



Retrofit Plan for CCR Surface Impoundments

**Clover Power Station
Clover, Virginia**

**May 2016
Updated July 2017, November 2018**

*Prepared For
Virginia Electric and Power Company*



11/8/18

A handwritten signature in blue ink, appearing to read "Nakia W. Addison".

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Senior Engineer

Nakia W. Addison
Project Manager

*TRC Environmental Corporation | Virginia Electric and Power Company
Retrofit Plan for CCR Surface Impoundments
Clover Power Station, Clover, Virginia
Final*

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Section 1

Introduction

Virginia Electric and Power Company d/b/a Dominion Energy Virginia (Dominion) owns¹ and operates the Clover Power Station (Station). The Station currently operates two Sludge Sedimentation Basins (North and South Basins; basins), which meet the definition of coal combustion residual (CCR) surface impoundments under the United States Environmental Protection Agency (USEPA) Disposal of Coal Combustion Residuals From Electric Utilities Final Rule (CCR Rule). This Plan describes the activities associated with the retrofit of the basins to meet the requirements of 40 Code of Federal Regulations (CFR) 257.102(k)(2) in the CCR rule. This Plan was prepared for Dominion by TRC Environmental Corporation (TRC).

1.1 Regulatory Background

The basins have previously been regulated through the Station's Virginia Pollutant Discharge Elimination System (VPDES) permit. With the finalization of the USEPA's CCR Rule and Virginia's adoption into the Virginia Solid Waste Management Regulations (VSWMR), the basins are being retrofitted in accordance with 40 CFR 257.102(k) and permitted as Solid Waste Management Units (SWMUs) under the VSWMR.

1.2 Site Information

The Station is located on the Staunton River in Halifax County, Virginia near the Town of Clover at approximately latitude 36°52'11.79"N, longitude 78°42'6.47"W. The Station has two coal-fired units that produce CCRs, including flue gas desulfurization (FGD) sludge. There are currently two existing basins at the Station (North and South), which cover a total area of approximately 4 acres.

The basins are located on the eastern side of the Station and consist of earthen impoundments, with a maximum basin depth of approximately nine feet. A gravel-surfaced road extends along the top of the containment berm along the east, south and north sides of the basins, with downward-sloping ramps on the east side providing heavy equipment access to each basin's interior for removal of accumulated solids.

¹ Old Dominion Electric Cooperative owns a 50% undivided interest in the Station.

Section 2

Retrofit Plan

2.1 Retrofit Description

The current basins will be retrofitted in compliance with 40 CFR 257.102(k)(1) through the removal of the existing liner materials and subsoils, and installation of a composite liner system compliant with 40 CFR 257.72. Retrofitting will be conducted during the 2017 through 2019 construction seasons as described below.

In 2017, CCR, including FGD sludge, was removed from the basins as part of routine Station maintenance. Prior to retrofit activities, plant flows were diverted to the South Basin. Construction commenced in the North Basin through removal of the existing liner system. The existing liner system was composed of, from top to bottom, protective concrete and riprap, sand, and a geomembrane liner. CCR material was not observed in subsoils below the geomembrane. CCR material and subsoils were disposed at the Station's on-site permitted landfill. All other material was disposed at off-site landfills. After removal of the existing liner system and any observed CCR materials, the North Basin was retrofitted by restoring and establishing subbase grades, and constructing the new liner system. The new liner system is composed from top to bottom of the following elements:

- Concrete cover,
- Geotextile cushion,
- 60-mil high density polyethylene (HDPE) geomembrane, and
- 24 inch-thick compacted clay layer with a maximum hydraulic conductivity of 1×10^{-7} centimeters per second (cm/s).

The liner system for the southeast corner of the North Basin surrounding the pump station will likely be constructed in 2019. A temporary dam and pump structure was constructed to allow active use of the Basin during the 2018 construction season, and will provide a dry working area for constructing the permanent pump structure and tie-in to the North Basin.

In late 2018 after completion of the North Basin, plant flows will be diverted to the retrofitted North Basin. The South Basin will be cleaned by removing the existing liner system. The existing liner system is composed of, from top to bottom, protective concrete and riprap, sand, and a geomembrane liner. CCR material observed in subsoils below the geomembrane liner will also be removed. After removal and the existing liner system and any observed CCR materials, the existing pump station and flow split box will be demolished. The South Basin

will be retrofitted by restoring or establishing subbase grades and constructing the new liner and liner protection (concrete) systems. A new pump station and flow split box will be constructed after installation of the new liner system. During 2019, the southeastern portion of the North Basin will be lined and tied into the 2018 construction.

