25-0421-03
Alkalinity Bicarbonate	260000		ug/L	10000.0	04/21/2025	AB25-0421-03
Alkalinity Carbonate	ND		ug/L	10000.0	04/21/2025	AB25-0421-03



Analytical Report

Report Date: 04/30/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **JHC-MW-15036**
 Lab Sample ID: 25-0225-07
 Matrix: Groundwater

Laboratory Project: **25-0225**
 Collect Date: 04/15/2025
 Collect Time: 04:51 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0225-07-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/22/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0225-07-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Arsenic	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Barium	8		ug/L	5.0	04/22/2025	AB25-0422-02
Beryllium	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Boron	72		ug/L	20.0	04/22/2025	AB25-0422-02
Cadmium	ND		ug/L	0.2	04/22/2025	AB25-0422-02
Calcium	49800		ug/L	1000.0	04/22/2025	AB25-0422-02
Chromium	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Cobalt	ND		ug/L	6.0	04/22/2025	AB25-0422-02
Copper	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Iron	ND		ug/L	20.0	04/22/2025	AB25-0422-02
Lead	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Lithium	ND		ug/L	10.0	04/22/2025	AB25-0422-02
Magnesium	13300		ug/L	1000.0	04/22/2025	AB25-0422-02
Molybdenum	ND		ug/L	5.0	04/22/2025	AB25-0422-02
Nickel	7		ug/L	2.0	04/22/2025	AB25-0422-02
Potassium	1330		ug/L	100.0	04/22/2025	AB25-0422-02
Selenium	1		ug/L	1.0	04/22/2025	AB25-0422-02
Silver	ND		ug/L	0.2	04/22/2025	AB25-0422-02
Sodium	6710		ug/L	1000.0	04/22/2025	AB25-0422-02
Thallium	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Vanadium	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Zinc	ND		ug/L	10.0	04/22/2025	AB25-0422-02

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0225-07-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	2340		ug/L	1000.0	04/18/2025	AB25-0417-01
Fluoride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Sulfate	22300		ug/L	1000.0	04/18/2025	AB25-0417-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0225-07-C03-A01 Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	204		mg/L	10.0	04/17/2025	AB25-0417-05



Analytical Report

Report Date: 04/30/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
Field Sample ID: **JHC-MW-15036**
Lab Sample ID: 25-0225-07
Matrix: Groundwater

Laboratory Project: **25-0225**
Collect Date: 04/15/2025
Collect Time: 04:51 PM

Alkalinity by SM 2320B

Aliquot #: 25-0225-07-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	159000		ug/L	10000.0	04/21/2025	AB25-0421-03
Alkalinity Bicarbonate	159000		ug/L	10000.0	04/21/2025	AB25-0421-03
Alkalinity Carbonate	ND		ug/L	10000.0	04/21/2025	AB25-0421-03

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **JHC-MW-15037**
 Lab Sample ID: 25-0225-08
 Matrix: Groundwater

Laboratory Project: **25-0225**
 Collect Date: 04/15/2025
 Collect Time: 05:48 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0225-08-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/22/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0225-08-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Arsenic	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Barium	14		ug/L	5.0	04/22/2025	AB25-0422-02
Beryllium	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Boron	138		ug/L	20.0	04/22/2025	AB25-0422-02
Cadmium	ND		ug/L	0.2	04/22/2025	AB25-0422-02
Calcium	69400		ug/L	1000.0	04/22/2025	AB25-0422-02
Chromium	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Cobalt	ND		ug/L	6.0	04/22/2025	AB25-0422-02
Copper	1		ug/L	1.0	04/22/2025	AB25-0422-02
Iron	20		ug/L	20.0	04/22/2025	AB25-0422-02
Lead	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Lithium	ND		ug/L	10.0	04/22/2025	AB25-0422-02
Magnesium	14000		ug/L	1000.0	04/22/2025	AB25-0422-02
Molybdenum	ND		ug/L	5.0	04/22/2025	AB25-0422-02
Nickel	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Potassium	1760		ug/L	100.0	04/22/2025	AB25-0422-02
Selenium	7		ug/L	1.0	04/22/2025	AB25-0422-02
Silver	ND		ug/L	0.2	04/22/2025	AB25-0422-02
Sodium	13600		ug/L	1000.0	04/22/2025	AB25-0422-02
Thallium	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Vanadium	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Zinc	ND		ug/L	10.0	04/22/2025	AB25-0422-02

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0225-08-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	1910		ug/L	1000.0	04/18/2025	AB25-0417-01
Fluoride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Sulfate	56300		ug/L	1000.0	04/18/2025	AB25-0417-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0225-08-C03-A01 Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	308		mg/L	10.0	04/17/2025	AB25-0417-05



Analytical Report

Report Date: 04/30/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
Field Sample ID: **JHC-MW-15037**
Lab Sample ID: 25-0225-08
Matrix: Groundwater

Laboratory Project: **25-0225**
Collect Date: 04/15/2025
Collect Time: 05:48 PM

Alkalinity by SM 2320B

Aliquot #: 25-0225-08-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	192000		ug/L	10000.0	04/21/2025	AB25-0421-03
Alkalinity Bicarbonate	192000		ug/L	10000.0	04/21/2025	AB25-0421-03
Alkalinity Carbonate	ND		ug/L	10000.0	04/21/2025	AB25-0421-03

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **DUP-03**
 Lab Sample ID: 25-0225-09
 Matrix: Groundwater

Laboratory Project: **25-0225**
 Collect Date: 04/15/2025
 Collect Time: 12:00 AM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0225-09-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/22/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0225-09-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Arsenic	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Barium	17		ug/L	5.0	04/22/2025	AB25-0422-02
Beryllium	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Boron	99		ug/L	20.0	04/22/2025	AB25-0422-02
Cadmium	ND		ug/L	0.2	04/22/2025	AB25-0422-02
Calcium	43600		ug/L	1000.0	04/22/2025	AB25-0422-02
Chromium	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Cobalt	ND		ug/L	6.0	04/22/2025	AB25-0422-02
Copper	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Iron	22		ug/L	20.0	04/22/2025	AB25-0422-02
Lead	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Lithium	ND		ug/L	10.0	04/22/2025	AB25-0422-02
Magnesium	8690		ug/L	1000.0	04/22/2025	AB25-0422-02
Molybdenum	ND		ug/L	5.0	04/22/2025	AB25-0422-02
Nickel	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Potassium	1480		ug/L	100.0	04/22/2025	AB25-0422-02
Selenium	9		ug/L	1.0	04/22/2025	AB25-0422-02
Silver	ND		ug/L	0.2	04/22/2025	AB25-0422-02
Sodium	11500		ug/L	1000.0	04/22/2025	AB25-0422-02
Thallium	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Vanadium	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Zinc	ND		ug/L	10.0	04/22/2025	AB25-0422-02

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0225-09-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	9800		ug/L	1000.0	04/18/2025	AB25-0417-01
Fluoride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Sulfate	24200		ug/L	1000.0	04/18/2025	AB25-0417-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0225-09-C03-A01 Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	192		mg/L	10.0	04/17/2025	AB25-0417-05



Analytical Report

Report Date: 04/30/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
Field Sample ID: **DUP-03**
Lab Sample ID: 25-0225-09
Matrix: Groundwater

Laboratory Project: **25-0225**
Collect Date: 04/15/2025
Collect Time: 12:00 AM

Alkalinity by SM 2320B

Aliquot #: 25-0225-09-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	132000		ug/L	10000.0	04/21/2025	AB25-0421-03
Alkalinity Bicarbonate	132000		ug/L	10000.0	04/21/2025	AB25-0421-03
Alkalinity Carbonate	ND		ug/L	10000.0	04/21/2025	AB25-0421-03

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **FB-03**
 Lab Sample ID: 25-0225-10
 Matrix: Water

Laboratory Project: **25-0225**
 Collect Date: 04/15/2025
 Collect Time: 06:40 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0225-10-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/22/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0225-10-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Arsenic	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Barium	ND		ug/L	5.0	04/22/2025	AB25-0422-02
Beryllium	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Boron	ND		ug/L	20.0	04/22/2025	AB25-0422-02
Cadmium	ND		ug/L	0.2	04/22/2025	AB25-0422-02
Calcium	ND		ug/L	1000.0	04/22/2025	AB25-0422-02
Chromium	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Cobalt	ND		ug/L	6.0	04/22/2025	AB25-0422-02
Copper	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Iron	ND		ug/L	20.0	04/22/2025	AB25-0422-02
Lead	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Lithium	ND		ug/L	10.0	04/22/2025	AB25-0422-02
Magnesium	ND		ug/L	1000.0	04/22/2025	AB25-0422-02
Molybdenum	ND		ug/L	5.0	04/22/2025	AB25-0422-02
Nickel	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Potassium	ND		ug/L	100.0	04/22/2025	AB25-0422-02
Selenium	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Silver	ND		ug/L	0.2	04/22/2025	AB25-0422-02
Sodium	ND		ug/L	1000.0	04/22/2025	AB25-0422-02
Thallium	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Vanadium	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Zinc	ND		ug/L	10.0	04/22/2025	AB25-0422-02

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0225-10-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Fluoride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Sulfate	ND		ug/L	1000.0	04/18/2025	AB25-0417-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0225-10-C03-A01 Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	ND		mg/L	10.0	04/17/2025	AB25-0417-05

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **EB-03**
 Lab Sample ID: 25-0225-11
 Matrix: Water

Laboratory Project: **25-0225**
 Collect Date: 04/15/2025
 Collect Time: 06:48 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0225-11-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	04/22/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0225-11-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Arsenic	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Barium	ND		ug/L	5.0	04/22/2025	AB25-0422-02
Beryllium	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Boron	ND		ug/L	20.0	04/22/2025	AB25-0422-02
Cadmium	ND		ug/L	0.2	04/22/2025	AB25-0422-02
Calcium	ND		ug/L	1000.0	04/22/2025	AB25-0422-02
Chromium	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Cobalt	ND		ug/L	6.0	04/22/2025	AB25-0422-02
Copper	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Iron	ND		ug/L	20.0	04/22/2025	AB25-0422-02
Lead	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Lithium	ND		ug/L	10.0	04/22/2025	AB25-0422-02
Magnesium	ND		ug/L	1000.0	04/22/2025	AB25-0422-02
Molybdenum	ND		ug/L	5.0	04/22/2025	AB25-0422-02
Nickel	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Potassium	ND		ug/L	100.0	04/22/2025	AB25-0422-02
Selenium	ND		ug/L	1.0	04/22/2025	AB25-0422-02
Silver	ND		ug/L	0.2	04/22/2025	AB25-0422-02
Sodium	ND		ug/L	1000.0	04/22/2025	AB25-0422-02
Thallium	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Vanadium	ND		ug/L	2.0	04/22/2025	AB25-0422-02
Zinc	ND		ug/L	10.0	04/22/2025	AB25-0422-02

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0225-11-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Fluoride	ND		ug/L	1000.0	04/18/2025	AB25-0417-01
Sulfate	ND		ug/L	1000.0	04/18/2025	AB25-0417-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0225-11-C03-A01 Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	ND		mg/L	10.0	04/17/2025	AB25-0417-05

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **MW-B4 MS**
 Lab Sample ID: 25-0225-12
 Matrix: Groundwater

Laboratory Project: **25-0225**
 Collect Date: 04/15/2025
 Collect Time: 01:51 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0225-12-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	97.0		%	0.2	04/22/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0225-12-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	96		%	1.0	04/22/2025	AB25-0422-02
Arsenic	106		%	1.0	04/22/2025	AB25-0422-02
Barium	106		%	5.0	04/22/2025	AB25-0422-02
Beryllium	105		%	1.0	04/22/2025	AB25-0422-02
Boron	94		%	20.0	04/22/2025	AB25-0422-02
Cadmium	99.8		%	0.2	04/22/2025	AB25-0422-02
Calcium	102		%	1000.0	04/22/2025	AB25-0422-02
Chromium	106		%	1.0	04/22/2025	AB25-0422-02
Cobalt	105		%	6.0	04/22/2025	AB25-0422-02
Copper	92		%	1.0	04/22/2025	AB25-0422-02
Iron	106		%	20.0	04/22/2025	AB25-0422-02
Lead	99		%	1.0	04/22/2025	AB25-0422-02
Lithium	107		%	10.0	04/22/2025	AB25-0422-02
Magnesium	105		%	1000.0	04/22/2025	AB25-0422-02
Molybdenum	103		%	5.0	04/22/2025	AB25-0422-02
Nickel	101		%	2.0	04/22/2025	AB25-0422-02
Potassium	102		%	100.0	04/22/2025	AB25-0422-02
Selenium	103		%	1.0	04/22/2025	AB25-0422-02
Silver	95.5		%	0.2	04/22/2025	AB25-0422-02
Sodium	106		%	1000.0	04/22/2025	AB25-0422-02
Thallium	97		%	2.0	04/22/2025	AB25-0422-02
Vanadium	110		%	2.0	04/22/2025	AB25-0422-02
Zinc	105		%	10.0	04/22/2025	AB25-0422-02

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0225-12-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	98		%	1000.0	04/18/2025	AB25-0417-01
Fluoride	98		%	1000.0	04/18/2025	AB25-0417-01
Sulfate	99		%	1000.0	04/18/2025	AB25-0417-01



Analytical Report

Report Date: 04/30/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **MW-B4 MSD**
 Lab Sample ID: 25-0225-13
 Matrix: Groundwater

Laboratory Project: **25-0225**
 Collect Date: 04/15/2025
 Collect Time: 01:51 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0225-13-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	100.0		%	0.2	04/22/2025	AB25-0421-11

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0225-13-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	99		%	1.0	04/22/2025	AB25-0422-02
Arsenic	106		%	1.0	04/22/2025	AB25-0422-02
Barium	108		%	5.0	04/22/2025	AB25-0422-02
Beryllium	106		%	1.0	04/22/2025	AB25-0422-02
Boron	101		%	20.0	04/22/2025	AB25-0422-02
Cadmium	101		%	0.2	04/22/2025	AB25-0422-02
Calcium	99.7		%	1000.0	04/22/2025	AB25-0422-02
Chromium	108		%	1.0	04/22/2025	AB25-0422-02
Cobalt	106		%	6.0	04/22/2025	AB25-0422-02
Copper	94		%	1.0	04/22/2025	AB25-0422-02
Iron	107		%	20.0	04/22/2025	AB25-0422-02
Lead	99		%	1.0	04/22/2025	AB25-0422-02
Lithium	106		%	10.0	04/22/2025	AB25-0422-02
Magnesium	103		%	1000.0	04/22/2025	AB25-0422-02
Molybdenum	103		%	5.0	04/22/2025	AB25-0422-02
Nickel	103		%	2.0	04/22/2025	AB25-0422-02
Potassium	105		%	100.0	04/22/2025	AB25-0422-02
Selenium	106		%	1.0	04/22/2025	AB25-0422-02
Silver	95.4		%	0.2	04/22/2025	AB25-0422-02
Sodium	107		%	1000.0	04/22/2025	AB25-0422-02
Thallium	98		%	2.0	04/22/2025	AB25-0422-02
Vanadium	110		%	2.0	04/22/2025	AB25-0422-02
Zinc	106		%	10.0	04/22/2025	AB25-0422-02

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0225-13-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	98		%	1000.0	04/19/2025	AB25-0417-01
Fluoride	95		%	1000.0	04/19/2025	AB25-0417-01
Sulfate	97		%	1000.0	04/19/2025	AB25-0417-01



Analytical Report

Report Date: 04/30/25

Laboratory Services
A CENTURY OF EXCELLENCE

Data Qualifiers	Exception Summary
-----------------	-------------------

No exceptions occurred.

TITLE: SAMPLE LOG-IN – SHIPMENT INSPECTION FORM

Project Number: 25-0225 Inspection Date: 4-14-25 Inspection By: UMO

Sample Origin/Project Name: MTC Q2-2025 Landfill Wells

Shipment Delivered By: Enter the type of shipment carrier.

Inter-Company Mail _____ FedEx _____ UPS _____ USPS _____
Tracking Number: _____ Other/Carry In (whom) CUE

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

Cooler Cardboard Box _____ Custom Case _____ Envelope/Mailer _____
Loose/Unpackaged Containers _____ Other _____

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

Damaged Shipment Observed: None Dented _____ Leaking _____
Other _____

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

Shipping Containers Received: Opened _____ Sealed N/A _____

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

CoC Work Request _____ Air Data Sheet _____ Other _____

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

As-Received Temperature Range 1.1-4.2 °C Samples Received on Ice: Yes No _____

M&TE # and Expiration LS028157 / 1-16-26

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

Container Type	Water	Soil	Other	Broken	Leaking
VOA (40mL or 60mL)	<u>16</u>	_____	_____	_____	_____
Quart/Liter (g (p))	<u>20</u>	_____	_____	_____	_____
9-oz (amber glass jar)	_____	_____	_____	_____	_____
2-oz (amber glass)	_____	_____	_____	_____	_____
125 mL (plastic)	<u>24</u>	_____	_____	_____	_____
24 mL vial (glass)	_____	_____	_____	_____	_____
250 mL (plastic)	<u>8</u>	_____	_____	_____	_____
Other	_____	_____	_____	_____	_____

All sample pH meeting criteria? Yes _____ No _____ N/A _____ pH paper lot # 210224 Exp. Date 12-1-24

Indicate if an Exception Report (Page 2 of 2) is needed: Yes _____ No

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: JHC Q2-2025 Landfill Wells			PROJECT NUMBER: 25-0225			SAP CC or WO#: REQUESTER: JR Register			ANALYSIS REQUESTED (Attach List if More Space is Needed)						QA REQUIREMENT: <input type="checkbox"/> NPDES <input checked="" type="checkbox"/> TNI <input type="checkbox"/> ISO 17025 <input type="checkbox"/> 10 CFR 50 APP. B <input type="checkbox"/> INTERNAL INFO <input type="checkbox"/> OTHER _____
SAMPLING TEAM: CLE			TURNAROUND TIME REQUIRED: <input type="checkbox"/> 24 HR <input type="checkbox"/> 48 HR <input type="checkbox"/> 3 DAYS <input type="checkbox"/> STANDARD <input checked="" type="checkbox"/> OTHER _____												
SEND REPORT TO: Joseph Firlit		email:		phone:								REMARKS			
COPY TO: JR Register		MATRIX CODES:		CONTAINERS											
TRC		GW = Groundwater OX = Other WW = Wastewater SL = Sludge W = Water / Aqueous Liquid A = Air S = Soil / General Solid WP = Wipe O = Oil WT = General Waste		PRESERVATIVE						Total Metals Anions TDS Alkalinity Radium 226 Radium 228					
LAB SAMPLE ID	SAMPLE COLLECTION		MATRIX	FIELD SAMPLE ID / LOCATION		TOTAL #	None	HNO ₃	H ₂ SO ₄		NaOH	HCl	MeOH	Other	
DATE	TIME														
25-0225-01	4.15.25	1001	GW	JHC-MW-15017		7	4	3							
-02		1131	GW	JHC-MW-15018		7	4	3							
-03		1551	GW	JHC-MW-15031		7	4	3							
-04		—	GW	MW-B3		7	4	3						well was dry	
-05		1351	GW	MW-B4		7	4	3							
-06		1451	GW	JHC-MW-15035 (MW-B5)		7	4	3							
-07		1651	GW	JHC-MW-15036 (MW-B6)		7	4	3							
-08		1748	GW	JHC-MW-15037 (MW-B7)		7	4	3							
-09		—	GW	DUP-03		7	4	3							
-10		1840	W	FB-03		5	2	3							
-11		1848	W	EB-03		5	2	3							
-12		1351	GW	MW-B4 MS		2	1	1							

RELINQUISHED BY: <i>Casey Phelan</i>		DATE/TIME: 4/16/25 1123		RECEIVED BY: <i>[Signature]</i>		COMMENTS:					
RELINQUISHED BY:		DATE/TIME:		RECEIVED BY:		Received on Ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No M&TE #: <u>LS028751</u> Temperature: <u>1.1-4.2</u> °C Cal. Due Date: <u>1.16.24</u>					

 **ANALYTICAL REPORT****PREPARED FOR**

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

Generated 5/28/2025 6:22:28 PM

JOB DESCRIPTION

JH Campbell Landfill Wells

JOB NUMBER

160-57888-1

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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5/28/2025 6:22:28 PM

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



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Case Narrative

Client: Consumers Energy
Project: JH Campbell Landfill Wells

Job ID: 160-57888-1

Job ID: 160-57888-1

Eurofins St. Louis

CASE NARRATIVE

Client: Consumers Energy

Project: JH Campbell CCR Groundwater Testing

Report Number: 160-57888-1

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.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica 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 4/25/2025 12:05 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved. The temperatures of the 4 coolers at receipt time were 20.8°C, 21.4°C, 22.3°C and 22.4°C.

Receipt Exceptions

The sample collector name is not listed on the COC.

The following sample was received at the laboratory without a sample collection time documented on the chain of custody: DUP-03 (160-57888-8). A time of 12:00am was used to log the sample.

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): JHC-MW-15037 (160-57888-7). The container labels list a time of 17:36 while the COC lists 17:48. This was logged to match the COC.

Method 903.0 - Radium-226 (GFPC)

Samples JHC-MW-15017 (160-57888-1), JHC-MW-15018 (160-57888-2), JHC-MW-15031 (160-57888-3), MW-B4 (160-57888-4), JHC-MW-15035 (160-57888-5), JHC-MW-15036 (160-57888-6), JHC-MW-15037 (160-57888-7), DUP-03 (160-57888-8), FB-03 (160-57888-9) and EB-03 (160-57888-10) were analyzed for Radium-226 (GFPC). The samples were prepared on 4/29/2025 and analyzed on 5/27/2025.

Method 904.0 - Radium-228 (GFPC)

Samples JHC-MW-15017 (160-57888-1), JHC-MW-15018 (160-57888-2), JHC-MW-15031 (160-57888-3), MW-B4 (160-57888-4), JHC-MW-15035 (160-57888-5), JHC-MW-15036 (160-57888-6), JHC-MW-15037 (160-57888-7), DUP-03 (160-57888-8), FB-03 (160-57888-9) and EB-03 (160-57888-10) were analyzed for Radium-228 (GFPC). The samples were prepared on 4/29/2025 and analyzed on 5/24/2025.

Method Ra226_Ra228 - Combined Radium-226 and Radium-228

Samples JHC-MW-15017 (160-57888-1), JHC-MW-15018 (160-57888-2), JHC-MW-15031 (160-57888-3), MW-B4 (160-57888-4), JHC-MW-15035 (160-57888-5), JHC-MW-15036 (160-57888-6), JHC-MW-15037 (160-57888-7), DUP-03 (160-57888-8), FB-03

Eurofins St. Louis

Case Narrative

Client: Consumers Energy
Project: JH Campbell Landfill Wells

Job ID: 160-57888-1

Job ID: 160-57888-1 (Continued)

Eurofins St. Louis

(160-57888-9) and EB-03 (160-57888-10) were analyzed for Combined Radium-226 and Radium-228. The samples were analyzed on 5/28/2025.

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Login Sample Receipt Checklist

Client: Consumers Energy

Job Number: 160-57888-1

Login Number: 57888

List Source: Eurofins St. Louis

List Number: 1

Creator: Worthington, Sierra M

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	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	The samplers name is not listed on the COC.
There are no discrepancies between the containers received and the COC.	False	The time for sample 7 does not listed on the COC
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 8
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 <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

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

Job ID: 160-57888-1

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

Method Summary

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

Job ID: 160-57888-1

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



Sample Summary

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

Job ID: 160-57888-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-57888-1	JHC-MW-15017	Water	04/15/25 10:01	04/25/25 12:05
160-57888-2	JHC-MW-15018	Water	04/15/25 11:31	04/25/25 12:05
160-57888-3	JHC-MW-15031	Water	04/15/25 15:51	04/25/25 12:05
160-57888-4	MW-B4	Water	04/15/25 13:51	04/25/25 12:05
160-57888-5	JHC-MW-15035	Water	04/15/25 14:51	04/25/25 12:05
160-57888-6	JHC-MW-15036	Water	04/15/25 16:51	04/25/25 12:05
160-57888-7	JHC-MW-15037	Water	04/15/25 17:48	04/25/25 12:05
160-57888-8	DUP-03	Water	04/15/25 00:00	04/25/25 12:05
160-57888-9	FB-03	Water	04/15/25 18:40	04/25/25 12:05
160-57888-10	EB-03	Water	04/15/25 18:48	04/25/25 12:05

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Client Sample Results

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

Job ID: 160-57888-1

Client Sample ID: JHC-MW-15017

Lab Sample ID: 160-57888-1

Date Collected: 04/15/25 10:01

Matrix: Water

Date Received: 04/25/25 12:05

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0421	U	0.0788	0.0789	1.00	0.184	pCi/L	04/29/25 08:46	05/27/25 16:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.8		30 - 110					04/29/25 08:46	05/27/25 16:54	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	1.17		0.458	0.471	1.00	0.584	pCi/L	04/29/25 08:49	05/24/25 10:30	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.8		30 - 110					04/29/25 08:49	05/24/25 10:30	1
Y Carrier	71.0		30 - 110					04/29/25 08:49	05/24/25 10:30	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.13		0.465	0.478	5.00	0.584	pCi/L		05/28/25 10:53	1

Client Sample ID: JHC-MW-15018

Lab Sample ID: 160-57888-2

Date Collected: 04/15/25 11:31

Matrix: Water

Date Received: 04/25/25 12:05

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0684	U	0.0878	0.0880	1.00	0.146	pCi/L	04/29/25 08:46	05/27/25 16:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.4		30 - 110					04/29/25 08:46	05/27/25 16:54	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	1.16		0.503	0.515	1.00	0.674	pCi/L	04/29/25 08:49	05/24/25 10:30	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.4		30 - 110					04/29/25 08:49	05/24/25 10:30	1
Y Carrier	69.9		30 - 110					04/29/25 08:49	05/24/25 10:30	1

Client Sample Results

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

Job ID: 160-57888-1

Client Sample ID: JHC-MW-15018

Lab Sample ID: 160-57888-2

Date Collected: 04/15/25 11:31

Matrix: Water

Date Received: 04/25/25 12:05

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.23		0.511	0.522	5.00	0.674	pCi/L		05/28/25 10:53	1

Client Sample ID: JHC-MW-15031

Lab Sample ID: 160-57888-3

Date Collected: 04/15/25 15:51

Matrix: Water

Date Received: 04/25/25 12:05

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.153	U	0.117	0.118	1.00	0.168	pCi/L	04/29/25 08:46	05/27/25 16:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.6		30 - 110					04/29/25 08:46	05/27/25 16:55	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	0.399	U	0.417	0.418	1.00	0.676	pCi/L	04/29/25 08:49	05/24/25 10:30	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.6		30 - 110					04/29/25 08:49	05/24/25 10:30	1
Y Carrier	70.3		30 - 110					04/29/25 08:49	05/24/25 10:30	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.552	U	0.433	0.434	5.00	0.676	pCi/L		05/28/25 10:53	1

Client Sample ID: MW-B4

Lab Sample ID: 160-57888-4

Date Collected: 04/15/25 13:51

Matrix: Water

Date Received: 04/25/25 12:05

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0805	U	0.106	0.106	1.00	0.177	pCi/L	04/29/25 08:46	05/27/25 17:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.0		30 - 110					04/29/25 08:46	05/27/25 17:41	1

Client Sample Results

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

Job ID: 160-57888-1

Client Sample ID: MW-B4
Date Collected: 04/15/25 13:51
Date Received: 04/25/25 12:05

Lab Sample ID: 160-57888-4
Matrix: Water

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	0.628		0.376	0.381	1.00	0.547	pCi/L	04/29/25 08:49	05/24/25 10:33	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.0		30 - 110					04/29/25 08:49	05/24/25 10:33	1
Y Carrier	75.9		30 - 110					04/29/25 08:49	05/24/25 10:33	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.709		0.391	0.395	5.00	0.547	pCi/L		05/28/25 10:53	1

Client Sample ID: JHC-MW-15035
Date Collected: 04/15/25 14:51
Date Received: 04/25/25 12:05

Lab Sample ID: 160-57888-5
Matrix: Water

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0567	U	0.0810	0.0811	1.00	0.138	pCi/L	04/29/25 08:46	05/27/25 17:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.0		30 - 110					04/29/25 08:46	05/27/25 17:41	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	0.796		0.437	0.443	1.00	0.630	pCi/L	04/29/25 08:49	05/24/25 10:33	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.0		30 - 110					04/29/25 08:49	05/24/25 10:33	1
Y Carrier	71.8		30 - 110					04/29/25 08:49	05/24/25 10:33	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.853		0.444	0.450	5.00	0.630	pCi/L		05/28/25 10:53	1

Client Sample Results

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

Job ID: 160-57888-1

Client Sample ID: JHC-MW-15036

Lab Sample ID: 160-57888-6

Date Collected: 04/15/25 16:51

Matrix: Water

Date Received: 04/25/25 12:05

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0336	U	0.0872	0.0872	1.00	0.162	pCi/L	04/29/25 08:46	05/27/25 17:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.2		30 - 110					04/29/25 08:46	05/27/25 17:41	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	0.278	U	0.390	0.391	1.00	0.655	pCi/L	04/29/25 08:49	05/24/25 10:33	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.2		30 - 110					04/29/25 08:49	05/24/25 10:33	1
Y Carrier	72.9		30 - 110					04/29/25 08:49	05/24/25 10:33	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.312	U	0.400	0.401	5.00	0.655	pCi/L		05/28/25 10:53	1

Client Sample ID: JHC-MW-15037

Lab Sample ID: 160-57888-7

Date Collected: 04/15/25 17:48

Matrix: Water

Date Received: 04/25/25 12:05

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0392	U	0.0895	0.0896	1.00	0.164	pCi/L	04/29/25 08:46	05/27/25 17:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.4		30 - 110					04/29/25 08:46	05/27/25 17:41	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	0.511	U	0.438	0.441	1.00	0.689	pCi/L	04/29/25 08:49	05/24/25 10:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.4		30 - 110					04/29/25 08:49	05/24/25 10:34	1
Y Carrier	71.4		30 - 110					04/29/25 08:49	05/24/25 10:34	1

Client Sample Results

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

Job ID: 160-57888-1

Client Sample ID: JHC-MW-15037

Lab Sample ID: 160-57888-7

Date Collected: 04/15/25 17:48

Matrix: Water

Date Received: 04/25/25 12:05

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.551	U	0.447	0.450	5.00	0.689	pCi/L		05/28/25 10:53	1

Client Sample ID: DUP-03

Lab Sample ID: 160-57888-8

Date Collected: 04/15/25 00:00

Matrix: Water

Date Received: 04/25/25 12:05

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.291		0.170	0.172	1.00	0.216	pCi/L	04/29/25 08:46	05/27/25 17:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.0		30 - 110					04/29/25 08:46	05/27/25 17:43	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	0.997		0.624	0.631	1.00	0.920	pCi/L	04/29/25 08:49	05/24/25 10:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.0		30 - 110					04/29/25 08:49	05/24/25 10:34	1
Y Carrier	70.3		30 - 110					04/29/25 08:49	05/24/25 10:34	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.29		0.647	0.654	5.00	0.920	pCi/L		05/28/25 10:53	1

Client Sample ID: FB-03

Lab Sample ID: 160-57888-9

Date Collected: 04/15/25 18:40

Matrix: Water

Date Received: 04/25/25 12:05

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0216	U	0.0867	0.0868	1.00	0.169	pCi/L	04/29/25 08:46	05/27/25 17:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.0		30 - 110					04/29/25 08:46	05/27/25 17:43	1

Client Sample Results

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

Job ID: 160-57888-1

Client Sample ID: FB-03
 Date Collected: 04/15/25 18:40
 Date Received: 04/25/25 12:05

Lab Sample ID: 160-57888-9
 Matrix: Water

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	1.20		0.514	0.526	1.00	0.680	pCi/L	04/29/25 08:49	05/24/25 10:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.0		30 - 110					04/29/25 08:49	05/24/25 10:34	1
Y Carrier	72.5		30 - 110					04/29/25 08:49	05/24/25 10:34	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.22		0.521	0.533	5.00	0.680	pCi/L		05/28/25 10:53	1

Client Sample ID: EB-03
 Date Collected: 04/15/25 18:48
 Date Received: 04/25/25 12:05

