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Notice of Intent to Close Inactive CCR Surface Impoundments

Virginia Electric and Power Company
Possum Point Power Station
Coal Combustion Residual Surface Impoundments A, B, C, D, and E
Dumfries, Virginia

GAI Project Number: C150132.00

December 2015

Prepared by: GAI Consultants, Inc.
Richmond Office
4198 Cox Road, Suite 114
Glen Allen, Virginia 23060

Prepared for: Virginia Electric and Power Company
5000 Dominion Boulevard
Glen Allen, Virginia 23060-3308

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A. Introduction

Coal Combustion Residual (CCR) Surface Impoundments A, B, C, D, and E are Inactive CCR Surface Impoundments located at the Possum Point Power Station (Station). The Station is owned and operated by Virginia Electric and Power Company, d/b/a Dominion Virginia Power (Dominion). The Surface Impoundments are subject to the United States Environmental Protection Agency's (EPA) final rule for Disposal of CCRs from Electric Utilities in Title 40 Code of Federal Regulations (CFR) Part 257, Subpart D (CCR rule). Dominion intends to initiate closure of these Inactive CCR Surface Impoundments, as defined by the CCR rule, under the requirements of §257.100(b) of the CCR rule.

B. Site Description

The Station is located near Dumfries in Prince William County, VA. The Station is accessed by Possum Point Road (Route 633) and is adjacent to the Potomac River and Quantico Creek. There are currently five inactive CCR impoundments located at the Station: Surface Impoundments A, B, C, D, and E. The Station stopped using coal as a fuel in 2003 and therefore no CCR has been generated by the Station since that date.

C. Closure of Surface Impoundments

The Inactive CCR Surface Impoundments A, B, C, D, and E will be closed pursuant to 40 C.F.R. §257.100(b). A description of how the impoundments will be closed is provided below.

C.1 Surface Impoundments A, B, C, and E Closure Description

Surface Impoundments A, B, C, and E will be closed through the removal of CCR in the impoundments, thus meeting the requirements of 40 CFR §257.100(b)(5). Prior to October 19, 2015, Dominion mechanically dredged CCR from Surface Impoundments A, B, C, and E and placed the dredged CCR in Surface Impoundment D per the requirements of the Station's Virginia Pollutant Discharge Elimination System (VPDES) Permit No. VA0002071. CCR remaining in Surface Impoundments A, B, C, and E after October 19, 2015 will be excavated and properly disposed off-site. Water that comes in contact with CCR during closure activities or is generated by dewatering activities will be discharged in accordance with the Station's VPDES Permit No. VA0002071.

After removal of the CCR from the impoundments, a registered professional engineer will visually examine the bottom of Surface Impoundments A, B, C, and E for the purpose of verifying that all CCR in the surface impoundments has been effectively removed per regulatory requirements. All CCR in Surface Impoundments A, B, C, and E will be removed no later than April 17, 2018 in accordance with 40 CFR §257.100(b). After removal of CCR from the Surface Impoundments, the impoundment areas will be regraded back into the existing landscape and stabilized with vegetation.

C.2 Surface Impoundment D Closure Description

Surface Impoundment D will be closed in place, with a cover system that will be constructed in accordance with 40 CFR §257.100(b)(1) through (4).

To prepare for closure, the upper portion of the CCR in Surface Impoundment D will be dewatered and graded to make the surface suitable for construction of the final cover system. 40 CFR §257.100 (b)(2)(i) requires that free liquids be eliminated by removing liquid wastes or solidifying the remaining wastes and waste residues. To meet this requirement, 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 to provide a surface sufficiently stable for the installation of the final cover system. 40 CFR §257.100 (b)(2)(ii) requires the remaining CCR be stabilized sufficient to support the final cover system. To meet this requirement, the CCR impoundment will be dewatered as described above and earth fill from onsite or offsite borrow areas and the Surface Impoundment D embankment

will be placed in the impoundment area to help raise the grade of the impoundment and create a slope for proper drainage.

