



Semi-Annual Progress Report Assessment of Corrective Measures and Selection of Final Remedy

Richmond Power and Light
Whitewater Valley Station Surface Impoundment
Whitewater Valley Station
Richmond, Wayne County, Indiana

GAI Project Number: C151119.25
July 2023



Prepared by: GAI Consultants, Inc.
Pittsburgh Office
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Prepared for: Richmond Power and Light
2000 U.S. 27 South
Richmond, Indiana 47374

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1.0 Introduction and Background

The Whitewater Valley Station (Station) is a coal-fired electric generating station in the city of Richmond, Wayne County, Indiana (IN), and owned by Richmond Power & Light (RP&L). The Station consists of two generating units, which can produce a combined 100 megawatts of electricity.

Coal Combustion Residuals (CCR) generated at the Station were historically sluiced to the Surface Impoundment (Impoundment), which was built in the 1950s. From discussion with Station personnel, sluicing of fly ash and bottom ash to the Impoundment was reduced significantly during the mid-1970s, with rare instances when the Impoundment received sluiced fly ash as a backup option until October 19, 2015. From the mid-1970s to October 19, 2015, the Surface Impoundment received Bottom Ash Hydrobin overflow and drain water on days the Station operated, as reported by Station personnel. Starting in 2012, the Station began operating as a peaking station and typically operates 20 to 30 days per year. The size of the Impoundment is approximately 14 acres. The state identification number for the Impoundment is 89-UP-04.

The Impoundment is inactive and only receives localized site stormwater runoff. A coal pile runoff pond has been constructed to minimize stormwater runoff to the Impoundment.

A polishing pond known as Pond P1-P3 is adjacent to the Impoundment to the north. The Impoundment discharges to Pond P1-P3 via a series of gravel drains, and some CCR material has been observed in Pond P1-P3. Water drains from Pond P1-P3 through Pond P-4 to the Richmond Sanitary District sewer line on the north side of the property as part of a Non-Categorical Industrial Wastewater Discharge Permit.

The Impoundment is regulated as an existing CCR surface impoundment under the United States Environmental Protection Agency's *Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments* (40 CFR 257 Subpart D) published in the Federal Register on April 17, 2015, with an effective date of October 19, 2015, (CCR Rule) and subsequent revisions. The Impoundment meets the provisions of the CCR Rule's *Extension of Compliance Deadlines for Certain Inactive Surface Impoundments: Response to Partial Vacatur*, effective October 4, 2016.

In February 2020, a notice documenting a statistically significant level of molybdenum had been observed in a groundwater monitoring well was placed within the Station's operating record. As per CCR Rule requirements, GAI Consultants, Inc. (GAI) prepared an Assessment of Corrective Measures (ACM) for the Impoundment (GAI, 2020).

2.0 Purpose

Pursuant to CCR Rule Section 257.97(a), the owner of a CCR impoundment must prepare a semiannual report describing the progress in selecting and designing a remedy based on the ACM. This Progress Report includes:

- ▶ Summary of Corrective Measures Assessed
- ▶ Summary of Work Completed
- ▶ Planned Activities and Anticipated Schedule

3.0 Summary of Corrective Measures Assessed

The ACM report listed corrective measures for potential use at the Impoundment site. These included:

- ▶ Monitored Natural Attenuation
 - Physical measures (including dilution, dispersion, and flushing)
 - Chemical mechanisms (including adsorption and precipitation)
- ▶ Source Removal with Post-Removal Monitoring

- ▶ Hydraulic Containment
- ▶ Physical Containment/Hydraulic Barrier
- ▶ Permeable Reactive Barrier
- ▶ In-Situ Stabilization

4.0 Summary of Prior Work Completed

A groundwater monitoring system was established at the Impoundment site beginning in 2016. In March 2019, a statistically significant increase in fluoride was observed in two downgradient monitoring wells. Subsequent assessment monitoring, beginning in September 2019, revealed a statistically significant level of molybdenum in a downgradient well. As a result of these findings, preparation of an ACM report was required by the CCR Rule. The ACM report was completed in September 2020.