Lab Sample ID: 160-57888-10
 Matrix: Water

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0482	U	0.0915	0.0916	1.00	0.163	pCi/L	04/29/25 08:46	05/27/25 17:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.3		30 - 110					04/29/25 08:46	05/27/25 17:43	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	1.58		0.483	0.505	1.00	0.558	pCi/L	04/29/25 08:49	05/24/25 10:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.3		30 - 110					04/29/25 08:49	05/24/25 10:34	1
Y Carrier	77.8		30 - 110					04/29/25 08:49	05/24/25 10:34	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.63		0.492	0.513	5.00	0.558	pCi/L		05/28/25 10:53	1

QC Sample Results

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

Job ID: 160-57888-1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-715206/1-A
Matrix: Water
Analysis Batch: 719413

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 715206

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.001125	U	0.0708	0.0708	1.00	0.150	pCi/L	04/29/25 08:46	05/27/25 16:53	1
Carrier	MB	MB	Limits				Prepared		Analyzed	Dil Fac
Ba Carrier	%Yield	Qualifier	30 - 110				04/29/25 08:46		05/27/25 16:53	1
	88.0									

Lab Sample ID: LCS 160-715206/2-A
Matrix: Water
Analysis Batch: 719413

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 715206

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	9.58	8.851		1.02	1.00	0.164	pCi/L	92	75 - 125
Carrier	LCS	LCS	Limits						
Ba Carrier	%Yield	Qualifier	30 - 110						
	89.3								

Lab Sample ID: 160-57888-10 DU
Matrix: Water
Analysis Batch: 719412

Client Sample ID: EB-03
Prep Type: Total/NA
Prep Batch: 715206

Analyte	Sample	Sample	DU	DU	Total	RL	MDC	Unit	RER	RER
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					Limit
Radium-226	0.0482	U	-0.01872	U	0.0618	1.00	0.145	pCi/L	0.44	1
Carrier	DU	DU	Limits							
Ba Carrier	%Yield	Qualifier	30 - 110							
	85.9									

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-715208/1-A
Matrix: Water
Analysis Batch: 719058

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 715208

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.5178	U	0.388	0.391	1.00	0.595	pCi/L	04/29/25 08:49	05/24/25 10:28	1
Carrier	MB	MB	Limits				Prepared		Analyzed	Dil Fac
Ba Carrier	%Yield	Qualifier	30 - 110				04/29/25 08:49		05/24/25 10:28	1
Y Carrier	74.4		30 - 110				04/29/25 08:49		05/24/25 10:28	1

QC Sample Results

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

Job ID: 160-57888-1

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

Lab Sample ID: LCS 160-715208/2-A
Matrix: Water
Analysis Batch: 719058

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 715208

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits																
Radium-228	9.42	11.80		1.54	1.00	0.552	pCi/L	125	75 - 125																
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">LCS</th> <th colspan="2">LCS</th> </tr> <tr> <th>Carrier</th> <th>%Yield</th> <th>Qualifier</th> <th>Limits</th> </tr> </thead> <tbody> <tr> <td>Ba Carrier</td> <td>89.3</td> <td></td> <td>30 - 110</td> </tr> <tr> <td>Y Carrier</td> <td>76.3</td> <td></td> <td>30 - 110</td> </tr> </tbody> </table>										LCS		LCS		Carrier	%Yield	Qualifier	Limits	Ba Carrier	89.3		30 - 110	Y Carrier	76.3		30 - 110
LCS		LCS																							
Carrier	%Yield	Qualifier	Limits																						
Ba Carrier	89.3		30 - 110																						
Y Carrier	76.3		30 - 110																						

Lab Sample ID: 160-57888-10 DU
Matrix: Water
Analysis Batch: 719073

Client Sample ID: EB-03
Prep Type: Total/NA
Prep Batch: 715208

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit																
Radium-228	1.58		1.215		0.499	1.00	0.633	pCi/L	0.37	1																
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">DU</th> <th colspan="2">DU</th> </tr> <tr> <th>Carrier</th> <th>%Yield</th> <th>Qualifier</th> <th>Limits</th> </tr> </thead> <tbody> <tr> <td>Ba Carrier</td> <td>85.9</td> <td></td> <td>30 - 110</td> </tr> <tr> <td>Y Carrier</td> <td>72.9</td> <td></td> <td>30 - 110</td> </tr> </tbody> </table>											DU		DU		Carrier	%Yield	Qualifier	Limits	Ba Carrier	85.9		30 - 110	Y Carrier	72.9		30 - 110
DU		DU																								
Carrier	%Yield	Qualifier	Limits																							
Ba Carrier	85.9		30 - 110																							
Y Carrier	72.9		30 - 110																							

QC Association Summary

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

Job ID: 160-57888-1

Rad

Prep Batch: 715206

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-57888-1	JHC-MW-15017	Total/NA	Water	PrecSep-21	
160-57888-2	JHC-MW-15018	Total/NA	Water	PrecSep-21	
160-57888-3	JHC-MW-15031	Total/NA	Water	PrecSep-21	
160-57888-4	MW-B4	Total/NA	Water	PrecSep-21	
160-57888-5	JHC-MW-15035	Total/NA	Water	PrecSep-21	
160-57888-6	JHC-MW-15036	Total/NA	Water	PrecSep-21	
160-57888-7	JHC-MW-15037	Total/NA	Water	PrecSep-21	
160-57888-8	DUP-03	Total/NA	Water	PrecSep-21	
160-57888-9	FB-03	Total/NA	Water	PrecSep-21	
160-57888-10	EB-03	Total/NA	Water	PrecSep-21	
MB 160-715206/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-715206/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
160-57888-10 DU	EB-03	Total/NA	Water	PrecSep-21	

Prep Batch: 715208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-57888-1	JHC-MW-15017	Total/NA	Water	PrecSep_0	
160-57888-2	JHC-MW-15018	Total/NA	Water	PrecSep_0	
160-57888-3	JHC-MW-15031	Total/NA	Water	PrecSep_0	
160-57888-4	MW-B4	Total/NA	Water	PrecSep_0	
160-57888-5	JHC-MW-15035	Total/NA	Water	PrecSep_0	
160-57888-6	JHC-MW-15036	Total/NA	Water	PrecSep_0	
160-57888-7	JHC-MW-15037	Total/NA	Water	PrecSep_0	
160-57888-8	DUP-03	Total/NA	Water	PrecSep_0	
160-57888-9	FB-03	Total/NA	Water	PrecSep_0	
160-57888-10	EB-03	Total/NA	Water	PrecSep_0	
MB 160-715208/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-715208/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
160-57888-10 DU	EB-03	Total/NA	Water	PrecSep_0	

Tracer/Carrier Summary

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

Job ID: 160-57888-1

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)
160-57888-1	JHC-MW-15017	91.8
160-57888-2	JHC-MW-15018	85.4
160-57888-3	JHC-MW-15031	82.6
160-57888-4	MW-B4	91.0
160-57888-5	JHC-MW-15035	91.0
160-57888-6	JHC-MW-15036	86.2
160-57888-7	JHC-MW-15037	82.4
160-57888-8	DUP-03	79.0
160-57888-9	FB-03	78.0
160-57888-10	EB-03	89.3
160-57888-10 DU	EB-03	85.9
LCS 160-715206/2-A	Lab Control Sample	89.3
MB 160-715206/1-A	Method Blank	88.0

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
160-57888-1	JHC-MW-15017	91.8	71.0
160-57888-2	JHC-MW-15018	85.4	69.9
160-57888-3	JHC-MW-15031	82.6	70.3
160-57888-4	MW-B4	91.0	75.9
160-57888-5	JHC-MW-15035	91.0	71.8
160-57888-6	JHC-MW-15036	86.2	72.9
160-57888-7	JHC-MW-15037	82.4	71.4
160-57888-8	DUP-03	79.0	70.3
160-57888-9	FB-03	78.0	72.5
160-57888-10	EB-03	89.3	77.8
160-57888-10 DU	EB-03	85.9	72.9
LCS 160-715208/2-A	Lab Control Sample	89.3	76.3
MB 160-715208/1-A	Method Blank	88.0	74.4

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

To: JFirlit, JH Campbell Complex

From: EBlaj, T-258

Date: October 24, 2025

Subject: JH CAMPBELL SOLID WASTE DISPOSAL AREA – GROUNDWATER MONITORING
4th Quarter, 2025 – Background Wells

CC: HDRegister, P22-521
ADSantini, P20-215B-REM

Sarah Holmstrom, Project Manager
TRC Companies, Inc.
1540 Eisenhower Place
Ann Arbor, MI 48108

Chemistry Project: 25-0769

CE Laboratory Services conducted groundwater monitoring at the JH Campbell Solid Waste Disposal Area during the week of 10/06/2025, 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 10/09/2025.

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 accreditation specified in the listed certificate. The information contained in this report is the sole property of Consumers Energy. It cannot be reproduced except in full, and with consent from Consumers Energy, or the customer for which this report was issued.

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:

<u>Acronym</u>	<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

<u>Qualifier</u>	<u>Description</u>
*	Generic data flag, applicable description added in the corresponding notes section
B	The analyte was detected in the LRB at a level which is significant relative to sample result

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

Customer Name: JH Campbell Complex
Work Order ID: Q4-2025 JHC Background Wells
Date Received: 10/9/2025
Chemistry Project: 25-0769

<u>Sample #</u>	<u>Field Sample ID</u>	<u>Matrix</u>	<u>Sample Date</u>	<u>Site</u>
25-0769-01	JHC-MW-15023	Groundwater	10/07/2025 16:31	JHC GW Monitoring - Background Wells
25-0769-02	JHC-MW-15024	Groundwater	10/07/2025 18:36	JHC GW Monitoring - Background Wells
25-0769-03	JHC-MW-15025	Groundwater	10/08/2025 10:06	JHC GW Monitoring - Background Wells
25-0769-04	JHC-MW-15026	Groundwater	10/08/2025 11:21	JHC GW Monitoring - Background Wells
25-0769-05	JHC-MW-15027	Groundwater	10/08/2025 12:51	JHC GW Monitoring - Background Wells
25-0769-06	JHC-MW-15028	Groundwater	10/08/2025 13:56	JHC GW Monitoring - Background Wells
25-0769-07	DUP-01	Groundwater	10/08/2025 00:00	JHC GW Monitoring - Background Wells
25-0769-08	FB-01	Water	10/08/2025 14:15	JHC GW Monitoring - Background Wells
25-0769-09	EB-01	Water	10/08/2025 14:30	JHC GW Monitoring - Background Wells
25-0769-10	JHC-MW-15025 Field MS	Groundwater	10/08/2025 11:21	JHC GW Monitoring - Background Wells
25-0769-11	JHC-MW-15025 Field MSD	Groundwater	10/08/2025 11:21	JHC GW Monitoring - Background Wells

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **JHC-MW-15023**
 Lab Sample ID: 25-0769-01
 Matrix: Groundwater

Laboratory Project: **25-0769**
 Collect Date: 10/07/2025
 Collect Time: 04:31 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0769-01-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/09/2025	AB25-1009-03

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0769-01-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Arsenic	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Barium	19		ug/L	5.0	10/13/2025	AB25-1013-03
Beryllium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Boron	38		ug/L	20.0	10/13/2025	AB25-1013-03
Cadmium	ND		ug/L	0.2	10/13/2025	AB25-1013-03
Calcium	18400		ug/L	1000.0	10/13/2025	AB25-1013-03
Chromium	1		ug/L	1.0	10/13/2025	AB25-1013-03
Cobalt	ND		ug/L	6.0	10/13/2025	AB25-1013-03
Copper	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Iron	21		ug/L	20.0	10/13/2025	AB25-1013-03
Lead	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Lithium	ND		ug/L	10.0	10/13/2025	AB25-1013-03
Magnesium	6500		ug/L	1000.0	10/13/2025	AB25-1013-03
Molybdenum	ND		ug/L	5.0	10/13/2025	AB25-1013-03
Nickel	2		ug/L	2.0	10/13/2025	AB25-1013-03
Potassium	1380		ug/L	100.0	10/13/2025	AB25-1013-03
Selenium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Silver	ND		ug/L	0.2	10/13/2025	AB25-1013-03
Sodium	4910		ug/L	1000.0	10/13/2025	AB25-1013-03
Thallium	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Vanadium	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Zinc	ND		ug/L	10.0	10/13/2025	AB25-1013-03

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0769-01-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	5310		ug/L	1000.0	10/10/2025	AB25-1010-02
Fluoride	ND		ug/L	1000.0	10/10/2025	AB25-1010-02
Sulfate	11000		ug/L	1000.0	10/10/2025	AB25-1010-02

Total Dissolved Solids by SM 2540C Aliquot #: 25-0769-01-C03-A01 Analyst: N/A

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	111		mg/L	10.0	10/09/2025	AB25-1009-01



Analytical Report

Report Date: 10/24/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
Field Sample ID: **JHC-MW-15023**
Lab Sample ID: 25-0769-01
Matrix: Groundwater

Laboratory Project: **25-0769**
Collect Date: 10/07/2025
Collect Time: 04:31 PM

Alkalinity by SM 2320B

Aliquot #: 25-0769-01-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity, Total	57000		ug/L	10000.0	10/13/2025	AB25-1013-02
Alkalinity, Bicarbonate	57000		ug/L	10000.0	10/13/2025	AB25-1013-02
Alkalinity, Carbonate	ND		ug/L	10000.0	10/13/2025	AB25-1013-02

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **JHC-MW-15024**
 Lab Sample ID: 25-0769-02
 Matrix: Groundwater

Laboratory Project: **25-0769**
 Collect Date: 10/07/2025
 Collect Time: 06:36 PM

Mercury by EPA 7470A, Total, Aqueous

Aliquot #: 25-0769-02-C01-A01

Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/09/2025	AB25-1009-03

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp

Aliquot #: 25-0769-02-C01-A02

Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Arsenic	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Barium	19		ug/L	5.0	10/13/2025	AB25-1013-03
Beryllium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Boron	27		ug/L	20.0	10/13/2025	AB25-1013-03
Cadmium	ND		ug/L	0.2	10/13/2025	AB25-1013-03
Calcium	33000		ug/L	1000.0	10/13/2025	AB25-1013-03
Chromium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Cobalt	ND		ug/L	6.0	10/13/2025	AB25-1013-03
Copper	2		ug/L	1.0	10/13/2025	AB25-1013-03
Iron	27		ug/L	20.0	10/13/2025	AB25-1013-03
Lead	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Lithium	ND		ug/L	10.0	10/13/2025	AB25-1013-03
Magnesium	8700		ug/L	1000.0	10/13/2025	AB25-1013-03
Molybdenum	ND		ug/L	5.0	10/13/2025	AB25-1013-03
Nickel	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Potassium	1250		ug/L	100.0	10/13/2025	AB25-1013-03
Selenium	1		ug/L	1.0	10/13/2025	AB25-1013-03
Silver	ND		ug/L	0.2	10/13/2025	AB25-1013-03
Sodium	13000		ug/L	1000.0	10/13/2025	AB25-1013-03
Thallium	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Vanadium	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Zinc	ND		ug/L	10.0	10/13/2025	AB25-1013-03

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

Aliquot #: 25-0769-02-C02-A01

Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	21100		ug/L	1000.0	10/10/2025	AB25-1010-02
Fluoride	ND		ug/L	1000.0	10/10/2025	AB25-1010-02
Sulfate	6570		ug/L	1000.0	10/10/2025	AB25-1010-02

Total Dissolved Solids by SM 2540C

Aliquot #: 25-0769-02-C03-A01

Analyst: N/A

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	181		mg/L	10.0	10/09/2025	AB25-1009-01



Analytical Report

Report Date: 10/24/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
Field Sample ID: **JHC-MW-15024**
Lab Sample ID: 25-0769-02
Matrix: Groundwater

Laboratory Project: **25-0769**
Collect Date: 10/07/2025
Collect Time: 06:36 PM

Alkalinity by SM 2320B

Aliquot #: 25-0769-02-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity, Total	108000		ug/L	10000.0	10/13/2025	AB25-1013-02
Alkalinity, Bicarbonate	108000		ug/L	10000.0	10/13/2025	AB25-1013-02
Alkalinity, Carbonate	ND		ug/L	10000.0	10/13/2025	AB25-1013-02

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **JHC-MW-15025**
 Lab Sample ID: 25-0769-03
 Matrix: Groundwater

Laboratory Project: **25-0769**
 Collect Date: 10/08/2025
 Collect Time: 10:06 AM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0769-03-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/09/2025	AB25-1009-03

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0769-03-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Arsenic	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Barium	8		ug/L	5.0	10/13/2025	AB25-1013-03
Beryllium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Boron	24		ug/L	20.0	10/13/2025	AB25-1013-03
Cadmium	ND		ug/L	0.2	10/13/2025	AB25-1013-03
Calcium	31100		ug/L	1000.0	10/13/2025	AB25-1013-03
Chromium	1		ug/L	1.0	10/13/2025	AB25-1013-03
Cobalt	ND		ug/L	6.0	10/13/2025	AB25-1013-03
Copper	1		ug/L	1.0	10/13/2025	AB25-1013-03
Iron	ND		ug/L	20.0	10/13/2025	AB25-1013-03
Lead	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Lithium	ND		ug/L	10.0	10/13/2025	AB25-1013-03
Magnesium	8770		ug/L	1000.0	10/13/2025	AB25-1013-03
Molybdenum	ND		ug/L	5.0	10/13/2025	AB25-1013-03
Nickel	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Potassium	1430		ug/L	100.0	10/13/2025	AB25-1013-03
Selenium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Silver	ND		ug/L	0.2	10/13/2025	AB25-1013-03
Sodium	34600		ug/L	1000.0	10/13/2025	AB25-1013-03
Thallium	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Vanadium	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Zinc	ND		ug/L	10.0	10/13/2025	AB25-1013-03

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0769-03-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	35700		ug/L	1000.0	10/10/2025	AB25-1010-02
Fluoride	ND		ug/L	1000.0	10/10/2025	AB25-1010-02
Sulfate	8100		ug/L	1000.0	10/10/2025	AB25-1010-02

Total Dissolved Solids by SM 2540C Aliquot #: 25-0769-03-C03-A01 Analyst: N/A

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	217		mg/L	10.0	10/09/2025	AB25-1009-01



Analytical Report

Report Date: 10/24/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
Field Sample ID: **JHC-MW-15025**
Lab Sample ID: 25-0769-03
Matrix: Groundwater

Laboratory Project: **25-0769**
Collect Date: 10/08/2025
Collect Time: 10:06 AM

Alkalinity by SM 2320B

Aliquot #: 25-0769-03-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity, Total	120000		ug/L	10000.0	10/13/2025	AB25-1013-02
Alkalinity, Bicarbonate	120000		ug/L	10000.0	10/13/2025	AB25-1013-02
Alkalinity, Carbonate	ND		ug/L	10000.0	10/13/2025	AB25-1013-02

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **JHC-MW-15026**
 Lab Sample ID: 25-0769-04
 Matrix: Groundwater

Laboratory Project: **25-0769**
 Collect Date: 10/08/2025
 Collect Time: 11:21 AM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0769-04-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/09/2025	AB25-1009-03

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0769-04-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Arsenic	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Barium	9		ug/L	5.0	10/13/2025	AB25-1013-03
Beryllium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Boron	ND		ug/L	20.0	10/13/2025	AB25-1013-03
Cadmium	ND		ug/L	0.2	10/13/2025	AB25-1013-03
Calcium	3930		ug/L	1000.0	10/13/2025	AB25-1013-03
Chromium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Cobalt	ND		ug/L	6.0	10/13/2025	AB25-1013-03
Copper	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Iron	39		ug/L	20.0	10/13/2025	AB25-1013-03
Lead	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Lithium	ND		ug/L	10.0	10/13/2025	AB25-1013-03
Magnesium	ND		ug/L	1000.0	10/13/2025	AB25-1013-03
Molybdenum	ND		ug/L	5.0	10/13/2025	AB25-1013-03
Nickel	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Potassium	522		ug/L	100.0	10/13/2025	AB25-1013-03
Selenium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Silver	ND		ug/L	0.2	10/13/2025	AB25-1013-03
Sodium	4950		ug/L	1000.0	10/13/2025	AB25-1013-03
Thallium	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Vanadium	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Zinc	ND		ug/L	10.0	10/13/2025	AB25-1013-03

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0769-04-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	4230		ug/L	1000.0	10/10/2025	AB25-1010-02
Fluoride	ND		ug/L	1000.0	10/10/2025	AB25-1010-02
Sulfate	7390		ug/L	1000.0	10/10/2025	AB25-1010-02

Total Dissolved Solids by SM 2540C Aliquot #: 25-0769-04-C03-A01 Analyst: N/A

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	59		mg/L	10.0	10/09/2025	AB25-1009-01



Analytical Report

Report Date: 10/24/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
Field Sample ID: **JHC-MW-15026**
Lab Sample ID: 25-0769-04
Matrix: Groundwater

Laboratory Project: **25-0769**
Collect Date: 10/08/2025
Collect Time: 11:21 AM

Alkalinity by SM 2320B

Aliquot #: 25-0769-04-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity, Total	ND		ug/L	10000.0	10/13/2025	AB25-1013-02
Alkalinity, Bicarbonate	ND		ug/L	10000.0	10/13/2025	AB25-1013-02
Alkalinity, Carbonate	ND		ug/L	10000.0	10/13/2025	AB25-1013-02

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **JHC-MW-15027**
 Lab Sample ID: 25-0769-05
 Matrix: Groundwater

Laboratory Project: **25-0769**
 Collect Date: 10/08/2025
 Collect Time: 12:51 PM

Mercury by EPA 7470A, Total, Aqueous

Aliquot #: 25-0769-05-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/09/2025	AB25-1009-03

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp

Aliquot #: 25-0769-05-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Arsenic	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Barium	13		ug/L	5.0	10/13/2025	AB25-1013-03
Beryllium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Boron	29		ug/L	20.0	10/13/2025	AB25-1013-03
Cadmium	ND		ug/L	0.2	10/13/2025	AB25-1013-03
Calcium	29700		ug/L	1000.0	10/13/2025	AB25-1013-03
Chromium	1		ug/L	1.0	10/13/2025	AB25-1013-03
Cobalt	ND		ug/L	6.0	10/13/2025	AB25-1013-03
Copper	1		ug/L	1.0	10/13/2025	AB25-1013-03
Iron	103		ug/L	20.0	10/13/2025	AB25-1013-03
Lead	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Lithium	ND		ug/L	10.0	10/13/2025	AB25-1013-03
Magnesium	7310		ug/L	1000.0	10/13/2025	AB25-1013-03
Molybdenum	ND		ug/L	5.0	10/13/2025	AB25-1013-03
Nickel	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Potassium	472		ug/L	100.0	10/13/2025	AB25-1013-03
Selenium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Silver	ND		ug/L	0.2	10/13/2025	AB25-1013-03
Sodium	2310		ug/L	1000.0	10/13/2025	AB25-1013-03
Thallium	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Vanadium	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Zinc	ND		ug/L	10.0	10/13/2025	AB25-1013-03

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

Aliquot #: 25-0769-05-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	1170		ug/L	1000.0	10/10/2025	AB25-1010-02
Fluoride	ND		ug/L	1000.0	10/10/2025	AB25-1010-02
Sulfate	5500		ug/L	1000.0	10/10/2025	AB25-1010-02

Total Dissolved Solids by SM 2540C

Aliquot #: 25-0769-05-C03-A01 Analyst: N/A

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	139		mg/L	10.0	10/09/2025	AB25-1009-01



Analytical Report

Report Date: 10/24/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
Field Sample ID: **JHC-MW-15027**
Lab Sample ID: 25-0769-05
Matrix: Groundwater

Laboratory Project: **25-0769**
Collect Date: 10/08/2025
Collect Time: 12:51 PM

Alkalinity by SM 2320B

Aliquot #: 25-0769-05-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity, Total	95400		ug/L	10000.0	10/13/2025	AB25-1013-02
Alkalinity, Bicarbonate	95400		ug/L	10000.0	10/13/2025	AB25-1013-02
Alkalinity, Carbonate	ND		ug/L	10000.0	10/13/2025	AB25-1013-02

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **JHC-MW-15028**
 Lab Sample ID: 25-0769-06
 Matrix: Groundwater

Laboratory Project: **25-0769**
 Collect Date: 10/08/2025
 Collect Time: 01:56 PM

Mercury by EPA 7470A, Total, Aqueous

Aliquot #: 25-0769-06-C01-A01

Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/09/2025	AB25-1009-03

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp

Aliquot #: 25-0769-06-C01-A02

Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Arsenic	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Barium	6		ug/L	5.0	10/13/2025	AB25-1013-03
Beryllium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Boron	ND		ug/L	20.0	10/13/2025	AB25-1013-03
Cadmium	ND		ug/L	0.2	10/13/2025	AB25-1013-03
Calcium	19600		ug/L	1000.0	10/13/2025	AB25-1013-03
Chromium	1		ug/L	1.0	10/13/2025	AB25-1013-03
Cobalt	ND		ug/L	6.0	10/13/2025	AB25-1013-03
Copper	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Iron	ND		ug/L	20.0	10/13/2025	AB25-1013-03
Lead	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Lithium	ND		ug/L	10.0	10/13/2025	AB25-1013-03
Magnesium	4450		ug/L	1000.0	10/13/2025	AB25-1013-03
Molybdenum	ND		ug/L	5.0	10/13/2025	AB25-1013-03
Nickel	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Potassium	371		ug/L	100.0	10/13/2025	AB25-1013-03
Selenium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Silver	ND		ug/L	0.2	10/13/2025	AB25-1013-03
Sodium	1260		ug/L	1000.0	10/13/2025	AB25-1013-03
Thallium	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Vanadium	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Zinc	ND		ug/L	10.0	10/13/2025	AB25-1013-03

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

Aliquot #: 25-0769-06-C02-A01

Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	ND		ug/L	1000.0	10/10/2025	AB25-1010-02
Fluoride	ND		ug/L	1000.0	10/10/2025	AB25-1010-02
Sulfate	5620		ug/L	1000.0	10/10/2025	AB25-1010-02

Total Dissolved Solids by SM 2540C

Aliquot #: 25-0769-06-C03-A01

Analyst: N/A

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	88		mg/L	10.0	10/09/2025	AB25-1009-01



Analytical Report

Report Date: 10/24/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
Field Sample ID: **JHC-MW-15028**
Lab Sample ID: 25-0769-06
Matrix: Groundwater

Laboratory Project: **25-0769**
Collect Date: 10/08/2025
Collect Time: 01:56 PM

Alkalinity by SM 2320B

Aliquot #: 25-0769-06-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity, Total	63100		ug/L	10000.0	10/13/2025	AB25-1013-02
Alkalinity, Bicarbonate	60000		ug/L	10000.0	10/13/2025	AB25-1013-02
Alkalinity, Carbonate	ND		ug/L	10000.0	10/13/2025	AB25-1013-02

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **DUP-01**
 Lab Sample ID: 25-0769-07
 Matrix: Groundwater

Laboratory Project: **25-0769**
 Collect Date: 10/08/2025
 Collect Time: 12:00 AM

Mercury by EPA 7470A, Total, Aqueous

Aliquot #: 25-0769-07-C01-A01

Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/09/2025	AB25-1009-03

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp

Aliquot #: 25-0769-07-C01-A02

Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Arsenic	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Barium	9		ug/L	5.0	10/13/2025	AB25-1013-03
Beryllium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Boron	ND		ug/L	20.0	10/13/2025	AB25-1013-03
Cadmium	ND		ug/L	0.2	10/13/2025	AB25-1013-03
Calcium	3860		ug/L	1000.0	10/13/2025	AB25-1013-03
Chromium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Cobalt	ND		ug/L	6.0	10/13/2025	AB25-1013-03
Copper	1		ug/L	1.0	10/13/2025	AB25-1013-03
Iron	40		ug/L	20.0	10/13/2025	AB25-1013-03
Lead	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Lithium	ND		ug/L	10.0	10/13/2025	AB25-1013-03
Magnesium	ND		ug/L	1000.0	10/13/2025	AB25-1013-03
Molybdenum	ND		ug/L	5.0	10/13/2025	AB25-1013-03
Nickel	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Potassium	515		ug/L	100.0	10/13/2025	AB25-1013-03
Selenium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Silver	ND		ug/L	0.2	10/13/2025	AB25-1013-03
Sodium	4870		ug/L	1000.0	10/13/2025	AB25-1013-03
Thallium	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Vanadium	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Zinc	ND		ug/L	10.0	10/13/2025	AB25-1013-03

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

Aliquot #: 25-0769-07-C02-A01

Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	4340		ug/L	1000.0	10/10/2025	AB25-1010-02
Fluoride	ND		ug/L	1000.0	10/10/2025	AB25-1010-02
Sulfate	7200		ug/L	1000.0	10/10/2025	AB25-1010-02

Total Dissolved Solids by SM 2540C

Aliquot #: 25-0769-07-C03-A01

Analyst: N/A

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	53		mg/L	10.0	10/09/2025	AB25-1009-01



Analytical Report

Report Date: 10/24/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
Field Sample ID: **DUP-01**
Lab Sample ID: 25-0769-07
Matrix: Groundwater

Laboratory Project: **25-0769**
Collect Date: 10/08/2025
Collect Time: 12:00 AM

Alkalinity by SM 2320B

Aliquot #: 25-0769-07-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity, Total	ND		ug/L	10000.0	10/13/2025	AB25-1013-02
Alkalinity, Bicarbonate	ND		ug/L	10000.0	10/13/2025	AB25-1013-02
Alkalinity, Carbonate	ND		ug/L	10000.0	10/13/2025	AB25-1013-02

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **FB-01**
 Lab Sample ID: 25-0769-08
 Matrix: Water

Laboratory Project: **25-0769**
 Collect Date: 10/08/2025
 Collect Time: 02:15 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0769-08-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/10/2025	AB25-1009-03

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0769-08-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Arsenic	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Barium	ND		ug/L	5.0	10/13/2025	AB25-1013-03
Beryllium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Boron	ND		ug/L	20.0	10/13/2025	AB25-1013-03
Cadmium	ND		ug/L	0.2	10/13/2025	AB25-1013-03
Calcium	ND		ug/L	1000.0	10/13/2025	AB25-1013-03
Chromium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Cobalt	ND		ug/L	6.0	10/13/2025	AB25-1013-03
Copper	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Iron	ND		ug/L	20.0	10/13/2025	AB25-1013-03
Lead	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Lithium	ND		ug/L	10.0	10/13/2025	AB25-1013-03
Magnesium	ND		ug/L	1000.0	10/13/2025	AB25-1013-03
Molybdenum	ND		ug/L	5.0	10/13/2025	AB25-1013-03
Nickel	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Potassium	ND		ug/L	100.0	10/13/2025	AB25-1013-03
Selenium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Silver	ND		ug/L	0.2	10/13/2025	AB25-1013-03
Sodium	ND		ug/L	1000.0	10/13/2025	AB25-1013-03
Thallium	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Vanadium	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Zinc	ND		ug/L	10.0	10/13/2025	AB25-1013-03

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0769-08-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	ND		ug/L	1000.0	10/10/2025	AB25-1010-02
Fluoride	ND		ug/L	1000.0	10/10/2025	AB25-1010-02
Sulfate	ND		ug/L	1000.0	10/10/2025	AB25-1010-02

Total Dissolved Solids by SM 2540C Aliquot #: 25-0769-08-C03-A01 Analyst: N/A

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	ND		mg/L	10.0	10/09/2025	AB25-1009-01

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **EB-01**
 Lab Sample ID: 25-0769-09
 Matrix: Water

Laboratory Project: **25-0769**
 Collect Date: 10/08/2025
 Collect Time: 02:30 PM

