



2023 Annual Groundwater Monitoring and Corrective Action Report

**JH Campbell Power Plant
Pond 3 North and 3 South CCR Unit**

West Olive, Michigan

January 2024

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Executive Summary

On behalf of Consumers Energy, TRC has prepared this report for the JH Campbell Pond 3 to cover the period of January 1, 2023 to December 31, 2023 and document the status of groundwater monitoring and corrective action for 2023 in accordance with §257.90(e).

Consumers Energy first reported the potential for statistically significant increases (SSIs) for Appendix III constituents in the *Annual Groundwater Monitoring Report, JH Campbell Power Plant, Unit 3 North and 3 South 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-15012, JHC-MW-15013, JHC-MW-15015 and JHC-MW-15016;
- Calcium at JHC-MW-15015 and JHC-MW-15016;
- Sulfate at JHC-MW-15012, JHC-MW-15013, JHC-MW-15015 and JHC-MW-15016; and
- Total dissolved solids (TDS) at JHC-MW-15015 and JHC-MW-15016.

On April 25, 2018, Consumers Energy entered assessment monitoring upon determining that an Alternate Source Demonstration for the Appendix III constituents was not successful. Appendix IV assessment monitoring data were compared to the groundwater protection standards (GWPSs) in accordance with §257.95. The assessment monitoring statistical evaluations concluded that an assessment of corrective measures was unnecessary because the Appendix IV constituents remained statistically below the GWPS at the downgradient monitoring wells.

Consumers Energy elected to close Pond 3 by removal under §257.102(c) to facilitate the development and construction of tank systems to improve management of plant process wastewaters. CCR removal was completed at the Pond 3 north and south areas between April 2017 and November 2018 in accordance with §257.102(c).

The semiannual statistical evaluations performed throughout the assessment monitoring program from 2018 through the 2022 reporting period have shown that no Appendix IV constituents were present at statistically significant levels above the GWPS, demonstrating that the GWPS are met post-CCR removal in accordance with §257.102(c). As such, Consumers Energy certified the closure of Pond 3 by CCR removal on May 5, 2023. In accordance with §257.104(a)(2), Pond 3 is not subject to the post-closure care criteria given that the CCR unit was closed by removing CCR as provided by §257.102(c). Therefore, with the final closure of Pond 3 having been completed, assessment monitoring is no longer required. Accordingly, no assessment monitoring data were collected for Pond 3 during the 2023 reporting period. This monitoring report documents the final closure of Pond 3 under §257.102(c) and the final conclusion of groundwater monitoring and corrective action reporting under §257.90(e).

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) (USEPA, April 2015 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) Ponds 3 North and 3 South at the JH Campbell Power Plant Site (Pond 3). 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 and Corrective Action Report (Annual Report) for calendar year 2023 activities at Pond 3 from January 1, 2023 to December 31, 2023. Closure by removal has been completed at Pond 3. The semiannual statistical evaluations performed throughout the assessment monitoring program from 2018 through the 2022 reporting period have shown that no Appendix IV constituents were present at statistically significant levels above the GWPS, demonstrating that the GWPS are met post-CCR removal in accordance with §257.102(c). As such, Consumers Energy certified the closure of Pond 3 by CCR removal on May 5, 2023.

With the final closure of Pond 3 complete, Consumers Energy has completed the self-implementing groundwater compliance program in conformance with §257.90 - §257.98 and assessment monitoring is no longer required. Accordingly, no assessment monitoring data were collected for Pond 3 during the 2023 reporting period. Pond 3 was in assessment monitoring at the beginning of the period covered by this report. Following the formal certification of closure on May 5, 2023, Pond 3 was removed from assessment monitoring. This monitoring report documents actions taken in 2023 and marks the conclusion of groundwater monitoring and corrective action reporting under §257.90(e).

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, Unit 3 North and 3 South CCR Unit* (TRC, January 2018). The statistical evaluation of the Appendix III indicator parameters confirmed SSIs over background as follows:

- Boron at JHC-MW-15012, JHC-MW-15013, JHC-MW-15015 and JHC-MW-15016;
- Calcium at JHC-MW-15015 and JHC-MW-15016;
- Sulfate at JHC-MW-15012, JHC-MW-15013, JHC-MW-15015 and JHC-MW-15016; and
- Total dissolved solids (TDS) at JHC-MW-15015 and JHC-MW-15016.

