



AECOM
1600 Perimeter Park Drive
Suite 400
Morrisville, NC 27560
www.aecom.com

919 461 1100 tel
919 461 1123 fax

October 7, 2016

Tennessee Valley Authority
1101 Market Street
Chattanooga, Tennessee 37402

**Initial Run-on and Run-off Control System Plan
North Rail Loop Landfill
EPA Final CCR Rule
TVA Gallatin Fossil Plant
Sumner County, Tennessee**

1.0 PURPOSE

This letter documents AECOM's certification of the run-on and runoff control system plan for the TVA Gallatin Fossil Plant's North Rail Loop Landfill. Based on this assessment, the North Rail Loop Landfill is in compliance with the run-on and run-off control system requirements in the EPA Final CCR Rule at 40 CFR 257.81.

2.0 RUN-ON AND RUN-OFF CONTROL SYSTEM PLAN

As described in 40 CFR 257.81(c), a run-on and run-off control system plan must be prepared to document how the run-on and run-off control system has been designed and constructed to manage the 25-year, 24-hour storm.

3.0 SUMMARY OF FINDINGS

The attached plan presents the analysis of the run-on and run-off control system for the North Rail Loop Landfill. The results show that the landfill meets the requirements set forth in 40 CFR 257.81(a) and (b).

Remainder of page intentionally left blank

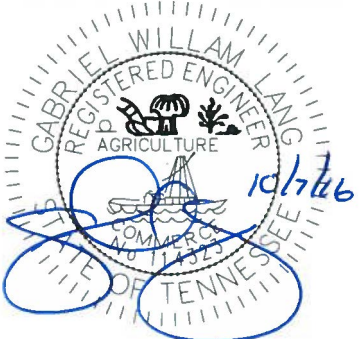
4.0 QUALIFIED PROFESSIONAL ENGINEER CERTIFICATION

I, Gabriel W. Lang, being a Professional Engineer in good standing in the State of Tennessee, do hereby certify, to the best of my knowledge, information, and belief:

1. that the information contained in this certification is prepared in accordance with the accepted practice of engineering;
2. that the information contained herein is accurate as of the date of my signature below; and
3. that the run-on and run-off control system plan for the TVA Gallatin Fossil Plant's North Rail Loop Landfill meets the requirements specified in 40 CFR 257.81(a), (b), and (c)(1).

SIGNATURE _____
ADDRESS: AECOM
1600 Perimeter Park Dr. Ste. 400
Morrisville, NC 27560
TELEPHONE: (919) 461 1100
ATTACHMENTS: Initial Run-on and Run-off Control System Plan

DATE 10/7/2016



COAL COMBUSTION PRODUCT DISPOSAL PROGRAM

Tennessee Valley Authority – North Rail Loop Landfill
Sumner County, Tennessee

INITIAL RUN-ON/RUN-OFF CONTROL SYSTEM PLAN (40 CFR §257.81) FOR COAL COMBUSTION RESIDUALS (CCR) DISPOSAL FACILITY – NORTH RAIL LOOP EXISTING LANDFILL

Prepared for



Tennessee Valley Authority
1101 Market Street
Chattanooga, TN 37402-2801

October 7, 2016 -Rev0

Prepared by





TABLE OF CONTENTS

1.0	BACKGROUND	3
1.0	EPA Final CCR Rule Requirements - §287.81(a)	3
1.1	Plan Content - §287.81(c)	3
1.2	Site Location and Description	4
2.0	OVERVIEW OF RUN-ON/RUN-OFF CONTROL SYSTEMS - §257.81(c)(1).....	5
2.0	Run-on Control System - §257.81(a)(1)	5
2.0.1	Berms	5
2.1	Run-off Control System - §257.81(a)(2).....	5
2.1.1	Collection and Holding Facilities.....	5
2.1.2	Storm Water and Leachate Management	6
2.1.3	Erosion Control	6
2.2	Frequency for Revising the Plan - §257.81(c)(4).....	6
3.0	REFERENCES.....	7

FIGURES

Figure 1 Site Location Map

1.0 BACKGROUND

This initial Run-on/Run-off Control System Plan (Plan) was prepared for the existing North Rail Loop (NRL) coal combustion residuals (CCR) Landfill located at the Tennessee Valley Authority's (TVA) Gallatin Fossil Plant (GAF) in Sumner County, Tennessee. The NRL Landfill is an integral part of a project to install a lime-based dry flue gas desulfurization (FGD) system, or "dry scrubber" at GAF. The landfill currently accepts the CCR generated by the dry scrubber as well as other CCR produced at GAF including ash, FGD, and other byproducts from power generation operations.

