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Coal Combustion Residuals (CCR)
Run-on and Run-off Control System Plan

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 Run-on and Run-off Control System Plan (Plan) for the Mount Storm Phase A FGD By-Product Disposal Facility (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 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 257.81 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).

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 Rule	"Disposal of Coal Combustion Residuals From Electric Utilities" 40 CFR § 257 Subpart D (2015)
CFR	Code of Federal Regulations
Dominion	Virginia Electric and Power Company d/b/a Dominion
EPA	United States Environmental Protection Agency
Facility	Phase A FGD By-Product Disposal Facility
FGD	Flue Gas Desulfurization
GAI	GAI Consultants
Plan	Run-on and Run-off Control System Plan
Station	Mount Storm Power Station
WV	West Virginia

1.0 Introduction

The Mount Storm Power Station (Station) is owned by Virginia Electric and Power Company d/b/a Dominion Virginia Power (Dominion) and is located in Mount Storm, WV. The Station includes the Phase A Flue Gas Desulfurization (FGD) By-Product Disposal Facility (Facility), which is used for the long term storage of coal combustion residuals (CCR).

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 is regulated as an existing CCR landfill under the United States Environmental Protection Agency's (EPA's) "Disposal of Coal Combustion Residuals From Electric Utilities" published in the Federal Register on April 17, 2015 with an effective date of October 19, 2015 (CCR Rule).

2.0 Purpose

The Facility is a landfill permitted to receive CCR material from Station operations. The Facility is designed to be constructed in 11 cells. During each stage of operation, run-on channels (sediment and diversion channels) minimize stormwater from flowing onto the active portion of the landfill, and run-off channels (leachate channels) collect and control stormwater that has contacted the active portion of the landfill.

Title 40 of the Code of Federal Regulations (CFR) § 257.81 requires that the run-on control system has been designed, constructed, operated, and maintained to prevent flow onto the active portion of Station during peak discharge of a 25-year, 24-hour storm. Similarly, the run-off control system must be designed, constructed, operated, and maintained to collect and control the water volume resulting from a 25-year, 24-hour storm.

This Plan is prepared pursuant to the requirements in the United States Environmental Protection Agency's "Disposal of Coal Combustion Residuals From Electric Utilities" published in the Federal Register on April 17, 2015 with an effective date of October 19, 2015 (CCR Rule), § 257.81(c).

3.0 Run-on and Run-off Control System Plan (Plan)

As required by 40 CFR § 257.81(c), this Plan includes the following:

- Documentation of how the run-on and run-off control systems have been designed to meet the applicable requirements of § 257.81; and
- Documentation that the Plan is supported by appropriate engineering calculations. Supporting calculations are provided in the Facility's 1993 Permit Applciation (GAI, October 1993), which is part of Solid Waste NPDES Permit No. WV0110256.

3.1 Run-on Controls

The run-on control system consists of a series of sediment channels and diversion ditches that minimize stormwater contact with CCR. The sediment channels, diversion ditches, culverts, and sediment ponds are designed and constructed to control the peak flow from at least the 25-year, 24-hour storm event. The run-on control system meets the applicable requirements of 40 CFR § 257.81.

3.1.1 Sediment Channels

Sediment channels are constructed on the non-active portions of the Station to direct water away from active portions of the Facility. The sediment channels are designed to be lined with vegetation/turf reinforcement, rip-rap, or grouted rip-rap, depending on the location, flow

velocities, and channel slopes. The sediment channel capacities control at least the 25-year, 24-hour storm during all phases of construction of the Facility. The sediment channels discharge water directly, and through a series of culverts, to the sediment ponds.

3.1.2 Sediment Culverts

Sediment culverts control run-on from the sediment channels. The culverts are designed to control at least the 25-year, 24-hour storm. The sediment culverts discharge to the sediment ponds.

3.1.3 Sediment Ponds

The Sediment ponds control run-on from the sediment channels during construction of the Facility. The sediment ponds are designed to control and discharge the peak flow from a 25-year, 24-hour storm. The primary spillway is a riser and discharge pipe that controls flow during normal operation. The emergency spillway is capable of passing the 25-year, 24-hour peak storm discharge without overtopping the crest of the pond. Both the primary and emergency spillways discharge to a combined diversion ditch, and eventually to Mount Storm Lake.

The sediment ponds are maintained by cleaning out sediment as necessary when the wet storage area is reduced below a set volume.

3.1.4 Diversion Ditches

Multiple diversion ditches are constructed around the perimeter of Facility. The diversion ditches consist of grass, turf reinforced mat, rip-rap or grouted rip-rap. The diversion ditches collect the non-contact water and route it around the sediment ponds, through a combined diversion ditch, and discharge directly to Mt. Storm Lake. The ditches serve two functions:

- Minimize non-contact stormwater run-on from entering the Facility through the ponds; and
- Reduce hydraulic loading on the sediment ponds.

The ditch capacities control at least the 25-year, 24-hour storm.

3.1.5 Diversion Culverts

Diversion culverts control run-on from the diversion ditches. The culverts are designed to control at least the 25-year, 24-hour storm. The diversion ditches direct the combined diversion ditch to eventually discharge to Mount Storm Lake.

3.2 Run-off Control System

The run-off control system consists of a series of leachate channels that collect and control CCR contact water. The Facility benches, leachate channels, culverts, and leachate storage impoundment are designed to control the peak flow from at least the 25-year, 24-hour storm event. The run-off control system meets the applicable requirements of 40 CFR § 257.81.

3.2.1 Bench Capacity

The benches are designed to control peak flows resulting from at least the 25-year, 24-hour storm event. Stormwater that contacts benches is directed toward the leachate channels.

3.2.2 Leachate Channels

Leachate channels, also referred to as collection channels, are constructed on the active portions of the Facility to direct CCR contact water from the active area and the haul road to

the leachate storage impoundment. The leachate channels are designed to be lined with a geomebrane liner system and protected, either with grass, rip-rap, turf reinforced mat, or mortar filled fabric mat. The leachate channels control at least the 25-year, 24-hour storm. The leachate channels discharge to the leachate storage impoundment through a series of culverts and a splitter box.

3.2.3 Leachate Culverts

Leachate culverts control run-off from the leachate channels. The culverts are designed to control at least the 25-year, 24-hour storm. The leachate culverts discharge to the leachate storage impoundment splitter box.

3.2.4 Leachate Storage Impoundment Splitter Box

The leachate storage impoundment splitter box controls run-off from the leachate channels. The leachate storage impoundment splitter box was designed to control at least the 25-year, 24-hour storm. The leachate storage impoundment splitter box directs the leachate to a designated cell of the leachate storage impoundment.

3.2.5 Leachate Storage Impoundment

The leachate storage impoundment receives and controls flow from the leachate channels of the construction stages. The leachate channels discharge into the splitter box that designates which cell of the leachate storage impoundment receives the leachate. The leachate storage impoundment is designed to control and discharge the peak flow from at least the 100-year, 24-hour storm. Leachate collected in the leachate storage impoundment is managed in accordance with the Station's NPDES Permit No. WV0110256.

4.0 References

GAI Consultants. *Phase A FGD Facility Drawings;* 1993.

GAI Consultants. *Application for Permit Amendment, Permit No. IWL-6314-86 Phase A FGD By-Product Facility;* October 1993.

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

United States Environmental Protection Agency (EPA). 40 CFR Parts 257 and 261, *Hazardous and Solid Waste Management Disposal System; Disposal of Coal Combustion Residual from Electric Utilities, Final Rule*; April 2015.