As discussed in the *2018 Annual Groundwater Monitoring Report for the JH Campbell Power Plant Units 3 North and 3 South 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 Pond 3 CCR unit on April 25, 2018, pursuant to §257.95 of the CCR Rule. The assessment monitoring program included 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 GWPS, as reported on January 14, 2019 and placed in the operating record in accordance with §257.105(h)(8). This comparison showed that no Appendix IV constituents were present at statistically significant levels above the GWPSs. Therefore, assessment of corrective measures was unnecessary and Consumers Energy remained in assessment monitoring. The subsequent assessment monitoring evaluations have also indicated that no Appendix IV constituents have been present in downgradient monitoring wells at statistically significant levels exceeding the GWPS. Therefore, the Pond 3 monitoring system remained in assessment monitoring and continued to be sampled for the Appendix III and Appendix IV constituents and statistically evaluated on a semiannual basis through 2022 in accordance with §257.95.

As described in the May 5, 2023 *JH Campbell Unit 3 Bottom Ash Pond North/South 40 CFR 257.102(c) Closure by Removal Certification* (Closure Certification Report) (Consumers Energy, May 2023), Pond 3 was closed by removal of CCR materials between April 2017 and November 2018. Groundwater concentrations at Pond 3 did not exceed the GWPS at any point in the monitoring program and corrective measures were not triggered for this unit. Therefore, Pond 3 was closed in accordance with §257.102(c) and ongoing assessment monitoring was concluded at Pond 3.

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.

Currently, there are no remaining active CCR surface impoundments at the JH Campbell solid waste disposal facility. The CCR surface impoundments located within the former wet ash pond area are Pond 1-2 North and Pond 1-2 South Bottom Ash Ponds (collectively Ponds 1-2), Pond 3, and Pond A. Site features are shown on Figure 2. The surface impoundments in the wet ash pond areas (Pond 3 and Ponds 1-2) were decommissioned and CCR removed throughout 2017 and 2018 and were replaced with concrete bottom ash treatment tanks. Dry ash from all of the generating units is stored in silos until it is placed into the Dry Ash Landfill or is sold and shipped off site.

This report focuses on the former Pond 3 CCR Unit.

1.3 Geology/Hydrogeology

Groundwater is typically encountered at elevations (NAVD 88) 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

Pond 3 was closed in accordance with §257.102(c) in May 2023 and ongoing assessment monitoring was discontinued. In accordance with §257.104(a)(2), Pond 3 is not subject to the post-closure care criteria given that the CCR unit was closed by removing CCR as provided by §257.102(c). Therefore, with the final closure of Pond 3 having been completed, assessment monitoring per §257.95 is no longer required. Accordingly, no assessment monitoring data were collected for Pond 3 during the 2023 reporting period.

3.0 CCR Unit Closure

Consumers Energy elected to close Pond 3 under §257.102(c) to facilitate the development and construction of aboveground tank systems to improve management of plant process wastewaters. As detailed in the 2018 Annual Report, and subsequent annual groundwater monitoring reports, the statistical evaluations completed during assessment monitoring at Pond 3 conclude that an assessment of corrective measures was unnecessary because Appendix IV concentrations in groundwater remained below the GWPS established under §257.95(h) (TRC, October 2018) using the statistical methods set forth in §257.93(g) at the downgradient wells.

