Stantec Consulting Services Inc.
1409 North Forbes Road, Lexington KY 40511-2024

October 6, 2016
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Revision 0

Tennessee Valley Authority
1101 Market Street
Chattanooga, Tennessee 37402

RE: Initial Hazard Potential Classification Assessment
Ash Pond E
EPA Final CCR Rule
TVA Gallatin Fossil Plant
Gallatin, Tennessee

1.0 PURPOSE

This letter documents Stantec's certification of the initial hazard potential classification assessment for the TVA Gallatin Fossil Plant's Ash Pond E. The CCR Rule requires owners or operators of CCR surface impoundments to conduct initial and periodic hazard potential classification assessments of the unit, assign one of three potential hazard classification ratings to it, and provide the basis for the rating, as per 40 CFR 257.73(a)(2). Hazard potential classification ratings define the consequences in the event of a failure – *the ratings have nothing to do with the likelihood of failure or the structural stability of the impoundment*. Based on this assessment, Ash Pond E has been assigned a significant hazard potential classification rating.

2.0 BASIS FOR CLASSIFICATION RATING

As described in the attached assessment report, the hazard potential classification rating of "significant" was assigned to Ash Pond E because a failure or mis-operation would result in no probable loss of human life due to the intermittent and transient nature of persons within these areas. However, a breach would likely have impacts to the Cumberland River.

3.0 SUMMARY OF FINDINGS

The attached report presents the analysis for the initial hazard potential classification assessment. The results demonstrate that the impoundment meets the hazard potential classification of "significant."

4.0 QUALIFIED PROFESSIONAL ENGINEER CERTIFICATION

I, John S. Montgomery, 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;

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2. that the information contained herein is accurate as of the date of my signature below; and

3. that the initial hazard potential classification assessment for the TVA Gallatin Fossil Plant's Ash Pond E meets the requirements specified in 40 CFR 257.73(a)(2).

SIGNATURE John S. Montgomery DATE October 6, 2016

ADDRESS: Stantec Consulting Services Inc.
1409 North Forbes Road
Lexington, Kentucky 40511-2024

TELEPHONE: (859) 422-3000

ATTACHMENTS: Initial Hazard Potential Classification Assessment

Initial Hazard Potential Classification Assessment

Gallatin Fossil Plant – Ash Pond E
Gallatin, Tennessee

Stantec

Prepared for:
Tennessee Valley Authority
Chattanooga, Tennessee

Prepared by:
Stantec Consulting Services Inc.
Lexington, Kentucky

October 6, 2016
Revision 0

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Rating
October 6, 2016

1.0 RATING

This report documents the hazard potential classification assessment for Ash Pond E at Gallatin Fossil Plant (GAF) as required per the Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities [RIN-2050-AE81; FRL-9149-4] (EPA Final CCR Rule) § 257.73 (a)(2). Hazard potential classifications are based on the consequences of failure or mis-operation and are not a measure of the condition of the unit. The applicable hazard potential classifications are defined in the EPA Final CCR Rule § 257.53 as follows:

> (1) High hazard potential CCR surface impoundment means a diked surface impoundment where failure or mis-operation will probably cause loss of human life.
>
> (2) Significant hazard potential CCR surface impoundment means a diked surface impoundment where failure or mis-operation results in no probable loss of human life, but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns.
>
> (3) Low hazard potential CCR surface impoundment means a diked surface impoundment where failure or mis-operation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the surface impoundment owner's property.

Based on these definitions Ash Pond E is classified as a significant hazard potential CCR surface impoundment.

This report contains supporting documentation for the hazard potential classification assessment. The hazard potential classification for this structure was determined by observation of current conditions and review of a previous assessment conducted by Stantec in September, 2013.

2.0 BASIS OF RATING

2.1 INTRODUCTION

The Tennessee Valley Authority (TVA) has contracted Stantec Consulting Services Inc. (Stantec) to review and update previous hazard potential classification assessments as needed and to prepare the accompanying certification for selected impoundments at various TVA Plants.