It is anticipated that flow will be diverted to the retrofitted South Basin in 2019, to allow removal of the temporary dam and temporary pump structure.

2.2 Schedule of Retrofit Activities

As discussed in Subsection 2.1, retrofit activities will occur during the construction seasons of 2017 through 2019 and is anticipated to be completed in 2019. A detailed schedule for completing retrofit activities is provided in Appendix A.

2.3 CCR Removal Volume and Area Estimate

The basins are normally operated in sequence and are periodically taken offline to remove accumulated solids for disposal in the Station's onsite landfill. It is estimated that a maximum of 5,000 cubic yards (CY) and 19,000 CY of CCR material will be removed from the North and South Basins, respectively, prior to and during retrofit activities. This material will be excavated from an area of approximately 4.0 acres (approximate combined footprint of the North and South Basins). In total, approximately 4.7 acres will be affected by the retrofit operation.

2.4 Notifications

In accordance with the CCR Rule (40 CFR 257.102(k)), Dominion posted an Intent to Initiate Retrofit notice to the operating record prior to initiating retrofit activities. This plan will become part of the Station's operating record. In addition, a Notification of Completion of Retrofit with an engineer's certification will be posted to the operating record within 30 days of completion of retrofit activities (40 CFR 257.102(k)). The retrofit plan and notifications will also be posted to Dominion's publicly accessible internet site.

Section 3 Certification

I, the undersigned Virginia Professional Engineer, hereby certify that I am familiar with the technical requirements of 40 CFR 257.102. I also certify that it is my professional opinion that, to the best of my knowledge, information, and belief, that the activities outlined in this retrofit plan are 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 257.102 (k)(2).

For the purpose 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 Virginia Licensed 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 or a warranty of the retrofit activities.

R. Kent Nilsson

026477

Printed Name of Professional Engineer

Commonwealth of Virginia License Number



November 8, 2018

Signature of Professional Engineer

Date



Appendix A

Retrofit Schedule

Clover Retrofit Schedule - Revised

ID	Task Name	Duration	Start	Finish	2018											
					Sep	Nov	Jan	Mar	May	Jul	Sep	Nov	Jan	Mar		
1	North Basin	275 days	Wed 9/13/17	Tue 10/2/18	▼											
2	North Basin Maintenance Cleaning	8 days	Wed 9/13/17	Fri 9/22/17	▼▼											
3	Excavate CCR from Basin	7 days	Wed 9/13/17	Thu 9/21/17	■											
4	Material Solidification/Load Out/T & D	7 days	Thu 9/14/17	Fri 9/22/17	■											
5	North Basin Retrofit	167 days	Fri 9/22/17	Mon 5/14/18	▼											
6	Remove Existing Cover & Liner	11 days	Fri 9/22/17	Fri 10/6/17	■											
7	Demolish Misc Structures	3 days	Fri 9/22/17	Tue 9/26/17	■											
8	Remove Rip Rap, Concrete and Liner System	11 days	Fri 9/22/17	Fri 10/6/17	■											
9	Install New Basin Lining	156 days	Mon 10/9/17	Mon 5/14/18	■											
16	North Basin Operating	1 day	Tue 10/2/18	Tue 10/2/18	◆ 10/2											
17	South Basin	131 days	Thu 10/4/18	Thu 4/4/19	▼											
18	South Basin Maintenance Cleaning	12 days	Thu 10/4/18	Fri 10/19/18	▼▼											
19	Excavate CCR from Basin	11 days	Thu 10/4/18	Thu 10/18/18	■											
20	Material Solidification/Load Out/T & D	11 days	Fri 10/5/18	Fri 10/19/18	■											
21	South Basin Retrofit	97 days	Fri 10/19/18	Mon 3/4/19	▼											
22	Remove Existing Cover & Liner	28 days	Fri 10/19/18	Tue 11/27/18	■											
23	Demolish Misc Structures	20 days	Fri 10/19/18	Thu 11/15/18	■											
24	Remove Rip Rap, Concrete and Liner System	27 days	Mon 10/22/18	Tue 11/27/18	■											
25	Install New Basin Lining	65 days	Tue 12/4/18	Mon 3/4/19	■											
33	Infrastructure Modifications	74 days	Wed 11/7/18	Mon 2/18/19	▼											
41	Demobilization	12 days	Wed 3/20/19	Thu 4/4/19	■											