

July 30, 2022

Subject:

Semiannual Progress Report - Selection of Remedy  
 JH Campbell Ponds 1-2 North and 1-2 South CCR Unit  
 JH Campbell Pond A CCR Unit

This Semiannual Progress Report, prepared as a requirement of §257.97(a) of 40 CFR Parts 257 and 261, Disposal of Coal Combustion Residuals from Electric Utilities, under subtitle D of the Resource Conservation and Recovery Act (RCRA), also known as the Coal Combustion Residuals (CCR) Rule, describes progress toward selecting and designing remedies for two CCR units that triggered Assessment of Corrective Measures (ACM) under the CCR Rule at the JH Campbell Solid Waste Disposal Area: Ponds 1-2 and Pond A. Based on the schedule of self-implementation prescribed in the CCR Rule, a progress report is required to be prepared semiannually upon completion of the Assessment of Corrective Measures Report until the remedy is selected. It is noteworthy that remedy selection for the Ponds 1-2 and Pond A, prescribed by the CCR Rule, is being undertaken in coordination with a Michigan Department of Environment, Great Lakes, and Energy (EGLE) Consent Agreement 115-01-2018, which was executed on December 28, 2018.

Consumers Energy (CE) reported statistically significant exceedances above the groundwater protection standard (GWPS) for a single Appendix IV constituent, arsenic, in the "Notification of Appendix IV Constituent Exceeding Groundwater Protection Standard per §257.95(g)" (Consumers Energy Company, January 2019).

Unit with GWPS Exceedance	Constituent	# of Downgradient Wells Observed
Pond A	Arsenic	1 of 6
Ponds 1-2	Arsenic	2 of 5

Subsequently, the Assessment of Corrective Measures Report (TRC, September 2019) was completed on September 11, 2019 for Ponds 1-2 and Pond A. Five remedial approaches were evaluated and presented based on source control by removing CCRs in Ponds 1-2 or by construction of a final cover and certifying the closure in place for Pond A.

Semi-annual progress reports have been completed by placing the document in the operating record and making it available on the CE public-facing website starting with the 2019 Annual Groundwater Monitoring and Corrective Action Report and Fourth Quarter Hydrogeological Monitoring Report (TRC, 2020).

## **Assessment Activities**

### **Ponds 1-2**

CE has performed CCR removal at Ponds 1-2 as documented in the "*JH Campbell Generating Facility Bottom Ash Ponds 1-2 Closure Plan*," (Golder, January 2018). Following the permanent cessation of hydraulic loading, CCR removal activities were completed in October 2018. On October 22, 2019 EGLE provided written concurrence that all bottom ash had been removed from Ponds 1-2 based on multiple lines of evidence described in the approved closure work plan.

CE continues to monitor Ponds 1-2 semiannually for Appendix III and IV constituents. Since the cessation of hydraulic loading and removal of CCR at the unit, groundwater flow direction has changed significantly and monitoring wells JHC-MW-15002 and JHC-MW-15003 are no longer downgradient of the former CCR unit. They will continue to be sampled as part of the assessment monitoring program to evaluate groundwater quality post-CCR removal while the use of these wells in the groundwater monitoring system is re-evaluated.

As discussed in the Statistical Evaluation of April 2021 Assessment Monitoring Sampling Event technical memorandum (TRC, July 30, 2021) in 2021 a new statistically significant level (SSL) above the GWPS for selenium at JHC-MW-15005 was identified. TRC developed an Alternate Source Demonstration (ASD) for the new SSL in accordance with §257.95(g)(3)(ii). The alternate source was determined to be a system of closed, pre-existing units (solid waste units licensed and operated prior to 1978) licensed under Michigan solid waste rules which are adjacent to Ponds 1-2. The closed, pre-existing units are not regulated under the CCR Rule, but remedial action is being taken under Consent Agreement WMRPD No. 115-01-2018. A remedial action plan (RAP) was submitted to EGLE on September 30, 2021. In a letter sent June 10, 2022, Consumers Energy committed to revising elements of the RAP based on comments received and ongoing discussion with EGLE.

CE is in the process of re-evaluating the Ponds 1-2 well network. CE installed a new monitoring well (JHC-MW-22001) on May 12, 2022 and collected additional data from this new well to reassess groundwater flow and further characterize groundwater quality downgradient from the former Ponds 1-2 footprint. Additionally, in the second half of 2022 CE is evaluating plans to

install a minimum of two additional wells in the center of Ponds 1-2 to further characterize the groundwater in the immediate area and clarify the influence of the closed, pre-existing units on the monitoring well network.

### **Pond A**

CE closed Pond A according to the "*JH Campbell Generating Facility Pond A Closure Plan, West Olive, Michigan*" (Golder, October 2016) and an updated closure plan detailing the final cover system was submitted to EGLE in February 2019. The state closure certification as required by Paragraph 4.2 of Consent Agreement WMRPD No. 115-01-2018 was approved by EGLE on November 25, 2019.

