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Coal Combustion Residuals Closure Plan

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

GAI Project Number: C151119.07

April 2018



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Certification/Statement of Professional Opinion

The Coal Combustion Residuals Closure Plan (Closure Plan) for the Whitewater Valley Station (Station) Surface Impoundment was prepared by GAI Consultants, Inc. (GAI). The Closure Plan may contain findings and determinations that are based on certain information that, other than for information GAI originally prepared, GAI has relied on but not independently verified. This Certification/Statement of Professional Opinion is therefore limited to the information available to GAI at the time the Closure Plan was written. 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 Closure Plan has been prepared in accordance with good and accepted engineering practices as exercised by other engineers practicing in the same discipline(s), under similar circumstances, at the same time, and in the same locale. It is my professional opinion that the Closure Plan is accurate and has been prepared consistent with the requirements of § 257.102(b) 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.

It is my professional opinion, based on my understanding of the technical requirements of the CCR Rule and good and accepted engineering practices, that the design of the final cover system as set forth in the CCR Closure Plan meets the technical requirements and/or intent of the CCR Rule (40 CFR 257, Section 257.102(d)(3)(iii)).

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 be interpreted or construed as a guarantee, warranty, or legal opinion.

GAI Consultants, Inc.
REGISTERED
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STATE OF INDIANA
Senior Engineering Manager
Date April 17, 2018

Acronyms

CCR	Coal Combustion Residuals
CCR Rule	"Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments" 40 CFR 257 Subpart D (2015)
CFR	Code of Federal Regulations
EPA	United States Environmental Protection Agency
GDN	Geocomposite Drainage Net
GAI	GAI Consultants, Inc.
HDPE	High-Density Polyethylene
Impoundment	Surface Impoundment
IN	Indiana
RP&L Station	Richmond Power & Light Whitewater Valley Station

1.0 Introduction

The Whitewater Valley Power Station (Station) is owned by Richmond Power & Light (RP&L) and is located in Richmond, Indiana (IN). The station includes a Surface Impoundment (Impoundment), which is used for the long term storage of coal combustion residuals (CCR).

The Impoundment is located on RP&L property at the Whitewater Valley Power Station in Wayne County, Indiana (coordinates 39° 48' 12.9" North and 84° 53' 54.8" West). The Impoundment is located in the northwestern corner of the property.

The Impoundment is currently inactive and is regulated as an existing CCR surface impoundment under the United States Environmental Protection Agency's (EPA'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

This Closure Plan is prepared pursuant to § 257.102(b) of the CCR Rule [40 CFR § 257.102(b)].

3.0 Proposed Closure

The Impoundment is planned to be closed with the CCR material in place. The CCR within the Impoundment will be graded to drain and will be capped in place with a final cover system.

3.1 Final Cover System

The final cover system for closure of the Impoundment will consist of, from bottom to top:

- A Geosynthetic clay liner (GCL) laminated to a 20 mil high-density polyethylene (HDPE) geomembrane;
- A geocomposite drainage net (GDN);
- A 12-inch thick soil protective cover layer; and
- A 6-inch thick vegetative support layer.

This final cover system is collectively referred to as the engineered cover system.

3.2 Closure Sequence

A potential closure sequence consists of:

- Dewater any ponded areas within the Impoundment.
- Perform grading activities for the SWM Pond and place final cover.
- Grading the material within the remainder of the Impoundment to subgrade.
- Install the engineered cover system over the Impoundment subgrade. Place protective cover, the vegetative support layer, and drainage channel lining material.
- Seed the vegetative support layer.
- Complete closure activities.

3.3 Closure Performance Standards

Section 257.102(d) describes performance standards to be achieved during closure. These standards will be addressed during closure.

- "Control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or

surface waters or to the atmosphere". Infiltration will be minimized with the installation of the GCL and engineered cover system. Releases of CCR, leachate, or contaminated runoff will be minimized due to installation of the protective cover over the engineered cover system.

- "Preclude the probability of future impoundment of water, sediment, or slurry". Grading during Impoundment closure will provide for a minimum 2 percent slope on all vegetated areas. A proposed forebay and SWM pond will allow for temporary ponding of water during storm events for stormwater management purposes.
- "Include measures that provide for major slope stability to prevent the sloughing or movement of the final cover system during the closure and post-closure care period". Engineering analyses of the slopes and engineered cover system and slope stability will verify that measures to minimize instability are provided.
- "Minimize the need for further maintenance of the CCR unit". By providing vegetative cover, minimizing infiltration, and providing considerations for slope stability, the need for further maintenance will be minimized.
- "Be completed in the shortest amount of time consistent with recognized and generally accepted good engineering practices". Construction sequencing will minimize exposure of CCR material and optimize the construction period.

4.0 Closure Timeframe

Based on the conditions at the Impoundment and the proposed closure sequence, it is estimated that closure construction could generally take approximately two years from initiation of construction to final acceptance of closure upon establishment of vegetation. The major estimated project milestones include:

- April 2019 to October 2019 – Begin grading activities and place final cover in SWM Pond.
- June 2019 to October 2019 – Perform grading within the Impoundment to establish subgrade for the proposed engineered cover system.
- October 2019 to July 2020 – Construct the engineered cover system, including surface water drainage facilities.
- July 2020 to July 2021 – Establish Vegetation and complete construction of closure system.
- August 2021 (Completion) – Complete certification of the Impoundment closure according to the CCR Rule.

5.0 Estimated CCR Volume

The total volume of material in the Impoundment at the time of final closure is estimated to be 395,700 cubic yards (GAI Consultants, 2017). The CCR volume was estimated based on the depth of CCR measured in borings (GAI Consultants, 2016) and the current Impoundment topography. As the Impoundment has been inactive since 2015, no further CCR placement is anticipated; this value therefore represents the estimated maximum volume of disposed CCR present at closure.

6.0 Stabilization and Free Liquids

Section 257.53 of the CCR Rule defines free liquids as liquids that readily separate from the solid portion of a waste under ambient temperature and pressure. Section 257.102(d)(2) requires that free liquids be eliminated by removing liquid wastes or solidifying the remaining wastes and waste residues, and that the remaining CCR be stabilized sufficient to support the final cover system.

In the Closure Plan, free liquids are considered to include ponded water or water that separates from the CCR through processes such as rim ditching or compaction during closure activities. Water ponded on the surface of the CCR impoundment will be removed and the CCR dewatered to a depth

determined by a qualified professional engineer for a stable surface for the installation of the engineered cover system.

7.0 Closure Implementation

7.1 Notification

Deed notations will be implemented according to Section 257.102(i) of the CCR Rule. Within 30 days of recording the deed notation, a notification stating that the deed notation has been recorded will be prepared and placed in the Facility's operating record and posted on RP&L's publically accessible internet site.

7.2 Certification

In accordance with Section 257.102 (h) of the CCR Rule, within 30 days of the completion of the closure activities, certification will be provided indicating that closure occurred in accordance with this Closure Plan.

8.0 References

GAI Consultants, Inc. April 2017. *Coal Combustion Residual Annual Report*.

GAI Consultants, Inc. August 2016. *Geotechnical Summary Report*.