Closure will be accomplished by placing the final cover system consisting of geosynthetic and soil layers over the CCR surface to reduce and minimize infiltration of water into the CCR and minimize releases of CCR, leachate, or contaminated run-off to the ground, surface waters or atmosphere, as required by 40 CFR §257.100(b)(1)(i). An erosion resistant spillway channel meeting the requirements of 40 CFR §257.100(b)(1)(ii) will also be constructed to prevent future impoundment of run-on waters.

40 CFR §257.100(b)(1)(iii) requires that the final cover slope be stable. The majority of the final cover will be relatively flat (2 to 2.5 percent), but a portion of the Surface Impoundment D cover will be sloped at 4 horizontal (H) to 1 vertical (V). A drainage layer has been designed to reduce the potential for saturation of the steeper slopes during large rainfalls, and stability analyses calculated the shear strength of each final cover system material and interface that is required to achieve a recommended factor of safety of 1.5 for static conditions and 1.1 for seismic conditions at the designed slopes, based on current seismic classification(s). Material interfaces will be tested prior to construction to document that the required shear strength will be achieved.

40 CFR §257.100(b)(1)(iv) requires that the proposed closure design minimize the need for further maintenance of the surface impoundment. This closure design reduces the need for further maintenance by providing a permanent cap system that will be protected with 18 inches of protective cover soil. The soil cover will be topped with a six inch vegetative support layer to reduce erosion. The grades of the final cap will be designed to promote drainage with minimal erosion. The drainage channels will be constructed with turf reinforcement mats or other permanent erosion controls to reduce maintenance needs.

The final cover design is in accordance with 40 CFR §257.100(b)(3)(i) for the closure of inactive CCR surface impoundments. The layers of the final cover system to be installed are described below (from top to bottom).

- **Vegetation.** Consists of combination of quick-cover vegetation, such as annual ryegrass, and easily maintained perennial grasses and legumes, such as Kentucky 31 Fescue and clover. The seed mix for the cap will be selected in accordance with the *Virginia Erosion and Sediment Control Handbook* recommendations.
- **Vegetative Support Layer.** Consists of six inches of soil that can sustain vegetation. This layer will consist of topsoil or site soil amended with appropriate nutrients to facilitate vegetative growth. The vegetative support layer will be spread by low-ground-pressure equipment and will be compacted only as required for access and stability.
- **Protective Cover Soil Layer.** Consists of an 18-inch-thick soil layer. The protective cover soil layer will store moisture and support vegetation. It will also act as a protective layer for the drainage and barrier layers.
- **Drainage Layer.** Consists of a geocomposite drainage net (GDN), which is a synthetic drainage net sandwiched between two pieces of geotextile fabric. This layer provides lateral drainage over the barrier layer. The geotextile filter fabric on the top of the GDN will allow the flow into the net while filtering out fine soil particles from the cover soil layer. The nonwoven geotextile fabric on the bottom of the GDN will act as a cushion to protect the 40-mil LLDPE geomembrane.
- **Barrier Layer.** This layer prevents water from infiltrating into the CCRs. The barrier layer will consist of a 40-mil LLDPE geomembrane.
- **Cushion Geotextile (as needed).** Consists of nonwoven geotextile that will act as a cushion to protect the 40-mil linear low-density polyethylene (LLDPE) geomembrane. This

layer will be constructed directly on top of a prepared subgrade layer which may be CCR or earth fill. Cushion geotextile will not be needed where the prepared subgrade surface is smooth.

The CCR in Surface Impoundment D was analyzed to evaluate the stability and settlement of the final cover system and assess that positive slopes will be maintained. Based on the results of the geotechnical investigation and settlement calculations, final slopes should remain at a minimum of 2 percent after settlement for overland areas and 1 percent for channels. This post-settlement slope meets the requirements of 40 CFR §257.100(b)(3)(i)(D).