GAF is located in Sumner County, Tennessee. The plant is located adjacent to the Cumberland River, approximately 40 miles northeast of Nashville, Tennessee. Ash Pond E is located to the west of Ash Pond A and Middle Pond A, and to the east of the Cumberland River. The pond is 142 acres in size. The pond discharges via twin spillway structures located in the northeast corner of the pond. The primary spillway is a concrete box with stop logs, with the sharp crested weir created by the stop logs at elevation 456.50 ft. The overflow spillways each consist of a 48-inch RCP riser that discharges through a 30-inch steel pipe with grate cover elevation 464 feet. The available pool storage between the primary spillway and overflow spillway is approximately 300 acre-feet, and the available pool storage to the top of the embankments is approximately 1000 acre-feet. The low point along the Ash Pond E embankment is approximately elevation 475, located along the portion of the embankment dividing the pond from Ash Pond A. A site overview figure is included in the appendix.

2.2 SOURCE DATA

The GAF Ash Pond E was reviewed as part of an assessment previously conducted in 2013. Ash Pond E was considered in that study along with Ash Pond A and Stilling Ponds B, C, & D as a single system which was referenced in the report as the "Ash Pond Complex". Based on the findings, the hazard classification of the "Ash Pond Complex", including Ash Pond E, should be listed as a significant hazard.

2.3 POTENTIAL FAILURE SCENARIOS

A breach of the "Ash Pond Complex" to the north would not be contained in the adjacent stilling ponds and would result in an off-site release of CCR materials. All non-TVA structures and roads within the vicinity of the Ash Pond E are located above the maximum inundation elevations or are separated by distances which would permit the dissipation of a potential breach wave. Therefore, loss of life from a breach of the impoundment is not envisioned. However, a breach could result in off-site release of CCRs.

A breach of Ash Pond E to the west would result in discharge of CCR materials to the Cumberland River. Considering the pool storage volume of Ash Pond E relative to the Cumberland River, a significant impact on the river's water surface elevation is not likely, with most of the impact primarily limited to the area immediately along the river's edge. Due to the transient nature of people within this area, probable loss of life is not envisioned.

As part of this initial hazard classification assessment, site conditions were reviewed to determine if changes have occurred to the impoundment or to downstream areas that would affect the conclusions of the 2013 study. No significant changes have been identified and it is concluded that the hazard classification determination is appropriate.

2.4 HAZARD CLASSIFICATION

Findings of this review and assessment demonstrate that a breach of Ash Pond E would result in no probable loss of human life, but could cause economic loss or environmental damage. It is Stantec's opinion the impoundment fits the definition for a significant hazard potential CCR surface impoundment (as defined in the EPA Final CCR Rule §257.53).

3.0 REFERENCES

1. Stantec, September 30, 2013. Dam Safety Hazard Classification Projects Summary Report.

2. Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities [RIN-2050-AE81; FRL-9149-4]. April, 2015.

APPENDIX
SITE OVERVIEW FIGURE

Figure No.
1

Title
Breach Scenarios
GAF - Ash Pond E

Client/Project
Tennessee Valley Authority
Gallatin Fossil Plant (GAF)
Hazard Potential Classification Assessment

Project Location:
Sumner County, TN

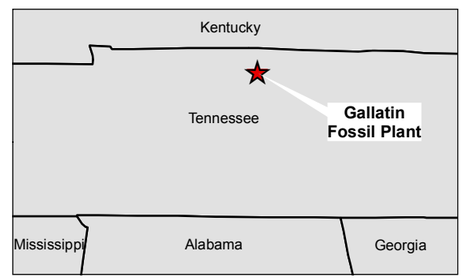
Prepared by MMM on 2015-09-30
Technical Review by AWG on 2016-09-30
Independent Review by WRM on 2016-09-30

0 600 1,200 Feet

1:7,200 (At Original document size of 11x17)

Legend

- Potential Breach Direction of Flow
- Direction in Which Breach Cannot Occur
- Access Roads Potentially Impacted by Breach
- 10ft Contours
- Approximate Facility Limits



Notes

1. Coordinate System: NAD 1927 StatePlane Tennessee FIPS 4100
2. TVA Aerial Imagery and Topographic Data dated 2015.
3. State boudaries produced by ESRI, U.S. Department of Commerce, U.S. Census Bureau.

Stantec

TVA

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