The plan was prepared in accordance with 40 CFR Part 257 and specifically addresses the requirements under Subpart D, §257.81(c) of the U.S. Environmental Protection Agency (EPA) Final CCR Rule. It is noted that the NRL Landfill is an existing landfill operating under a permit approved by the Tennessee Department of Environment and Conservation (TDEC) on June 30, 2014, which is in accordance with regulatory standards generally equivalent to those included in the EPA Final CCR Rule. Accordingly, run-on and run-off control system requirements for the landfill meet or exceed those of the EPA Final CCR Rule.

1.0 EPA FINAL CCR RULE REQUIREMENTS - §287.81(a)

(40 CFR) 257.81(a) *The owner or operator of an existing or new CCR landfill or any lateral expansion of a CCR landfill must maintain:*

- (1) A run-on control system to prevent flow onto the active portion of the CCR unit during the peak discharge from a 24-hour, 25-year storm; and*
- (2) A run-off control system from the active portion of the CCR unit to collect and control at least the water volume resulting from a 24-hour, 25-year storm.*

(b) Run-off from the active portion of the CCR unit must be handled in accordance with the surface water requirements under § 257.3–3.

The NRL Landfill is an existing landfill that was designed to incorporate run-on and run-off controls systems, which prevent flow from and onto the active portion of the unit during a 24-hour, 25-year storm.

1.1 PLAN CONTENT - §287.81(c)

(40 CFR) 257.81(c) *Run-on and run-off control system plan—*

- (1) Content of the plan. The owner or operator must prepare initial and periodic run-on and run-off control system plans for the CCR unit according to the timeframes specified in paragraphs (c)(3) and (4) of this section. These plans must document how the run-on and run-off control systems have been designed and constructed to meet the applicable requirements of this section. Each plan must be supported by appropriate engineering calculations. The owner or operator has completed the initial run-on and run-off control system plan when*

the plan has been placed in the facility’s operating record as required by § 257.105(g)(3).

This Plan describes how the run-on and run-off control systems have been designed and constructed to meet the applicable requirements of the EPA Final CCR Rule. A certification statement from a qualified professional engineer verifying that this initial Plan meets the requirements of § 257.81 has been provided. In accordance with § 257.81(c)(1), this Plan will be amended whenever there is a change in conditions that substantially affect the written plan in effect.

1.2 SITE LOCATION AND DESCRIPTION

The NRL Landfill is located on land currently owned by TVA at the GAF Plant. The GAF Plant is located at 1499 Steam Plant Road in Sumner County, on the north bank of the Cumberland River, approximately four miles southeast of the juncture of U.S. Route 31E and Tennessee State Route 109 in Gallatin. The NRL site for the disposal facility (**Figure 1**) is located within the GAF reservation, just north of the GAF plant and west of Steam Plant Road. Existing ground surface elevation across the disposal site ranges from approximately 470 ft to 580 ft Mean Sea Level (msl).



Figure 1. Site Location Map

2.0 OVERVIEW OF RUN-ON/RUN-OFF CONTROL SYSTEMS - §257.81(c)(1)

2.0 RUN-ON CONTROL SYSTEM - §257.81(a)(1)

Temporary storm water diversion structures, including ditches, rain flap berms, sumps, and pumps will be used as needed to minimize storm water run-on into an active cell. Non-contact storm water will be diverted to one of two sediment basins. The active area of any cell will be minimized to reduce leachate generation and the potential for fugitive dust emissions. In general, working areas will be limited in size so as to reduce the amount of water that comes in contact with CCR.

2.0.1 BERMS

Run-on from adjacent land onto the active portion of the facility will be prevented using diversion berms designed to accommodate a 25-year/24-hour storm. The intent of the diversion berms is to route run-on from undisturbed areas, such that run-on is not combined with sediment laden run-off from the landfill site. Supporting design calculations for the berms are presented in Part F of the *Part II Permit Application* (URS, 2014).