Mercury by EPA 7470A, Total, Aqueous

Aliquot #: 25-0769-09-C01-A01

Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/10/2025	AB25-1009-03

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp

Aliquot #: 25-0769-09-C01-A02

Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Arsenic	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Barium	ND		ug/L	5.0	10/13/2025	AB25-1013-03
Beryllium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Boron	ND		ug/L	20.0	10/13/2025	AB25-1013-03
Cadmium	ND		ug/L	0.2	10/13/2025	AB25-1013-03
Calcium	ND		ug/L	1000.0	10/13/2025	AB25-1013-03
Chromium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Cobalt	ND		ug/L	6.0	10/13/2025	AB25-1013-03
Copper	2		ug/L	1.0	10/13/2025	AB25-1013-03
Iron	ND		ug/L	20.0	10/13/2025	AB25-1013-03
Lead	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Lithium	ND		ug/L	10.0	10/13/2025	AB25-1013-03
Magnesium	ND		ug/L	1000.0	10/13/2025	AB25-1013-03
Molybdenum	ND		ug/L	5.0	10/13/2025	AB25-1013-03
Nickel	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Potassium	ND		ug/L	100.0	10/13/2025	AB25-1013-03
Selenium	ND		ug/L	1.0	10/13/2025	AB25-1013-03
Silver	ND		ug/L	0.2	10/13/2025	AB25-1013-03
Sodium	ND		ug/L	1000.0	10/13/2025	AB25-1013-03
Thallium	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Vanadium	ND		ug/L	2.0	10/13/2025	AB25-1013-03
Zinc	ND		ug/L	10.0	10/13/2025	AB25-1013-03

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

Aliquot #: 25-0769-09-C02-A01

Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	ND		ug/L	1000.0	10/10/2025	AB25-1010-02
Fluoride	ND		ug/L	1000.0	10/10/2025	AB25-1010-02
Sulfate	ND		ug/L	1000.0	10/10/2025	AB25-1010-02

Total Dissolved Solids by SM 2540C

Aliquot #: 25-0769-09-C03-A01

Analyst: N/A

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	ND		mg/L	10.0	10/09/2025	AB25-1009-01

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **JHC-MW-15025 Field MS**
 Lab Sample ID: 25-0769-10
 Matrix: Groundwater

Laboratory Project: **25-0769**
 Collect Date: 10/08/2025
 Collect Time: 11:21 AM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0769-10-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	98.0		%	0.2	10/10/2025	AB25-1009-03

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0769-10-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	109		%	1.0	10/13/2025	AB25-1013-03
Arsenic	106		%	1.0	10/13/2025	AB25-1013-03
Barium	108		%	5.0	10/13/2025	AB25-1013-03
Beryllium	102		%	1.0	10/13/2025	AB25-1013-03
Boron	108		%	20.0	10/13/2025	AB25-1013-03
Cadmium	106		%	0.2	10/13/2025	AB25-1013-03
Calcium	89.1		%	1000.0	10/13/2025	AB25-1013-03
Chromium	98		%	1.0	10/13/2025	AB25-1013-03
Cobalt	98		%	6.0	10/13/2025	AB25-1013-03
Copper	100		%	1.0	10/13/2025	AB25-1013-03
Iron	105		%	20.0	10/13/2025	AB25-1013-03
Lead	102		%	1.0	10/13/2025	AB25-1013-03
Lithium	100		%	10.0	10/13/2025	AB25-1013-03
Magnesium	107		%	1000.0	10/13/2025	AB25-1013-03
Molybdenum	110		%	5.0	10/13/2025	AB25-1013-03
Nickel	98		%	2.0	10/13/2025	AB25-1013-03
Potassium	105		%	100.0	10/13/2025	AB25-1013-03
Selenium	105		%	1.0	10/13/2025	AB25-1013-03
Silver	101		%	0.2	10/13/2025	AB25-1013-03
Sodium	104		%	1000.0	10/13/2025	AB25-1013-03
Thallium	106		%	2.0	10/13/2025	AB25-1013-03
Vanadium	103		%	2.0	10/13/2025	AB25-1013-03
Zinc	99		%	10.0	10/13/2025	AB25-1013-03

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0769-10-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	104		%	1000.0	10/10/2025	AB25-1010-02
Fluoride	92		%	1000.0	10/10/2025	AB25-1010-02
Sulfate	94		%	1000.0	10/10/2025	AB25-1010-02

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Background Wells (395496)**
 Field Sample ID: **JHC-MW-15025 Field MSD**
 Lab Sample ID: 25-0769-11
 Matrix: Groundwater

Laboratory Project: **25-0769**
 Collect Date: 10/08/2025
 Collect Time: 11:21 AM

Mercury by EPA 7470A, Total, Aqueous

Aliquot #: 25-0769-11-C01-A01

Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	100.0		%	0.2	10/10/2025	AB25-1009-03

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp

Aliquot #: 25-0769-11-C01-A02

Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	108		%	1.0	10/13/2025	AB25-1013-03
Arsenic	107		%	1.0	10/13/2025	AB25-1013-03
Barium	106		%	5.0	10/13/2025	AB25-1013-03
Beryllium	102		%	1.0	10/13/2025	AB25-1013-03
Boron	107		%	20.0	10/13/2025	AB25-1013-03
Cadmium	106		%	0.2	10/13/2025	AB25-1013-03
Calcium	106		%	1000.0	10/13/2025	AB25-1013-03
Chromium	99		%	1.0	10/13/2025	AB25-1013-03
Cobalt	99		%	6.0	10/13/2025	AB25-1013-03
Copper	96		%	1.0	10/13/2025	AB25-1013-03
Iron	107		%	20.0	10/13/2025	AB25-1013-03
Lead	102		%	1.0	10/13/2025	AB25-1013-03
Lithium	101		%	10.0	10/13/2025	AB25-1013-03
Magnesium	107		%	1000.0	10/13/2025	AB25-1013-03
Molybdenum	110		%	5.0	10/13/2025	AB25-1013-03
Nickel	98		%	2.0	10/13/2025	AB25-1013-03
Potassium	103		%	100.0	10/13/2025	AB25-1013-03
Selenium	106		%	1.0	10/13/2025	AB25-1013-03
Silver	101		%	0.2	10/13/2025	AB25-1013-03
Sodium	107		%	1000.0	10/13/2025	AB25-1013-03
Thallium	107		%	2.0	10/13/2025	AB25-1013-03
Vanadium	102		%	2.0	10/13/2025	AB25-1013-03
Zinc	98		%	10.0	10/13/2025	AB25-1013-03

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

Aliquot #: 25-0769-11-C02-A01

Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	105		%	1000.0	10/10/2025	AB25-1010-02
Fluoride	92		%	1000.0	10/10/2025	AB25-1010-02
Sulfate	95		%	1000.0	10/10/2025	AB25-1010-02



Analytical Report

Report Date: 10/24/25

Laboratory Services
A CENTURY OF EXCELLENCE

Data Qualifiers	Exception Summary
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No exceptions occurred.

TITLE: SAMPLE LOG-IN – SHIPMENT INSPECTION FORM

Project Number: 25-0769 Inspection Date: 10/09/25 Inspection By: CLE/FMW

Sample Origin/Project Name: Q4-2025 JHC Background

Shipment Delivered By: Enter the type of shipment carrier.

Inter-Company Mail _____ FedEx _____ UPS _____ USPS _____

Tracking Number: _____ Other Carry In (whom) CLE-Consumers

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

Cooler (1)+(1)-2 Cardboard Box _____ Custom Case _____ Envelope/Mailer _____

Loose/Unpackaged Containers _____ Other _____

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

Damaged Shipment Observed: None Dented _____ Leaking _____

Other _____

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

Shipping Containers Received: Opened _____ Sealed N/A _____

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

CoC Work Request _____ Air Data Sheet _____ Other _____

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

As-Received Temperature Range 3.8-4.2 °C Samples Received on Ice: Yes No _____

M&TE # and Expiration 15021723 / 7-7-26

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

Container Type	Water	Soil	Other	Broken	Leaking
VOA (40mL or <u>60mL</u>)	<u>14</u>	_____	_____	_____	_____
Quart/Liter (g <u>10</u>)	<u>18</u>	_____	_____	_____	_____
9-oz (amber glass jar)	_____	_____	_____	_____	_____
2-oz (amber glass)	_____	_____	_____	_____	_____
125 mL (plastic)	<u>20</u>	_____	_____	_____	_____
24 mL vial (glass)	_____	_____	_____	_____	_____
250 mL (plastic)	<u>9</u>	_____	_____	_____	_____
Other _____	_____	_____	_____	_____	_____

All sample pH meeting criteria? Yes No _____ N/A _____ pH paper lot # 210204 Exp. Date 12-1-26

Indicate if an Exception Report (Page 2 of 2) is needed: Yes _____ No

 **ANALYTICAL REPORT****PREPARED FOR**

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

Generated 11/18/2025 4:06:59 PM

JOB DESCRIPTION

JH Campbell Background Wells

JOB NUMBER

160-60010-1

Eurofins St. Louis

Job Notes

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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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11/18/2025 4:06:59 PM

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Case Narrative

Client: Consumers Energy
Project: JH Campbell Background Wells

Job ID: 160-60010-1

Job ID: 160-60010-1

Eurofins St. Louis

Job Narrative 160-60010-1

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.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica 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 10/17/2025 10:35 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 23.0°C.

Receipt Exceptions

The following samples were received at the laboratory without a sample collection time documented on the chain of custody: DUP-07 (160-60008-6), DUP-02 (160-60009-6), DUP-01 (160-60010-7) and DUP-03 (160-60012-8). The collection time used was 12:00am.

Method 903.0 - Radium-226 (GFPC)

Samples JHC-MW-15023 (160-60010-1), JHC-MW-15024 (160-60010-2), JHC-MW-15025 (160-60010-3), JHC-MW-15026 (160-60010-4), JHC-MW-15027 (160-60010-5), JHC-MW-15028 (160-60010-6), DUP-01 (160-60010-7), FB-01 (160-60010-8) and EB-01 (160-60010-9) were analyzed for Radium-226 (GFPC). The samples were prepared on 10/22/2025 and analyzed on 11/16/2025 and 11/17/2025.

Method 904.0 - Radium-228 (GFPC)

Samples JHC-MW-15023 (160-60010-1), JHC-MW-15024 (160-60010-2), JHC-MW-15025 (160-60010-3), JHC-MW-15026 (160-60010-4), JHC-MW-15027 (160-60010-5), JHC-MW-15028 (160-60010-6), DUP-01 (160-60010-7), FB-01 (160-60010-8) and EB-01 (160-60010-9) were analyzed for Radium-228 (GFPC). The samples were prepared on 10/22/2025 and analyzed on 11/16/2025 and 11/17/2025.

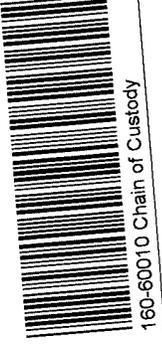
Method Ra226_Ra228 - Combined Radium-226 and Radium-228

Samples JHC-MW-15023 (160-60010-1), JHC-MW-15024 (160-60010-2), JHC-MW-15025 (160-60010-3), JHC-MW-15026 (160-60010-4), JHC-MW-15027 (160-60010-5), JHC-MW-15028 (160-60010-6), DUP-01 (160-60010-7), FB-01 (160-60010-8) and EB-01 (160-60010-9) were analyzed for Combined Radium-226 and Radium-228. The samples were analyzed on 11/17/2025 and 11/18/2025.

Eurofins St. Louis

Chain of Custody Record



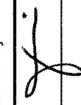
Client Information		Lab PM: Korrihizer, Micha L		Carrier Tracking No(s): 160-11904-5895.1	
Company: Consumers Energy		E-Mail: Micha.Korrihizer@et.eurofins.com		State of Origin:	
Address: 135 W. Trail Street		PWSID:		COC No: 160-11904-5895.1	
City: Jackson		TAT Requested (days): 22 BD		Page: Page 1 of 1	
State, Zip: MI, 49201		Compliance Project: Δ Yes Δ No		Job #: 160-60010 Chain of Custody	
Phone: 517-788-5888		PO #: PR #25100953 / PO4400131557		Preservation Codes: D - HNO3 N - None	
Email: emil.blaj@cmsenergy.com		MO #: 25-0769			
Project Name: JH Campbell Background Wells		Project #: 25-0769			
Site: JH Campbell Background Wells		SSOW#:		Other:	

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wastewat, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	903.0 - Radium-226 (GFC)	904.0 - Radium-228 (GFC)	Ra226Ra228_GFC - Combined Ra-226/Ra-228 calculation	Analysis Requested	Total Number of con's	Special Instructions/Note:
JHC-MW-15023	10/7/25	1631	Water	Water	X	X	X	X			2	
JHC-MW-15024	10/7/25	1836	Water	Water	X	X	X	X			2	
JHC-MW-15025	10/8/25	1006	Water	Water	X	X	X	X			2	
JHC-MW-15026	10/8/25	1121	Water	Water	X	X	X	X			2	
JHC-MW-15027	10/8/25	1251	Water	Water	X	X	X	X			2	
JHC-MW-15028	10/8/25	1356	Water	Water	X	X	X	X			2	
DUP-01	10/8/25	-	Water	Water	X	X	X	X			2	
FB-01	10/8/25	1415	Water	Water	X	X	X	X			2	
EB-01	10/8/25	1436	Water	Water	X	X	X	X			2	

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological

Deliverable Requested: I, II, III, IV, Other (specify) **EQUIS EDD for TRC**

Empty Kit Relinquished by: _____ Date: _____

Relinquished by:  Date/Time: **10/15/25 1430** Company: **CE**

Relinquished by: _____ Date/Time: _____ Company: _____

Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: **Δ Yes Δ No** Custody Seal No.: _____

Relinquished by: _____ Date/Time: _____ Company: **CE**

Received by: **JPS** Date/Time: _____ Company: _____

Received by: **M. Pinette** Date/Time: **Oct 17 2025 1035** Company: _____

Received by: **Meadow Pinette** Date/Time: _____ Company: _____

Special Instructions/QC Requirements: _____

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

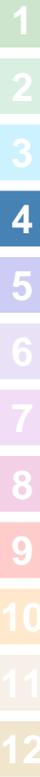
Method of Shipment: _____ Date/Time: _____

Relinquished by: _____ Date/Time: _____ Company: _____

Relinquished by: _____ Date/Time: _____ Company: _____

Relinquished by: _____ Date/Time: _____ Company: _____

Cooler Temperature(s) °C and Other Remarks: _____



Login Sample Receipt Checklist

Client: Consumers Energy

Job Number: 160-60010-1

Login Number: 60010

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.	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 container for 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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

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

Job ID: 160-60010-1

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

Method Summary

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

Job ID: 160-60010-1

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



Sample Summary

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

Job ID: 160-60010-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Sample Origin
160-60010-1	JHC-MW-15023	Water	10/07/25 16:31	10/17/25 10:35	Michigan
160-60010-2	JHC-MW-15024	Water	10/07/25 18:36	10/17/25 10:35	Michigan
160-60010-3	JHC-MW-15025	Water	10/08/25 10:06	10/17/25 10:35	Michigan
160-60010-4	JHC-MW-15026	Water	10/08/25 11:21	10/17/25 10:35	Michigan
160-60010-5	JHC-MW-15027	Water	10/08/25 12:51	10/17/25 10:35	Michigan
160-60010-6	JHC-MW-15028	Water	10/08/25 13:56	10/17/25 10:35	Michigan
160-60010-7	DUP-01	Water	10/08/25 00:00	10/17/25 10:35	Michigan
160-60010-8	FB-01	Water	10/08/25 14:15	10/17/25 10:35	Michigan
160-60010-9	EB-01	Water	10/08/25 14:36	10/17/25 10:35	Michigan

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

Client Sample Results

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

Job ID: 160-60010-1

Client Sample ID: JHC-MW-15023

Lab Sample ID: 160-60010-1

Date Collected: 10/07/25 16:31

Matrix: Water

Date Received: 10/17/25 10:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.415	U	0.301	0.303	1.00	0.436	pCi/L	10/22/25 07:43	11/16/25 13:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.6		30 - 110					10/22/25 07:43	11/16/25 13:48	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	0.266	U	0.347	0.347	1.00	0.578	pCi/L	10/22/25 07:46	11/16/25 10:50	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.6		30 - 110					10/22/25 07:46	11/16/25 10:50	1
Y Carrier	80.0		30 - 110					10/22/25 07:46	11/16/25 10:50	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.681		0.459	0.461	5.00	0.578	pCi/L		11/17/25 13:44	1

Client Sample ID: JHC-MW-15024

Lab Sample ID: 160-60010-2

Date Collected: 10/07/25 18:36

Matrix: Water

Date Received: 10/17/25 10:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.217	U	0.225	0.225	1.00	0.355	pCi/L	10/22/25 07:43	11/16/25 13:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.9		30 - 110					10/22/25 07:43	11/16/25 13:48	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	1.05		0.430	0.441	1.00	0.559	pCi/L	10/22/25 07:46	11/16/25 10:50	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.9		30 - 110					10/22/25 07:46	11/16/25 10:50	1
Y Carrier	83.4		30 - 110					10/22/25 07:46	11/16/25 10:50	1

Client Sample Results

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

Job ID: 160-60010-1

Client Sample ID: JHC-MW-15024

Lab Sample ID: 160-60010-2

Date Collected: 10/07/25 18:36

Matrix: Water

Date Received: 10/17/25 10:35

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.27		0.485	0.495	5.00	0.559	pCi/L		11/17/25 13:44	1

Client Sample ID: JHC-MW-15025

Lab Sample ID: 160-60010-3

Date Collected: 10/08/25 10:06

Matrix: Water

Date Received: 10/17/25 10:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.267	U	0.278	0.279	1.00	0.443	pCi/L	10/22/25 07:43	11/16/25 13:49	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	75.1		30 - 110					10/22/25 07:43	11/16/25 13:49	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	1.30		0.525	0.538	1.00	0.686	pCi/L	10/22/25 07:46	11/16/25 10:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	75.1		30 - 110					10/22/25 07:46	11/16/25 10:51	1
Y Carrier	79.6		30 - 110					10/22/25 07:46	11/16/25 10:51	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.56		0.594	0.606	5.00	0.686	pCi/L		11/17/25 13:44	1

Client Sample ID: JHC-MW-15026

Lab Sample ID: 160-60010-4

Date Collected: 10/08/25 11:21

Matrix: Water

Date Received: 10/17/25 10:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.180	U	0.279	0.279	1.00	0.476	pCi/L	10/22/25 07:43	11/16/25 13:49	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.3		30 - 110					10/22/25 07:43	11/16/25 13:49	1

Client Sample Results

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

Job ID: 160-60010-1

Client Sample ID: JHC-MW-15026

Lab Sample ID: 160-60010-4

Date Collected: 10/08/25 11:21

Matrix: Water

Date Received: 10/17/25 10:35

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	1.02		0.419	0.429	1.00	0.537	pCi/L	10/22/25 07:46	11/16/25 10:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.3		30 - 110					10/22/25 07:46	11/16/25 10:51	1
Y Carrier	78.1		30 - 110					10/22/25 07:46	11/16/25 10:51	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.20		0.503	0.512	5.00	0.537	pCi/L		11/17/25 13:44	1

Client Sample ID: JHC-MW-15027

Lab Sample ID: 160-60010-5

Date Collected: 10/08/25 12:51

Matrix: Water

Date Received: 10/17/25 10:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.176	U	0.334	0.335	1.00	0.586	pCi/L	10/22/25 07:43	11/16/25 13:49	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	70.2		30 - 110					10/22/25 07:43	11/16/25 13:49	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	0.837		0.511	0.517	1.00	0.756	pCi/L	10/22/25 07:46	11/16/25 10:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	70.2		30 - 110					10/22/25 07:46	11/16/25 10:51	1
Y Carrier	81.9		30 - 110					10/22/25 07:46	11/16/25 10:51	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.01		0.610	0.616	5.00	0.756	pCi/L		11/17/25 13:44	1

Client Sample Results

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

Job ID: 160-60010-1

Client Sample ID: JHC-MW-15028

Lab Sample ID: 160-60010-6

Date Collected: 10/08/25 13:56

Matrix: Water

Date Received: 10/17/25 10:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0338	U	0.169	0.169	1.00	0.365	pCi/L	10/22/25 07:47	11/17/25 15:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.4		30 - 110					10/22/25 07:47	11/17/25 15:16	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	-0.179	U	0.319	0.320	1.00	0.649	pCi/L	10/22/25 07:50	11/17/25 10:03	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.4		30 - 110					10/22/25 07:50	11/17/25 10:03	1
Y Carrier	77.0		30 - 110					10/22/25 07:50	11/17/25 10:03	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.212	U	0.361	0.362	5.00	0.649	pCi/L		11/18/25 10:47	1

Client Sample ID: DUP-01

Lab Sample ID: 160-60010-7

Date Collected: 10/08/25 00:00

Matrix: Water

Date Received: 10/17/25 10:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.00696	U	0.162	0.162	1.00	0.339	pCi/L	10/22/25 07:47	11/17/25 15:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.5		30 - 110					10/22/25 07:47	11/17/25 15:16	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	0.339	U	0.353	0.355	1.00	0.572	pCi/L	10/22/25 07:50	11/17/25 10:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.5		30 - 110					10/22/25 07:50	11/17/25 10:04	1
Y Carrier	76.3		30 - 110					10/22/25 07:50	11/17/25 10:04	1

Client Sample Results

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

Job ID: 160-60010-1

Client Sample ID: DUP-01

Lab Sample ID: 160-60010-7

Date Collected: 10/08/25 00:00

Matrix: Water

Date Received: 10/17/25 10:35

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.332	U	0.388	0.390	5.00	0.572	pCi/L		11/18/25 10:47	1

Client Sample ID: FB-01

Lab Sample ID: 160-60010-8

Date Collected: 10/08/25 14:15

Matrix: Water

Date Received: 10/17/25 10:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.146	U	0.257	0.258	1.00	0.450	pCi/L	10/22/25 07:47	11/17/25 15:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	72.1		30 - 110					10/22/25 07:47	11/17/25 15:16	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	0.382	U	0.438	0.440	1.00	0.719	pCi/L	10/22/25 07:50	11/17/25 10:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	72.1		30 - 110					10/22/25 07:50	11/17/25 10:04	1
Y Carrier	74.8		30 - 110					10/22/25 07:50	11/17/25 10:04	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.528	U	0.508	0.510	5.00	0.719	pCi/L		11/18/25 10:47	1

Client Sample ID: EB-01

Lab Sample ID: 160-60010-9

Date Collected: 10/08/25 14:36

Matrix: Water

Date Received: 10/17/25 10:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0442	U	0.237	0.237	1.00	0.452	pCi/L	10/22/25 07:47	11/17/25 15:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.6		30 - 110					10/22/25 07:47	11/17/25 15:16	1

Client Sample Results

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

Job ID: 160-60010-1

Client Sample ID: EB-01

Lab Sample ID: 160-60010-9

Date Collected: 10/08/25 14:36

Matrix: Water

Date Received: 10/17/25 10:35

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	0.708	U	0.502	0.506	1.00	0.760	pCi/L	10/22/25 07:50	11/17/25 10:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.6		30 - 110					10/22/25 07:50	11/17/25 10:04	1
Y Carrier	71.4		30 - 110					10/22/25 07:50	11/17/25 10:04	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.752	U	0.555	0.559	5.00	0.760	pCi/L		11/18/25 10:47	1

QC Sample Results

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

Job ID: 160-60010-1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-741695/1-A
Matrix: Water
Analysis Batch: 745429

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 741695

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.2307	U	0.216	0.217	1.00	0.330	pCi/L	10/22/25 07:43	11/16/25 13:36	1
Carrier	MB		Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	%Yield	MB Qualifier	30 - 110					10/22/25 07:43	11/16/25 13:36	1
	89.1									

Lab Sample ID: LCS 160-741695/2-A
Matrix: Water
Analysis Batch: 745429

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 741695

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	9.57	7.842		1.12	1.00	0.347	pCi/L	82	75 - 125
Carrier	LCS		Limits						
Ba Carrier	%Yield	LCS Qualifier	30 - 110						
	89.6								

Lab Sample ID: 160-60009-B-6-C DU
Matrix: Water
Analysis Batch: 745440

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 741695

Analyte	Sample		DU	DU	Total	RL	MDC	Unit	RER	RER Limit
	Result	Sample Qual	Result	Qual	Uncert. (2σ+/-)					
Radium-226	0.583		0.2640	U	0.244	1.00	0.371	pCi/L	0.58	1
Carrier	DU		Limits							
Ba Carrier	%Yield	DU Qualifier	30 - 110							
	80.1									

Lab Sample ID: MB 160-741697/1-A
Matrix: Water
Analysis Batch: 745605

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 741697

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	-0.03555	U	0.166	0.166	1.00	0.360	pCi/L	10/22/25 07:47	11/17/25 15:00	1
Carrier	MB		Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	%Yield	MB Qualifier	30 - 110					10/22/25 07:47	11/17/25 15:00	1
	82.2									

Lab Sample ID: LCS 160-741697/2-A
Matrix: Water
Analysis Batch: 745609

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 741697

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	9.57	11.07		1.43	1.00	0.326	pCi/L	116	75 - 125

Eurofins St. Louis

QC Sample Results

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

Job ID: 160-60010-1

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

Lab Sample ID: LCS 160-741697/2-A
Matrix: Water
Analysis Batch: 745609

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 741697

	LCS	LCS	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	86.1		30 - 110

Lab Sample ID: 160-60011-B-7-A DU
Matrix: Water
Analysis Batch: 745609

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 741697

Analyte	Sample		DU		Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
	Result	Qual	Result	Qual						
Radium-226	0.103	U	0.1357	U	0.219	1.00	0.377	pCi/L	0.08	1

	DU	DU	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	85.8		30 - 110

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-741696/1-A
Matrix: Water
Analysis Batch: 745429

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 741696

Analyte	MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Radium-228	-0.3333	U	0.336	0.337	1.00	0.686	pCi/L	10/22/25 07:46	11/16/25 10:33	1

	MB	MB	Limits	Prepared	Analyzed	Dil Fac
Carrier	%Yield	Qualifier				
Ba Carrier	89.1		30 - 110	10/22/25 07:46	11/16/25 10:33	1
Y Carrier	82.6		30 - 110	10/22/25 07:46	11/16/25 10:33	1

Lab Sample ID: LCS 160-741696/2-A
Matrix: Water
Analysis Batch: 745429

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 741696

Analyte	Spike Added	LCS		Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
		Result	Qual						
Radium-228	7.93	9.370		1.28	1.00	0.493	pCi/L	118	75 - 125

	LCS	LCS	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	89.6		30 - 110
Y Carrier	80.7		30 - 110

Lab Sample ID: 160-60009-B-6-D DU
Matrix: Water
Analysis Batch: 745429

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 741696

Analyte	Sample		DU		Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
	Result	Qual	Result	Qual						
Radium-228	0.958		1.728		0.572	1.00	0.637	pCi/L	0.77	1

Eurofins St. Louis

QC Sample Results

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

Job ID: 160-60010-1

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

Lab Sample ID: 160-60009-B-6-D DU
Matrix: Water
Analysis Batch: 745429

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 741696

	DU	DU	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	80.1		30 - 110
Y Carrier	74.4		30 - 110

Lab Sample ID: MB 160-741698/1-A
Matrix: Water
Analysis Batch: 745610

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 741698

Analyte	MB MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Radium-228	0.1856	U	0.356	0.356	1.00	0.617	pCi/L	10/22/25 07:50	11/17/25 10:03	1

Carrier	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Yield	Qualifier				
Ba Carrier	82.2		30 - 110	10/22/25 07:50	11/17/25 10:03	1
Y Carrier	76.3		30 - 110	10/22/25 07:50	11/17/25 10:03	1

Lab Sample ID: LCS 160-741698/2-A
Matrix: Water
Analysis Batch: 745610

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 741698

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits

Carrier	LCS	LCS	Limits
	%Yield	Qualifier	
Ba Carrier	86.1		30 - 110
Y Carrier	83.4		30 - 110

Lab Sample ID: 160-60011-B-7-B DU
Matrix: Water
Analysis Batch: 745605

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 741698

Analyte	Sample Sample		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
	Result	Qual								
Radium-228	0.283	U	0.3865	U	0.455	1.00	0.747	pCi/L	0.11	1

Carrier	DU	DU	Limits
	%Yield	Qualifier	
Ba Carrier	85.8		30 - 110
Y Carrier	73.6		30 - 110

QC Association Summary

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

Job ID: 160-60010-1

Rad

Prep Batch: 741695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-60010-1	JHC-MW-15023	Total/NA	Water	PrecSep-21	
160-60010-2	JHC-MW-15024	Total/NA	Water	PrecSep-21	
160-60010-3	JHC-MW-15025	Total/NA	Water	PrecSep-21	
160-60010-4	JHC-MW-15026	Total/NA	Water	PrecSep-21	
160-60010-5	JHC-MW-15027	Total/NA	Water	PrecSep-21	
MB 160-741695/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-741695/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
160-60009-B-6-C DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 741696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-60010-1	JHC-MW-15023	Total/NA	Water	PrecSep_0	
160-60010-2	JHC-MW-15024	Total/NA	Water	PrecSep_0	
160-60010-3	JHC-MW-15025	Total/NA	Water	PrecSep_0	
160-60010-4	JHC-MW-15026	Total/NA	Water	PrecSep_0	
160-60010-5	JHC-MW-15027	Total/NA	Water	PrecSep_0	
MB 160-741696/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-741696/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
160-60009-B-6-D DU	Duplicate	Total/NA	Water	PrecSep_0	

Prep Batch: 741697

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-60010-6	JHC-MW-15028	Total/NA	Water	PrecSep-21	
160-60010-7	DUP-01	Total/NA	Water	PrecSep-21	
160-60010-8	FB-01	Total/NA	Water	PrecSep-21	
160-60010-9	EB-01	Total/NA	Water	PrecSep-21	
MB 160-741697/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-741697/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
160-60011-B-7-A DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 741698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-60010-6	JHC-MW-15028	Total/NA	Water	PrecSep_0	
160-60010-7	DUP-01	Total/NA	Water	PrecSep_0	
160-60010-8	FB-01	Total/NA	Water	PrecSep_0	
160-60010-9	EB-01	Total/NA	Water	PrecSep_0	
MB 160-741698/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-741698/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
160-60011-B-7-B DU	Duplicate	Total/NA	Water	PrecSep_0	

Tracer/Carrier Summary

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

Job ID: 160-60010-1

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)			
Lab Sample ID	Client Sample ID	Ba (30-110)			
160-60009-B-6-C DU	Duplicate	80.1			
160-60010-1	JHC-MW-15023	86.6			
160-60010-2	JHC-MW-15024	86.9			
160-60010-3	JHC-MW-15025	75.1			
160-60010-4	JHC-MW-15026	89.3			
160-60010-5	JHC-MW-15027	70.2			
160-60010-6	JHC-MW-15028	81.4			
160-60010-7	DUP-01	85.5			
160-60010-8	FB-01	72.1			
160-60010-9	EB-01	74.6			
160-60011-B-7-A DU	Duplicate	85.8			
LCS 160-741695/2-A	Lab Control Sample	89.6			
LCS 160-741697/2-A	Lab Control Sample	86.1			
MB 160-741695/1-A	Method Blank	89.1			
MB 160-741697/1-A	Method Blank	82.2			

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)			
Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)		
160-60009-B-6-D DU	Duplicate	80.1	74.4		
160-60010-1	JHC-MW-15023	86.6	80.0		
160-60010-2	JHC-MW-15024	86.9	83.4		
160-60010-3	JHC-MW-15025	75.1	79.6		
160-60010-4	JHC-MW-15026	89.3	78.1		
160-60010-5	JHC-MW-15027	70.2	81.9		
160-60010-6	JHC-MW-15028	81.4	77.0		
160-60010-7	DUP-01	85.5	76.3		
160-60010-8	FB-01	72.1	74.8		
160-60010-9	EB-01	74.6	71.4		
160-60011-B-7-B DU	Duplicate	85.8	73.6		
LCS 160-741696/2-A	Lab Control Sample	89.6	80.7		
LCS 160-741698/2-A	Lab Control Sample	86.1	83.4		
MB 160-741696/1-A	Method Blank	89.1	82.6		
MB 160-741698/1-A	Method Blank	82.2	76.3		

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

To: JFirlit, JH Campbell Complex

From: EBlaj, T-258

Date: October 24, 2025

Subject: JH CAMPBELL SOLID WASTE DISPOSAL AREA – GROUNDWATER MONITORING
4th Quarter, 2025 – Landfill Wells

CC: HDRegister, P22-521
ADSantini, P20-215B-REM

Sarah Holmstrom, Project Manager
TRC Companies, Inc.
1540 Eisenhower Place
Ann Arbor, MI 48108

Chemistry Project: 25-0771

CE Laboratory Services conducted groundwater monitoring at the JH Campbell Solid Waste Disposal Area during the week of 10/06/2025, 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 10/09/2025. Please note that samples collected from MW-B3 were not valid due to insufficient purge volume and field stabilization criteria not being met.