GAI, RP&L, and the IN Department of Environmental Management (IDEM) held preliminary discussions regarding the expectations and requirements for selected corrective measures. In addition, GAI prepared opinions of probable costs for feasible corrective measures.

The Initial Semi-Annual Progress Report, ACMs was completed April 2021 (GAI, 2021). The second, third, and fourth Semi-Annual Progress Reports, ACMs were completed September 2021 (GAI, 2021), May 2022 (GAI, 2022a), and November 2022 (GAI, 2022b). Additional groundwater monitoring occurred in March and September 2021, in March and September 2022, and in April 2023. The latest groundwater sampling results are presented in the *Fourth Annual Groundwater Monitoring and Corrective Action Report*, dated August 2022. IDEM was notified when the reports were completed and posted to RP&L's publicly available website.

A public meeting was held on June 28, 2021, to discuss the ACM report as required by 40 CFR Section 257.96. As required by the CCR Rule, this meeting occurred at least 30 days prior to the selection of a corrective measures remedy.

Site investigations occurred in December 2021. The investigations consisted of drilling borings along the perimeter of the Impoundment and through the interior to determine parameters such as depth and extent of CCR material, depth and extent of clay material, and permeability of material underlying the CCR.

GAI and RP&L held further discussions with IDEM in May 2022 to present updated design concepts and assess IDEM requirements for an Impoundment closure plan. GAI, RP&L, and the Indiana Municipal Power Agency, operator of the Whitewater Valley Power Station, met with the Richmond Sanitary District to discuss requirements for permitting a tap-in to the sanitary sewer to discharge water from within a closed Impoundment.

GAI provided preliminary configurations for closure of the western edge of the Impoundment to enable construction of potential slurry cutoff walls. Water samples from Impoundment piezometers were obtained to provide an assessment of water quality for discussions with the Richmond Sanitary District.

5.0 Work Completed Since the Previous Progress Report

Additional site investigations, consisting of a drilling program to further document subsurface conditions, were conducted in March 2023. A site meeting was concurrently held with a slurry wall cutoff installer to evaluate potential cutoff wall alignments.

Water samples were collected from piezometers installed within the Impoundment. Sample laboratory results were forwarded on to the Richmond Sanitary District for their review.

Work continued on developing a complete closure plan for the Impoundment to meet IDEM requirements.

6.0 Planned Activities and Anticipated Schedule

The following items are planned to advance closure of the Impoundment:

- ▶ Summer 2023:
 - Submit Impoundment Closure Plan to IDEM
 - Select the corrective measure(s) for Impoundment closure and prepare final selection report. As stated in CCR Rule Section 257.98(a), implementation of the corrective action program includes:
 - Establishing a corrective action groundwater monitoring program
 - Implementing the corrective action remedy
 - Taking interim measures to reduce contaminants leaching from the Impoundment and/or potential exposures to human or ecological receptors
 - Begin discharge permit preparation for Richmond Sanitary District
- ▶ Fall 2023:
 - Public Meeting regarding the Closure Plan submission
 - Generate Stormwater Construction/Erosion and Sediment Control Plans for Impoundment closure construction
 - Coordinate with Richmond Sanitary District regarding a tap-in permit
- ▶ Spring/Summer 2024:
 - Receive permission from IDEM for Impoundment closure
 - Generate construction bid documents for closure activities
- ▶ Late Summer 2024:
 - Commence closure. Closure construction is anticipated to take two to four years

7.0 References

- GAI Consultants, Inc. 2021. Initial Semi-Annual Progress Report, Assessment of Corrective Measures. April 2021.
- GAI Consultants, Inc. 2020. Assessment of Corrective Measures. September 2020.
- GAI Consultants, Inc. 2021. Semi-Annual Progress Report, Assessment of Corrective Measures. September 2021.
- GAI Consultants, Inc. 2022a. Semi-Annual Progress Report, Assessment of Corrective Measures. May 2022.
- GAI Consultants, Inc. 2022b. Semi-Annual Progress Report, Assessment of Corrective Measures. November 2022.
- United States Environmental Protection Agency. 2018. 40 CFR Parts 257 and 261, Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities. April 17, 2015; revised July 2018.