

July 30, 2021

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 North and 1-2 South CCR Units (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 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 WMRPD No. 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, Assessment of Corrective Measures Reports (TRC, September 2019) were completed on September 11, 2019, for Ponds 1-2 and Pond A. Semi-annual progress reports have been made available on the CE public-facing website. This is the fourth semi-annual update.

Assessment Activities

Ponds 1-2

Consumers Energy 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 "*Bottom Ash Ponds 1-2 N/S CCR Removal Documentation Report*" (Golder, August 2019).

Consumers Energy 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 MW-15002 and MW-15003 are no longer downgradient of the former CCR unit.

CE is investigating the potential influence of adjacent sources on constituent concentrations in the Ponds 1-2 well network since CCR removal in 2018 based on the groundwater flow changes. These include a system of closed, pre-existing units licensed under Michigan solid waste rules. 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.

Pond A

Consumers Energy 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 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.

Since the installation of the final cover, four rounds of semiannual sampling have been conducted at Pond A. In accordance with Consent Agreement WMRPD No. 115-01-2018, a revised Hydrogeological Monitoring Plan, *Pond A Hydrogeological Monitoring Plan, JH Campbell Power Plant, West Olive, Michigan* (HMP)(TRC, March 2019; Revised July 2019) was submitted to EGLE and approved in August 2019.

The initial Pond A monitoring well network was positioned to capture downgradient groundwater flow at a time where water table mounding was observed in the vicinity of Pond A. Since the permanent discontinuation of hydraulic loading in June 2018 and final cover installation in 2019, mounding is no longer present and the groundwater has equilibrated to a lower static water

elevation. This has caused the groundwater flow direction to shift to the south-southeast and the water levels to drop below the screened intervals for JHC-MW-15007, JHC-MW-15009, JHC-MW-15010, and JHC-MW-15011 for multiple sampling events. Consequently, JHC-MW-15007, JHC-MW-15009, and JHC-MW-15011 were replaced in July 2021 by JHC-MW-15007R, JHC-MW-15009R, and JHC-MW-15011R.

Based on the changes in groundwater flow direction since decommissioning of the pond, JHC-MW-15010 is no longer located downgradient from Pond A and is not being replaced. The remaining well network meets the requirements under §257.91. A recertification of the monitoring well network will be filed with the 2021 Annual Groundwater Monitoring Report required under §257.95.

The arsenic exceedance at MW-15011 which initially triggered corrective action continues to attenuate after reaching an apparent local maximum in late 2019, immediately following the completion of the final cover for Pond A.

Non-statistically significant exceedances of the selenium GWPS have been observed after the installation of the final cover at multiple wells. The timing of these exceedances after the installation of the final cover suggests 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.

Conclusions

Ponds 1-2

The general decrease in arsenic concentrations suggest that source removal continues to have an observable impact on groundwater quality. Changing concentrations indicate that the system is establishing a new equilibrium following source removal and that the immediately adjacent closed CCR units may be impacting groundwater monitoring in adjacent wells. Nature and Extent sampling suggests that the GWPS exceedances do not pose an immediate threat to human health or the environment. Continued monitoring at Ponds 1-2 is appropriate to understand the new geochemical equilibrium being established at the former unit. Additional investigation is being performed to determine the extent of influence from nearby closed, pre-existing CCR units not regulated by the CCR Rule.

Pond A

Groundwater monitoring data since the installation of the final cover indicate an observable influence from immediately adjacent, upgradient, closed, pre-existing units. A formal demonstration of this influence is in development. 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. Additional data collected under the state and federal groundwater monitoring programs is being used to inform remedy selection and the creation of a Remedial Action Plan under the December 2018 agreement with EGLE.

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. 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