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 accreditation specified in the listed certificate. The information contained in this report is the sole property of Consumers Energy. It cannot be reproduced except in full, and with consent from Consumers Energy, or the customer for which this report was issued.

CASE NARRATIVE

I. Sample Receipt

All samples were received within hold time and in good condition; 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:

<u>Acronym</u>	<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

<u>Qualifier</u>	<u>Description</u>
*	Generic data flag, applicable description added in the corresponding notes section
B	The analyte was detected in the LRB at a level which is significant relative to sample result

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

Customer Name: JH Campbell Complex
Work Order ID: Q4-2025 Landfill Wells
Date Received: 10/9/2025
Chemistry Project: 25-0771

<u>Sample #</u>	<u>Field Sample ID</u>	<u>Matrix</u>	<u>Sample Date</u>	<u>Site</u>
25-0771-01	JHC-MW-15017	Groundwater	10/08/2025 16:31	JHC GW Monitoring - Landfill Wells
25-0771-02	JHC-MW-15018	Groundwater	10/08/2025 18:16	JHC GW Monitoring - Landfill Wells
25-0771-03	JHC-MW-15031	Groundwater	10/08/2025 14:26	JHC GW Monitoring - Landfill Wells
25-0771-04	MW-B3	Not Valid		
25-0771-05	MW-B4	Groundwater	10/08/2025 13:01	JHC GW Monitoring - Landfill Wells
25-0771-06	JHC-MW-15035	Groundwater	10/08/2025 13:46	JHC GW Monitoring - Landfill Wells
25-0771-07	JHC-MW-15036	Groundwater	10/09/2025 11:21	JHC GW Monitoring - Landfill Wells
25-0771-08	JHC-MW-15037	Groundwater	10/09/2025 09:36	JHC GW Monitoring - Landfill Wells
25-0771-09	DUP-03	Groundwater	10/08/2025 00:00	JHC GW Monitoring - Landfill Wells
25-0771-10	FB-03	Water	10/09/2025 12:14	JHC GW Monitoring - Landfill Wells
25-0771-11	EB-03	Water	10/09/2025 12:30	JHC GW Monitoring - Landfill Wells
25-0771-12	MW-B4 MS	Groundwater	10/08/2025 13:01	JHC GW Monitoring - Landfill Wells
25-0771-13	MW-B4 MSD	Groundwater	10/08/2025 13:01	JHC GW Monitoring - Landfill Wells

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **JHC-MW-15017**
 Lab Sample ID: 25-0771-01
 Matrix: Groundwater

Laboratory Project: **25-0771**
 Collect Date: 10/08/2025
 Collect Time: 04:31 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0771-01-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/10/2025	AB25-1010-06

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0771-01-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Arsenic	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Barium	28		ug/L	5.0	10/14/2025	AB25-1015-01
Beryllium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Boron	192		ug/L	20.0	10/14/2025	AB25-1015-01
Cadmium	ND		ug/L	0.2	10/14/2025	AB25-1015-01
Calcium	73400		ug/L	1000.0	10/14/2025	AB25-1015-01
Chromium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Cobalt	ND		ug/L	6.0	10/14/2025	AB25-1015-01
Copper	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Iron	ND		ug/L	20.0	10/14/2025	AB25-1015-01
Lead	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Lithium	ND		ug/L	10.0	10/14/2025	AB25-1015-01
Magnesium	14200		ug/L	1000.0	10/14/2025	AB25-1015-01
Molybdenum	ND		ug/L	5.0	10/14/2025	AB25-1015-01
Nickel	3		ug/L	2.0	10/14/2025	AB25-1015-01
Potassium	1990		ug/L	100.0	10/14/2025	AB25-1015-01
Selenium	19		ug/L	1.0	10/14/2025	AB25-1015-01
Silver	ND		ug/L	0.2	10/14/2025	AB25-1015-01
Sodium	15000		ug/L	1000.0	10/14/2025	AB25-1015-01
Thallium	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Vanadium	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Zinc	ND		ug/L	10.0	10/14/2025	AB25-1015-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0771-01-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	12500		ug/L	1000.0	10/13/2025	AB25-1013-01
Fluoride	ND		ug/L	1000.0	10/13/2025	AB25-1013-01
Sulfate	42300		ug/L	1000.0	10/13/2025	AB25-1013-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0771-01-C03-A01 Analyst: LMO

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	350		mg/L	10.0	10/10/2025	AB25-1010-05



Analytical Report

Report Date: 10/24/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
Field Sample ID: **JHC-MW-15017**
Lab Sample ID: 25-0771-01
Matrix: Groundwater

Laboratory Project: **25-0771**
Collect Date: 10/08/2025
Collect Time: 04:31 PM

Alkalinity by SM 2320B

Aliquot #: 25-0771-01-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity, Total	211000		ug/L	10000.0	10/14/2025	AB25-1014-01
Alkalinity, Bicarbonate	211000		ug/L	10000.0	10/14/2025	AB25-1014-01
Alkalinity, Carbonate	ND		ug/L	10000.0	10/14/2025	AB25-1014-01

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **JHC-MW-15018**
 Lab Sample ID: 25-0771-02
 Matrix: Groundwater

Laboratory Project: **25-0771**
 Collect Date: 10/08/2025
 Collect Time: 06:16 PM

Mercury by EPA 7470A, Total, Aqueous

Aliquot #: 25-0771-02-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/10/2025	AB25-1010-06

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp

Aliquot #: 25-0771-02-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Arsenic	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Barium	29		ug/L	5.0	10/14/2025	AB25-1015-01
Beryllium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Boron	94		ug/L	20.0	10/14/2025	AB25-1015-01
Cadmium	ND		ug/L	0.2	10/14/2025	AB25-1015-01
Calcium	73300		ug/L	1000.0	10/14/2025	AB25-1015-01
Chromium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Cobalt	ND		ug/L	6.0	10/14/2025	AB25-1015-01
Copper	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Iron	ND		ug/L	20.0	10/14/2025	AB25-1015-01
Lead	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Lithium	ND		ug/L	10.0	10/14/2025	AB25-1015-01
Magnesium	15100		ug/L	1000.0	10/14/2025	AB25-1015-01
Molybdenum	ND		ug/L	5.0	10/14/2025	AB25-1015-01
Nickel	3		ug/L	2.0	10/14/2025	AB25-1015-01
Potassium	1360		ug/L	100.0	10/14/2025	AB25-1015-01
Selenium	11		ug/L	1.0	10/14/2025	AB25-1015-01
Silver	ND		ug/L	0.2	10/14/2025	AB25-1015-01
Sodium	17800		ug/L	1000.0	10/14/2025	AB25-1015-01
Thallium	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Vanadium	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Zinc	ND		ug/L	10.0	10/14/2025	AB25-1015-01

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

Aliquot #: 25-0771-02-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	16000		ug/L	1000.0	10/13/2025	AB25-1013-01
Fluoride	ND		ug/L	1000.0	10/13/2025	AB25-1013-01
Sulfate	21900		ug/L	1000.0	10/13/2025	AB25-1013-01

Total Dissolved Solids by SM 2540C

Aliquot #: 25-0771-02-C03-A01 Analyst: LMO

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	324		mg/L	10.0	10/10/2025	AB25-1010-05



Analytical Report

Report Date: 10/24/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
Field Sample ID: **JHC-MW-15018**
Lab Sample ID: 25-0771-02
Matrix: Groundwater

Laboratory Project: **25-0771**
Collect Date: 10/08/2025
Collect Time: 06:16 PM

Alkalinity by SM 2320B

Aliquot #: 25-0771-02-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity, Total	223000		ug/L	10000.0	10/14/2025	AB25-1014-01
Alkalinity, Bicarbonate	223000		ug/L	10000.0	10/14/2025	AB25-1014-01
Alkalinity, Carbonate	ND		ug/L	10000.0	10/14/2025	AB25-1014-01

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **JHC-MW-15031**
 Lab Sample ID: 25-0771-03
 Matrix: Groundwater

Laboratory Project: **25-0771**
 Collect Date: 10/08/2025
 Collect Time: 02:26 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0771-03-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/10/2025	AB25-1010-06

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0771-03-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Arsenic	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Barium	24		ug/L	5.0	10/14/2025	AB25-1015-01
Beryllium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Boron	83		ug/L	20.0	10/14/2025	AB25-1015-01
Cadmium	ND		ug/L	0.2	10/14/2025	AB25-1015-01
Calcium	93800		ug/L	1000.0	10/14/2025	AB25-1015-01
Chromium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Cobalt	ND		ug/L	6.0	10/14/2025	AB25-1015-01
Copper	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Iron	ND		ug/L	20.0	10/14/2025	AB25-1015-01
Lead	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Lithium	ND		ug/L	10.0	10/14/2025	AB25-1015-01
Magnesium	21700		ug/L	1000.0	10/14/2025	AB25-1015-01
Molybdenum	ND		ug/L	5.0	10/14/2025	AB25-1015-01
Nickel	4		ug/L	2.0	10/14/2025	AB25-1015-01
Potassium	2000		ug/L	100.0	10/14/2025	AB25-1015-01
Selenium	3		ug/L	1.0	10/14/2025	AB25-1015-01
Silver	ND		ug/L	0.2	10/14/2025	AB25-1015-01
Sodium	8300		ug/L	1000.0	10/14/2025	AB25-1015-01
Thallium	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Vanadium	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Zinc	ND		ug/L	10.0	10/14/2025	AB25-1015-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0771-03-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	2820		ug/L	1000.0	10/13/2025	AB25-1013-01
Fluoride	ND		ug/L	1000.0	10/13/2025	AB25-1013-01
Sulfate	22100		ug/L	1000.0	10/13/2025	AB25-1013-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0771-03-C03-A01 Analyst: LMO

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	369		mg/L	10.0	10/10/2025	AB25-1010-05



Analytical Report

Report Date: 10/24/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
Field Sample ID: **JHC-MW-15031**
Lab Sample ID: 25-0771-03
Matrix: Groundwater

Laboratory Project: **25-0771**
Collect Date: 10/08/2025
Collect Time: 02:26 PM

Alkalinity by SM 2320B

Aliquot #: 25-0771-03-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity, Total	308000		ug/L	10000.0	10/14/2025	AB25-1014-01
Alkalinity, Bicarbonate	308000		ug/L	10000.0	10/14/2025	AB25-1014-01
Alkalinity, Carbonate	ND		ug/L	10000.0	10/14/2025	AB25-1014-01

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **MW-B4**
 Lab Sample ID: 25-0771-05
 Matrix: Groundwater

Laboratory Project: **25-0771**
 Collect Date: 10/08/2025
 Collect Time: 01:01 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0771-05-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/10/2025	AB25-1010-06

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0771-05-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Arsenic	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Barium	37		ug/L	5.0	10/14/2025	AB25-1015-01
Beryllium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Boron	282		ug/L	20.0	10/14/2025	AB25-1015-01
Cadmium	ND		ug/L	0.2	10/14/2025	AB25-1015-01
Calcium	76600		ug/L	1000.0	10/14/2025	AB25-1015-01
Chromium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Cobalt	ND		ug/L	6.0	10/14/2025	AB25-1015-01
Copper	2		ug/L	1.0	10/14/2025	AB25-1015-01
Iron	ND		ug/L	20.0	10/14/2025	AB25-1015-01
Lead	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Lithium	ND		ug/L	10.0	10/14/2025	AB25-1015-01
Magnesium	15700		ug/L	1000.0	10/14/2025	AB25-1015-01
Molybdenum	ND		ug/L	5.0	10/14/2025	AB25-1015-01
Nickel	5		ug/L	2.0	10/14/2025	AB25-1015-01
Potassium	2100		ug/L	100.0	10/14/2025	AB25-1015-01
Selenium	2		ug/L	1.0	10/14/2025	AB25-1015-01
Silver	ND		ug/L	0.2	10/14/2025	AB25-1015-01
Sodium	11400		ug/L	1000.0	10/14/2025	AB25-1015-01
Thallium	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Vanadium	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Zinc	ND		ug/L	10.0	10/14/2025	AB25-1015-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0771-05-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	7600		ug/L	1000.0	10/13/2025	AB25-1013-01
Fluoride	ND		ug/L	1000.0	10/13/2025	AB25-1013-01
Sulfate	19500		ug/L	1000.0	10/13/2025	AB25-1013-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0771-05-C03-A01 Analyst: LMO

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	338		mg/L	10.0	10/10/2025	AB25-1010-05



Analytical Report

Report Date: 10/24/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
Field Sample ID: **MW-B4**
Lab Sample ID: 25-0771-05
Matrix: Groundwater

Laboratory Project: **25-0771**
Collect Date: 10/08/2025
Collect Time: 01:01 PM

Alkalinity by SM 2320B

Aliquot #: 25-0771-05-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity, Total	257000		ug/L	10000.0	10/14/2025	AB25-1014-01
Alkalinity, Bicarbonate	257000		ug/L	10000.0	10/14/2025	AB25-1014-01
Alkalinity, Carbonate	ND		ug/L	10000.0	10/14/2025	AB25-1014-01

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **JHC-MW-15035**
 Lab Sample ID: 25-0771-06
 Matrix: Groundwater

Laboratory Project: **25-0771**
 Collect Date: 10/08/2025
 Collect Time: 01:46 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0771-06-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/10/2025	AB25-1010-06

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0771-06-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Arsenic	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Barium	16		ug/L	5.0	10/14/2025	AB25-1015-01
Beryllium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Boron	66		ug/L	20.0	10/14/2025	AB25-1015-01
Cadmium	ND		ug/L	0.2	10/14/2025	AB25-1015-01
Calcium	90200		ug/L	1000.0	10/14/2025	AB25-1015-01
Chromium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Cobalt	ND		ug/L	6.0	10/14/2025	AB25-1015-01
Copper	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Iron	ND		ug/L	20.0	10/14/2025	AB25-1015-01
Lead	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Lithium	ND		ug/L	10.0	10/14/2025	AB25-1015-01
Magnesium	18500		ug/L	1000.0	10/14/2025	AB25-1015-01
Molybdenum	ND		ug/L	5.0	10/14/2025	AB25-1015-01
Nickel	4		ug/L	2.0	10/14/2025	AB25-1015-01
Potassium	2160		ug/L	100.0	10/14/2025	AB25-1015-01
Selenium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Silver	ND		ug/L	0.2	10/14/2025	AB25-1015-01
Sodium	9490		ug/L	1000.0	10/14/2025	AB25-1015-01
Thallium	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Vanadium	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Zinc	ND		ug/L	10.0	10/14/2025	AB25-1015-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0771-06-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	5190		ug/L	1000.0	10/13/2025	AB25-1013-01
Fluoride	ND		ug/L	1000.0	10/13/2025	AB25-1013-01
Sulfate	23500		ug/L	1000.0	10/13/2025	AB25-1013-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0771-06-C03-A01 Analyst: LMO

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	360		mg/L	10.0	10/10/2025	AB25-1010-05



Analytical Report

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Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
Field Sample ID: **JHC-MW-15035**
Lab Sample ID: 25-0771-06
Matrix: Groundwater

Laboratory Project: **25-0771**
Collect Date: 10/08/2025
Collect Time: 01:46 PM

Alkalinity by SM 2320B

Aliquot #: 25-0771-06-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity, Total	289000		ug/L	10000.0	10/14/2025	AB25-1014-01
Alkalinity, Bicarbonate	289000		ug/L	10000.0	10/14/2025	AB25-1014-01
Alkalinity, Carbonate	ND		ug/L	10000.0	10/14/2025	AB25-1014-01

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **JHC-MW-15036**
 Lab Sample ID: 25-0771-07
 Matrix: Groundwater

Laboratory Project: **25-0771**
 Collect Date: 10/09/2025
 Collect Time: 11:21 AM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0771-07-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/10/2025	AB25-1010-06

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0771-07-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Arsenic	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Barium	8		ug/L	5.0	10/14/2025	AB25-1015-01
Beryllium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Boron	73		ug/L	20.0	10/14/2025	AB25-1015-01
Cadmium	ND		ug/L	0.2	10/14/2025	AB25-1015-01
Calcium	52300		ug/L	1000.0	10/14/2025	AB25-1015-01
Chromium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Cobalt	ND		ug/L	6.0	10/14/2025	AB25-1015-01
Copper	1		ug/L	1.0	10/14/2025	AB25-1015-01
Iron	ND		ug/L	20.0	10/14/2025	AB25-1015-01
Lead	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Lithium	ND		ug/L	10.0	10/14/2025	AB25-1015-01
Magnesium	13600		ug/L	1000.0	10/14/2025	AB25-1015-01
Molybdenum	ND		ug/L	5.0	10/14/2025	AB25-1015-01
Nickel	4		ug/L	2.0	10/14/2025	AB25-1015-01
Potassium	1310		ug/L	100.0	10/14/2025	AB25-1015-01
Selenium	2		ug/L	1.0	10/14/2025	AB25-1015-01
Silver	ND		ug/L	0.2	10/14/2025	AB25-1015-01
Sodium	6880		ug/L	1000.0	10/14/2025	AB25-1015-01
Thallium	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Vanadium	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Zinc	ND		ug/L	10.0	10/14/2025	AB25-1015-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0771-07-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	5480		ug/L	1000.0	10/13/2025	AB25-1013-01
Fluoride	ND		ug/L	1000.0	10/13/2025	AB25-1013-01
Sulfate	17600		ug/L	1000.0	10/13/2025	AB25-1013-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0771-07-C03-A01 Analyst: LMO

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	239		mg/L	10.0	10/10/2025	AB25-1010-05



Analytical Report

Report Date: 10/24/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
Field Sample ID: **JHC-MW-15036**
Lab Sample ID: 25-0771-07
Matrix: Groundwater

Laboratory Project: **25-0771**
Collect Date: 10/09/2025
Collect Time: 11:21 AM

Alkalinity by SM 2320B

Aliquot #: 25-0771-07-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity, Total	177000		ug/L	10000.0	10/14/2025	AB25-1014-01
Alkalinity, Bicarbonate	177000		ug/L	10000.0	10/14/2025	AB25-1014-01
Alkalinity, Carbonate	ND		ug/L	10000.0	10/14/2025	AB25-1014-01

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **JHC-MW-15037**
 Lab Sample ID: 25-0771-08
 Matrix: Groundwater

Laboratory Project: **25-0771**
 Collect Date: 10/09/2025
 Collect Time: 09:36 AM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0771-08-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/10/2025	AB25-1010-06

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0771-08-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Arsenic	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Barium	11		ug/L	5.0	10/14/2025	AB25-1015-01
Beryllium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Boron	166		ug/L	20.0	10/14/2025	AB25-1015-01
Cadmium	ND		ug/L	0.2	10/14/2025	AB25-1015-01
Calcium	73100		ug/L	1000.0	10/14/2025	AB25-1015-01
Chromium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Cobalt	ND		ug/L	6.0	10/14/2025	AB25-1015-01
Copper	1		ug/L	1.0	10/14/2025	AB25-1015-01
Iron	ND		ug/L	20.0	10/14/2025	AB25-1015-01
Lead	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Lithium	ND		ug/L	10.0	10/14/2025	AB25-1015-01
Magnesium	19300		ug/L	1000.0	10/14/2025	AB25-1015-01
Molybdenum	ND		ug/L	5.0	10/14/2025	AB25-1015-01
Nickel	4		ug/L	2.0	10/14/2025	AB25-1015-01
Potassium	1570		ug/L	100.0	10/14/2025	AB25-1015-01
Selenium	5		ug/L	1.0	10/14/2025	AB25-1015-01
Silver	ND		ug/L	0.2	10/14/2025	AB25-1015-01
Sodium	3570		ug/L	1000.0	10/14/2025	AB25-1015-01
Thallium	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Vanadium	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Zinc	ND		ug/L	10.0	10/14/2025	AB25-1015-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0771-08-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	1380		ug/L	1000.0	10/13/2025	AB25-1013-01
Fluoride	ND		ug/L	1000.0	10/13/2025	AB25-1013-01
Sulfate	25200		ug/L	1000.0	10/13/2025	AB25-1013-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0771-08-C03-A01 Analyst: LMO

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	328		mg/L	10.0	10/10/2025	AB25-1010-05



Analytical Report

Report Date: 10/24/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
Field Sample ID: **JHC-MW-15037**
Lab Sample ID: 25-0771-08
Matrix: Groundwater

Laboratory Project: **25-0771**
Collect Date: 10/09/2025
Collect Time: 09:36 AM

Alkalinity by SM 2320B

Aliquot #: 25-0771-08-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity, Total	237000		ug/L	10000.0	10/14/2025	AB25-1014-01
Alkalinity, Bicarbonate	237000		ug/L	10000.0	10/14/2025	AB25-1014-01
Alkalinity, Carbonate	ND		ug/L	10000.0	10/14/2025	AB25-1014-01

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **DUP-03**
 Lab Sample ID: 25-0771-09
 Matrix: Groundwater

Laboratory Project: **25-0771**
 Collect Date: 10/08/2025
 Collect Time: 12:00 AM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0771-09-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/11/2025	AB25-1010-06

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0771-09-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Arsenic	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Barium	24		ug/L	5.0	10/14/2025	AB25-1015-01
Beryllium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Boron	83		ug/L	20.0	10/14/2025	AB25-1015-01
Cadmium	ND		ug/L	0.2	10/14/2025	AB25-1015-01
Calcium	90100		ug/L	1000.0	10/14/2025	AB25-1015-01
Chromium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Cobalt	ND		ug/L	6.0	10/14/2025	AB25-1015-01
Copper	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Iron	ND		ug/L	20.0	10/14/2025	AB25-1015-01
Lead	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Lithium	ND		ug/L	10.0	10/14/2025	AB25-1015-01
Magnesium	20000		ug/L	1000.0	10/14/2025	AB25-1015-01
Molybdenum	ND		ug/L	5.0	10/14/2025	AB25-1015-01
Nickel	4		ug/L	2.0	10/14/2025	AB25-1015-01
Potassium	2030		ug/L	100.0	10/14/2025	AB25-1015-01
Selenium	4		ug/L	1.0	10/14/2025	AB25-1015-01
Silver	ND		ug/L	0.2	10/14/2025	AB25-1015-01
Sodium	7720		ug/L	1000.0	10/14/2025	AB25-1015-01
Thallium	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Vanadium	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Zinc	ND		ug/L	10.0	10/14/2025	AB25-1015-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0771-09-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	2760		ug/L	1000.0	10/13/2025	AB25-1013-01
Fluoride	ND		ug/L	1000.0	10/13/2025	AB25-1013-01
Sulfate	22100		ug/L	1000.0	10/13/2025	AB25-1013-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0771-09-C03-A01 Analyst: LMO

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	385		mg/L	10.0	10/10/2025	AB25-1010-05



Analytical Report

Report Date: 10/24/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
Field Sample ID: **DUP-03**
Lab Sample ID: 25-0771-09
Matrix: Groundwater

Laboratory Project: **25-0771**
Collect Date: 10/08/2025
Collect Time: 12:00 AM

Alkalinity by SM 2320B

Aliquot #: 25-0771-09-C04-A01

Analyst: DLS

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity, Total	303000		ug/L	10000.0	10/14/2025	AB25-1014-01
Alkalinity, Bicarbonate	303000		ug/L	10000.0	10/14/2025	AB25-1014-01
Alkalinity, Carbonate	ND		ug/L	10000.0	10/14/2025	AB25-1014-01

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **FB-03**
 Lab Sample ID: 25-0771-10
 Matrix: Water

Laboratory Project: **25-0771**
 Collect Date: 10/09/2025
 Collect Time: 12:14 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0771-10-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/11/2025	AB25-1010-06

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0771-10-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Arsenic	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Barium	ND		ug/L	5.0	10/14/2025	AB25-1015-01
Beryllium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Boron	ND		ug/L	20.0	10/14/2025	AB25-1015-01
Cadmium	ND		ug/L	0.2	10/14/2025	AB25-1015-01
Calcium	ND		ug/L	1000.0	10/14/2025	AB25-1015-01
Chromium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Cobalt	ND		ug/L	6.0	10/14/2025	AB25-1015-01
Copper	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Iron	ND		ug/L	20.0	10/14/2025	AB25-1015-01
Lead	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Lithium	ND		ug/L	10.0	10/14/2025	AB25-1015-01
Magnesium	ND		ug/L	1000.0	10/14/2025	AB25-1015-01
Molybdenum	ND		ug/L	5.0	10/14/2025	AB25-1015-01
Nickel	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Potassium	ND		ug/L	100.0	10/14/2025	AB25-1015-01
Selenium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Silver	ND		ug/L	0.2	10/14/2025	AB25-1015-01
Sodium	ND		ug/L	1000.0	10/14/2025	AB25-1015-01
Thallium	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Vanadium	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Zinc	ND		ug/L	10.0	10/14/2025	AB25-1015-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0771-10-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	ND		ug/L	1000.0	10/13/2025	AB25-1013-01
Fluoride	ND		ug/L	1000.0	10/13/2025	AB25-1013-01
Sulfate	ND		ug/L	1000.0	10/13/2025	AB25-1013-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0771-10-C03-A01 Analyst: LMO

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	ND		mg/L	10.0	10/10/2025	AB25-1010-05

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **EB-03**
 Lab Sample ID: 25-0771-11
 Matrix: Water

Laboratory Project: **25-0771**
 Collect Date: 10/09/2025
 Collect Time: 12:30 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0771-11-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/11/2025	AB25-1010-06

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0771-11-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Arsenic	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Barium	ND		ug/L	5.0	10/14/2025	AB25-1015-01
Beryllium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Boron	ND		ug/L	20.0	10/14/2025	AB25-1015-01
Cadmium	ND		ug/L	0.2	10/14/2025	AB25-1015-01
Calcium	ND		ug/L	1000.0	10/14/2025	AB25-1015-01
Chromium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Cobalt	ND		ug/L	6.0	10/14/2025	AB25-1015-01
Copper	1		ug/L	1.0	10/14/2025	AB25-1015-01
Iron	ND		ug/L	20.0	10/14/2025	AB25-1015-01
Lead	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Lithium	ND		ug/L	10.0	10/14/2025	AB25-1015-01
Magnesium	ND		ug/L	1000.0	10/14/2025	AB25-1015-01
Molybdenum	ND		ug/L	5.0	10/14/2025	AB25-1015-01
Nickel	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Potassium	ND		ug/L	100.0	10/14/2025	AB25-1015-01
Selenium	ND		ug/L	1.0	10/14/2025	AB25-1015-01
Silver	ND		ug/L	0.2	10/14/2025	AB25-1015-01
Sodium	ND		ug/L	1000.0	10/14/2025	AB25-1015-01
Thallium	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Vanadium	ND		ug/L	2.0	10/14/2025	AB25-1015-01
Zinc	ND		ug/L	10.0	10/14/2025	AB25-1015-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0771-11-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	ND		ug/L	1000.0	10/13/2025	AB25-1013-01
Fluoride	ND		ug/L	1000.0	10/13/2025	AB25-1013-01
Sulfate	ND		ug/L	1000.0	10/13/2025	AB25-1013-01

Total Dissolved Solids by SM 2540C Aliquot #: 25-0771-11-C03-A01 Analyst: LMO

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	ND		mg/L	10.0	10/10/2025	AB25-1010-05



Analytical Report

Report Date: 10/24/25

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **MW-B4 MS**
 Lab Sample ID: 25-0771-12
 Matrix: Groundwater

Laboratory Project: **25-0771**
 Collect Date: 10/08/2025
 Collect Time: 01:01 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0771-12-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	97.0		%	0.2	10/11/2025	AB25-1010-06

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0771-12-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	104		%	1.0	10/14/2025	AB25-1015-01
Arsenic	104		%	1.0	10/14/2025	AB25-1015-01
Barium	99		%	5.0	10/14/2025	AB25-1015-01
Beryllium	104		%	1.0	10/14/2025	AB25-1015-01
Boron	99		%	20.0	10/14/2025	AB25-1015-01
Cadmium	104		%	0.2	10/14/2025	AB25-1015-01
Calcium	106		%	1000.0	10/14/2025	AB25-1015-01
Chromium	98		%	1.0	10/14/2025	AB25-1015-01
Cobalt	100		%	6.0	10/14/2025	AB25-1015-01
Copper	94		%	1.0	10/14/2025	AB25-1015-01
Iron	101		%	20.0	10/14/2025	AB25-1015-01
Lead	104		%	1.0	10/14/2025	AB25-1015-01
Lithium	102		%	10.0	10/14/2025	AB25-1015-01
Magnesium	110		%	1000.0	10/14/2025	AB25-1015-01
Molybdenum	108		%	5.0	10/14/2025	AB25-1015-01
Nickel	99		%	2.0	10/14/2025	AB25-1015-01
Potassium	105		%	100.0	10/14/2025	AB25-1015-01
Selenium	104		%	1.0	10/14/2025	AB25-1015-01
Silver	99.5		%	0.2	10/14/2025	AB25-1015-01
Sodium	110		%	1000.0	10/14/2025	AB25-1015-01
Thallium	107		%	2.0	10/14/2025	AB25-1015-01
Vanadium	101		%	2.0	10/14/2025	AB25-1015-01
Zinc	99		%	10.0	10/14/2025	AB25-1015-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0771-12-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	95		%	1000.0	10/13/2025	AB25-1013-01
Fluoride	90		%	1000.0	10/13/2025	AB25-1013-01
Sulfate	95		%	1000.0	10/13/2025	AB25-1013-01

Laboratory Services

A CENTURY OF EXCELLENCE

Sample Site: **JHC GW Monitoring - Landfill Wells (395496)**
 Field Sample ID: **MW-B4 MSD**
 Lab Sample ID: 25-0771-13
 Matrix: Groundwater

Laboratory Project: **25-0771**
 Collect Date: 10/08/2025
 Collect Time: 01:01 PM

Mercury by EPA 7470A, Total, Aqueous Aliquot #: 25-0771-13-C01-A01 Analyst: CLE

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	97.0		%	0.2	10/11/2025	AB25-1010-06

Metals by EPA 6020B: CCR Rule Appendix III-IV Total Metals Exp Aliquot #: 25-0771-13-C01-A02 Analyst: EB

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	105		%	1.0	10/14/2025	AB25-1015-01
Arsenic	103		%	1.0	10/14/2025	AB25-1015-01
Barium	99		%	5.0	10/14/2025	AB25-1015-01
Beryllium	104		%	1.0	10/14/2025	AB25-1015-01
Boron	103		%	20.0	10/14/2025	AB25-1015-01
Cadmium	105		%	0.2	10/14/2025	AB25-1015-01
Calcium	103		%	1000.0	10/14/2025	AB25-1015-01
Chromium	101		%	1.0	10/14/2025	AB25-1015-01
Cobalt	100		%	6.0	10/14/2025	AB25-1015-01
Copper	99		%	1.0	10/14/2025	AB25-1015-01
Iron	110		%	20.0	10/14/2025	AB25-1015-01
Lead	104		%	1.0	10/14/2025	AB25-1015-01
Lithium	102		%	10.0	10/14/2025	AB25-1015-01
Magnesium	109		%	1000.0	10/14/2025	AB25-1015-01
Molybdenum	110		%	5.0	10/14/2025	AB25-1015-01
Nickel	101		%	2.0	10/14/2025	AB25-1015-01
Potassium	102		%	100.0	10/14/2025	AB25-1015-01
Selenium	103		%	1.0	10/14/2025	AB25-1015-01
Silver	99.1		%	0.2	10/14/2025	AB25-1015-01
Sodium	108		%	1000.0	10/14/2025	AB25-1015-01
Thallium	107		%	2.0	10/14/2025	AB25-1015-01
Vanadium	103		%	2.0	10/14/2025	AB25-1015-01
Zinc	103		%	10.0	10/14/2025	AB25-1015-01

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot #: 25-0771-13-C02-A01 Analyst: KDR

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	96		%	1000.0	10/13/2025	AB25-1013-01
Fluoride	91		%	1000.0	10/13/2025	AB25-1013-01
Sulfate	95		%	1000.0	10/13/2025	AB25-1013-01

Data Qualifiers	Exception Summary
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No exceptions occurred.

