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Whitewater Valley Station Surface Impoundment Coal Combustion Residual Annual Report

Richmond Power and Light
Whitewater Valley Station
Wayne County, Indiana

GAI Project Number: C151119.07
April 2019

RICHMOND POWER & LIGHT

Prepared by: GAI Consultants, Inc.
Murrysville Office
4200 Triangle Lane
Export, Pennsylvania 15632-1358

Prepared for: Richmond Power and Light
2000 U.S. 27 South
Richmond, Indiana 47374

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Engineering Manager

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Senior Project Manager

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Certification/Statement of Professional Opinion

The Annual Inspection (Inspection) of the Surface Impoundment (Impoundment) for Richmond Power and Light's Whitewater Valley Station (Station) was performed by GAI Consultants, Inc. (GAI) on Wednesday, April 10, 2019. The Inspection was based on certain information identified within this Inspection Report that GAI has relied on but not independently verified, along with visual observations of the Impoundment made by GAI personnel during the Inspection. This Certification/Statement of Professional Opinion is therefore limited to the information available to GAI at the time the Inspection was performed. On the basis of and subject to the foregoing, it is my professional opinion as a Professional Engineer licensed in the State of Indiana that the Inspection has been performed in accordance with good and accepted engineering practices as exercised by other engineers practicing in the same discipline(s), under similar circumstances and at the time and in the same locale. It is my professional opinion that the Annual Inspection Report was prepared consistent with the requirements of § 257.83 of the United States Environmental Protection Agency's "Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments," published in the Federal Register on April 17, 2015, with an effective date of October 19, 2015, (40 CFR 257 Subpart D), and meeting the provisions of the "Extension of Compliance Deadlines for Certain Inactive Surface Impoundments: Response to Partial Vacatur," effective October 4, 2016.

The use of the words "certification" and/or "certify" in this document shall be interpreted and construed as a Statement of Professional Opinion and is not and shall not to be interpreted or construed as a guarantee, warranty, or legal opinion.

GAI Consultants, Inc.

John R. Klamut, P.E.
Engineering Manager

Date: 4/17/2019

1.0 Introduction and Background

The Whitewater Valley Station (Station) is a coal-fired electric generating station located in the city of Richmond, Wayne County, Indiana, and is 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 also 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 on the order of 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 currently inactive and only receives localized site stormwater runoff and coal pile area stormwater runoff. Construction of a coal pond is underway to eliminate stormwater runoff to the Impoundment.

A polishing pond known as Pond P1-P3 is situated just north of the Impoundment. The Impoundment currently discharges to Pond P1-P3 via a series of gravel drains, and some CCR material has been observed in Pond P1-P3. Water can eventually drain 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 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 meeting the provisions of the "Extension of Compliance Deadlines for Certain Inactive Surface Impoundments: Response to Partial Vacatur," effective October 4, 2016.

2.0 Purpose

Pursuant to the Federal Coal Combustion Residuals (CCR) Rule 40 CFR 257.83, each CCR unit is to have an annual inspection and report prepared by a qualified professional engineer (except for years where a structural stability assessment is completed). The inspection is to include:

- A review of available information regarding the status and condition of the CCR unit, including, but not limited to, files in the operating record;
- A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit; and
- A visual inspection of any hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit for structural integrity and continued safe and reliable operation.

The Inspection Report is to include:

- Any changes in geometry of the impounding structure since the previous annual inspection;
- The location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection;

- The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection;
- The storage capacity of the impounding structure at the time of the inspection;
- The approximate volume of the impounded water and CCR at the time of the inspection;
- Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit and appurtenant structures; and
- Any other change(s) that may have affected the stability or operation of the impounding structure since the previous annual inspection.

3.0 Information Review

CCR Rule §257.83(b)(1)(i) states that an inspection includes "a review of available information regarding the status and condition of the CCR unit, including, but not limited to, files available in the operating record (e.g., CCR unit design and construction information required by §257.73(c)(1) and §257.74(c)(1), previous periodic structural stability assessments required under §257.73(d) and §257.74(d), the results of inspections by a qualified person, and results of previous annual inspections)."

