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Coal Combustion Residuals (CCR) Closure Plan
Solid Waste Permit Number WV0110256

Virginia Electric and Power Company
Mount Storm Power Station
Phase A FGD By-Product Disposal Facility
Grant County, West Virginia

GAI Project Number: C141182.02

October 2016

Prepared by: GAI Consultants
Murrysville Office
4200 Triangle Lane
Export, Pennsylvania 15632

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

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Certification/Statement of Professional Opinion

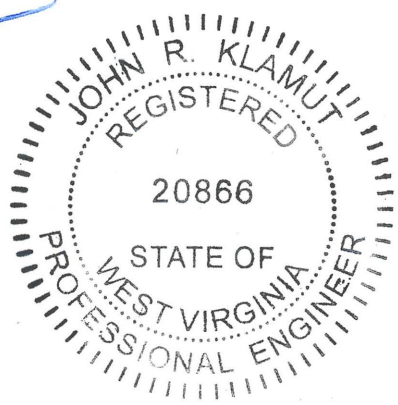
The Coal Combustion Residuals Closure Plan (Plan) for the Mount Storm Power Station Phase A FGD By-Product Disposal Facility was prepared by GAI Consultants, Inc. (GAI). The Plan was based on certain information that, other than for information GAI originally prepared, GAI has relied on, but not independently verified. This Certification/Statement of Professional Opinion is therefore is limited to the information available to GAI at the time the 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 West Virginia that the 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 Plan was prepared consistent with the requirements of section 257.102 of the United State Environmental Protection Agency's "Standard 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).

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.

John R. Klamut, P.E.
Engineering Manager

Date 10/14/2016



Acronyms

CCR	Coal Combustion Residuals
CCR Closure Plan	Phase A FGD By-Product Disposal Facility CCR Closure Plan
CCR Rule	"Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments" 40 CFR 257(2015)
CFR	Code of Federal Regulations
CSR	Code of State Rules
Dominion	Virginia Electric and Power Company d/b/a Dominion
DWWM	Division of Water and Waste Management
EPA	United States Environmental Protection Agency
Facility	Phase A FGD By-Product Disposal Facility
FGD	Flue Gas Desulfurization
GAI	GAI Consultants, Inc.
Permit	Class F Industrial Landfill Facility Permit No. WV0110256
PVC	Polyvinyl chloride
Station	Mount Storm Power Station
WVDEP	West Virginia Department of Environmental Protection
WVSWMR	West Virginia Solid Waste Management Rules

1.0 Introduction

This Coal Combustion Residuals Closure Plan (CCR Closure Plan) provides the method and design for closure of the Phase A Flue Gas Desulfurization (FGD) By-Product Disposal Facility (Facility) located at the Mount Storm Power Station (Station) in Grant County, West Virginia. The Facility is permitted under the Station's West Virginia Department of Environmental Protection (WVDEP) Class F Industrial Landfill Facility Permit No. WV0110256 (Permit).

The closure of the Facility will be completed in accordance with a West Virginia Solid Waste Facility Permit that meets the requirements of the United States Environmental Protection Agency's (EPA's) "Disposal of Coal Combustion Residuals from Electric Utilities" (CCR Rule).

1.1 Regulatory Background

The Facility is classified as a Class F Industrial Facility and is regulated by the WVDEP, Division of Water and Waste Management (DWWM), under 33 Code of State Rules (CSR) Title 1.

Closure of the Facility will be in accordance with the CCR Rule and applicable sections of the West Virginia Solid Waste Management Rule (WVSWMR).

1.2 Site Description

The Station, including the Facility, is owned by Virginia Electric and Power Company d/b/a Dominion Virginia Power (Dominion). The Facility is located on Dominion property at the Station in Grant County, Virginia (39°11'48"N 79°16'38"W), and is generally bounded by Mount Storm Lake on the east and south, Interstate 48 on the west, and West Virginia Route 93 on the north.

The Facility was permitted by Dominion in 1993 as a component of the Station's ash disposal system, specifically to manage FGD solids. The Facility receives FGD, which is considered a coal combustion residual (CCR). The materials stored in the Facility are listed in the Facility's Permit. The area permitted for CCR disposal is approximately 191 acres.

A CCR fugitive dust control plan has been implemented for the Station in accordance with the CCR Rule § 257.80 and will be amended to incorporate closure activities.

1.3 Closure Description

The Facility will be closed with the CCR material in place. After CCR is placed to the final design grades, the area will be capped and covered with a final cover consisting from bottom to top of a 30-mil polyvinyl chloride (PVC) layer, 250-mil geonet drainage layer, woven fabric filter geotextile layer, and 24-inch thick soil protective and vegetative support layer (collectively known as the engineered cover system).

The proposed closure sequence for each cell is anticipated to consist of:

- Initiation of closure construction in the Cell, by grading the area to the necessary subgrade.
- Closure of the Cell, by installing the engineered cover system.
- Installation of final stormwater controls.

The cover system will be designed and constructed in compliance with 40 CFR 257.102(d)(3).

1.4 Maintenance and Runoff Minimization

The Facility Closure Plan will minimize maintenance, runoff, and the potential for release of waste materials by closing the Facility through the construction of an engineered cover system (see Section 4.1).