TITLE: SAMPLE LOG-IN – SHIPMENT INSPECTION FORM

Project Number: 25-0771 Inspection Date: 10-09-25 Inspection By: CIE

Sample Origin/Project Name: JHC Q4 Landfill

Shipment Delivered By: Enter the type of shipment carrier.

Inter-Company Mail _____ FedEx _____ UPS _____ USPS _____

Tracking Number: _____ Other/Carry In (whom) KDR-CONSUMERS

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

Cooler (2) Cardboard Box _____ Custom Case _____ Envelope/Mailer _____

Loose/Unpackaged Containers _____ Other _____

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

Damaged Shipment Observed: None Dented _____ Leaking _____

Other _____

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

Shipping Containers Received: Opened _____ Sealed N/A _____

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

CoC Work Request _____ Air Data Sheet _____ Other _____

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

As-Received Temperature Range 2.0-3.1 °C Samples Received on Ice: Yes No _____

M&TE # and Expiration LS021123 / 7.7.26

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

Container Type	Water	Soil	Other	Broken	Leaking
VOA (40mL or 60mL)	<u>18</u>	_____	_____	_____	_____
Quart/Liter (g/p)	<u>22</u>	_____	_____	_____	_____
9-oz (amber glass jar)	_____	_____	_____	_____	_____
2-oz (amber glass)	_____	_____	_____	_____	_____
125 mL (plastic)	<u>26</u>	_____	_____	_____	_____
24 mL vial (glass)	_____	_____	_____	_____	_____
250 mL (plastic)	<u>11</u>	_____	_____	_____	_____
Other	_____	_____	_____	_____	_____

All sample pH meeting criteria? Yes No _____ N/A _____ pH paper lot # B-1640-508 Exp. Date 12.1.26

Indicate if an Exception Report (Page 2 of 2) is needed: Yes _____ No

CHAIN OF CUSTODY



CONSUMERS ENERGY COMPANY – LABORATORY SERVICES

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

SAMPLING SITE / CUSTOMER: JHC Q4-2025 Landfill Wells			PROJECT NUMBER: 25-0771			SAP CC or WO#: REQUESTER: JR Register			ANALYSIS REQUESTED (Attach List if More Space is Needed)					QA REQUIREMENT: <input type="checkbox"/> NPDES <input checked="" type="checkbox"/> TNI <input type="checkbox"/> ISO 17025 <input type="checkbox"/> 10 CFR 50 APP. B <input type="checkbox"/> INTERNAL INFO <input type="checkbox"/> OTHER _____								
SAMPLING TEAM: CLE, LMO, KDR			TURNAROUND TIME REQUIRED: <input type="checkbox"/> 24 HR <input type="checkbox"/> 48 HR <input type="checkbox"/> 3 DAYS <input type="checkbox"/> STANDARD <input checked="" type="checkbox"/> OTHER _____																			
SEND REPORT TO: Joseph Firlit		email:			phone:																	
COPY TO: JR Register		MATRIX CODES: GW = Groundwater OX = Other WW = Wastewater SL = Sludge W = Water / Aqueous Liquid A = Air S = Soil / General Solid WP = Wipe O = Oil WT = General Waste			CONTAINERS																	
LAB SAMPLE ID		SAMPLE COLLECTION		MATRIX	FIELD SAMPLE ID / LOCATION			TOTAL #	PRESERVATIVE							Total Metals	Anions	TDS	Alkalinity	Radium 226	Radium 228	REMARKS
		DATE	TIME						None	HNO ₃	H ₂ SO ₄	NaOH	HCl	MeOH	Other							
25-0771-13	10-8-25	1301	GW	MW-B4 MSD			2	1	1													

RELINQUISHED BY: <i>Nel Ralot</i>		DATE/TIME: 10-9-25/1530		RECEIVED BY: <i>[Signature]</i>		COMMENTS: Received on Ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No M&TE #: <u>LS027723</u> Temperature: <u>2.0-3.1</u> °C Cal. Due Date: <u>7-7-26</u>					
RELINQUISHED BY:		DATE/TIME:		RECEIVED BY:							

 **ANALYTICAL REPORT****PREPARED FOR**

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

Generated 11/18/2025 4:37:17 PM

JOB DESCRIPTION

JH Campbell Landfill Wells

JOB NUMBER

160-60012-1

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



Generated
11/18/2025 4:37:17 PM

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Case Narrative

Client: Consumers Energy
Project: JH Campbell Landfill Wells

Job ID: 160-60012-1

Job ID: 160-60012-1

Eurofins St. Louis

Job Narrative 160-60012-1

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.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica 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 10/17/2025 10:35 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 22.1°C.

Receipt Exceptions

Samplers name is not on the COC. JHC-MW-15017 (160-60012-1), JHC-MW-15018 (160-60012-2), JHC-MW-15031 (160-60012-3), MW-B4 (160-60012-4), JHC-MW-15035 (160-60012-5), JHC-MW-15036 (160-60012-6), JHC-MW-15037 (160-60012-7), DUP-03 (160-60012-8), FB-03 (160-60012-9) and EB-03 (160-60012-10)

The following samples were received at the laboratory without a sample collection time documented on the chain of custody: DUP-07 (160-60008-6), DUP-02 (160-60009-6), DUP-01 (160-60010-7) and DUP-03 (160-60012-8). The collection time used was 12:00am.

Method 903.0 - Radium-226 (GFPC)

Samples JHC-MW-15017 (160-60012-1), JHC-MW-15018 (160-60012-2), JHC-MW-15031 (160-60012-3), MW-B4 (160-60012-4), JHC-MW-15035 (160-60012-5), JHC-MW-15036 (160-60012-6), JHC-MW-15037 (160-60012-7), DUP-03 (160-60012-8), FB-03 (160-60012-9) and EB-03 (160-60012-10) were analyzed for Radium-226 (GFPC). The samples were prepared on 10/22/2025 and analyzed on 11/17/2025 and 11/18/2025.

Method 904.0 - Radium-228 (GFPC)

Samples JHC-MW-15017 (160-60012-1), JHC-MW-15018 (160-60012-2), JHC-MW-15031 (160-60012-3), MW-B4 (160-60012-4), JHC-MW-15035 (160-60012-5), JHC-MW-15036 (160-60012-6), JHC-MW-15037 (160-60012-7), DUP-03 (160-60012-8), FB-03 (160-60012-9) and EB-03 (160-60012-10) were analyzed for Radium-228 (GFPC). The samples were prepared on 10/22/2025 and analyzed on 11/17/2025.

Method Ra226_Ra228 - Combined Radium-226 and Radium-228

Samples JHC-MW-15017 (160-60012-1), JHC-MW-15018 (160-60012-2), JHC-MW-15031 (160-60012-3), MW-B4 (160-60012-4), JHC-MW-15035 (160-60012-5), JHC-MW-15036 (160-60012-6), JHC-MW-15037 (160-60012-7), DUP-03 (160-60012-8), FB-03 (160-60012-9) and EB-03 (160-60012-10) were analyzed for Combined Radium-226 and Radium-228. The samples were analyzed on 11/18/2025.

Eurofins St. Louis

Login Sample Receipt Checklist

Client: Consumers Energy

Job Number: 160-60012-1

Login Number: 60012

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.	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 container for sample 8
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	

Definitions/Glossary

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

Job ID: 160-60012-1

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

Method Summary

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

Job ID: 160-60012-1

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



Sample Summary

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

Job ID: 160-60012-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Sample Origin
160-60012-1	JHC-MW-15017	Water	10/08/25 16:31	10/17/25 10:35	Michigan
160-60012-2	JHC-MW-15018	Water	10/08/25 18:16	10/17/25 10:35	Michigan
160-60012-3	JHC-MW-15031	Water	10/08/25 14:26	10/17/25 10:35	Michigan
160-60012-4	MW-B4	Water	10/08/25 13:01	10/17/25 10:35	Michigan
160-60012-5	JHC-MW-15035	Water	10/08/25 13:46	10/17/25 10:35	Michigan
160-60012-6	JHC-MW-15036	Water	10/09/25 11:21	10/17/25 10:35	Michigan
160-60012-7	JHC-MW-15037	Water	10/09/25 09:36	10/17/25 10:35	Michigan
160-60012-8	DUP-03	Water	10/08/25 00:00	10/17/25 10:35	Michigan
160-60012-9	FB-03	Water	10/09/25 12:14	10/17/25 10:35	Michigan
160-60012-10	EB-03	Water	10/09/25 12:30	10/17/25 10:35	Michigan



Client Sample Results

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

Job ID: 160-60012-1

Client Sample ID: JHC-MW-15017

Lab Sample ID: 160-60012-1

Date Collected: 10/08/25 16:31

Matrix: Water

Date Received: 10/17/25 10:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0975	U	0.174	0.174	1.00	0.305	pCi/L	10/22/25 07:47	11/18/25 10:02	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	76.2		30 - 110					10/22/25 07:47	11/18/25 10:02	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	-0.0958	U	0.503	0.503	1.00	0.936	pCi/L	10/22/25 07:50	11/17/25 10:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	76.2		30 - 110					10/22/25 07:50	11/17/25 10:04	1
Y Carrier	74.0		30 - 110					10/22/25 07:50	11/17/25 10:04	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.00175	U	0.532	0.532	5.00	0.936	pCi/L		11/18/25 15:40	1

Client Sample ID: JHC-MW-15018

Lab Sample ID: 160-60012-2

Date Collected: 10/08/25 18:16

Matrix: Water

Date Received: 10/17/25 10:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0792	U	0.162	0.162	1.00	0.292	pCi/L	10/22/25 07:47	11/18/25 10:01	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	68.6		30 - 110					10/22/25 07:47	11/18/25 10:01	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	1.02		0.557	0.565	1.00	0.790	pCi/L	10/22/25 07:50	11/17/25 10:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	68.6		30 - 110					10/22/25 07:50	11/17/25 10:04	1
Y Carrier	75.1		30 - 110					10/22/25 07:50	11/17/25 10:04	1

Client Sample Results

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

Job ID: 160-60012-1

Client Sample ID: JHC-MW-15018

Lab Sample ID: 160-60012-2

Date Collected: 10/08/25 18:16

Matrix: Water

Date Received: 10/17/25 10:35

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.10		0.580	0.588	5.00	0.790	pCi/L		11/18/25 15:40	1

Client Sample ID: JHC-MW-15031

Lab Sample ID: 160-60012-3

Date Collected: 10/08/25 14:26

Matrix: Water

Date Received: 10/17/25 10:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.138	U	0.168	0.168	1.00	0.276	pCi/L	10/22/25 07:47	11/18/25 10:08	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	75.4		30 - 110					10/22/25 07:47	11/18/25 10:08	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	1.34		0.542	0.556	1.00	0.705	pCi/L	10/22/25 07:50	11/17/25 10:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	75.4		30 - 110					10/22/25 07:50	11/17/25 10:04	1
Y Carrier	77.4		30 - 110					10/22/25 07:50	11/17/25 10:04	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.48		0.567	0.581	5.00	0.705	pCi/L		11/18/25 15:40	1

Client Sample ID: MW-B4

Lab Sample ID: 160-60012-4

Date Collected: 10/08/25 13:01

Matrix: Water

Date Received: 10/17/25 10:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0610	U	0.185	0.185	1.00	0.342	pCi/L	10/22/25 07:47	11/18/25 10:08	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	77.6		30 - 110					10/22/25 07:47	11/18/25 10:08	1

Client Sample Results

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

Job ID: 160-60012-1

Client Sample ID: MW-B4

Lab Sample ID: 160-60012-4

Date Collected: 10/08/25 13:01

Matrix: Water

Date Received: 10/17/25 10:35

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	1.21		0.502	0.514	1.00	0.639	pCi/L	10/22/25 07:50	11/17/25 10:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	77.6		30 - 110					10/22/25 07:50	11/17/25 10:05	1
Y Carrier	75.1		30 - 110					10/22/25 07:50	11/17/25 10:05	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.27		0.535	0.546	5.00	0.639	pCi/L		11/18/25 15:40	1

Client Sample ID: JHC-MW-15035

Lab Sample ID: 160-60012-5

Date Collected: 10/08/25 13:46

Matrix: Water

Date Received: 10/17/25 10:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0126	U	0.191	0.191	1.00	0.384	pCi/L	10/22/25 07:47	11/17/25 17:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	71.6		30 - 110					10/22/25 07:47	11/17/25 17:41	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	2.74		0.670	0.716	1.00	0.706	pCi/L	10/22/25 07:50	11/17/25 10:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	71.6		30 - 110					10/22/25 07:50	11/17/25 10:05	1
Y Carrier	83.0		30 - 110					10/22/25 07:50	11/17/25 10:05	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.75		0.697	0.741	5.00	0.706	pCi/L		11/18/25 15:40	1

Client Sample Results

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

Job ID: 160-60012-1

Client Sample ID: JHC-MW-15036

Lab Sample ID: 160-60012-6

Date Collected: 10/09/25 11:21

Matrix: Water

Date Received: 10/17/25 10:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.241	U	0.223	0.224	1.00	0.340	pCi/L	10/22/25 07:47	11/17/25 17:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	75.7		30 - 110					10/22/25 07:47	11/17/25 17:41	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	1.64		0.665	0.682	1.00	0.891	pCi/L	10/22/25 07:50	11/17/25 10:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	75.7		30 - 110					10/22/25 07:50	11/17/25 10:05	1
Y Carrier	69.2		30 - 110					10/22/25 07:50	11/17/25 10:05	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.88		0.701	0.718	5.00	0.891	pCi/L		11/18/25 15:40	1

Client Sample ID: JHC-MW-15037

Lab Sample ID: 160-60012-7

Date Collected: 10/09/25 09:36

Matrix: Water

Date Received: 10/17/25 10:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.00487	U	0.162	0.162	1.00	0.342	pCi/L	10/22/25 07:53	11/17/25 18:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	75.1		30 - 110					10/22/25 07:53	11/17/25 18:05	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	0.577	U	0.484	0.487	1.00	0.756	pCi/L	10/22/25 07:57	11/17/25 10:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	75.1		30 - 110					10/22/25 07:57	11/17/25 10:06	1
Y Carrier	71.8		30 - 110					10/22/25 07:57	11/17/25 10:06	1

Client Sample Results

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

Job ID: 160-60012-1

Client Sample ID: JHC-MW-15037

Lab Sample ID: 160-60012-7

Date Collected: 10/09/25 09:36

Matrix: Water

Date Received: 10/17/25 10:35

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.572	U	0.510	0.513	5.00	0.756	pCi/L		11/18/25 15:40	1

Client Sample ID: DUP-03

Lab Sample ID: 160-60012-8

Date Collected: 10/08/25 00:00

Matrix: Water

Date Received: 10/17/25 10:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0450	U	0.195	0.195	1.00	0.376	pCi/L	10/22/25 07:53	11/17/25 18:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	72.1		30 - 110					10/22/25 07:53	11/17/25 18:05	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	0.813	U	0.570	0.575	1.00	0.867	pCi/L	10/22/25 07:57	11/17/25 10:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	72.1		30 - 110					10/22/25 07:57	11/17/25 10:06	1
Y Carrier	70.7		30 - 110					10/22/25 07:57	11/17/25 10:06	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.858	U	0.602	0.607	5.00	0.867	pCi/L		11/18/25 15:40	1

Client Sample ID: FB-03

Lab Sample ID: 160-60012-9

Date Collected: 10/09/25 12:14

Matrix: Water

Date Received: 10/17/25 10:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0198	U	0.172	0.172	1.00	0.341	pCi/L	10/22/25 07:53	11/17/25 18:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.7		30 - 110					10/22/25 07:53	11/17/25 18:05	1

Client Sample Results

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

Job ID: 160-60012-1

Client Sample ID: FB-03
 Date Collected: 10/09/25 12:14
 Date Received: 10/17/25 10:35

Lab Sample ID: 160-60012-9
 Matrix: Water

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	0.366	U	0.397	0.399	1.00	0.646	pCi/L	10/22/25 07:57	11/17/25 10:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.7		30 - 110					10/22/25 07:57	11/17/25 10:07	1
Y Carrier	72.9		30 - 110					10/22/25 07:57	11/17/25 10:07	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.386	U	0.433	0.434	5.00	0.646	pCi/L		11/18/25 15:40	1

Client Sample ID: EB-03
 Date Collected: 10/09/25 12:30
 Date Received: 10/17/25 10:35

Lab Sample ID: 160-60012-10
 Matrix: Water

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0519	U	0.186	0.186	1.00	0.356	pCi/L	10/22/25 07:53	11/17/25 18:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.9		30 - 110					10/22/25 07:53	11/17/25 18:06	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	0.224	U	0.403	0.403	1.00	0.695	pCi/L	10/22/25 07:57	11/17/25 10:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.9		30 - 110					10/22/25 07:57	11/17/25 10:07	1
Y Carrier	75.1		30 - 110					10/22/25 07:57	11/17/25 10:07	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.276	U	0.444	0.444	5.00	0.695	pCi/L		11/18/25 15:40	1

QC Sample Results

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

Job ID: 160-60012-1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-741697/1-A
Matrix: Water
Analysis Batch: 745605

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 741697

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	-0.03555	U	0.166	0.166	1.00	0.360	pCi/L	10/22/25 07:47	11/17/25 15:00	1
Carrier	MB		Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	%Yield	MB Qualifier	30 - 110					10/22/25 07:47	11/17/25 15:00	1
	82.2									

Lab Sample ID: LCS 160-741697/2-A
Matrix: Water
Analysis Batch: 745609

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 741697

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	9.57	11.07		1.43	1.00	0.326	pCi/L	116	75 - 125
Carrier	LCS		Limits						
Ba Carrier	%Yield	LCS Qualifier	30 - 110						
	86.1								

Lab Sample ID: 160-60011-B-7-A DU
Matrix: Water
Analysis Batch: 745609

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 741697

Analyte	Sample		DU	DU	Total	RL	MDC	Unit	RER	RER
	Result	Sample Qual	Result	Qual	Uncert. (2σ+/-)					Limit
Radium-226	0.103	U	0.1357	U	0.219	1.00	0.377	pCi/L	0.08	1
Carrier	DU		Limits							
Ba Carrier	%Yield	DU Qualifier	30 - 110							
	85.8									

Lab Sample ID: MB 160-741699/1-A
Matrix: Water
Analysis Batch: 745605

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 741699

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	-0.06012	U	0.126	0.126	1.00	0.306	pCi/L	10/22/25 07:53	11/17/25 18:05	1
Carrier	MB		Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	%Yield	MB Qualifier	30 - 110					10/22/25 07:53	11/17/25 18:05	1
	82.0									

Lab Sample ID: LCS 160-741699/2-A
Matrix: Water
Analysis Batch: 745605

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 741699

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	9.57	9.272		1.23	1.00	0.312	pCi/L	97	75 - 125

Eurofins St. Louis

QC Sample Results

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

Job ID: 160-60012-1

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

Lab Sample ID: LCS 160-741699/2-A
Matrix: Water
Analysis Batch: 745605

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 741699

	LCS	LCS	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	83.3		30 - 110

Lab Sample ID: 885-35672-Q-6-A DU
Matrix: Water
Analysis Batch: 745609

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 741699

Analyte	Sample		DU		Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
	Result	Qual	Result	Qual						
Radium-226	0.0458	U	0.2219	U	0.253	1.00	0.409	pCi/L	0.42	1

	DU	DU	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	72.7		30 - 110

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-741698/1-A
Matrix: Water
Analysis Batch: 745610

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 741698

Analyte	MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Radium-228	0.1856	U	0.356	0.356	1.00	0.617	pCi/L	10/22/25 07:50	11/17/25 10:03	1

	MB	MB	Limits	Prepared	Analyzed	Dil Fac
Carrier	%Yield	Qualifier				
Ba Carrier	82.2		30 - 110	10/22/25 07:50	11/17/25 10:03	1
Y Carrier	76.3		30 - 110	10/22/25 07:50	11/17/25 10:03	1

Lab Sample ID: LCS 160-741698/2-A
Matrix: Water
Analysis Batch: 745610

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 741698

Analyte	Spike Added	LCS		Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
		Result	Qual						
Radium-228	7.92	9.386		1.31	1.00	0.612	pCi/L	118	75 - 125

	LCS	LCS	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	86.1		30 - 110
Y Carrier	83.4		30 - 110

Lab Sample ID: 160-60011-B-7-B DU
Matrix: Water
Analysis Batch: 745605

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 741698

Analyte	Sample		DU		Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
	Result	Qual	Result	Qual						
Radium-228	0.283	U	0.3865	U	0.455	1.00	0.747	pCi/L	0.11	1

Eurofins St. Louis

QC Sample Results

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

Job ID: 160-60012-1

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

Lab Sample ID: 160-60011-B-7-B DU
Matrix: Water
Analysis Batch: 745605

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 741698

	DU	DU	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	85.8		30 - 110
Y Carrier	73.6		30 - 110

Lab Sample ID: MB 160-741700/1-A
Matrix: Water
Analysis Batch: 745605

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 741700

Analyte	MB MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Radium-228	0.5575	U	0.457	0.460	1.00	0.712	pCi/L	10/22/25 07:57	11/17/25 10:05	1

Carrier	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Yield	Qualifier				
Ba Carrier	82.0		30 - 110	10/22/25 07:57	11/17/25 10:05	1
Y Carrier	72.1		30 - 110	10/22/25 07:57	11/17/25 10:05	1

Lab Sample ID: LCS 160-741700/2-A
Matrix: Water
Analysis Batch: 745605

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 741700

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits

Carrier	LCS	LCS	Limits
	%Yield	Qualifier	
Ba Carrier	83.3		30 - 110
Y Carrier	72.9		30 - 110

Lab Sample ID: 885-35672-Q-6-B DU
Matrix: Water
Analysis Batch: 745609

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 741700

Analyte	Sample Sample		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
	Result	Qual								
Radium-228	0.614	U	0.9186		0.517	1.00	0.724	pCi/L	0.33	1

Carrier	DU	DU	Limits
	%Yield	Qualifier	
Ba Carrier	72.7		30 - 110
Y Carrier	75.5		30 - 110

QC Association Summary

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

Job ID: 160-60012-1

Rad

Prep Batch: 741697

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-60012-1	JHC-MW-15017	Total/NA	Water	PrecSep-21	
160-60012-2	JHC-MW-15018	Total/NA	Water	PrecSep-21	
160-60012-3	JHC-MW-15031	Total/NA	Water	PrecSep-21	
160-60012-4	MW-B4	Total/NA	Water	PrecSep-21	
160-60012-5	JHC-MW-15035	Total/NA	Water	PrecSep-21	
160-60012-6	JHC-MW-15036	Total/NA	Water	PrecSep-21	
MB 160-741697/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-741697/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
160-60011-B-7-A DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 741698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-60012-1	JHC-MW-15017	Total/NA	Water	PrecSep_0	
160-60012-2	JHC-MW-15018	Total/NA	Water	PrecSep_0	
160-60012-3	JHC-MW-15031	Total/NA	Water	PrecSep_0	
160-60012-4	MW-B4	Total/NA	Water	PrecSep_0	
160-60012-5	JHC-MW-15035	Total/NA	Water	PrecSep_0	
160-60012-6	JHC-MW-15036	Total/NA	Water	PrecSep_0	
MB 160-741698/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-741698/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
160-60011-B-7-B DU	Duplicate	Total/NA	Water	PrecSep_0	

Prep Batch: 741699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-60012-7	JHC-MW-15037	Total/NA	Water	PrecSep-21	
160-60012-8	DUP-03	Total/NA	Water	PrecSep-21	
160-60012-9	FB-03	Total/NA	Water	PrecSep-21	
160-60012-10	EB-03	Total/NA	Water	PrecSep-21	
MB 160-741699/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-741699/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
885-35672-Q-6-A DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 741700

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-60012-7	JHC-MW-15037	Total/NA	Water	PrecSep_0	
160-60012-8	DUP-03	Total/NA	Water	PrecSep_0	
160-60012-9	FB-03	Total/NA	Water	PrecSep_0	
160-60012-10	EB-03	Total/NA	Water	PrecSep_0	
MB 160-741700/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-741700/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
885-35672-Q-6-B DU	Duplicate	Total/NA	Water	PrecSep_0	

Tracer/Carrier Summary

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

Job ID: 160-60012-1

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits)	
		Ba (30-110)	
160-60011-B-7-A DU	Duplicate	85.8	
160-60012-1	JHC-MW-15017	76.2	
160-60012-2	JHC-MW-15018	68.6	
160-60012-3	JHC-MW-15031	75.4	
160-60012-4	MW-B4	77.6	
160-60012-5	JHC-MW-15035	71.6	
160-60012-6	JHC-MW-15036	75.7	
160-60012-7	JHC-MW-15037	75.1	
160-60012-8	DUP-03	72.1	
160-60012-9	FB-03	84.7	
160-60012-10	EB-03	74.9	
885-35672-Q-6-A DU	Duplicate	72.7	
LCS 160-741697/2-A	Lab Control Sample	86.1	
LCS 160-741699/2-A	Lab Control Sample	83.3	
MB 160-741697/1-A	Method Blank	82.2	
MB 160-741699/1-A	Method Blank	82.0	

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits)	
		Ba (30-110)	Y (30-110)
160-60011-B-7-B DU	Duplicate	85.8	73.6
160-60012-1	JHC-MW-15017	76.2	74.0
160-60012-2	JHC-MW-15018	68.6	75.1
160-60012-3	JHC-MW-15031	75.4	77.4
160-60012-4	MW-B4	77.6	75.1
160-60012-5	JHC-MW-15035	71.6	83.0
160-60012-6	JHC-MW-15036	75.7	69.2
160-60012-7	JHC-MW-15037	75.1	71.8
160-60012-8	DUP-03	72.1	70.7
160-60012-9	FB-03	84.7	72.9
160-60012-10	EB-03	74.9	75.1
885-35672-Q-6-B DU	Duplicate	72.7	75.5
LCS 160-741698/2-A	Lab Control Sample	86.1	83.4
LCS 160-741700/2-A	Lab Control Sample	83.3	72.9
MB 160-741698/1-A	Method Blank	82.2	76.3
MB 160-741700/1-A	Method Blank	82.0	72.1

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

Appendix B Field Data

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC-MW-15023 Date 4.14.25 Control Number 25-0223-01,-07(DUP)
 Location JHC Background Wells Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailer
 Depth to Water Tape: Solinist S/N: LS030624
 QC SAMPLE: MS/MSD DUP-01 Sonde ID: 15H 19M 20M 21G 22I

Depth-to-water T/PVC (ft) 19.35 Depth-To-Bottom T/PVC (ft) 27.69 Completed by 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%

Stabilization parameters for the last three readings

1355	started pump						200	19.36	
1400	6.23	11.0	174.1	17.5	1.86	+179.9	200	19.36	3.55
1405	6.10	10.8	157.7	9.5	1.05	+185.2	200	19.36	3.80
1410	6.13	10.9	161.9	7.6	0.84	+186.3	200	19.36	3.33
1415	6.16	10.9	165.6	7.3	0.81	+186.5	200	19.36	3.66
1420	6.16	10.9	167.3	7.5	0.83	+186.6	200	19.36	3.41
1425	6.19	10.8	172.9	7.0	0.77	+185.1	200	19.36	3.27
1430	6.22	10.9	176.7	6.6	0.73	+183.9	200	19.36	2.91
1435	6.26	10.9	179.3	6.2	0.68	+181.9	200	19.36	2.67
1440	6.27	10.9	184.9	5.8	0.63	+180.1	200	19.36	2.34
1445	6.31	11.0	185.4	5.6	0.61	+178.7	200	19.36	2.30
1450	6.25	10.9	186.7	5.2	0.58	+181.6	200	19.36	2.14
1455	6.28	11.0	189.7	5.0	0.55	+179.2	200	19.36	2.11
1500	6.28	11.0	191.3	4.9	0.54	+178.2	200	19.36	2.10
1505	6.29	11.0	191.4	4.8	0.52	+177.7	200	19.36	2.07

Total Pump Time (min): ^{LMO 4.14.25} ~~70~~ 71 Total Purge Volume (gal): ~ 3.75 Review Date: 04-22-25

Weather: 55°F Review By: [Signature]

Comments: collected sample @ 1506 End @ 1550

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
2	125 mL	Plastic	B	N	4	1-L	Plastic	B	N
2	125 mL	Plastic	A	N					
2	250 mL	Plastic	A	N					
4	60 mL	VOA	A	N					

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC-mw-15024 Date 4-14-25 Control Number 25-0223-02
 Location JHC Background wells Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailor
 Depth to Water Tape: 50 UNST S/N: LS030624
 QC SAMPLE: MS/MSD DUP Sonde ID: 15H 19M 20M 21G 22J

Depth-to-water T/PVC (ft) 15.25 Depth-To-Bottom T/PVC (ft) 19.92 Completed by umo

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	+/- 0.1	NA	+/- 3%	+/- 10%	+/- 0.3ppm	+/- 10mV	*	<0.33	+/- 10%

Stabilization parameters for the last three readings

1615	started pump						200	15.26	
1620	7.90	9.5	295.1	13.7	1.57	+121.9	200	15.26	8.07
1625	7.90	9.5	293.8	15.1	1.73	+121.7	200	15.26	6.79
1630	7.88	9.5	293.3	19.3	2.20	+123.2	200	15.26	4.73
1635	7.91	9.5	295.4	17.7	2.02	+123.6	200	15.26	2.99
1640	7.92	9.4	296.0	16.0	1.84	+124.1	200	15.26	2.62
1645	7.92	9.3	295.9	16.9	1.92	+124.8	200	15.26	2.26
1650	7.92	9.3	295.0	18.5	2.11	+125.9	200	15.26	2.05
1655	7.93	9.4	295.6	17.5	2.01	+126.7	200	15.26	2.00
1700	7.91	9.3	293.6	20.8	2.45	+128.3	200	15.26	2.02
1705	7.91	9.3	294.6	20.4	2.34	+129.4	200	15.26	1.97
1710	7.91	9.2	293.1	20.8	2.34	+130.6	200	15.26	1.91
1711	collected sample								
1725	End								

Total Pump Time (min): 56 Total Purge Volume (gal): ~30 Review Date: 04-22-25

Weather: 55°F Review By: [Signature]

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Code	Filtered Y/N	Quantity	Size	Type	Code	Filtered Y/N
1	125mL	B	plastic	N	2	1-L	plastic	B	N
1	125mL	A	plastic	N					
1	250 mL	A	plastic	N					
2	100 mL	A	VOA	N					

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC-mw-15026 Date 4.14.25 Control Number 25-0223-04
 Location JHC Background Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailor
 Depth to Water Tape: solinst S/N: LS030024

QC SAMPLE: MS/MSD DUP _____ Sonde ID: 15H 19M 20M 21G 22J

Depth-to-water T/PVC (ft) 16.99 Depth-To-Bottom T/PVC (ft) 21.01 Completed by umo

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	+/- 0.1	NA	+/- 3%	+/- 10%	+/- 0.3ppm	+/- 10mV	*	< 0.33	+/- 10%

Stabilization parameters for the last three readings

1845	started pump						200	17.01	
1850	5.88	8.8	36.0	75.5	8.79	+187.9	200	17.01	7.40
1855	5.86	8.8	39.3	72.1	8.37	+201.7	200	17.01	5.79
1900	5.90	8.8	42.1	69.4	8.06	+207.4	200	17.01	5.59
1905	5.90	8.8	42.9	67.6	7.84	+211.1	200	17.01	3.59
1910	5.91	8.8	43.4	67.0	7.80	+213.8	200	17.01	3.33
1915	5.92	8.7	44.3	66.3	7.72	+216.3	200	17.01	3.22
1920	5.92	8.7	43.3	67.0	7.81	+216.8	200	17.01	3.23
1921	collected sample								
1935	End								

Total Pump Time (min): 36 Total Purge Volume (gal): 22.0 Review Date: 04-22-25

Weather: SS °F Review By: 

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____								
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N	
1	125mL	plastic	B	N	2	1-L	plastic	B	N	
1	125mL	plastic	A	N						
1	250mL	plastic	A	N						
2	60mL	vial	A	N						

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC-MW-15027 Date 4.15.25 Control Number 25-0223-05
 Location JHC Background Wells Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailor
 Depth to Water Tape: Solinst S/N: LS 030624