On April 5, 2017, Consumers Energy issued the *Notification of Intent to Initiate Closure for JH Campbell Bottom Ash Ponds Unit 3* (Consumers Energy, April 2017) to the Michigan Department of Environmental Quality (MDEQ) (now the Michigan Department of Environment, Great Lakes, and Energy [EGLE]). CCR removal was completed at the Pond 3 north and south areas between April 2017 and November 2018 in accordance with §257.102(c), the *J.H. Campbell Generating Facility Bottom Ash Pond 3 Closure Plan, West Olive, Michigan* (Golder, October 2016) (pursuant to 40 CFR 257.102), and the *Consumers Energy J.H. Campbell Generating Facility Bottom Ash Ponds 3 N/S Closure Work Plan (Rev. 1)* (Closure Work Plan) (Golder, January 2017). Removal of the CCR and compliance with the Closure Work Plan is documented and certified by Golder in the *Bottom Ash Pond 3N CCR Removal Documentation Interim Report* (Interim Report) (Golder, June 2017) and the *Bottom Ash Pond 3 N/S - CCR Removal Documentation Report* (Final Report) (Golder, June 2019). In addition, the EGLE concurred that bottom ash, which is a regulated solid waste in Michigan, had been removed in accordance with the Closure Work Plan.

As described in the *2022 Annual Groundwater Monitoring and Corrective Action Report* (2022 Annual Report) (TRC, January 2023), statistical evaluation of the assessment monitoring data collected from 2018 through 2022 had not shown any Appendix IV constituents present at statistically significant levels above the GWPS established per §257.95(h), demonstrating that the GWPS are met post-CCR removal in accordance with §257.102(c). On May 5, 2023, the closure of Pond 3 by removal was documented and certified as detailed in the *JH Campbell Unit 3 Bottom Ash Pond North/South 40 CFR 257.102(c) Closure by Removal Certification* (Consumers Energy, May 2023) and posted to the operating record and public-facing CCR website. The Pond 3 closure certification includes a summary of the closure activities in addition to the supporting closure documentation and concurrence from the EGLE that CCR removal was completed in accordance with the Closure Work Plan.

In accordance with §257.104(a)(2), Pond 3 is not subject to the post-closure care criteria given that the CCR unit was closed by removing CCR as provided by §257.102(c). As such, Consumers Energy has completed the self-implementing groundwater compliance program in conformance with §257.90 - §257.98 and no further activities for Pond 3 under §257.90 - §257.98 are required or planned at this time.

4.0 Conclusions and Recommendations

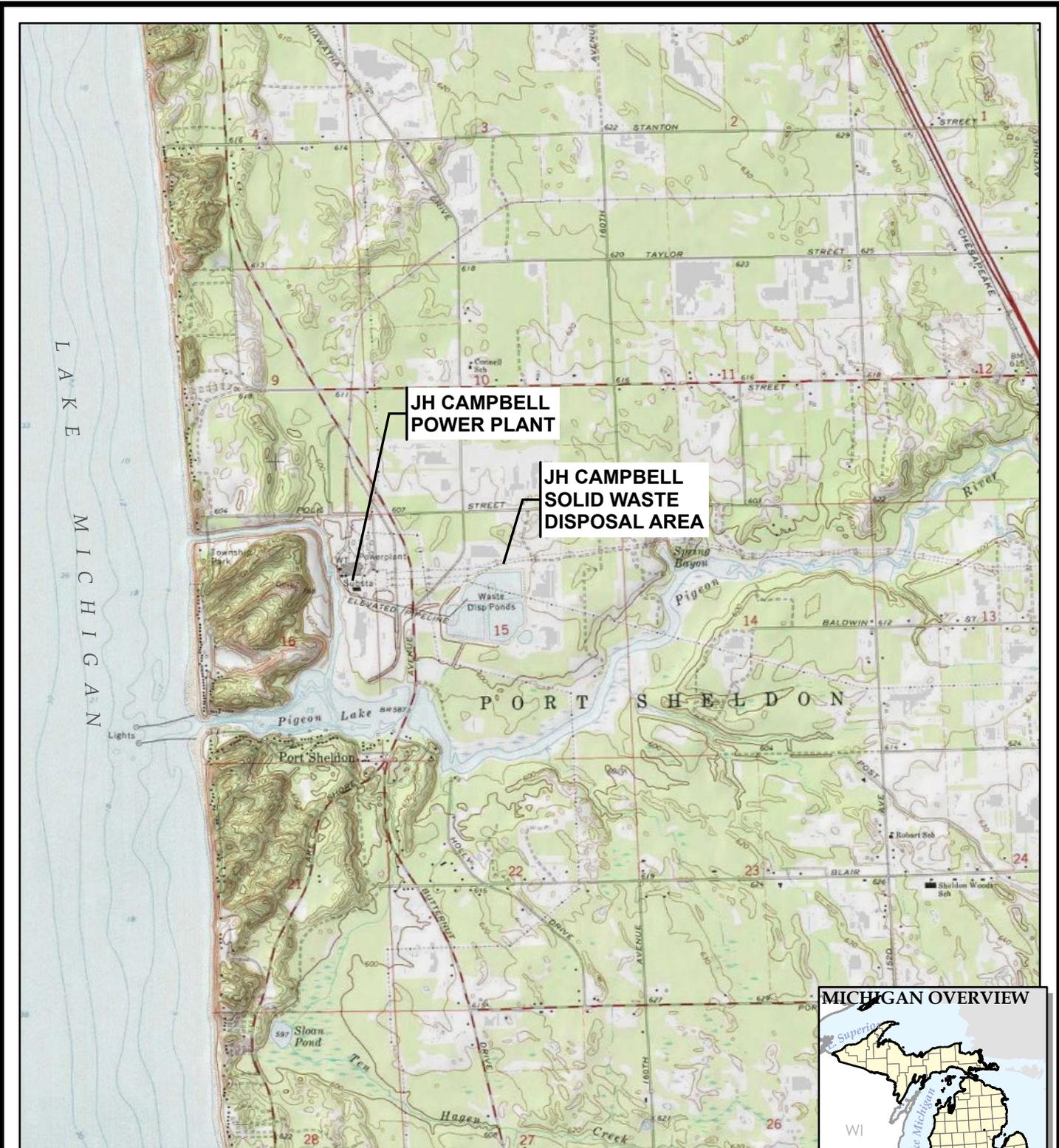
Closure by removal has been completed at Pond 3 and was certified as complete in 2023. Consumers Energy has completed the self-implementing groundwater compliance program in conformance with §257.90 - §257.98 and no further activities for Pond 3 under §257.90 - §257.98 are required or planned at this time.