The engineered cover system will minimize the exposure of CCR to the environment. Runoff from the closed Facility will be directed to collector ditches and site stormwater sedimentation ponds or leachate collection ponds. With the exception of riprap-lined, concrete lined, and turf mat reinforced drainage channels and gravel access roads, the closed Facility will be covered with a vegetative soil layer to minimize the runoff volume released from the site and the potential for erosion of the cover system. Stormwater runoff from the closed Facility will not come into contact with or contain CCR material.

2.0 Closure Timeframe

The proposed construction sequencing for the Landfill is covered in Section 3.1.1. Sequenced construction is necessary because the Landfill will continue to receive CCR through 2078. Closure is anticipated to be completed in stages as landfill sections reach final grade and to be completed within six months of the final receipt of waste. The date for initiation of closure has not been planned and is dependent upon Station operations, outages, electricity demand, weather, fuel, and other factors. Based on current disposal rates, the estimated date for completing closure is 2078.

The major project milestones based on current disposal rates include:

2Q 2078 – Mobilize contractor

3Q 2078 – Complete the installation of the engineered cover system

3Q 2078 – Complete closure certification

3.0 Preparation for Closure of Landfill

3.1 Site Configuration

3.1.1 CCR Placement

To achieve final closure grades at the Facility, CCR placement will be sequenced in Cells which will be closed as final grades are reached. CCR is placed with typical side slopes of four horizontal to one vertical (4:1).

After placement and compaction, the CCR material will be capped with an engineered liner and then covered with soil and vegetated. Benches are constructed every 20 vertical feet of placement height on the 4:1 slopes. The Facility is designed with a two percent minimum top slope (to prevent ponding). The Facility will be graded to allow for construction of collector ditches to direct flow to the sedimentation ponds.

3.1.2 Estimated CCR Volume

The total volume of material in the Facility at the time of final closure is estimated to be 24 million cubic yards.

The total volume of CCR that will be placed in the Facility is variable and is dependent upon Station operations, outages, electricity demand, weather, fuel, and other factors. Because of this uncertainty, after the closure is complete a record drawing will be developed and submitted to the WVDEP to show the actual volume of CCR placed in the Facility.

3.2 Structures and Equipment

Demolished structures and equipment that do not remain in place will be disposed of off-site. Other structures and equipment will be abandoned in place.

4.0 Facility Closure

4.1 Engineered Cover System

This CCR Closure Plan includes the installation of an engineered cover system meeting the requirements of § 257.102(d)(3) of the CCR Rule. The engineered cover system will be placed over all CCR material within the Facility. The maximum area to be capped and covered with the engineered cover system is estimated to be approximately 191 acres.

The engineered cover system will consist of the following (listed from bottom to top):

- A prepared CCR or soil subgrade, stripped of vegetation;
- An engineered cover layer composed of a 30-mil PVC layer, meeting the requirements of CCR Rule § 257.102(d)(3), which will serve as the infiltration layer;
- A 250-mil geonet drainage layer;
- A Type "A" woven fabric geotextile; and
- 24-inches of soil which will serve as the erosion and vegetative support layer.

Protective linings such as concrete, fabric-formed concrete drainage channels, or crushed stone road surfacing will be identified and installed in specific locations. At these locations, the thickness of the protective covering will contribute towards the overall thickness of the final cover. Vegetation is not necessary in locations where a protective covering is installed.

Excessive soil loss and sedimentation will be prevented by:

- Sequencing closure to minimize the amount of bare cover soil exposed;
- Providing localized erosion and sediment control features downgradient of disturbed areas; and
- Maintaining the use of the existing Facility stormwater sedimentation ponds as erosion and sedimentation control features while upgradient areas are stabilized.

4.2 Final Slopes

Final slopes at the closed Facility will be 25 percent maximum and 2 percent minimum. The 25 percent slope areas will feature benches every 20 vertical feet.

4.3 Runoff Controls

Leachate and runoff from within the Facility will be conveyed toward leachate channels and ultimately to the leachate surface impoundment. Leachate channels will be lined with either grass, rip-rap, turf reinforced mat, or mortar filled fabric mat. Design calculations for the channels are based on the 25-year, 24-hour storm event.

5.0 CCR Closure Implementation

5.1 Security

Signs will be posted at the locking gates at Facility or Station access points and unauthorized entrance will be prohibited. Vehicle access adjacent to the gate will be denied by physical barriers (surface water channels, post barricades, or severe slopes).

5.2 Notification

Within 30 days of WVDEP's final approval of the closure, deed notations will be implemented according to § 257.102(i) of the CCR Rule. Within 30 days of recording the notation, a notification, stating that the deed notation has been recorded, will be prepared and placed in the Facility's operating record, and posted to the Company's publicly available website.

5.3 Certification

In accordance with § 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 CCR Closure Plan.

6.0 References

40CFR257, Subpart D—*Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments*, 2015.

33CSR1, *West Virginia Solid Waste Management Rule*, 2015.

State of West Virginia, Department of Environmental Protection. *Solid Waste National Pollutant Discharge Elimination System Permit No. WV0110256*; April 2014.

GAI Consultants. *West Virginia Department of Environmental Protection (WVDEP) Application for Permit Amendment, Industrial Waste Landfill Permit No. IWL-6314-86*; 1993.