D. Closure Schedule

Tables 1 and 2 below provide schedules for the closure of Surface Impoundments A, B, C, and E and Surface Impoundment D, respectively. Surface Impoundments A, B, C, D, and E ceased receiving CCRs before October 19, 2015. Construction activities related to the closure of the surface impoundments will be completed by April 17, 2018 in accordance with 40 CFR §257.100(b).

Table 1.
Surface Impoundments A, B, C, and E Construction Schedule

Construction Activity	Approximate Start Date	Approximate End Date
Dispose of any remaining CCRs in Surface Impoundments A, B, C, and E at an offsite disposal facility.	November 2015	April 2018
Lower the A, B, C, and E dam embankments, decommission dams, and construct temporary sediment basins in the former Surface Impoundments A, B, C, and E to control stormwater.	March 2016	September 2016[1]
Grade and fill former impoundment areas and establish vegetation in former Surface Impoundments A, B, C, and E areas after CCR is removed.	March 2016	April 2018
Closure of all surface impoundments complete.	-	April 17, 2018

Notes:

[1] Temporary Sediment Basins will be removed once vegetation is fully established in accordance with Prince William County Sediment and Erosion Control requirements. Anticipated removal of temporary sediment basins is one year after permanent seeding of the closed impoundment areas.

Table 2.
Surface Impoundment D Construction Schedule

Construction Activity	Approximate Start Date	Approximate End Date
Decant surface water from Surface Impoundment D and dewater CCR to provide a structurally stable surface for the installation of the final cover system.	January 2016	June 2017
Grade CCR and place fill onto Surface Impoundment D to establish the subgrade. This includes lowering the dam embankment to provide fill for the subgrade.	March 2016	June 2017
Construct final cover system and surface water drainage channels. This includes lowering the dam embankment to provide fill for the final cover system.	April 2017	September 2017
Construct new spillway through dam embankment to prevent future impoundment of water.	May 2017	August 2017
Incorporate soil amendments into Surface Impoundment D cover soil and seed.	September 2017	December 2017
Closure of Surface Impoundment D complete.	-	April 17, 2018

E. Professional Engineer's Certification

I, the undersigned VA Professional Engineer, hereby certify that I am familiar with the technical requirements of 40 CFR §257.100. I also state that it is my professional opinion that, to the best of my knowledge, information, and belief, the final cover system for Surface Impoundment D has been designed by GAI pursuant to its Scope of Services in accordance with current good and accepted engineering practice(s) and standard(s) appropriate to the nature of the project and the technical requirements of 40 CFR §257.100(b)(3)(i). In addition, I do hereby certify that it is my professional opinion that, to the best of my present knowledge, information, and belief that the closure activities associated with the closures of CCR Surface Impoundments A, B, C, D, and E, as described in this notification are technically feasible to be completed by no later than April 17, 2018.

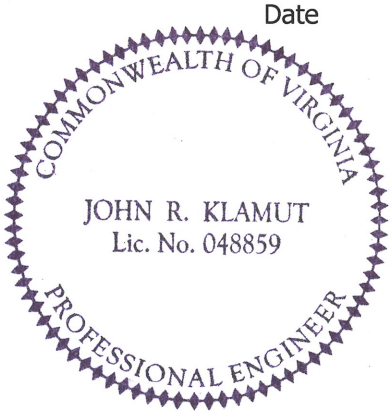
For purposes of this document, "certify" and "certification" shall be interpreted and construed to be a "statement of professional opinion". The certification is understood and intended to be an expression of my professional opinion as a VA Registered Professional Engineer, based upon knowledge, information and belief. The statement(s) of professional opinion are not and shall not be interpreted or construed to be a guarantee nor a warranty of the closure activities.

John R. Klamut, P. E.
Printed Name of Professional Engineer

048859
Commonwealth of Virginia License Number

Signature of Professional Engineer

12/16/2015
Date



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