QC SAMPLE: MS/MSD DUP _____ Sonde ID: 15H 19M 20M 21G 22J

Depth-to-water T/PVC (ft) 17.75 Depth-To-Bottom T/PVC (ft) 21.01 Completed by 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%

Stabilization parameters for the last three readings

0930	Started pump						220	17.77	
0935	7.87	8.5	167.0	86.5	10.13	+188.7	220	17.78	24.54
0940	7.92	8.2	185.4	82.5	9.17	+185.8	220	17.78	13.90
0945	7.96	8.2	187.4	79.0	9.30	+183.7 LMO 4.15.25	220	17.78	9.85
0950	7.97	8.3	186.9	78.0	9.17	+182.5	220	17.78	7.31
0955	7.99	8.3	186.7	76.2	8.94	+181.2	220	17.78	6.90
1000	8.00	8.4	186.4	75.8	8.94	+180.5	220	17.78	5.09
1005	8.01	8.4	186.8	74.8	8.74	+179.7	220	17.78	3.68
1010	8.02	8.5	179.3	75.1	8.77	+179.3	220	17.78	3.50
1015	8.03	8.5	179.2	74.2	8.75 LMO 4.14.25	+179.2	220	17.78	2.70
1020	8.02	8.4	179.1	74.7	8.76	+179.2	220	17.78	2.40
1025	8.04	8.5	187.1	74.2	8.68	+178.8	220	17.78	2.37
1030	8.04	8.5	187.1	74.2	8.72	+178.5	220	17.78	2.36
1035	8.04	8.5	178.4	73.8	8.65	+178.4	220	17.78	2.16
1040	8.05	8.5	178.1	73.5	8.58	+178.2	220	17.78	2.14

Total Pump Time (min): _____ Total Purge Volume (gal): ~4.58 LMO 4.15.25 Review Date: 04-22-25

Weather: 38°F rain Review By: [Signature]

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125ml	Plastic	B	N	2	1-L	Plastic	B	N
1	125ml	Plastic	A	N					
1	250ml	Plastic	A	N					
2	60 ml	VGA	A	N					

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC-MW-15027 Date 4.15.25 Control Number 25-0223-05
 Location JHC Background Wells Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailer
 Depth to Water Tape: Solinst S/N: LS030424
 QC SAMPLE: MS/MSD DUP _____ Sonde ID: 15H 19M 20M 21G 22J

Depth-to-water T/PVC (ft) 17.75 Depth-To-Bottom T/PVC (ft) 21.01 Completed by umo

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	+/- 0.1	NA	+/- 3%	+/- 10%	+/- 0.3ppm	+/- 10mV	*	< 0.33	+/- 10%

Stabilization parameters for the last three readings

1045	8.05	8.5	181.5	73.2	8.55	178.2	220	17.77	2.10
1046	collected sample								
1102	End								

Total Pump Time (min): 76 Total Purge Volume (gal): ~4.5 Review Date: 04-22-25

Weather: 38°F rain Review By: [Signature]

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____								
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N	
1	125mL	Plastic	B	N	2	1L	Plastic	B	N	
1	125mL	Plastic	A	N						
1	250mL	Plastic	A	N						
2	60mL	VOA	A	N						

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC-MW-15028 Date 4.15.25 Control Number 25-0223-06
 Location JHC Background wells Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailer
 Depth to Water Tape: 501inst S/N: LS030624

QC SAMPLE: MS/MSD DUP _____ Sonde ID: 15H 19M 20M 21G 22I

Depth-to-water T/PVC (ft) 17.70 Depth-To-Bottom T/PVC (ft) 20.80 Completed by umo

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	+/- 0.1	NA	+/- 3%	+/- 10%	+/- 0.3ppm	+/- 10mV	*	< 0.33	+/- 10%

Stabilization parameters for the last three readings

1205	Started pump						220	17.71		
1210	8.55	8.7	120.3	76.3	8.80	112.7	220	17.71	1.67	
1215	8.54	8.7	121.4	73.0	8.48	117.5	220	17.71	1.78	
1220	8.59	8.6	119.7	73.0	8.49	120.1	220	17.71	1.68	
1225	8.60	8.7	118.7	73.1	8.50	127.4	220	17.71	1.91	
1230	8.61	8.6	119.1	73.1	8.52	130.3	220	17.71	1.81	
1235	8.63	8.7	119.5	73.4	8.55	138.6	220	17.71	2.20	
1240	8.60	8.5	118.9	72.8	8.52	142.6	220	17.71	2.27	
1245	8.60	8.4	118.5	72.6	8.50	143.7	220	17.71	2.22	
1250	8.61	8.5	118.0	72.4	8.48	145.9	220	17.71	2.20	
1251	collected sample									
1307	End									

Total Pump Time (min): 46 Total Purge Volume (gal): ~2.75 Review Date: 04-22-25

Weather: 38°F cloudy Review By: [Signature]

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125ml	Plastic	B	N	2	1-L	Plastic	B	N
1	125ml	Plastic	A	N					
1	250ml	Plastic	A	N					
2	60ml	VOA	A	N					

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC-MW-15017 Date 4-15-25 Control Number 25-0225-01-DUP-09
 Location JHC Landfill Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailor
 Depth to Water Tape: GeoTech S/N: 7371

QC SAMPLE: MS/MSD DUP-03 Sonde ID: 15H 19M 20M 21G 22J

Depth-to-water T/PVC (ft) 18.36 Depth-To-Bottom T/PVC (ft) 23.00 Completed by CHE

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%

Stabilization parameters for the last three readings:

0915	Started pump						240	18.88	
0920	6.60	9.0	321.5	14.8	1.71	+238.4	240	18.88	1.63
0925	6.62	9.1	319.1	13.6	1.57	+230.0	240	18.88	1.46
0930	6.66	9.1	318.2	12.5	1.44	+222.6	240	18.88	1.25
0935	6.66	9.4	317.4	11.7	1.34	+215.8	240	18.88	1.14
0940	6.67	9.4	318.7	10.4	1.19	+209.9	240	18.88	0.99
0945	6.67	9.4	320.7	10.5	1.21	+208.7	240	18.88	0.98
0950	6.70	9.9	315.5	10.4	1.18	+198.6	240	18.88	0.92
0955	6.68	9.8	319.0	10.5	1.21	+198.5	240	18.88	0.91
1000	6.69	9.9	317.6	10.4	1.19	+197.8	240	18.88	0.92
1001	collected sample								
1021	end								

Total Pump Time (min): 46 Total Purge Volume (gal): ~3.0 Review Date: 04-22-25

Weather: 40°F, windy, rain Review By: [Signature]

Comments: collected FIELD DUP

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
2	125mL	HDPE	B	N	4	1-L	HDPE	B	N
2	↓	↓	A	↓					
2	250mL	↓	A	↓					
4	40mL	VOA	A	↓					

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JAC-MW-1501B Date 4.15.25 Control Number 25-0225-02
 Location JAC Landfill Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailor
 Depth to Water Tape: GeoTech S/N: 7371

QC SAMPLE: MS/MSD DUP _____ Sonde ID: 15H 19M 20M 21G 22I

Depth-to-water T/PVC (ft) 18.92 Depth-To-Bottom T/PVC (ft) 22.94 Completed by CIE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	+/- 0.1	NA	+/- 3%	+/- 10%	+/- 0.3ppm	+/- 10mV	*	< 0.33	+/- 10%

Stabilization parameters for the last three readings:

1035	started pump						240			
1040	6.51	10.0	329.8	32.8	3.70	+162.9	240	18.96	5.03	
1045	6.53	10.1	335.1	29.4	3.31	+170.5	240	18.96	4.51	
1050	6.63	10.0	353.4	20.6	2.32	+177.4	240	18.96	2.15	
1055	6.69	10.3	369.4	16.2	1.81	+171.9	240	18.96	1.64	
1100	6.73	10.0	375.3	13.3	1.50	+171.3	240	18.96	1.35	
1105	6.74	10.1	381.5	12.0	1.35	+170.9	240	18.96	1.29	
1110	6.76	9.8	385.5	11.0	1.25	+170.5	240	18.96	1.27	
1115	6.77	9.7	388.9	10.6	1.21	+169.7	240	18.96	1.22	
1120	6.79	9.7	393.6	9.5	1.08	+168.3	240	18.96	1.21	
1125	6.79	9.7	393.2	9.4	1.07	+168.2	240	18.96	1.16	
1130	6.79	9.7	393.0	9.5	1.08	+168.1	240	18.96	1.16	
1131	collected sample									
	end									

Total Pump Time (min): 51 Total Purge Volume (gal): ~3.5 Review Date: 04-22-25

Weather: 41°F, partly cloudy, wind, rain Review By: [Signature]

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125 mL	HDPE	B	N	2	1-Liter	HDPE	B	N
1	↓	↓	A	↓					
1	250 mL	↓	A	↓					
2	400 mL	VOA	A	↓					

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC-MW-15031 Date 4.15.25 Control Number 25-0225-03
 Location JHC Landfill Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailer
 Depth to Water Tape: GeoTech S/N: 7371
 QC SAMPLE: MS/MSD DUP _____ Sonde ID: 15H 19M 20M 21G 22J

Depth-to-water T/PVC (ft) 44.45 Depth-To-Bottom T/PVC (ft) 46.10 Completed by CLE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	+/- 0.1	NA	+/- 3%	+/- 10%	+/- 0.3ppm	+/- 10mV	*	<0.33	+/- 10%

Stabilization parameters for the last three readings

1510	started pump						650	*	
1515	7.41	11.3	271.4	38.9	4.22	-20.4	650	*	49.21
1520	7.38	11.9	269.9	30.6	3.29	+47.9	650	*	2.70
1525	7.38	12.0	271.3	30.0	3.27	+65.4	650	*	2.54
1530	7.39	11.9	272.5	30.1	3.24	+80.3	650	*	1.63
1535	7.38	11.7	272.9	29.8	3.23	+84.8	650	*	1.50
1540	7.38	11.9	273.1	29.8	3.21	+86.7	650	*	1.20
1545	7.37	12.0	274.4	29.8	3.21	+87.3	650	*	1.10
1550	7.38	11.9	274.0	29.4	3.20	+90.1	650	*	1.02
1551	collected sample								
1600	end								

Total Pump Time (min): 41 Total Purge Volume (gal): 27.0 Review Date: 04-22-25

Weather: 40°F, cloudy, windy Review By: gf

Comments: *can't measure - water level below pump head

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	HDPE	B	N	2	1-L	HDPE	B	N
1	↓	↓	A	↓					
1	250mL	↓	A	↓					
2	60mL	NDA	A	↓					

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID m.w. B4 Date 4.15.25 Control Number 25-0225-05,-12,-13
 Location JHC Landfill Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailor
 Depth to Water Tape: GeoTech S/N: 7371

QC SAMPLE: MS/MSD DUP _____ Sonde ID: 15H 19M 20M 21G 22J

Depth-to-water T/PVC (ft) 42.68 Depth-To-Bottom T/PVC (ft) 47.71 Completed by CLE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	+/- 0.1	NA	+/- 3%	+/- 10%	+/- 0.3ppm	+/- 10mV	*	<0.33	+/- 10%

Stabilization parameters for the last three readings

1300	started pump						550	42.73	
1320	6.79	11.4	640	4.9	0.53	+65.0	550	42.73	20.11
1325	6.79	11.6	641	3.7	0.40	+45.4	550	42.73	12.33
1330	6.80	11.8	638	2.9	0.31	+40.5	550	42.73	6.36
1335	6.81	12.3	636	1.4	0.15	+34.4	550	42.73	2.17
1340	6.81	12.3	635	1.4	0.15	+34.5	550	42.73	2.22
1345	6.81	12.3	635	1.2	0.13	+33.8	550	42.73	1.87
1350	6.81	12.4	635	1.2	0.12	+33.4	550	42.73	1.77
1351	collected samples								
1406	end								

Total Pump Time (min): 51 Total Purge Volume (gal): 27.5 Review Date: 04-22-25

Weather: 40°F, cloudy, windy Review By: [Signature]

Comments: Collected Field MS/MSD

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
3	HD+ 125 mL	HDPE	B	N	2	1-L	HDPE	B	N
3	↓	↓	A	↓					
1	250 mL	↓	A	↓					
2	60 mL	VOA	A	↓					

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID MW-BS/JHC MW-15035 Date 4-15-25 Control Number 25-0225-06
 Location JHC Landfill Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailer
 Depth to Water Tape: GeoTech S/N: 1371
 QC SAMPLE: MS/MSD DUP _____ Sonde ID: 15H 19M 20M 21G 22J

Depth-to-water T/PVC (ft) 42.17 Depth-To-Bottom T/PVC (ft) 45.28 Completed by CIE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	+/- 0.1	NA	+/- 3%	+/- 10%	+/- 0.3ppm	+/- 10mV	*	<0.33	+/- 10%

Stabilization parameters for the last three readings

1420	started pump						480	42.28	
1425	7.07	13.0	499.0	0.7	0.07	+16.5	480	42.28	1.70
1430	7.06	13.3	499.2	0.4	0.04	+23.5	480	42.28	1.02
1435	7.06	13.3	501	0.5	0.05	+25.1	480	42.28	1.05
1440	7.06	13.2	501	0.6	0.06	+29.0	480	42.28	0.96
1445	7.06	13.4	501	0.7	0.07	+29.0	480	42.28	0.92
1450	7.06	13.3	502	0.7	0.07	+28.9	480	42.28	0.86
1451	collected sample								
1459	end								

Total Pump Time (min): 31 Total Purge Volume (gal): ~4.0 Review Date: 04-22-25

Weather: 40°F, CLOUDY, WINDY Review By: [Signature]

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	HDPE	B	N	2	1-L	HDPE	B	N
1	↓	↓	A	↓					
2	250mL 40mL	VOA	A	↓					

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC-MW-15036 Date 4-15-25 Control Number 25-0225-07
 Location JHC Landfill Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailor
 Depth to Water Tape: GeoTech S/N: 7371

QC SAMPLE: MS/MSD DUP _____ Sonde ID: 15H 19M 20M 21G 22J

Depth-to-water T/PVC (ft) 21.62 Depth-To-Bottom T/PVC (ft) 32.60 Completed by CIE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	+/- 0.1	NA	+/- 3%	+/- 10%	+/- 0.3ppm	+/- 10mV	*	< 0.33	+/- 10%

Stabilization parameters for the last three readings

1615	started pump						225	27.47	
1620	7.43	10.8	357.7	16.2	1.79	+103.7	225	27.47	4.71
1625	7.45	10.8	348.8	13.6	1.51	+108.7	225	27.47	3.66
1630	7.46	10.8	344.4	13.1	1.44	+111.4	225	27.67	3.72
1635	7.46	10.8	342.7	12.0	1.33	+113.0	225	27.67	2.88
1640	7.50	10.8	333.4	9.6	1.06	+114.0	225	27.67	2.53
1645	7.47	10.8	331.0	9.5	1.04	+114.0	225	27.67	2.57
1650	7.50	10.8	330.1	9.6	1.05	+113.4	225	27.67	2.49
1651	collected sample								
1700	end								

Total Pump Time (min): 36 Total Purge Volume (gal): ~2.25 Review Date: 04-22-25

Weather: 40°F, cloudy, windy Review By: [Signature]

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125 mL	HDPE	B	B	2	1-L	HDPE	B	N
1	↓	↓	A	A					
1	250 mL	↓	A	A					
2	60 mL	VDA	A	A					

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC-MW-15037 Date 4-15-25 Control Number 25-0225-08
 Location JHC Landfill Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailor
 Depth to Water Tape: GeoTech S/N: 7371

QC SAMPLE: MS/MSD DUP _____ Sonde ID: 15H 19M 20M 21G 22J

Depth-to-water T/PVC (ft) 25.82 Depth-To-Bottom T/PVC (ft) 30.95 Completed by CIE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	ml/min	Drawdown ft	NTU
3-5 min	+/- 0.1	NA	+/- 3%	+/- 10%	+/- 0.3ppm	+/- 10mV	*	< 0.33	+/- 10%

Stabilization parameters for the last three readings

1705	Started pump						225	25.89	
1710	7.14	9.8	454.7	41.0	4.64	+142.5	225	25.89	1.77
1715	7.18	9.8	460.3	41.9	4.74	+124.2	225	25.89	1.71
1720	7.15	9.8	457.7	41.2	4.67	+139.9	225	25.89	1.91
1725	7.15	9.8	454.3	40.6	4.60	+146.3	225	25.89	1.80
1730	7.14	9.8	462.3	41.4	4.69	+154.7	225	25.89	1.65
1735	7.14	9.7	460.0	41.0	4.65	+155.1	225	25.89	1.50
1736	collected sample								
1740	end								

Total Pump Time (min): 31 Total Purge Volume (gal): ~2.0 Review Date: 04-22-25

Weather: 40°F, CLOUDY, WINDY Review By: [Signature]

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____								
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N	
1	125ml	HDPE	B	N	2	1-L	HDPE	B	N	
1	↓	↓	A	↓						
1	250ml	↓	A	↓						
2	60ml	VOA	A	↓						

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

WATER LEVEL DATA

Site: JH Campbell

Project ID: JHC Q4 2025 Groundwater Monitoring

Analyst: RDR

Review Date: 10/21/25

Date: 10.7.2025

Reviewed by: 

Method: Electronic Tape

Tape ID: Solinst 101 P7 S/N: L5030623

Well ID	Time	DTW (ft)	DTB (ft)	Re-Check (if needed)	Remarks
MW-18A	0831	22.83	37.10		Good, Locked
MW-17	0842	15.78	23.47		Good, Locked
MW-15	0845	13.88	16.30		Good, Locked
MW-16A	0847	12.35	26.89		Good, Locked
MW-11A	0849	10.52	16.62		Good, Locked
MW-9B	0909	17.65	29.58		Good, Locked
MW-9C	0911	16.94	41.39		Good, Locked
MW-9D	0913	16.85	54.72		Good, Locked
MW-12	0920	—	9.80	—	Good, Locked Well was Dry 10.7.25 at 0920 Well confirmed dry 10.9.25 at 112
MW-10B	1054	11.53	23.55		Good, Locked
TW-19-05	0948	15.99	18.58		Good, Locked
TW-19-06A	0955	14.67	15.31		Good
PZ-40	1008	10.65	22.45		Good, Locked
PZ-40S	1006	13.46	17.99		Good, Locked
PZ-24	1027	7.72	13.81		Good, Locked
PZ-24S	1025	10.28	11.08		Good, Locked
MW-14	1032	11.08	17.56		Good, Locked
MW-14S	1033	11.83	13.28		Good, Locked
MW-13	1038	—	10.26	—	Good, Locked Well was locked Dry 10.7.25 at 1038 Well confirmed dry 10.7.25 at 1038 10.9.25 at 1048
SG-22-1	0857	1.08			Good
SG-22-2	0852	0.80			Good

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

DTW = Depth to Water

DTB = Depth to Bottom

Form Rev.10-06-25EB

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC-MW-15023 Date 10.07.25 Control Number 25-0769-01
 Location JHC Background Wells Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailor
 Depth to Water Tape: Geotech S/N: 1009-22

QC SAMPLE: MS/MSD DUP _____ Sonde ID: 15H 19M 20G 21G 22J

Depth-to-water T/PVC (ft) 20.79 Depth-To-Bottom T/PVC (ft) 27.69 Completed by 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%

Stabilization parameters for the last three readings

1525	started pump						200	20.80	
1530	6.79	12.5	122.7	27.6	2.93	+141.9	200	20.81	9.57
1535	6.39	12.3	127.9	24.0	2.58	+159.8	200	20.81	6.00
1540	6.27	12.3	132.9	23.6	2.52	+170.6	200	20.81	4.69
1545	6.27	12.3	141.4	22.8	2.44	+175.0	200	20.81	3.59
1550	6.30	12.3	148.7	21.6	2.31	+179.2	200	20.81	2.80
1555	6.32	12.3	152.8	20.1	2.15	+152.0	200	20.81	2.23
1600	6.33	12.4	159.6	19.3	2.06	+185.2	200	20.81	1.93
1605	6.34	12.2	163.2	18.4	1.97	+188.0	200	20.81	1.63
1610	6.36	12.3	166.8	17.5	1.87	+190.1	200	20.81	1.45
1615	6.39	12.3	167.4	17.5	1.87	+191.5	200	20.81	1.35
1620	6.39	12.3	166.4	17.3	1.85	+193.3	200	20.81	1.29
1625	6.40	12.5	168.2	17.5	1.86	+193.8	200	20.81	1.30
1630	6.46	12.4	168.2	17.7	1.89	+194.0	200	20.81	1.30
1631	sample collected								

Total Pump Time (min): 66 Total Purge Volume (gal): ~3.5 Review Date: 10/21/25

Weather: 64°F partly cloudy Review By: [Signature]

1647 End
 Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125ml	Plastic	B	N	2	60ml	VOR	A	N
2	1-L	Plastic	B	N					
1	125ml	Plastic	A	N					
1	250ml	Plastic	A	N					

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC MW-15024 Date 10.07.25 Control Number 25-0769-02
 Location JHC Background Wells Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailer
 Depth to Water Tape: Geotech S/N: 1009-22

QC SAMPLE: MS/MSD DUP _____ Sonde ID: 15H 19M 20G 21G 22J

Depth-to-water T/PVC (ft) 16.42 Depth-To-Bottom T/PVC (ft) 19.91 Completed by 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%

Stabilization parameters for the last three readings

1750	started pump						220	16.44	
1755	7.16	12.7	308.0	13.2	1.30	+176.5	220	16.44	4.65
1800	7.64	12.5	300.8	8.8	0.93	+171.4	220	16.44	3.37
1805	7.78	12.4	297.7	9.7	1.03	+169.2	220	16.44	2.70
1810	7.83	12.4	294.6	11.8	1.26	+167.9	220	16.44	2.09
1815	7.85	12.4	293.2	12.9	1.38	+167.6	220	16.44	1.91
1820	7.86	12.4	292.4	13.5	1.45	+167.6	220	16.44	1.82
1825	7.85	12.4	292.0	14.3	1.53	+167.9	220	16.44	1.73
1830	7.85	12.4	292.0	14.7	1.57	+168.3	220	16.44	1.67
1835	7.85	12.4	291.8	15.0	1.60	+168.9	220	16.44	1.60
1836	collected sample								
1900	End								

Total Pump Time (min): 46 Total Purge Volume (gal): ~ 2.75 Review Date: 10/21/25

Weather: 64°F cloudy Review By: [Signature]

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____								
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N	
1	125mL	Plastic	B	N	2	60mL	VOA	A	N	
2	1-L	Plastic	B	N						
1	125mL	Plastic	A	N						
1	250 mL	Plastic	A	N						

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC-MW-15025 Date 10.08.25 Control Number 25-0749-03, -10(MS), -11(MSD)
 Location JHC Background Wells Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailor
 Depth to Water Tape: Green S/N: 1009-22

QC SAMPLE: MS/MSD DUP _____ Sonde ID: 15H 19M 20G 21G 22J

Depth-to-water T/PVC (ft) 16.00 Depth-To-Bottom T/PVC (ft) 19.90 Completed by WMO

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%

Stabilization parameters for the last three readings

0925	started pump						220	16.02	
0930	6.83	11.3	414.5	51.3	5.56	+127.4	220	16.03	1.99
0935	5.29 10.825	11.4	385.5	48.4	5.29	+133.6	220	16.03	1.60
0940	7.83	11.4	376.4	49.6	5.42	+145.1	220	16.03	1.62
0945	7.87	11.4	372.1	50.8	5.55	+154.3	220	16.03	1.48
0950	7.88	11.4	371.5	51.3	5.60	+154.7	220	16.03	1.53
0955	7.88	11.4	370.5	51.7	5.64	+159.3	220	16.03	1.55
1000	7.89	11.4	370.0	51.8	5.66	+160.9	220	16.03	1.56
1005	7.89	11.4	370.6	51.9	5.68	+162.3	220	16.03	1.50
1006	collected sample								
1027	End								

Total Pump Time (min): 41 Total Purge Volume (gal): ~25 Review Date: 10/24/25

Weather: 48° Review By: [Signature]

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____								
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N	
3	125ml	Plastic	B	N	2	60ml	VCA	A	N	
2	1-L		B							
3	125ml		A							
1	250ml		A							

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JAC-MW-15026 Date 10.08.25 Control Number 25-0769-04,-07
 Location Background wells Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailor
 Depth to Water Tape: Geotech S/N: 1009-22

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

Depth-to-water T/PVC (ft) 17.87 Depth-To-Bottom T/PVC (ft) 21.00 Completed by Uma

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%

Stabilization parameters for the last three readings

1040	started	pump					17.89		
1045	5.90	13.1	54.2	66.7	7.01	+248.9	17.90	220	3.29
1050	5.74	13.1	54.3	65.7	6.91	+259.3	17.90	220	3.18
1055	5.68	13.1	53.5	65.7	6.92	+265.3	17.90	220	2.74
1100	5.66	13.1	53.0	66.1	6.95	+269.0	17.90	220	2.54
1105	5.63	13.1	52.9	66.1	6.95	+272.8	17.90	220	2.33
1110	5.62	13.1	52.9	66.3	6.96	+276.7	17.90	220	2.05
1115	5.61	13.1	52.8	66.3	6.94	+280.1	17.90	220	1.90
1120	5.61	13.2	52.9	66.5	6.98	+282.3	17.90	220	1.82
1121	collected sample								
1140	End								

Total Pump Time (min): 41 Total Purge Volume (gal): 22.5 Review Date: 10/21/25

Weather: 60°F Review By: [Signature]

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____								
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N	
1	125ml	PLASTIC	B	N	2	60ml	PLASTIC	A	N	
1	125ml	I	A	N						
2	1-L		B	N						
1	250ml		A	N						

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC-MW-15027 Date 10.08.25 Control Number 25-0769-05
 Location JHC-Background Wells Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailor
 Depth to Water Tape: Geotech S/N: 1009-22

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

Depth-to-water T/PVC (ft) 18.51 Depth-To-Bottom T/PVC (ft) 23.00 Completed by umo

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	+/- 0.1	NA	+/- 3%	+/- 10%	+/- 0.3ppm	+/- 10mV	*	< 0.33	+/- 10%

Stabilization parameters for the last three readings

1155	started pump						220	18.54	
1200	6.72	13.0	224.9	91.3	9.59	+251.4	220	18.55	25.30
1205	7.25	13.0	226.5	90.0	9.48	+247.0	220	18.55	10.99
1210	7.55	13.0	222.2	89.4	9.42	+244.8	220	18.55	9.74
1215	7.70	13.0	221.0	89.0	9.37	+242.7	220	18.55	5.39
1220	7.77	13.0	219.0	88.8	9.32	+240.9	220	18.55	4.63
1225	7.80	13.0	218.4	88.5	9.29	+240.1	220	18.55	4.45
1230	7.82	13.0	215.0	88.2	9.25	+239.0	220	18.55	3.63
1235	7.82	13.0	216.7	87.6	9.21	+238.4	220	18.55	3.78
1240	7.84	13.0	214.4	87.6	9.20	+237.5	220	18.55	2.99
1245	7.85	13.1	214.0	87.4	9.18	+236.7	220	18.55	2.85
1250	7.85	13.1	211.8	87.0	9.15	+235.7	220	18.55	2.89
1251	collected sample								
1304	End								

Total Pump Time (min): 56 Total Purge Volume (gal): ~3.25 Review Date: 10/21/25

Weather: 60°F Review By: [Signature]

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____								
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N	
1	125ml	Plastic	A	N	2	60ml	VOA	A	N	
1	125ml		B							
2	1-L		B							
1	250ml		A							

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC-MW-15028 Date 10.08.25 Control Number 25-0769-06
 Location Background wells Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailor
 Depth to Water Tape: Geotek S/N: 1009-22

QC SAMPLE: MS/MSD DUP _____ Sonde ID: 15H 19M 20G 21G 22J

Depth-to-water T/PVC (ft) 18.21 Depth-To-Bottom T/PVC (ft) 20.21 Completed by umo

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	+/- 0.1	NA	+/- 3%	+/- 10%	+/- 0.3ppm	+/- 10mV	*	< 0.33	+/- 10%

Stabilization parameters for the last three readings

1320							220	18.23	
1325	8.62	14.5	141.9	87.2	8.81	+188.2	220	18.24	27.54
1330	8.45	14.0	137.7	80.8	8.31	+182.8	220	18.24	6.12
1335	8.50	13.9	136.4	80.1	8.24	+181.8	220	18.24	2.18
1340	8.55	14.0	135.7	80.7	8.28	+181.8	220	18.24	1.34
1345	8.53	13.9	135.2	80.7	8.29	+182.6	220	18.24	1.19
1350	8.52	14.3	135.3	80.9	8.29	+182.5	220	18.24	1.15
1355	8.52	14.3	135.0	81.3	8.29	+182.5	220	18.24	1.12
1356	collected sample								
1410	End								

Total Pump Time (min): 36 Total Purge Volume (gal): ~2.0 Review Date: 10/21/25

Weather: 60 F Review By: [Signature]

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125ml	plastic			2	60ml	VPA	A	N
1	125 ml	plastic	B	N	2	1-L	plastic	A	N
1	125 ml		A	N					
1	250ml		A	N					

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC-MW-15017 Date 10-08-25 Control Number 25-0771-01
 Location Lana Hill Wells Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailor
 Depth to Water Tape: Geotech S/N: 1009-22

QC SAMPLE: MS/MSD DUP _____ Sonde ID: 15H 19M 20G 21G 22J

Depth-to-water T/PVC (ft) 19.05 Depth-To-Bottom T/PVC (ft) 23.00 Completed by 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%

Stabilization parameters for the last three readings

1555	started pump						280	19.08	
1600	7.26	14.0	556	20.8	2.10	+189.8	280	19.09	8.77
1605	6.73	13.8	528	12.2	1.26	+202.8	280	19.09	2.87
1610	6.62	13.7	518	10.9	1.13	+209.8	280	19.09	1.69
1615	6.60	13.7	515	10.2	1.05	+211.7	280	19.09	1.64
1620	6.56	13.7	511	11.0	1.13	+214.0	280	19.09	1.58
1625	6.56	13.8	512	11.2	1.14	+214.8	280	19.09	1.68
1630	6.55	13.7	510	11.3	1.17	+215.5	280	19.09	1.58
1631	collected sample								
1649	End								

Total Pump Time (min): 36 Total Purge Volume (gal): ~2.75 Review Date: 10/21/25

Weather: 60° Review By: [Signature]

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125 mL	Plastic	B	Y	2	60 mL	Plastic	A	N
1	125 mL		B	N					
1	250 mL		A	N					
1	125 mL		A	N					

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC-MW-1501B Date 10.08.25 Control Number 25-0771-02
 Location Landfill Wells Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailor
 Depth to Water Tape: Geotech S/N: 1009-22

QC SAMPLE: MS/MSD DUP Sonde ID: 15H 19M 20G 21G 22I

Depth-to-water T/PVC (ft) 19.56 Depth-To-Bottom T/PVC (ft) 22.90 Completed by 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%

Stabilization parameters for the last three readings

1735	started pump						280	19.58	
1740	6.71	14.1	412.1	21.5	2.18	+192.0	280	19.60	7.63
1745	6.65	13.9	427.9	15.8	1.62	+196.1	280	19.60	5.30
1750	6.68	13.9	466.7	13.3	1.37	+196.1	280	19.60	2.72
1755	6.76	13.8	504.0	9.7	1.01	+193.1	280	19.60	1.33
1800	6.77	13.8	506.0	10.6	1.09	+192.7	280	19.60	1.22
1805	6.77	13.8	506.0	10.1	1.04	+192.2	280	19.60	1.19
1810	6.78	13.7	508.0	9.7	1.01	+191.7	280	19.60	1.12
1815	6.79	13.7	508.0	10.5	1.09	+191.8	280	19.60	1.09
1816	collected sample								

Total Pump Time (min): 41 Total Purge Volume (gal): ~3.0 Review Date: 10/21/25

Weather: 60°F Review By: [Signature]

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125ml	plastic	B	N	2	60ml	VOA	A	N
1	250ml	I	A	N					
1	125ml		A	N					
2	1-L		B	N					

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC-MW-15031 Date 10-8-25 Control Number 25-0771-03
 Location JHC Landfill Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailer
 Depth to Water Tape: GeoTech S/N: 7371

QC SAMPLE: MS/MSD DUP-03 Sonde ID: 15H 19M 20G 21G 22J

Depth-to-water T/PVC (ft) 44.25 Depth-To-Bottom T/PVC (ft) 46.18 Completed by CIE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	+/- 0.1	NA	+/- 3%	+/- 10%	+/- 0.3ppm	+/- 10mV	*	< 0.33	+/- 10%

Stablization parameters for the last three readings

1358	started pump						325	-*	
1405	7.02	13.6	601	51.0	5.25	+124.3	325	-*	3.46
1410	7.00	13.6	600	50.0	5.15	+129.7	325	-*	1.94
1415	7.01	13.7	599	49.5	5.09	+132.2	325	-*	1.45
1420	7.01	13.7	598	49.4	5.07	+133.2	325	-*	1.44
1425	7.01	13.7	597	49.3	5.06	+133.1	325	-*	1.41
1428	collected sample								
1440									

Total Pump Time (min): 28 Total Purge Volume (gal): ~2.5 Review Date: 10/21/25

Weather: 60°F, sunny Review By: [Signature]

Comments: collected Field DUP-03
* can't measure during pumping; H2O level below pump head

Bottles Filled Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____

Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	HDPE	B	N	2	1-L	HDPE	B	N
1	125mL	↓	A	↓					
1	250mL	↓	A	↓					
2	60mL	VDA	A	↓					

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID MW-B3 Date 10.7.25 Control Number 25-0771-04
 Location JHC Landfill Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailor
 Depth to Water Tape: Geotech S/N: 7371

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

Depth-to-water T/PVC (ft) 39.91 Depth-To-Bottom T/PVC (ft) 40.23 Completed by CIE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	+/- 0.1	NA	+/- 3%	+/- 10%	+/- 0.3ppm	+/- 10mV	*	< 0.33	+/- 10%

Stabilization parameters for the last three readings

1710	Started pump						25.0	-*	
1725	6.90	18.0	636	93.7	8.47	+146.4	25.0	-* 10.58	
1730	6.91	18.0	634	94.9	8.80	+149.1	25.0	-* 9.80	
1735	6.90	17.9	634	96.1	8.93	+148.8	25.0	-* 9.47	
1740	6.90	17.8	629	96.4	8.99	+149.1	25.0	-* 9.02	
1745	6.89	17.7	631	96.9	9.02	+149.8	25.0	-* 8.86	
1750	6.88	17.6	627	97.1	9.06	+150.6	25.0	-* 5.71	
1755	6.87	17.5	625	97.5	9.12	+151.6	25.0	-* 5.63	
1800	6.88	17.5	631	97.7	9.14	+151.9	25.0	-* 5.58	
1801	Started to collect samples								
2030	Finished collecting samples							39.91	
<u>NOTE:</u> Inadequate purge volume; sample not valid due to field stabilization criteria not being met								*can't measure w/pump inside well.	