GAI Consultants, Inc. (GAI) reviewed the following available information prior to performing the inspection:

- Site record drawings (limited to plan view drawings of the Impoundment);
- The April 2017 Inspection Report; and
- Reports filed to the Station operating record as required by the CCR Rule, including:
  - History of Construction;
  - Structural Stability Assessment; and
  - Factor of Safety Assessment.

Conversations were held with the miscellaneous personnel at the Station, including the employees who conduct weekly inspections.

4.0 Visual Inspection

4.1 General Information

The inspection was performed on Wednesday April 10, 2019. The weather conditions were clear with temperatures in the range of 55 degrees Fahrenheit. John Klamut, P.E., and Kevin Bortz, P.E., of GAI performed the inspection, with the assistance of Tony Foster of RP&L.

4.2 Inspection Strategy and Route

The GAI team inspected the Impoundment and its facilities by making visual observations, recording site conditions, and talking to plant personnel.

The inspection started at the east side of the northern berm of Pond P1-P3. We then proceeded in a counter-clockwise direction around the Impoundment, walking along the P1-P3 crest, the west Impoundment crest, and the south and east borders of the Impoundment. The berm between the Impoundment and Pond P1-P3 was observed last.

4.3 Facility Conditions

The Impoundment embankments were examined from the crest to the external toe. No cracking was observed. Minor apparent sloughing had occurred at select locations along the south and west embankments; it is likely that these sloughs were due to tree and root ball removal that has occurred since the previous inspection. No other visual signs of slope instability were observed.

The crest alignment was straight with no visual indication of lateral or vertical movement. Two small animal burrows were observed on west embankment slope. A small number of shallow erosion rills were observed on the west embankment, and one rill that was between six to ten inches deep.

4.4 Hydraulic Structures

Pursuant to CFR §257.83(b)(1)(iii), a visual inspection must be made of any hydraulic structures "underlying the base of the CCR unit or passing through the dike of the CCR unit for structural integrity and continued safe and reliable operation."

Three gravel drains that convey flow from the Impoundment to Pond P1-P3 were observed and were found to be unobstructed; evidence of recent flow showed that the gravel drains appeared to be functioning properly. A metal pipe that carries flow from Pond P1-P3 to Pond P4 was observed. The pipe appeared to be functioning well, although the inlet of the pipe was slightly distorted and vegetation was prevalent around the inlet. While the vegetation does not currently appear to be impeding flow, it should be controlled to allow flow passage without clogging and to permit observation of the pipe.

4.5 Geometry

Pursuant to §257.83(b)(2)(i), "any changes in the geometry of the impounding structure since the previous annual inspection" are reported.

Based on visual inspection and a review of the record drawings, no changes to the geometry of the Impoundment were observed.

4.6 Instrumentation

Pursuant to CFR §257.83(b)(2)(ii), "the location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection" are reported.

Currently, there is no instrumentation present.

4.7 Depth and Elevation of Impounded Water and CCR

Pursuant to CFR §257.83(b)(2)(iii), "the approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection" are reported.

At the time of the Inspection, there was no water within the Surface Impoundment.

No changes have occurred in CCR levels since the previous Inspection (April 2017). Borings referenced in the previous inspection showed that CCR within the Impoundment extended to a minimum elevation of 952 feet. The approximate maximum CCR elevation was 987 feet. CCR layer thicknesses extended from a nominal 2 feet to a maximum layer thickness of 24 feet.

4.8 Storage Capacity

Pursuant to CFR §257.83(b)(2)(iv), "the storage capacity of the impounding structure at the time of the inspection" is reported.

Based on a review of the boring logs and topography of the Surface Impoundment, the approximate potential storage capacity of the Surface Impoundment, when filled to the internal embankment between the Impoundment and Pond P1-P3, is 441,900 cubic yards.

4.9 Volume of Impounded Water and CCR

Pursuant to CFR §257.83(b)(2)(v), "the approximate volume of the impounded water and CCR at the time of the inspection" is reported.