5.0 References

- Consumers Power Company. April 2017. Notification of Intent to Initiate Closure for JH Campbell Bottom Ash Ponds Unit 3. April 5, 2017.
- Consumers Energy. May 2023. JH Campbell Unit 3 Bottom Ash Pond North/South 40 CFR 257.102(c) Closure by Removal Certification. May 5, 2023.
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- Golder Associates, Inc. January 2017. Consumers Energy J.H. Campbell Generating Facility Bottom Ash Ponds 3 N/S Closure Work Plan (Rev. 1).
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- TRC. October 2018. Groundwater Protection Standards, Consumers Energy, JH Campbell Site, Bottom Ash Pond Units 3 North and 3 South CCR Unit, technical memorandum prepared for Consumers Energy Company. October 15, 2018.
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- TRC. January 2022. 2021 Annual Groundwater Monitoring Report, JH Campbell Power Plant, Unit 3 North and 3 South CCR Unit, West Olive, Michigan. Prepared for Consumers Energy Company.
- USEPA. April 2015. 40 CFR Parts 257 and 261. Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule. 80 Federal Register 74 (April 17, 2015), pp. 21301-21501 (80 FR 21301).
- USEPA. July 2018. 40 CFR Part 257. Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; Amendments to the National Minimum Criteria (Phase One, Part One); Final Rule. 83 Federal Register 146 (July 30, 2018), pp. 36435-36456 (83 FR 36435).

USEPA. April 2018. Barnes Johnson (Office of Resource Conservation and Recovery) to James Roewer (c/o Edison Electric Institute) and Douglas Green, Margaret Fawal (Venable LLP). Re: Coal Combustion Residuals Rule Groundwater Monitoring Requirements. April 30, 2018. United States Environmental Protection Agency, Washington, D.C. 20460. Office of Solid Waste and Emergency Response, now the Office of Land and Emergency Management.

Figures



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.



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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:	JULY 2023
PROJ. NO.:	514398.0000
FILE:	T:\1-PROJECTS\Consumers_Energy\464090_JHC\2-APRX\464090_JHC.aprx

FIGURE 1