Increases in Appendix III constituents (e.g. boron) and direct exceedances of the selenium GWPS in JHC-MW-15011, JHC-MW-15010, JHC-MW-15009, and JHC-MW-15008R that have not yet resulted in a statistically significant exceedance suggest a detectable influence from the immediately adjacent, upgradient, closed, pre-existing CCR units on-site. The closed, pre-existing units are not regulated under the RCRA CCR Rule, but remedial action is being taken under Consent Agreement WMRPD No. 115-01-2018. A RAP for these units was submitted to EGLE on September 30, 2021. In a letter sent June 10, 2022, CE committed to revising elements of the RAP based on comments received and ongoing discussion with EGLE.

## **Conclusions**

### **Ponds 1-2**

Changing constituent concentrations indicate that the system is establishing a new hydraulic and chemical equilibrium following source removal. Nature and extent sampling results suggest that the GWPS exceedances do not pose an immediate threat to human health or the environment.

The ASD completed for JHC-MW-15005 demonstrates the influence of immediately adjacent, closed, pre-existing units not regulated by the CCR Rule on at least one well in the downgradient groundwater monitoring network developed for Ponds 1-2. CE is re-evaluating the groundwater monitoring system for Ponds 1-2 to more accurately account for the influence from the closed, pre-existing units. Continued monitoring at Ponds 1-2 is appropriate to understand the new geochemical equilibrium being established at the former unit and the influence from the adjacent alternate source.

## **Pond A**

Arsenic at JHC-MW-15011/R continues to demonstrate attenuation in noted downward concentration trends. The last two quarters of sampling at JHC-MW-15011/R were below the GWPS. Nature and extent sampling data indicate that arsenic is not detected above the GWPS immediately downgradient from Pond A.

Groundwater monitoring data since the installation of the final cover indicates an observable influence from immediately adjacent, upgradient, closed, pre-existing units. Remedial action for the upgradient units is being taken under Consent Agreement WMRPD No. 115-01-2018.

## **Remedy Selection Process**

The ACM Report identified source removal and final cover as primary corrective actions for Ponds 1-2 and Pond A, respectively, but also considered five technically feasible groundwater management alternatives to address the potential for residual arsenic. The first alternative was to monitor post-source removal groundwater concentration improvements (e.g. no additional measures required once source removal was completed), but four other alternatives were retained in the event GWPS could not be achieved for all constituents in all monitoring wells in the groundwater monitoring system.

At Ponds 1-2, continued monitoring and a re-evaluation of the well network is appropriate to account for the changed groundwater flow and equilibrium established following the primary corrective action. Additional groundwater wells are being planned to further evaluate the influence of the alternate source on constituent concentrations in the Ponds 1-2 well network.

Arsenic continues to demonstrate attenuation in noted downward concentration trends at Pond A following dewatering and the installation of the final cover. Groundwater monitoring data since the implementation of the primary corrective actions indicate an observable influence from immediately adjacent, upgradient, closed, pre-existing units.

If necessary, following the source control activities, the remedy for Ponds 1-2 and Pond A will be formally selected per §257.97 once the selected option is reviewed and commented on by EGLE and a public meeting is conducted at least 30-days prior to the final selection as required under §257.96(e).

## References

Consumers Energy Company. January 14, 2019. Notification of Appendix IV Constituent Exceeding Groundwater Protection Standard per §257.95(g), JH Campbell Pond A CCR Unit.

Consumers Energy Company. January 14, 2019. Notification of Appendix IV Constituent Exceeding Groundwater Protection Standard per §257.95(g), JH Campbell Ponds 1-2 CCR Unit.

Golder Associates. October 2016. JH Campbell Generating Facility Pond A Closure Plan, West Olive, Michigan. Prepared for Consumers Energy Company.

Golder Associates. January 2018. JH Campbell Generating Facility Bottom Ash Ponds 1-2 Closure Plan, West Olive, Michigan. Prepared for Consumers Energy Company.

TRC Environmental Corporation. January 2022. 2021 Annual Groundwater Monitoring and Corrective Action Report, JH Campbell Power Plant, Pond A CCR Unit. Prepared for Consumers Energy Company.

TRC Environmental Corporation. January 2021. Sample Analysis Plan for JH Campbell Bottom Ash Ponds 1-2 and Pond 3. Prepared for Consumers Energy Company.

TRC Environmental Corporation. September 2019. Assessment of Corrective Measures, Consumers Energy Company JH Campbell Ponds 1-2 North and 1-2 South and Pond A Coal Combustion Residual Units. Prepared for Consumers Energy Company.

TRC Environmental Corporation. March 2019; Revised July 2019. Pond A Hydrogeological Monitoring Plan, JH Campbell Power Plant, West Olive, Michigan. Prepared for Consumers Energy Company

TRC Environmental Corporation. January 2020. 2019 Annual Groundwater Monitoring and Corrective Action Report and Fourth Quarter 2019 Hydrogeological Monitoring Report, JH Campbell Power Plant Pond A CCR Unit, West Olive, Michigan. Prepared for Consumers Energy Company.