Total Pump Time (min): 140 Total Purge Volume (gal): ~1.0 Review Date: 10/21/25

Weather: 60°F, Sunny, slight wind Review By: [Signature]

Comments: Pumping water + lots of air bubbles due to low water level

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125ML	HDPE	B	N	2	60-ML	VOA	A	N
1	125ML	↓	A	↓					
1	250ML	↓	A	↓					
2	1-L	↓	B	↓					

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC-MW-B4 Date 10-8-25 Control Number 25-0771-05,-12,-13
 Location JHC Landfill Well Material: PVC SS Iron Galv. Steel ^{MS, MSP}

Purge Method: Peristaltic Submersible Bladder Fultz Bailor

Depth to Water Tape: GeoTech S/N: 7371

QC SAMPLE: MS/MSD DUP _____ Sonde ID: 15H 19M 20G 21G 22J

Depth-to-water T/PVC (ft) 42.98 Depth-To-Bottom T/PVC (ft) 47.70 Completed by CIE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	+/- 0.1	NA	+/- 3%	+/- 10%	+/- 0.3ppm	+/- 10mV	*	< 0.33	+/- 10%

Stabilization parameters for the last three readings

1230	Started pump						350	43.03	
1235	6.98	15.5	542	3.2	0.31	+8.6	350	43.03	4.17
1240	6.99	15.4	531	1.6	0.16	-2.4	350	43.03	2.95
1245	7.00	15.4	528	1.1	0.11	-5.6	350	43.03	2.29
1250	7.00	15.4	522	0.4	0.04	-9.3	350	43.03	1.48
1255	7.00	15.4	521	0.3	0.03	-9.9	350	43.03	1.42
1300	7.00	15.4	521	0.3	0.03	-10.3	350	43.03	1.36
1301	collected sample								
1310	end								

Total Pump Time (min): 31 Total Purge Volume (gal): ~ 3.0 Review Date: 10/21/25

Weather: 60°F, Sunny Review By: [Signature]

Comments: collected field MS/MSD

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
3	125mL	HDPE	B	N	2	1-L	HDPE	B	N
3	125mL	↓	A	↓					
1	250mL	↓	A	↓					
2	60mL	VQA	A						

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC-MW-15035 Date 10.8.25 Control Number 25-6771-06
 Location JHC Landfill Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailer
 Depth to Water Tape: GeoTech S/N: 7371

QC SAMPLE: MS/MSD DUP _____ Sonde ID: 15H 19M 20G 21G 22J

Depth-to-water T/PVC (ft) 41.43 Depth-To-Bottom T/PVC (ft) 45.25 Completed by CIE

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	+/- 0.1	NA	+/- 3%	+/- 10%	+/- 0.3ppm	+/- 10mV	*	< 0.33	+/- 10%

Stabilization parameters for the last three readings

1315	Started pump						325	41.47	
1320	7.10	14.4	590	5.8	0.59	+85.7	325	41.47	5.98
1325	7.09	14.4	583	4.5	0.45	+78.4	325	41.47	2.39
1330	7.09	14.4	579	3.6	0.36	+67.6	325	41.47	1.43
1335	7.08	14.4	578	3.5	0.36	+60.4	325	41.47	1.34
1340	7.08	14.3	577	3.5	0.35	+58.4	325	41.47	1.13
1345	7.08	14.3	577	3.4	0.35	+57.4	325	41.47	1.09
1346	collected sample								
1351	end								

Total Pump Time (min): 31 Total Purge Volume (gal): 12.75 Review Date: 10/26/25

Weather: 65°F, Sunny Review By: [Signature]

Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	HDPE	B	N	2	1-L	HDPE	B	N
1	125mL	↓	A	↓					
1	250mL	↓	A	↓					
2	60mL	VOA	A	↓					

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC-MW-15036 Date 10.09.25 Control Number 25-0771-07
~~10-08-25~~ 10/21/25
 Location Landfill wells Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailor
 Depth to Water Tape: Geotech S/N: 1009-22
 QC SAMPLE: MS/MSD DUP Sonde ID: 15H 19M 20G 21G 22J

Depth-to-water T/PVC (ft) 27.40 Depth-To-Bottom T/PVC (ft) 32.57 Completed by umo

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	+/- 0.1	NA	+/- 3%	+/- 10%	+/- 0.3ppm	+/- 10mV	*	< 0.33	+/- 10%

Stablization parameters for the last three readings

1015	started pump						200	27.40	
1020	7.78	12.8	419.5	39.6	4.14	240.9	200	27.40	28.60
1025	7.52	12.7	403.5	27.4	2.89	237.9	140	27.40	20.44
1030	7.50	12.8	398.1	26.5	2.70	234.6	140	27.40	16.51
1035	7.49	12.8	399.0	26.2	2.77	231.5	140	27.40	13.76
1040	7.49	12.6	393.5	25.2	2.68	227.7	140	27.40	8.47
1045	7.50	12.5	388.6	24.3	2.58	226.7	140	27.40	7.45
1050	7.50	12.5	386.7	23.7	2.52	224.9	140	27.40	6.64
1055	7.50	12.5	383.0	22.4	2.38	223.0	140	27.40	5.41
1100	7.50	12.5	381.1	22.3	2.38	222.1	140	27.40	4.66
1105	7.51	12.5	379.5	21.5	2.29	221.0	140	27.40	4.00
1110	7.50	12.5	381.5	21.7	2.31	219.9	140	27.40	3.25
1115	7.50	12.6	381.0	22.1	2.35	218.7	140	27.40	3.07
1120	7.50	12.5	382.3	22.3	2.37	217.5	140	27.40	3.00
1121	collected sample								

Total Pump Time (min): 66 Total Purge Volume (gal): ~2.5 Review Date: 10/21/25

Weather: 40° F Review By: [Signature]

1148 End
 Comments:

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - _____								
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N	
1	125ml	Plastic	B	N	2	60ml	VOA	A	N	
2	1-L		B	N						
1	125ml		A	N						
1	250ml		A	N						

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

Consumers Energy Company
 Monitoring Well Sampling Worksheet

Well ID JHC-MW-15037 ^{22R} ¹⁰⁻⁹⁻²⁵ ^{B7} Date 10-9-25 Control Number 25-0771-08
 Location JHC Well Material: PVC SS Iron Galv. Steel
 Purge Method: Peristaltic Submersible Bladder Fultz Bailor
 Depth to Water Tape: Solinst 101 P7 S/N: LS030623

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

Depth-to-water T/PVC (ft) 26.14 Depth-To-Bottom T/PVC (ft) 29.90 Completed by KDR

Time	pH	Temp	Sp Cond	DO	DO	ORP	Pump Rate	Water level	Turbidity
min	units	°C	uS/cm	% sat.	ppm	mV	mL/min	Drawdown ft	NTU
3-5 min	+/- 0.1	NA	+/- 3%	+/- 10%	+/- 0.3ppm	+/- 10mV	*	< 0.33	+/- 10%

Stabilization parameters for the last three readings

0910	started pump						246	26.14	
0915	7.28	11.3	502	41.4	4.49	134.5	246	26.14	2.43
0919	7.27	10.8	501	33.1	3.66	136.1	246	26.14	2.35
0923	7.28	10.8	499.4	32.3	3.58	137.7	246	26.14	2.20
0927	7.30	10.9	491.7	30.5	3.38	139.0	246	26.14	2.10
0931	7.30	10.9	491.4	30.3	3.35	139.9	246	26.14	2.09
0935	7.30	11.0	492.0	30.5	3.35	140.7	246	26.14	2.08
0936	Collected sample								
0954	End sample collection								

Total Pump Time (min): 26 Total Purge Volume (gal): ~1.5 Review Date: 10/21/25

Weather: 50°F, sunny Review By: J.

Comments: sample split with EGLE

Bottles Filled		Preservative Codes: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCl F - <u> </u>							
Quantity	Size	Type	Preservative Code	Filtered Y/N	Quantity	Size	Type	Preservative Code	Filtered Y/N
1	125mL	HDPE	B	N	2	1L	HDPE	B	N
1	125mL	↓	A	↓					
1	250mL	↓	↓	↓					
2	60mL	VOA	↓	↓					

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

Appendix C

Data Quality Reviews

Laboratory Data Quality Review Groundwater Monitoring Event April 2025 Consumers Energy JH Campbell Background Wells

Groundwater samples were collected by Consumers Energy (CE) Laboratory Services for the April 2025 sampling event. Samples were analyzed for total metals, anions, alkalinity, and total dissolved solids by CE Laboratory Services in Jackson, Michigan. The radium analyses were subcontracted to Eurofins St. Louis, located in Earth City, Missouri. The laboratory analytical results were reported in laboratory sample delivery groups (SDGs) 25-0223 and 160-57889-1.

During the April 2025 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 ¹	SW846 6020B/7470A
Radium (Ra-226, Ra-228, Combined Ra-226 & Ra-228)	EPA 903.0/904.0

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:

- Chain-of-custody (COC) and data completeness;
- 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, field blanks, and equipment blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical

¹ Iron, copper, nickel, silver, vanadium, and zinc are required analytes under the state-approved Hydrogeological Monitoring Plan (HMP). These analytes are included in SDG 25-0223 and are evaluated and reported under a separate cover.

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;
- 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, and optional Piper Diagram constituents will be utilized for the purposes of the CCR monitoring program.
- Data are usable for the purposes of the monitoring program.
- When the data are evaluated through a statistical program, findings below may be used to support the removal of outliers.

QA/QC Sample Summary

- Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. The following was noted.
 - The collection date on the container label (4/14/2025) for sample JHC-MW-15026 in SDG 160-57889-1 did not match the collection date on the COC (4/15/2025). The laboratory logged the sample collection date for this sample based on the COC.

- The preservation was assumed to be acceptable based on case narratives and COC preservation information; the cooler temperatures were between 0-6°C and acid was used for sample preservation, as applicable, with the following exception.
 - The cooler temperatures in SDG 160-57889-1 were 20.8°C, 21.4°C, 22.3°C and 22.4°C. There is no impact on the data usability since thermal preservation is not required for radium samples.
- All preparation and analysis holding time requirements were met.
- One equipment blank (EB-01) and one field blank (FB-01) were collected. Target analytes were not detected in these blank samples.
- Target radium analytes were not detected in the method blanks.
- An LCS was analyzed with each analytical batch for radium; all criteria were met.
- 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 these issues.
- Laboratory duplicate analyses were performed on sample JHC-MW-15023 for radium-226 and radium-228; all criteria were met.
- Samples DUP-01/JHC-MW-15023 were submitted as the field duplicate pair with this data set; all criteria were met.
- Carrier recoveries were within 30-110%.
- The RLs met the project requirements and were deemed suitable for data use.
- Dilution factors for all analyses were provided in the EDD in this data set; all dilution factors were listed as 1-fold.

Laboratory Data Quality Review Groundwater Monitoring Event April 2025 Consumers Energy JH Campbell Landfill Wells

Groundwater and leachate samples were collected by Consumers Energy (CE) Laboratory Services for the April 2025 sampling event. Samples were analyzed for total metals, anions, alkalinity, and/or total dissolved solids by CE Laboratory Services in Jackson, Michigan. The radium analyses were subcontracted to Eurofins St. Louis, located in Earth City, Missouri. The laboratory analytical results were reported in laboratory sample delivery groups (SDGs) 25-0225 and 160-57888-1.

During the April 2025 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
- JHC-MW-15035
- JHC-MW-15036
- JHC-MW-15037
- MW-B4

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 ¹	SW846 6020B/7470A
Radium (Ra-226, Ra-228, Combined Ra-226 & Ra-228)	EPA 903.0/904.0

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:

- Chain-of-custody (COC) and data completeness;
- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;

¹ Iron, copper, nickel, silver, vanadium, and zinc are required analytes under the state-approved Hydrogeological Monitoring Plan (HMP). These analytes are included in SDG 25-0225 and are evaluated and reported under a separate cover.

- 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;
- 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, and optional Piper Diagram constituents will be utilized for the purposes of the CCR monitoring program.
- Data are usable for the purposes of the CCR monitoring program.
- When the data are evaluated through a statistical program, findings below may be used to support the removal of outliers.

QA/QC Sample Summary

- Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. The following was noted.

- The collection time on the container label (17:36) for sample JHC-MW-15037 in SDG 160-57887-1 did not match the collection date on the COC (17:48). The laboratory logged the sample collection time for this sample based on the COC.
- The preservation was assumed to be acceptable based on case narrative and COC preservation information; the cooler temperatures were between 0-6°C and acid was used for sample preservation, as applicable, with the following exception.
 - The cooler temperatures in SDG 160-57888-1 were 20.8°C, 21.4°C, 22.3°C and 22.4°C. There is no impact on the data usability since thermal preservation is not required for radium samples.
- All preparation and analysis holding time requirements were met.
- 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.
 - Radium-228 (1.20 +/- 0.526 pCi/L) and combined radium-226/228 (1.22 +/- 0.533 pCi/L) were detected in sample FB-03, and radium-228 (1.58 +/- 0.505 pCi/L) and combined radium-226/228 (1.63 +/- 0.513 pCi/L) were detected in sample EB-03 at the listed concentrations. Potential false positive exists for positive radium-228 and combined radium-226/228 results with normalized absolute differences <1.96, as summarized in Attachment A.
- Target radium analytes were not detected in the method blanks.
- An LCS was analyzed with each analytical batch for radium; all criteria were met.
- 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 performed on sample EB-03 for radium-226 and radium-228. All criteria were met.
- Samples DUP-03/JHC-MW-15017 were submitted as the field duplicate pair with this data set; all criteria were met.
- Carrier recoveries were within 30-110%.
- The RLs met the project requirements and were deemed suitable for data use.
- Dilution factors for all analyses were provided in the EDD in this data set; all dilution factors were listed as 1-fold.

Attachment A

Summary of Data Non-Conformances for Groundwater Analytical Data
JH Campbell Landfill Wells
West Olive, Michigan

Samples	Collection Date	Analyte	Non-Conformance/Issue
JHC-MW-15017	4/15/2025	Radium-228 and Combined Radium-226/288	Field blank and equipment blank contamination; potential false positive.
JHC-MW-15018	4/15/2025		
MW-B4	4/15/2025		
JHC-MW-15035	4/15/2025		
DUP-03	4/15/2025		

Laboratory Data Quality Review Groundwater Monitoring Event October 2025 Consumers Energy JH Campbell Background Wells

Groundwater samples were collected by Consumers Energy (CE) Laboratory Services for the October 2025 sampling event. Samples were analyzed for total metals, anions, alkalinity, and total dissolved solids by CE Laboratory Services in Jackson, Michigan. The radium analyses were subcontracted to Eurofins St. Louis, located in Earth City, Missouri. The laboratory analytical results were reported in laboratory sample delivery groups (SDGs) 25-0769 and 160-60010-1.

During the October 2025 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)	USEPA 300.0
Alkalinity (Total, Bicarbonate, Carbonate)	Standard Method (SM) 2320B
Total Dissolved Solids (TDS)	SM 2540C
Total Metals ¹	SW846 6020B/7470A
Radium (Ra-226, Ra-228, Combined Ra-226 & Ra-228)	EPA 903.0/904.0

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:

- Chain-of-custody (COC) and data completeness;
- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;
- Reporting limits (RLs) compared to project-required RLs;

¹ Iron, copper, nickel, silver, vanadium, and zinc are required analytes under the state-approved Hydrogeological Monitoring Plan (HMP). These analytes are included in SDG 25-0769 and are evaluated and reported under a separate cover.

- Data for method blanks, field blanks, and equipment 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;
- 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, and optional Piper Diagram constituent will be utilized for the purposes of the CCR monitoring program.
- Data are usable for the purposes of the monitoring program.
- When the data are evaluated through a statistical program, findings below may be used to support the removal of outliers.

QA/QC Sample Summary

- Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No issues were noted.

- The preservation was assumed to be acceptable based on case narratives and COC preservation information; the cooler temperatures were between 0-6°C and acid was used for sample preservation, as applicable, with the following exception.
 - The cooler temperature in SDG 160-60010-1 was 23.0°C. There is no impact on the data usability since thermal preservation is not required for radium samples.
- All preparation and analysis holding time requirements were met.
- One equipment blank (EB-01) and one field blank (FB-01) were collected. Target analytes were not detected in these blank samples.
- Target radium analytes were not detected in the method blanks.
- An LCS was analyzed with each analytical batch for radium; all criteria were met.
- 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 these issues.
- 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 30-110%.
- The RLs met the project requirements and were deemed suitable for data use.
- Dilution factors for all analyses were provided in the EDD in this data set; all dilution factors were listed as 1-fold.

Laboratory Data Quality Review Groundwater Monitoring Event October 2025 Consumers Energy JH Campbell Landfill

Groundwater samples were collected by Consumers Energy (CE) Laboratory Services for the October 2025 sampling event. Samples were analyzed for total metals, anions, alkalinity, and/or total dissolved solids by CE Laboratory Services in Jackson, Michigan. The radium analyses were subcontracted to Eurofins St. Louis, located in Earth City, Missouri. The laboratory analytical results were reported in laboratory sample delivery groups (SDGs) 25-0771 and 160-60012-1.

During the October 2025 sampling event, a sample was collected from each of the following wells:

- JHC-MW-15017
- JHC-MW-15018
- JHC-MW-15031
- JHC-MW-15035
- JHC-MW-15036
- JHC-MW-15037
- MW-B4

Each sample was analyzed for one or more of the following constituents:

Analyte Group	Method
Anions (Fluoride, Chloride, Sulfate)	USEPA 300.0
Alkalinity (Total, Bicarbonate, Carbonate)	Standard Method (SM) 2320B
Total Dissolved Solids (TDS)	SM 2540C
Total Metals ¹	SW846 6020B/7470A
Radium (Ra-226, Ra-228, Combined Ra-226 & Ra-228)	EPA 903.0/904.0

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:

- Chain-of-custody (COC) and data completeness;
- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;

¹ Iron, copper, nickel, silver, vanadium, and zinc are required analytes under the state-approved Hydrogeological Monitoring Plan (HMP). These analytes are included in SDG 25-0771 and are evaluated and reported under a separate cover.

- 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;
- 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, and optional Piper Diagram constituents will be utilized for the purposes of the CCR monitoring program.
- Data are usable for the purposes of the monitoring program.
- When the data are evaluated through a statistical program, findings below may be used to support the removal of outliers.

QA/QC Sample Summary

- Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No issues were noted.

- The preservation was assumed to be acceptable based on case narrative and COC preservation information; the cooler temperatures were between 0-6°C and acid was used for sample preservation, as applicable, with the following exception.
 - The cooler temperature in SDG 160-60011-1 was 22.0°C and the cooler temperature in SDG 160-60012-1 was 22.1°C. There is no impact on the data usability since thermal preservation is not required for radium samples.
- All preparation and analysis holding time requirements were met.
- One equipment blank (EB-03) and one field blank (FB-03) were collected. Target analytes were not detected in these blank samples.
- Target radium analytes were not detected in the method blanks.
- An LCS was analyzed with each analytical batch for radium; all criteria were met.
- 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-15031 were submitted as the field duplicate pair with this data set; all criteria were met.
- Carrier recoveries were within 30-110%.
- The RLs met the project requirements and were deemed suitable for data use.
- Dilution factors for all analyses were provided in the EDD in this data set; all dilution factors were listed as 1-fold.

Appendix D
Statistical Evaluation of April 2025 Assessment
Monitoring Sampling Event

Technical Memorandum

Date: July 29, 2025

To: Harold D. Register, Jr., Consumers Energy

From: Sarah Holmstrom, TRC
Kristin Lowery, TRC
Henry Schnaidt, TRC

Project No.: 634691.0000.0000 Phase 1 Task 2

Subject: Statistical Evaluation of April 2025 Assessment Monitoring Sampling Event
JH Campbell Dry Ash Landfill, Consumers Energy Company, West Olive, Michigan

Statistical evaluations of the semiannual assessment monitoring data to date (June 2018-October 2024) have shown that 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 2025 was conducted on April 14 through 16, 2025. 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 2025 data indicates no constituents are present at statistically significant levels that exceed the GWPSs at the Dry Ash Landfill monitoring wells.

<u>Constituent</u>	<u>GWPS</u>	<u># Downgradient Wells Observed</u>
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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.

Technical Memorandum

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 2021 through April 2025) 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.

Technical Memorandum

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 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 (time-series 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 Sanitas™ 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:

Technical Memorandum

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

Table 1

Table 1
 Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation
 JH Campbell Landfill – RCRA CCR Monitoring Program
 West Olive, Michigan

Sample Location:			JHC-MW-15017								
Sample Date:			10/21/2021	4/12/2022	10/20/2022	4/12/2023	10/17/2023	4/16/2024	10/15/2024	4/15/2025	4/15/2025
Constituent	Unit	GWPS									Field Dup
Appendix III											
Boron	ug/L	NA	167	161	163	179	108	121	116	100	99
Calcium	mg/L	NA	58.5	60.6	61.6	60.5	53.0	52.5	52.0	44.1	43.6
Chloride	mg/L	NA	29.9	25.4	24.1	16.4	19.2	17.6	16.9	9.41	9.80
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	46.4	39.2	43.2	48	38.3	34.1	34.3	22.8	24.2
Total Dissolved Solids	mg/L	NA	292	276	313	287	293	238	242	202	192
pH, Field	SU	NA	6.5	6.8	6.4	6.6	6.9	6.7	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	28	24	28	38	21	22	20	18	17
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	2	< 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	25	< 5	< 5	< 5	< 5	< 5
Radium-226/228	pCi/L	5	0.660	< 0.376	< 0.627	< 0.533	< 0.531	0.656	0.661	1.13	1.29
Selenium	ug/L	50	20	18	19	21	13	12	14	10	9
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.

All metals were analyzed as total unless otherwise specified.

(1) Insufficient amount of water present to collect sample.

Table 1
 Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation
 JH Campbell Landfill – RCRA CCR Monitoring Program
 West Olive, Michigan

Sample Location:			JHC-MW-15018								
Sample Date:			10/21/2021	4/13/2022	10/20/2022	4/11/2023	10/17/2023	4/16/2024	10/15/2024	10/15/2024	4/15/2025
Constituent	Unit	GWPS									
Appendix III										Field Dup	
Boron	ug/L	NA	327	287	269	153	122	96	174	165	83
Calcium	mg/L	NA	62.7	65.9	59.6	40.6	30.2	44.6	61.7	59.5	51.3
Chloride	mg/L	NA	25.9	28.8	25.5	14.9	13.3	20.8	30.3	29.8	19.9
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	73.2	58.7	53.6	33.4	22.1	26.7	37.9	37.0	23.7
Total Dissolved Solids	mg/L	NA	329	300	316	194	192	266	314	320	239
pH, Field	SU	NA	6.0	5.9	5.9	6.2	6.5	6.6	6.6	--	6.8
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	61	45	31	49	15	27	27	26	19
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	6	< 5	< 5	< 5	< 5	< 5	< 5
Radium-226/228	pCi/L	5	0.616	0.343	0.682	< 0.607	0.623	< 0.499	< 0.677	< 0.659	1.23
Selenium	ug/L	50	20	18	19	14	5	11	14	14	9
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.

All metals were analyzed as total unless otherwise specified.

(1) Insufficient amount of water present to collect sample.

Table 1
 Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation
 JH Campbell Landfill – RCRA CCR Monitoring Program
 West Olive, Michigan

Sample Location:			JHC-MW-15031								
Sample Date:			10/22/2021	4/12/2022	10/20/2022	4/12/2023	4/12/2023	10/17/2023	4/16/2024	10/15/2024	4/15/2025
Constituent	Unit	GWPS									
Appendix III							Field Dup				
Boron	ug/L	NA	64	58	56	50	56	64	42	80	41
Calcium	mg/L	NA	54.2	59.8	49.6	52.9	54.0	56.4	35.1	67.7	41.9
Chloride	mg/L	NA	7.56	10.4	3.28	2.82	2.74	3.19	1.91	2.77	2.27
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	21.3	27.5	16.0	21.3	21.3	18.5	12.3	21.2	14.0
Total Dissolved Solids	mg/L	NA	< 10	220	215	205	205	255	148	269	170
pH, Field	SU	NA	7.3	7.1	7.5	7.1	--	7.2	7.2	7.3	7.4
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	14	12	13	13	15	11	16	10
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	3
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	< 0.435	< 0.456	< 0.576	0.498	< 0.618	< 0.678	< 0.796	< 0.627	< 0.676
Selenium	ug/L	50	3	3	2	3	3	3	2	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.

All metals were analyzed as total unless otherwise specified.

(1) Insufficient amount of water present to collect sample.

Table 1
 Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation
 JH Campbell Landfill – RCRA CCR Monitoring Program
 West Olive, Michigan

Sample Location:			JHC-MW-15035							
Sample Date:			10/22/2021	4/12/2022	10/20/2022	4/12/2023	10/17/2023	4/16/2024	10/15/2024	4/15/2025
Constituent	Unit	GWPS								
Appendix III										
Boron	ug/L	NA	73	81	59	67	95	63	55	68
Calcium	mg/L	NA	82.0	79.2	64.2	94.5	97.5	76.5	66.5	78.5
Chloride	mg/L	NA	14.0	9.35	7.98	9.27	12.5	7.67	5.61	5.07
Fluoride	ug/L	NA	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Sulfate	mg/L	NA	26.2	25.7	29.4	31.0	41.5	24.8	28.4	25.4
Total Dissolved Solids	mg/L	NA	365	320	272	355	422	304	268	309
pH, Field	SU	NA	7.2	7.2	7.4	7.0	7.0	7.2	7.3	7.1
Appendix IV										
Antimony	ug/L	6	< 1	< 1	7	< 1	< 1	< 1	< 1	< 1
Arsenic	ug/L	10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Barium	ug/L	2,000	19	17	14	19	22	15	14	16
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	32	< 5	< 5	< 5	< 5
Radium-226/228	pCi/L	5	0.728	< 0.378	< 0.450	< 0.539	< 0.592	2.00	0.587	0.853
Selenium	ug/L	50	2	3	3	1	< 1	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.

All metals were analyzed as total unless otherwise specified.

(1) Insufficient amount of water present to collect sample.

Table 1
 Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation
 JH Campbell Landfill – RCRA CCR Monitoring Program
 West Olive, Michigan

Sample Location:			JHC-MW-15036									
Sample Date:			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	4/15/2025
Constituent	Unit	GWPS			Field Dup		Field Dup					
Appendix III												
Boron	ug/L	NA	76	94	94	48	48	93	68	86	56	72
Calcium	mg/L	NA	39.5	57.6	57.0	32.8	33.8	52.1	35.9	57.3	37.2	49.8
Chloride	mg/L	NA	5.71	9.20	9.13	9.60	9.66	4.01	4.73	3.04	6.77	2.34
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	14.5	19.2	19.1	15.3	14.7	18.3	18.7	33.6	17.2	22.3
Total Dissolved Solids	mg/L	NA	169	238	246	163	164	207	182	244	164	204
pH, Field	SU	NA	7.6	7.4	--	7.3	--	7.4	7.7	7.3	7.8	7.5
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	7	9	10	6	6	8	6	9	6	8
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	< 0.386	< 0.395	< 0.398	< 0.616	0.591	< 0.505	< 0.497	0.701	< 0.722	< 0.655
Selenium	ug/L	50	1	2	2	< 1	< 1	< 1	< 1	2	< 1	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.

All metals were analyzed as total unless otherwise specified.

(1) Insufficient amount of water present to collect sample.

Table 1
 Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation
 JH Campbell Landfill – RCRA CCR Monitoring Program
 West Olive, Michigan

Sample Location:			JHC-MW-15037									
Sample Date:			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	4/15/2025
Constituent	Unit	GWPS										
Appendix III								Field Dup		Field Dup		
Boron	ug/L	NA	118	170	118	107	133	139	110	109	178	138
Calcium	mg/L	NA	61.7	85.1	52.3	67.8	78.0	78.8	57.1	57.5	85.6	69.4
Chloride	mg/L	NA	7.05	6.92	1.78	1.36	< 1.00	1.09	1.60	1.55	1.74	1.91
Fluoride	ug/L	NA	1,490	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Sulfate	mg/L	NA	17.7	42.8	24.1	24.4	37.2	37.4	22.1	23.4	24.5	56.3
Total Dissolved Solids	mg/L	NA	249	359	270	264	336	337	240	249	338	308
pH, Field	SU	NA	7.2	7.2	6.7	7.1	7.2	--	7.2	--	7.2	7.1
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	11	18	12	13	13	13	10	10	13	14
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	1,490	< 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	< 0.397	< 0.312	0.671	< 0.533	< 0.669	< 0.533	< 0.728	1.14	< 0.541	< 0.689
Selenium	ug/L	50	5	19	4	6	8	8	5	5	5	7
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.

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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) Insufficient amount of water present to collect sample.