2.1 RUN-OFF CONTROL SYSTEM - §257.81(a)(2)

The outer slopes of the NRL Landfill have been designed with terraces that will be constructed progressively as the elevation of the landfill is raised. Rock-lined letdowns will convey surface water run-off by gravity to perimeter channels and catch basins at the base of the landfill. Surface water runoff will be collected in two sediment basins prior to discharge to Ash Pond A. All permanent run-off measures, including perimeter channels and culverts, are designed to collect and control the peak flow resulting from a 25-year/24-hour storm under final design conditions. Supporting design calculations for the surface water control structures are provided in Part F of the *Part II Permit Application* (URS, 2014). Permanent run-off features and associated details are provided in the Engineering Plans (Drawings 10W275-07, 10W275-10 through 14, and 10W275-22 through 10W275-24) in Part E of the *Part II Permit Application* (URS, 2014).

2.1.1 COLLECTION AND HOLDING FACILITIES

Holding facilities associated with storm water management consist of two sedimentation basins that discharge into Ash Pond A, which in turn discharges to Cumberland River via a National Pollutant Discharge Elimination System (NPDES) permitted outfall, in accordance with § 257.3-3. The sediment basins have been designed with a low-flow device to empty the sediment basins following rain events. In the event that the low flow device becomes clogged or does not have adequate time to lower the water level in the basins prior to a storm event, the primary spillways of the sediment basins have been designed to manage runoff resulting from the 25-year/24-hour storm without the function of the low-flow device. Similarly, the sediment basins' primary and emergency spillways are designed to manage runoff resulting from the 100-year/24-hour storm event.

Sediment basins will be cleaned periodically to maintain the minimum required storage volume. A witness post will be installed in the bank of each sediment basin to visually identify when sediment accumulation approaches the maximum sediment storage elevation. A painted marking will also be applied to the primary spillway structure to serve as a secondary visual indicator.

Supporting design calculations for the surface water control structures are presented in Part F of the *Part II Permit Application* (URS, 2014).

2.1.2 STORM WATER AND LEACHATE MANAGEMENT

The leachate and storm water are designed to be handled separately. Leachate will be collected in a force main and pumped to Ash Pond A. Storm water will be collected and managed by the two sediment basins, as previously described.

Surface water drainage features and either intermediate cover or the final cover system will be installed progressively as filling proceeds, such that intermediate cover soil will be placed on all outboard slopes prior to allowing run-off to enter the storm water management system. Water that comes in contact with waste will be treated as leachate and collected in the facility's leachate collection system.

2.1.3 EROSION CONTROL

Storm run-off will be controlled and managed through a series of temporary and permanent surface water and erosion control measures including silt fences, seeding and mulching, and drainage channels. A Storm Water Pollution Prevention Plan was developed to obtain coverage under the NPDES Construction General Permit for storm water discharge from construction activities.

2.2 FREQUENCY FOR REVISING THE PLAN - §257.81(c)(4)

(40 CFR) *257.81(c)(4). The owner or operator of the CCR unit must prepare periodic run-on and runoff control system plans required by paragraph (c)(1) of this section every five years. The date of completing the initial plan is the basis for establishing the deadline to complete the first subsequent plan. The owner or operator may complete any required plan prior to the required deadline provided the owner or operator places the completed plan into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing a subsequent plan is based on the date of completing the previous plan. For purposes of this paragraph (c)(4), the owner or operator has completed a periodic run-on and run-off control system plan when the plan has been placed in the facility's operating record as required by § 257.105(g)(3).*

TVA will prepare periodic run-on and runoff control system plans every five years and will place the plan in the facility's operating record. TVA will obtain a certification from a qualified professional engineer stating that the periodic run-on and run-off control system plans meet the requirements of this section.



3.0 REFERENCES

1. URS Corporation. (2014). *Part II Permit Application, CCP Disposal Facility, North Rail Loop*, Vol 2, Part E, Engineering Plans, Drawings 10W275-07, 10W275-10 through 14, and 10W275-22 through 10W275-24.
2. URS Corporation. (2014). *Part II Permit Application, CCP Disposal Facility, North Rail Loop*, Vol 3, Part F.1, Stormwater Calculations.

