



Closure Plan  
for CCR Surface Impoundments

Clover Power Station  
Clover, Virginia

October 2016

*Prepared For*  
*Virginia Electric and Power Company*

A handwritten signature in blue ink, appearing to read "R. Kent Nilsson", positioned above a horizontal line.

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A handwritten signature in blue ink, appearing to read "Nakia W. Addison", positioned above a horizontal line.

Nakia W. Addison  
Project Manager

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

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# Section 1

## Introduction

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This Post-Closure Care Plan (Plan) was prepared by TRC Environmental Corporation (TRC) on behalf of Virginia Electric and Power Company d/b/a Dominion Virginia Power (Dominion) for the two Coal Combustion Residuals (CCR) surface impoundments at the Clover Power Station<sup>1</sup> (Station) referred to as the North and South Sludge Sedimentation Basins (basins).

This Plan follows the format guidelines for Solid Waste Disposal Facilities as described in the Virginia Department of Environmental Quality's Submission Instruction No. 6. This Plan also meets the Post-Closure Care Requirements of the U.S. Environmental Protection Agency's (USEPA) Coal Combustion Residuals rule (CCR Rule) at 40 CFR 257.104.

Once the basins are no longer in use, Dominion plans to close them in accordance with 40 CFR 257.102(c) and 9VAC 20-81-370(A)(1), closure by removal of CCR. If groundwater monitoring concentrations do not exceed the groundwater protection standards established pursuant to the CCR Rule (40 CFR 257.95(h)), then post-closure care is not required by the CCR Rule. Closure by removal of CCR would consist of removing CCR materials, removing the liner materials, verifying compliance with 40 CFR 257.102(c) and 9VAC 20-81-370(A)(1), backfilling the areas, and providing a vegetative cover that is at a level grade with the top of the impoundment berms. Materials removed from the surface impoundments will be disposed of in the existing on-site landfill or at a permitted off-site disposal facility.

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<sup>1</sup> The Clover Power Station and associated CCR units are jointly and equally owned by Dominion Virginia Power and Old Dominion Electric Cooperative (ODEC).

As part of the retrofitting process, the basins will be lined with a composite liner system consisting of a high-density polyethylene (HDPE) geomembrane overlying a geosynthetic clay liner (GCL) followed by an 8-inch thick layer of compacted clay. The liner system will be protected from operational dredging and cleaning by a layer of concrete on the bottom and interior slopes.

The basins also include appurtenances located on the berm separating the North and South impoundments, such as a flow splitter box and a concrete pump structure with their associated electrical feed, controls, and piping.

The combined volume capacity of the North and South is approximately 38,000 cubic yards.

### 1.3 Closure Description

The retrofitted North and South basins will be closed through removal of CCR in accordance with 40 CFR 257.102(c) of the CCR Rule and will comply with applicable provisions of 9VAC20-81-370(A)(1). To accomplish this, CCR will be mechanically dredged or excavated from the North and South impoundments such that no residual materials remain visible and will be disposed at Dominion's on-site permitted landfill (Solid Waste Permit No. 556). Following completion of CCR material dredging and removal operations, the impoundments' liner system components and liner protection materials (consisting of concrete, geotextile, HDPE geomembrane, GCL, and clay) will be demolished and disposed at an off-site permitted disposal facility. Additionally, subsurface soils of the basins' footprint will be over-excavated by approximately 6 inches. Finally, all structures and equipment (*i.e.*, pumps, vaults, piping, etc.) will be decommissioned and dispositioned at an off-site permitted disposal facility. After closure, the areas will be backfilled with earthen fill to an elevation compatible with the adjacent existing grades and subsequently stabilized with natural vegetation. The final grading for the filled basins following closure by CCR removal is shown on the Closure Design Plans provided in Appendix A.

### 1.4 Closure Timeframes

The retrofit of the basins will be completed in 2018. Upon retrofit completion, the basins will receive CCR in accordance with the facility's standard operating procedures. CCR will periodically be excavated from the impoundments and placed in the on-site landfill. It is anticipated that the basins will continue to operate throughout the life of the Station. Closure will begin within 30 days of receiving the known final receipt of waste or removing the known final volume of CCR from the unit for beneficial reuse and is anticipated to be completed within 6 months of commencing. A closure schedule outlining the timeframes for major closure activities from the date the retrofitted basins stop receiving CCR materials to closure completion is provided in Appendix B.

It is anticipated that closure activities will be completed per the schedule provided in Appendix B and no later than 5 years after commencing closure activities pursuant to 40 CFR 257.102(f)(1)(ii).

# Section 2

## Closure of Retrofitted Surface Impoundments

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The retrofitted basins will be closed through removal of CCR in accordance with 40 CFR 257.102(c) and 9VAC20-81-370(A)(1). The remainder of the document outlines this process. This Closure Plan will be revised and submitted to VDEQ for approval in the event of a change to the closure process.

### 2.1 Removal

The retrofitted basins will be mechanically dredged and/or excavated to remove CCR materials. This material will be sufficiently dried prior to transporting to Dominion's on-site permitted landfill (Solid Waste Permit No. 556) for disposal. After removal of the CCRs from the basins, the liner and liner protection system will be demolished and these materials will be disposed at an off-site permitted disposal facility.

### 2.2 Decontamination

The basin liner materials, liner protection materials, and structures will be removed and disposed at an off-site permitted disposal facility as part of the closure operations. In addition, the subsurface will be over-excavated by approximately 6 inches and disposed in the on-site landfill. Equipment used in the removal of CCR materials and impoundment structures will be properly decontaminated of CCR following completion of closure activities and dispositioned off-site in accordance with Federal and State waste regulations.