Table 1
 Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation
 JH Campbell Landfill – RCRA CCR Monitoring Program
 West Olive, Michigan

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	4/15/2025 ⁽¹⁾	4/12/2022	10/20/2022	4/12/2023	10/17/2023	4/16/2024	10/15/2024	4/15/2025
Constituent	Unit	GWPS														
Appendix III																
Boron	ug/L	NA	92	74	93	129	119	146	--	178	274	279	230	263	331	401
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	97.3
Chloride	mg/L	NA	6.65	24.2	16.5	20.7	18.6	20	--	19.6	34.5	20.2	12.2	17.0	11.5	11.0
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	< 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	28.5
Total Dissolved Solids	mg/L	NA	348	383	330	316	343	323	--	245	410	353	274	330	332	402
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	6.8
Appendix IV																
Antimony	ug/L	6	1	< 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	< 1
Barium	ug/L	2,000	70	69	80	60	74	57	--	29	54	44	28	41	39	50
Beryllium	ug/L	4	< 1	< 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	< 0.2
Chromium	ug/L	100	1	< 1	< 1	< 1	< 1	< 1	--	2	< 1	< 1	< 1	< 1	< 1	2
Cobalt	ug/L	15	< 6	< 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	< 1,000
Lead	ug/L	15	< 1	< 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	< 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	< 0.2
Molybdenum	ug/L	100	< 5	< 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	0.709
Selenium	ug/L	50	29	7	8	4	6	4	--	4	2	3	3	2	4	2
Thallium	ug/L	2	< 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.

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GWPS for evaluation purposes only. Confidence intervals will be used to determine compliance per the HMP.

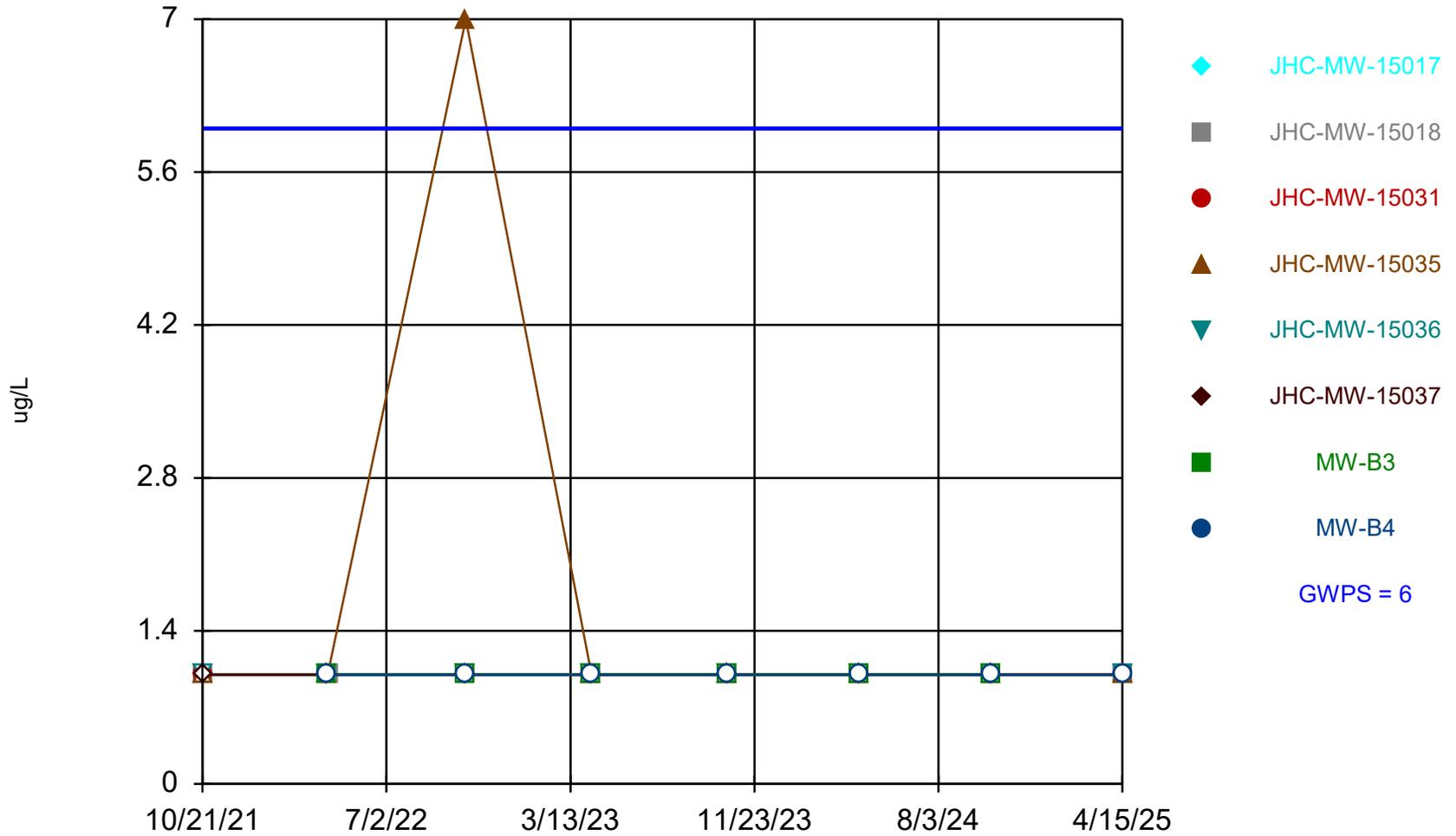
All metals were analyzed as total unless otherwise specified.

(1) Insufficient amount of water present to collect sample.

Attachment 1

Sanitas™ Output

Antimony Comparison to GWPS



Time Series Analysis Run 6/11/2025 5:04 PM

Client: Consumers Energy Data: JHC_2Q25

Summary Report

Constituent: Antimony, Total Analysis Run 6/11/2025 5:07 PM
 Client: Consumers Energy Data: JHC_2Q25

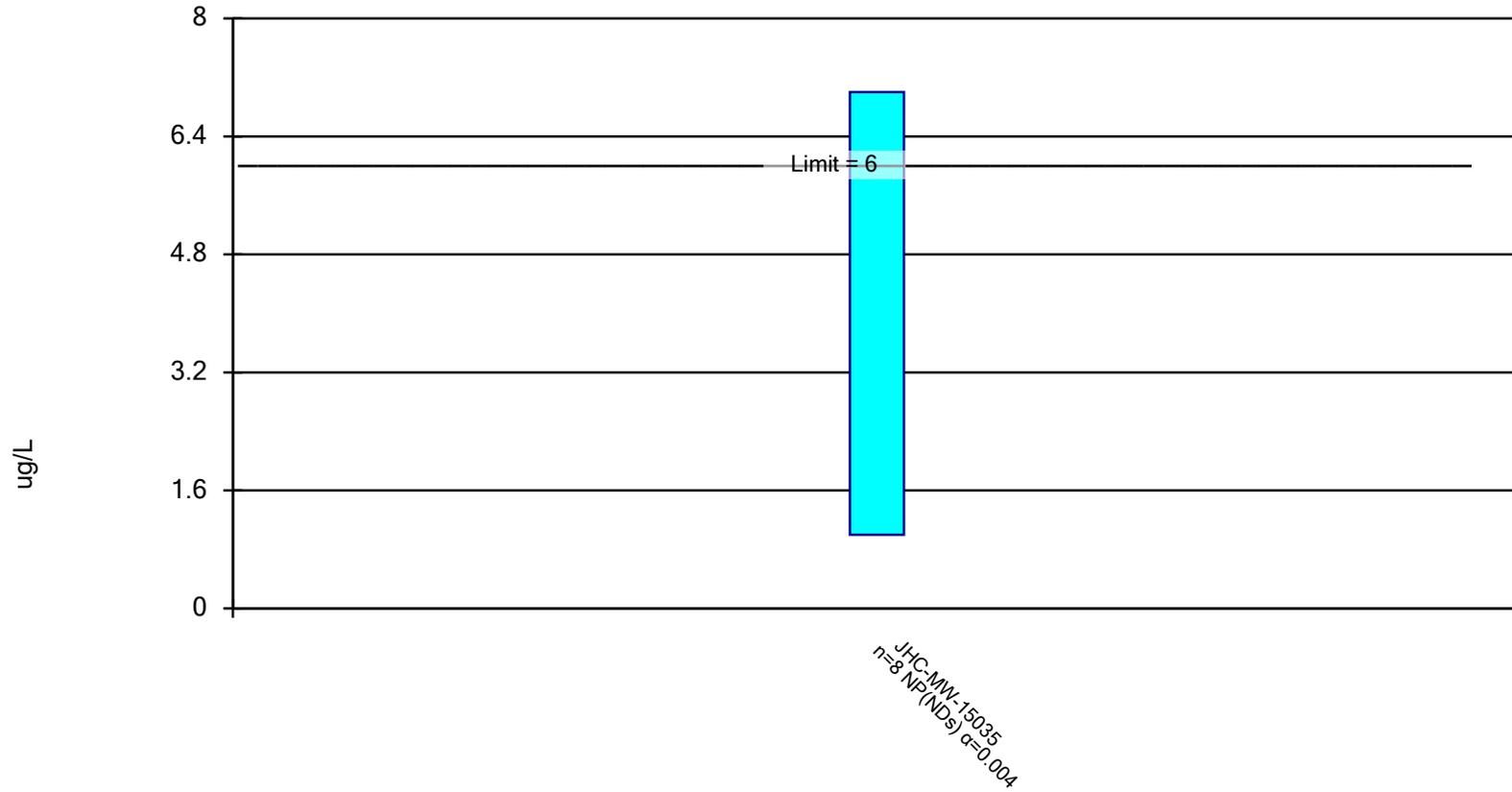
For observations made between 10/21/2021 and 4/15/2025, a summary of the selected data set:

Observations = 61
 NDs = 96%
 Wells = 8
 Minimum Value = 1
 Maximum Value = 7
 Mean Value = 1.098
 Median Value = 1
 Standard Deviation = 0.7682
 Coefficient of Variation = 0.6994
 Skewness = 7.617

<u>Well</u>	<u>#Obs.</u>	<u>NDs</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<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	7	100%	1	1	1	1	0	0	NaN

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Antimony, Total Analysis Run 6/11/2025 5:08 PM

Client: Consumers Energy Data: JHC_2Q25

Confidence Interval

Constituent: Antimony, Total (ug/L) Analysis Run 6/11/2025 5:09 PM

Client: Consumers Energy Data: JHC_2Q25

JHC-MW-15035

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
4/15/2025	<1
Mean	1.75
Std. Dev.	2.121
Upper Lim.	7
Lower Lim.	1

Appendix E
Statistical Evaluation of October 2025
Assessment Monitoring Sampling Event

Technical Memorandum

Date: January 30, 2026

To: Harold D. Register, Jr., Consumers Energy

From: Sarah Holmstrom, TRC
Kristin Lowery, TRC

Project No.: 634691.0000.0000 Phase 1 Task 2

Subject: Statistical Evaluation of October 2025 Assessment Monitoring Sampling Event
JH Campbell Dry Ash Landfill, Consumers Energy Company, West Olive, Michigan

Statistical evaluations of the semiannual assessment monitoring data to date (June 2018-April 2025) have shown that 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 2025 was conducted on October 7 through 9, 2025. 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 2025 data indicates no constituents are present at statistically significant levels that exceed the GWPSs at the Dry Ash Landfill monitoring wells.

<u>Constituent</u>	<u>GWPS</u>	<u># Downgradient Wells Observed</u>
--------------------	-------------	--------------------------------------

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.

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

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.

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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. Constituent-well combinations that included a direct exceedance of the GWPS within the past eight monitoring events (April 2022 through October 2025) were retained for further analysis (Attachment 1). Direct comparison GWPS exceedances include the following constituent well combinations:

- 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 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.

² USEPA. 2009. *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance*. Office of Conservation and Recovery. EPA 530/R-09-007.

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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 (time-series 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 Sanitas™ 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

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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

Table

Table 1
 Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation
 JH Campbell Landfill – RCRA CCR Monitoring Program
 West Olive, Michigan

Sample Location:			JHC-MW-15017								
Sample Date:			4/12/2022	10/20/2022	4/12/2023	10/17/2023	4/16/2024	10/15/2024	4/15/2025	4/15/2025	10/8/2025
Constituent	Unit	GWPS									
Appendix III											
Boron	ug/L	NA	161	163	179	108	121	116	100	99	192
Calcium	mg/L	NA	60.6	61.6	60.5	53.0	52.5	52.0	44.1	43.6	73.4
Chloride	mg/L	NA	25.4	24.1	16.4	19.2	17.6	16.9	9.41	9.8	12.5
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	39.2	43.2	48	38.3	34.1	34.3	22.8	24.2	42.3
Total Dissolved Solids	mg/L	NA	276	313	287	293	238	242	202	192	350
pH, Field	SU	NA	6.8	6.4	6.6	6.9	6.7	6.7	6.7	--	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	24	28	38	21	22	20	18	17	28
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	2	< 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	25	< 5	< 5	< 5	< 5	< 5	< 5
Radium-226/228	pCi/L	5	< 0.376	< 0.627	< 0.533	< 0.531	0.656	0.661	1.13	1.29	< 0.936
Selenium	ug/L	50	18	19	21	13	12	14	10	9	19
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.

All metals were analyzed as total unless otherwise specified.

(1) Insufficient amount of water present to collect sample.

(2) Sample not valid due to inadequate purge volume.

Table 1
 Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation
 JH Campbell Landfill – RCRA CCR Monitoring Program
 West Olive, Michigan

Sample Location:			JHC-MW-15018								
Sample Date:			4/13/2022	10/20/2022	4/11/2023	10/17/2023	4/16/2024	10/15/2024	10/15/2024	4/15/2025	10/8/2025
Constituent	Unit	GWPS									
Appendix III									Field Dup		
Boron	ug/L	NA	287	269	153	122	96	174	165	83	94
Calcium	mg/L	NA	65.9	59.6	40.6	30.2	44.6	61.7	59.5	51.3	73.3
Chloride	mg/L	NA	28.8	25.5	14.9	13.3	20.8	30.3	29.8	19.9	16.0
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	58.7	53.6	33.4	22.1	26.7	37.9	37.0	23.7	21.9
Total Dissolved Solids	mg/L	NA	300	316	194	192	266	314	320	239	324
pH, Field	SU	NA	5.9	5.9	6.2	6.5	6.6	6.6	--	6.8	6.8
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	45	31	49	15	27	27	26	19	29
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	6	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Radium-226/228	pCi/L	5	0.343	0.682	< 0.607	0.623	< 0.499	< 0.677	< 0.659	1.23	1.10
Selenium	ug/L	50	18	19	14	5	11	14	14	9	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.

All metals were analyzed as total unless otherwise specified.

(1) Insufficient amount of water present to collect sample.

(2) Sample not valid due to inadequate purge volume.

Table 1
 Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation
 JH Campbell Landfill – RCRA CCR Monitoring Program
 West Olive, Michigan

Sample Location:			JHC-MW-15031									
Sample Date:			4/12/2022	10/20/2022	4/12/2023	4/12/2023	10/17/2023	4/16/2024	10/15/2024	4/15/2025	10/8/2025	10/8/2025
Constituent	Unit	GWPS				Field Dup						Field Dup
Appendix III												
Boron	ug/L	NA	58	56	50	56	64	42	80	41	83	83
Calcium	mg/L	NA	59.8	49.6	52.9	54.0	56.4	35.1	67.7	41.9	93.8	90.1
Chloride	mg/L	NA	10.4	3.28	2.82	2.74	3.19	1.91	2.77	2.27	2.82	2.76
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	27.5	16.0	21.3	21.3	18.5	12.3	21.2	14.0	22.1	22.1
Total Dissolved Solids	mg/L	NA	220	215	205	205	255	148	269	170	369	385
pH, Field	SU	NA	7.1	7.5	7.1	--	7.2	7.2	7.3	7.4	7.0	--
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	12	13	13	15	11	16	10	24	24
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	3	< 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	< 0.456	< 0.576	0.498	< 0.618	< 0.678	< 0.796	< 0.627	< 0.676	1.48	< 0.867
Selenium	ug/L	50	3	2	3	3	3	2	3	2	3	4
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) Insufficient amount of water present to collect sample.

(2) Sample not valid due to inadequate purge volume.

Table 1
 Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation
 JH Campbell Landfill – RCRA CCR Monitoring Program
 West Olive, Michigan

Sample Location:			JHC-MW-15035							
Sample Date:			4/12/2022	10/20/2022	4/12/2023	10/17/2023	4/16/2024	10/15/2024	4/15/2025	10/8/2025
Constituent	Unit	GWPS								
Appendix III										
Boron	ug/L	NA	81	59	67	95	63	55	68	66
Calcium	mg/L	NA	79.2	64.2	94.5	97.5	76.5	66.5	78.5	90.2
Chloride	mg/L	NA	9.35	7.98	9.27	12.5	7.67	5.61	5.07	5.19
Fluoride	ug/L	NA	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Sulfate	mg/L	NA	25.7	29.4	31.0	41.5	24.8	28.4	25.4	23.5
Total Dissolved Solids	mg/L	NA	320	272	355	422	304	268	309	360
pH, Field	SU	NA	7.2	7.4	7.0	7.0	7.2	7.3	7.1	7.1
Appendix IV										
Antimony	ug/L	6	< 1	7	< 1	< 1	< 1	< 1	< 1	< 1
Arsenic	ug/L	10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Barium	ug/L	2,000	17	14	19	22	15	14	16	16
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	32	< 5	< 5	< 5	< 5	< 5
Radium-226/228	pCi/L	5	< 0.378	< 0.450	< 0.539	< 0.592	2.00	0.587	0.853	2.750
Selenium	ug/L	50	3	3	1	< 1	1	< 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.

All metals were analyzed as total unless otherwise specified.

(1) Insufficient amount of water present to collect sample.

(2) Sample not valid due to inadequate purge volume.

Table 1
 Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation
 JH Campbell Landfill – RCRA CCR Monitoring Program
 West Olive, Michigan

Sample Location:			JHC-MW-15036									
Sample Date:			4/12/2022	4/12/2022	10/20/2022	10/20/2022	4/10/2023	10/17/2023	4/16/2024	10/15/2024	4/15/2025	10/9/2025
Constituent	Unit	GWPS		Field Dup		Field Dup						
Appendix III												
Boron	ug/L	NA	94	94	48	48	93	68	86	56	72	73
Calcium	mg/L	NA	57.6	57.0	32.8	33.8	52.1	35.9	57.3	37.2	49.8	52.3
Chloride	mg/L	NA	9.20	9.13	9.60	9.66	4.01	4.73	3.04	6.77	2.34	5.48
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	19.2	19.1	15.3	14.7	18.3	18.7	33.6	17.2	22.3	17.6
Total Dissolved Solids	mg/L	NA	238	246	163	164	207	182	244	164	204	239
pH, Field	SU	NA	7.4	--	7.3	--	7.4	7.7	7.3	7.8	7.5	7.5
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	10	6	6	8	6	9	6	8	8
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	< 0.395	< 0.398	< 0.616	0.591	< 0.505	< 0.497	0.701	< 0.722	< 0.655	1.88
Selenium	ug/L	50	2	2	< 1	< 1	< 1	< 1	2	< 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) Insufficient amount of water present to collect sample.

(2) Sample not valid due to inadequate purge volume.

Table 1
 Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation
 JH Campbell Landfill – RCRA CCR Monitoring Program
 West Olive, Michigan

Sample Location:			JHC-MW-15037									
Sample Date:			4/12/2022	10/20/2022	4/11/2023	10/16/2023	10/16/2023	4/15/2024	4/15/2024	10/15/2024	4/15/2025	10/9/2025
Constituent	Unit	GWPS										
Appendix III							Field Dup		Field Dup			
Boron	ug/L	NA	170	118	107	133	139	110	109	178	138	166
Calcium	mg/L	NA	85.1	52.3	67.8	78.0	78.8	57.1	57.5	85.6	69.4	73.1
Chloride	mg/L	NA	6.92	1.78	1.36	< 1.00	1.09	1.60	1.55	1.74	1.91	1.38
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	42.8	24.1	24.4	37.2	37.4	22.1	23.4	24.5	56.3	25.2
Total Dissolved Solids	mg/L	NA	359	270	264	336	337	240	249	338	308	328
pH, Field	SU	NA	7.2	6.7	7.1	7.2	--	7.2	--	7.2	7.1	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	18	12	13	13	13	10	10	13	14	11
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	< 0.312	0.671	< 0.533	< 0.669	< 0.533	< 0.728	1.14	< 0.541	< 0.689	< 0.756
Selenium	ug/L	50	19	4	6	8	8	5	5	5	7	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) Insufficient amount of water present to collect sample.

(2) Sample not valid due to inadequate purge volume.

Table 1
 Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation
 JH Campbell Landfill – RCRA CCR Monitoring Program
 West Olive, Michigan

Sample Location:			MW-B3							
Sample Date:			4/12/2022	10/20/2022	4/12/2023	10/17/2023	4/16/2024	10/15/2024	4/15/2025 ⁽¹⁾	10/8/2025 ⁽²⁾
Constituent	Unit	GWPS								
Appendix III										
Boron	ug/L	NA	92	74	93	129	119	146	--	--
Calcium	mg/L	NA	95.8	70.1	76.8	53.7	68.6	56.9	--	--
Chloride	mg/L	NA	6.65	24.2	16.5	20.7	18.6	20	--	--
Fluoride	ug/L	NA	< 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	--	--
Total Dissolved Solids	mg/L	NA	348	383	330	316	343	323	--	--
pH, Field	SU	NA	6.5	6.1	6.0	6.0	6.1	6.1	--	--
Appendix IV										
Antimony	ug/L	6	1	< 1	< 1	< 1	< 1	< 1	--	--
Arsenic	ug/L	10	< 1	< 1	< 1	< 1	< 1	< 1	--	--
Barium	ug/L	2,000	70	69	80	60	74	57	--	--
Beryllium	ug/L	4	< 1	< 1	< 1	< 1	< 1	< 1	--	--
Cadmium	ug/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	--	--
Chromium	ug/L	100	1	< 1	< 1	< 1	< 1	< 1	--	--
Cobalt	ug/L	15	< 6	< 6	< 6	< 6	< 6	< 6	--	--
Fluoride	ug/L	4,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	--	--
Lead	ug/L	15	< 1	< 1	< 1	< 1	< 1	< 1	--	--
Lithium	ug/L	40	12	12	16	17	18	19	--	--
Mercury	ug/L	2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	--	--
Molybdenum	ug/L	100	< 5	< 5	< 5	< 5	< 5	< 5	--	--
Radium-226/228	pCi/L	5	0.558	< 0.571	< 0.473	< 0.596	1.25	< 0.588	--	--
Selenium	ug/L	50	29	7	8	4	6	4	--	--
Thallium	ug/L	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) Insufficient amount of water present to collect sample.

(2) Sample not valid due to inadequate purge volume.

Table 1
 Comparison of Groundwater Sampling Results to Groundwater Protection Standards for Statistical Evaluation
 JH Campbell Landfill – RCRA CCR Monitoring Program
 West Olive, Michigan

Sample Location:			MW-B4							
Sample Date:			4/12/2022	10/20/2022	4/12/2023	10/17/2023	4/16/2024	10/15/2024	4/15/2025	10/8/2025
Constituent	Unit	GWPS								
Appendix III										
Boron	ug/L	NA	178	274	279	230	263	331	401	282
Calcium	mg/L	NA	52.5	83.5	88.7	57.0	77.7	79.1	97.3	76.6
Chloride	mg/L	NA	19.6	34.5	20.2	12.2	17.0	11.5	11.0	7.60
Fluoride	ug/L	NA	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Sulfate	mg/L	NA	18.5	28.9	24.1	18.4	22.1	25.5	28.5	19.5
Total Dissolved Solids	mg/L	NA	245	410	353	274	330	332	402	338
pH, Field	SU	NA	7.2	6.9	6.9	7.1	6.9	7.0	6.8	7.0
Appendix IV										
Antimony	ug/L	6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Arsenic	ug/L	10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Barium	ug/L	2,000	29	54	44	28	41	39	50	37
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	2	< 1	< 1	< 1	< 1	< 1	2	< 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	< 5	< 5	< 5	< 5
Radium-226/228	pCi/L	5	< 0.410	< 0.486	0.738	< 0.654	0.873	< 0.504	0.709	1.27
Selenium	ug/L	50	4	2	3	3	2	4	2	2
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.

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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.

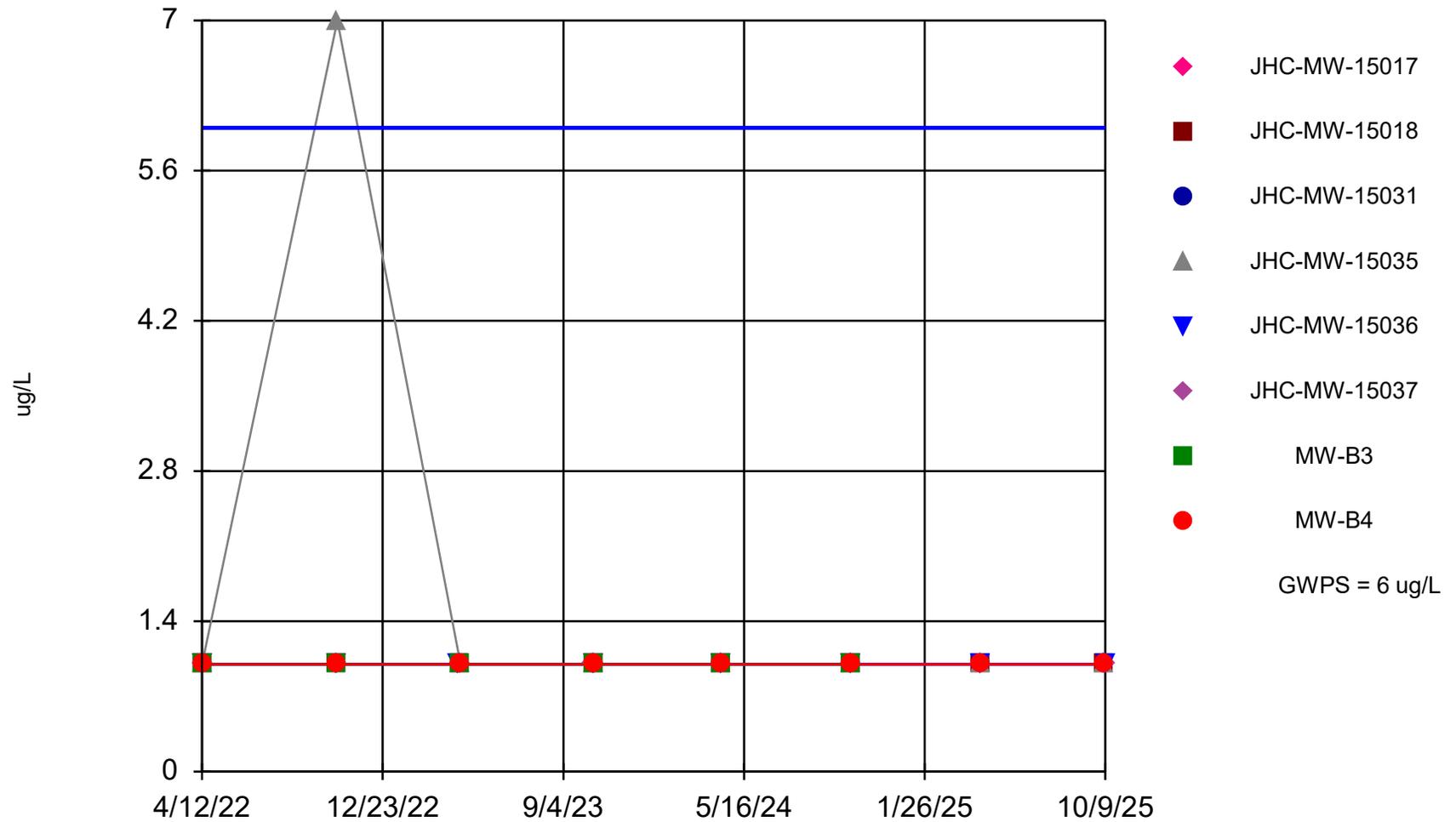
(1) Insufficient amount of water present to collect sample.

(2) Sample not valid due to inadequate purge volume.

Attachment 1

Sanitas™ Output

Antimony Comparison to GWPS

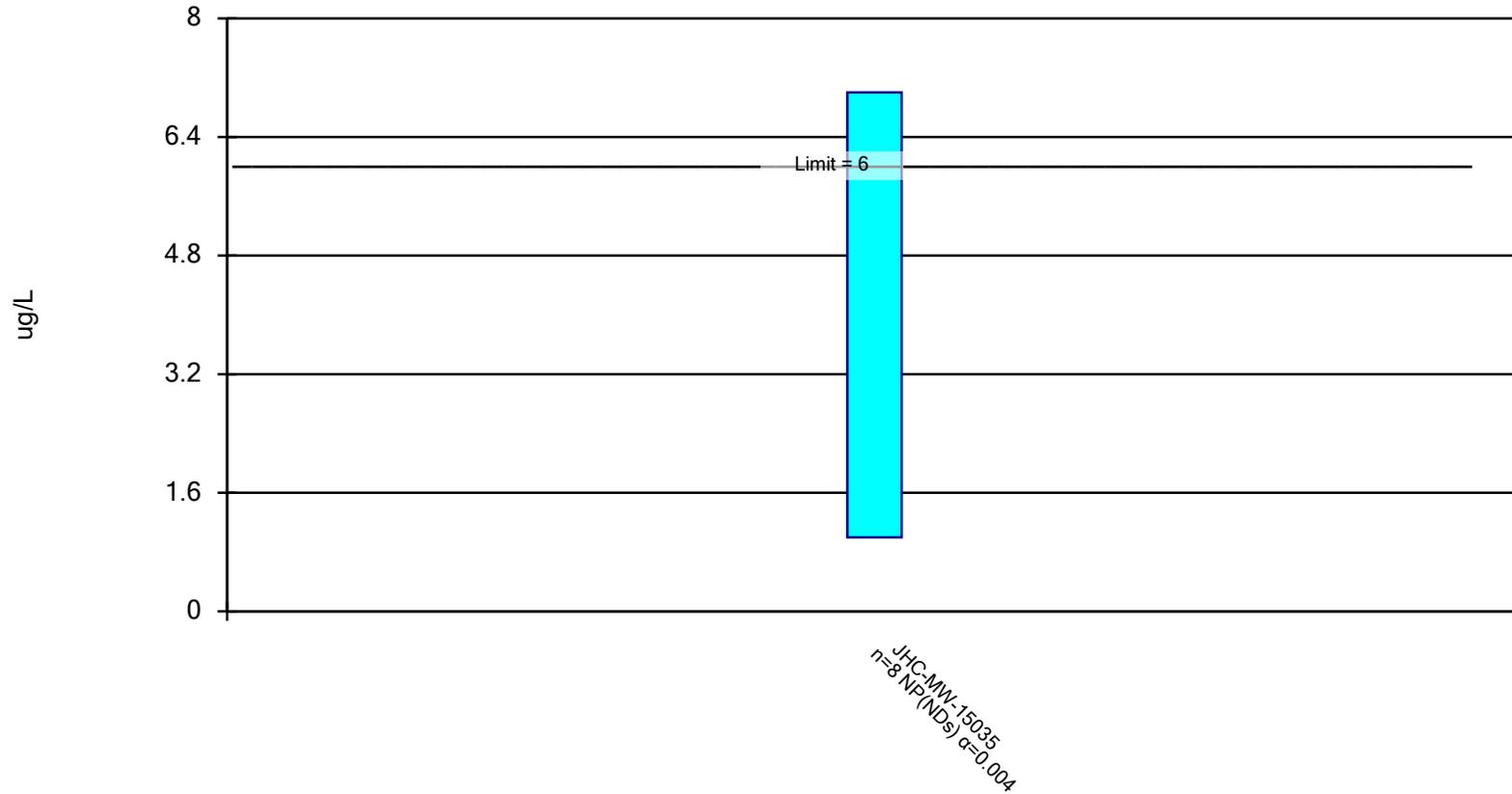


Time Series Analysis Run 1/7/2026 12:01 PM

Client: Consumers Energy Data: JHC_4Q25

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Antimony, Total Analysis Run 12/17/2025 4:11 PM

Client: Consumers Energy Data: JHC_4Q25

Confidence Interval

Constituent: Antimony, Total (ug/L) Analysis Run 12/17/2025 4:11 PM

Client: Consumers Energy Data: JHC_4Q25

JHC-MW-15035

4/12/2022	<1
10/20/2022	7
4/12/2023	<1
10/17/2023	<1
4/16/2024	<1
10/15/2024	<1
4/15/2025	<1
10/8/2025	<1
Mean	1.75
Std. Dev.	2.121
Upper Lim.	7
Lower Lim.	1