As stated previously, there is no impounded water within the Surface Impoundment.

The select boring locations showed an approximate average CCR thickness of 15 feet. A map of the Station, provided by RP&L, showed an assumed CCR thickness over the Impoundment of 18 feet. Using an 18-foot thickness, the approximate volume of the CCR in the Impoundment at the time of the inspection was 395,700 cubic yards.

4.10 Structural Appearance

Pursuant to CFR §257.83(b)(2)(vi), "any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit and appurtenant structures" are reported.

Based on visual inspection, the Impoundment appeared to have no structural weaknesses. No existing conditions that are currently disrupting or that have the potential to disrupt the operation and safety of the CCR unit were observed.

4.11 Unit Performance

Pursuant to CFR §257.83(b)(2)(vii), "any other change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection" are reported.

Based on a visual inspection, there did not appear to be any changes that would affect the stability or operation of the Impoundment.

5.0 Conclusions and Recommendations

During the April 10, 2019, visual inspection of the Impoundment, GAI did not identify any signs of distress or malfunction that would affect the structural condition of the Impoundment. Minor impacts to the embankment were observed due to sloughs (likely due to tree removal), erosion, and animal burrows. No releases of CCR were observed during the 2019 inspection.

The following are GAI's recommendations to be completed during normal maintenance activities:

1. Animal burrow and erosion rills are maintenance issues that will be addressed by the Impoundment operator.
2. Sloughs due to tree removals should be filled in and seeded.
3. Small diameter trees growing up around the toe of the west embankment should be removed.
4. Vegetation should be cleared from the inlet area of the Pond P1-P3 discharge pipe.
5. The slopes should be reseeded where tree removal had occurred along the north and west embankments.

6.0 References

Environmental Protection Agency, *40 CFR Parts 257 and 261, Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities*, April 17, 2015.

GAI Consultants, *Coal Combustion Residuals Unit Factor of Safety Assessment,* April 2018.

GAI Consultants, *Coal Combustion Residuals Unit History of Construction,* April 2018.

GAI Consultants, *Coal Combustion Residuals Unit Structural Stability Assessment,* April 2018.

APPENDIX A
Annual Inspection Checklist

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CCR Surface Impoundment
Annual Inspection Checklist

Project Name	RP-L CCR Rule Compliance	Impoundment No.	WWVS Surface Impoundment
Project No.	C151119.07	Date.	4/10/2019
Inspector Name(s)	John Klamut and Kevin Bortz	Weather Conditions	Clear
Time	8AM-11AM	Temperature	50s

Current Storage Capacity 441,900 cy

Volume of Impounded CCR and Water[1] 395,700 cy

Annual Depths and Elevations of Impounded Water and CCR[1]

Depth		Elevation	
Min.	Max.	Min.	Max.
2 ft	24 ft	952 ft	987 ft

1 - No water is impounded.

Mark "Yes" or "No" if the condition is observed.

Review Available Information (Preamble and 257.83)	Yes	No	**Comments**
Status and condition	☒	☐	
Operating record	☒	☐	
Design drawings	☐	☒	N/A
Previous inspection forms	☒	☐	
Previous structural stability assessments	☒	☐	
Signage	☒	☐	
Visual Inspection (Preamble and 257.83)	Yes	No	
Weakness or malfunction of CCR of appurtenant structure	☐	☒	
Hydraulic structure under base or dike of CCR unit safe and reliable	☒	☐	
Changes in geometry	☐	☒	
Surface erosion	☒	☐	Minor rill erosion; some sloughing at locations of prior tree and root ball removal.
Contingency Plan (Preamble)	Yes	No	
Plan in place to correct an deficiencies identified during the inspection	☒	☐	
Other Issues (257.83)	Yes	No	
Other issues identified during the inspection which are disrupting or have the potential to disrupt the operation or safety of the impoundment	☐	☒	
Location of Instrumentation and Maximum Reading (257.83)			
Comments: There is no instrumentation system present.			