### 2.3 Sampling and Testing Program

Following completion of CCR removal and demolition and removal of liner materials, liner protection materials, and associated structures, subsurface soils will be over-excavated by approximately 6 inches. Closure by removal will be conducted in accordance with the requirements of 40 CFR 257.102(c) and 9VAC20-81-370(A)(1) and certified by a registered Professional Engineer.

In addition, groundwater monitoring will occur in accordance with 40 CFR 257.95(h) and follow the Station's Groundwater Monitoring Program. After demonstrating compliance with the groundwater monitoring criteria above, closure through removal will be considered complete.

# Section 3

## Closure Implementation

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### 3.1 Notification

In accordance with VSWMR Closure Requirements (9 VAC 20-81-360.2.d), Dominion will notify VDEQ of the intent to close at least 180 days prior to beginning closure activities.

In accordance with the CCR Rule (40 CFR 257.102(g)) and 9VAC20-81-160, Dominion will place an Intent to Initiate Closure notice to the operating record prior to initiating closure. A Notification of Closure Completion will be added to the operating record within 30 days of completion of closure activities in accordance with 40 CFR 257.102(h). These notifications will also be sent to the VDEQ and posted to Dominion's publicly accessible website.

### 3.2 Certification

Within 30 days of completion of closure activities, a professional engineer will certify that the closure was completed in accordance with the requirements of the VSWMR and this Closure Plan. This certification will be submitted to the VDEQ, incorporated in the operating record, and posted to the publicly accessible website. Example certification language is as follows:

*"I certify that closure has been completed in accordance with the Closure Plan dated [date on the Closure Plan] for permit number [permit number] issued to Dominion, with the exception of the following discrepancies: [list discrepancies, if any]."*

### 3.3 Post-Closure Use

Following closure of the retrofitted basins, the area will continue to be used as needed for operational purposes (*i.e.*, equipment laydown area, new facility buildings, etc.) until the Station is closed or the property is sold.

# Section 4

## Closure Cost Estimate

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### 4.1 Closure Cost Estimate

The cost estimate for closing the North and South Basins as described in this Plan is approximately \$8.5M.

### 4.2 Financial Assurance

As indicated in the Solid Waste Management Permit application for the CCR impoundments, financial assurance will be provided. The closure cost estimate and related Financial Assurance documentation will be updated annually in accordance with the Virginia Financial Assurance Regulations for Solid Waste Management Facilities.



# Section 5 Certification

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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 closure 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(c).

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 closure activities.

R. Kent Nilsson

026477

Printed Name of Professional Engineer

Commonwealth of Virginia License Number



October 3, 2016

Signature of Professional Engineer

Date



# Appendix A

## Closure Design Plan

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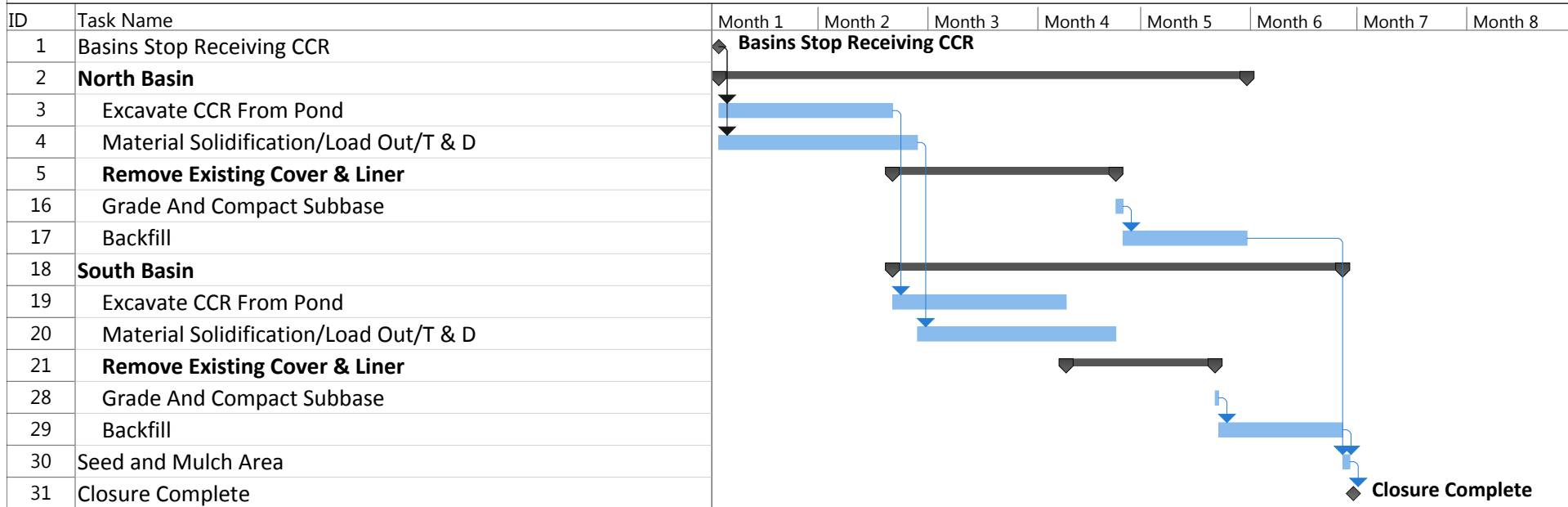


# Appendix B

## Closure Schedule

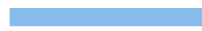
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Clover Closure Schedule



Closure Schedule

Task



Milestone ◆

Summary

