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
Middle Pond A
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 Middle Pond A. 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, Middle Pond A has been assigned a low hazard potential classification rating.

2.0 BASIS FOR CLASSIFICATION RATING

As described in the attached assessment report, the hazard potential classification rating of "low" was assigned to Middle Pond A because a failure or mis-operation would result in no probable loss of human life, and potential impacts would likely be minor and principally limited to TVA property.

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 "low."

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 Middle Pond A 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 – Middle Pond A
Gallatin, Tennessee

Prepared for:
Tennessee Valley Authority
Chattanooga, Tennessee

Prepared by:
Stantec Consulting Services Inc.
Lexington, Kentucky

October 6, 2016
Revision 0

Table of Contents

1.0 RATING

This report documents the hazard potential classification assessment for the Middle Pond A 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 Middle Pond A is classified as a low 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 a visual assessment and a review of available data.

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. Middle Pond A is located to the east of Ash Pond E, to the south of Ash Pond A, to the north of the Bottom Ash Pond, and to the west of the railroad tracks/hillside area. Middle Pond A is approximately 32 acres in size and conveys flow from the Bottom Ash Pond to Ash Pond A via two sluice trenches, into a ditch. The pond is primarily dry with no permanent pool maintained. Two 48-inch diameter corrugated metal pipes (CMP) and a 48-inch diameter High-density polyethylene (HDPE) pipe at the downstream end of the sluice trenches pass the flow through the embankment that divides Middle Pond A and Ash Pond A. The available pool storage in the pond is approximately 14 acre-feet. The location of the facility and the potential breach flow directions are shown on the figure provided in the appendix.

For GAF, there is no documentation available for a hazard potential classification assessment for the Middle Pond A, but a hazard assessment is required per the EPA Final CCR Rule. Therefore, Stantec has prepared the hazard assessment for this unit as documented in this report.

2.2 SOURCE DATA

The following information was used to perform the hazard assessment of Middle Pond A:

- Aerial Imagery (from Tuck Mapping Solutions Inc. dated March 16, 2015).
- Topographic Information (from Tuck Mapping Solutions Inc. dated April 19, 2015).

2.3 POTENTIAL FAILURE SCENARIOS

As previously stated, a permanent pool is not maintained within Middle Pond A. A ditch is maintained through the pond to convey flow from the Bottom Ash Pond to Ash Pond A. The water surface elevation within this ditch is approximately 474 feet, which is approximately 12 feet higher than the normal pool elevation of Ash Pond E (462.4 feet) and approximately 7 feet higher than the normal pool elevation of Ash Pond A (467.9 feet). Given these elevation differences, a breach of Middle Pond A toward Ash Pond E or Ash Pond A is plausible.

Middle Pond A is adjacent to higher ground to the east and south, and therefore a breach in these directions is not considered plausible.

2.3.1 Breach towards Ash Pond E

A breach in the embankment between Middle Pond A and Ash Pond E could cause material from Middle Pond A to discharge into Ash Pond E. The storage capacity in Ash Pond E above normal pool to the top of the embankment is approximately 1000 acre-feet. Because of the limited pool storage of Middle Pond A and the capacity of Ash Pond E, a breach in this direction would likely be contained.

2.3.2 Breach towards Ash Pond A

A breach in the embankment between Middle Pond A and Ash Pond A could cause material from Middle Pond A to discharge into Ash Pond A. The storage capacity in Ash Pond A above normal pool is approximately 450 acre-feet. Because of the limited pool storage of Middle Pond A and the capacity of Ash Pond A, a breach in this direction would likely be contained.

2.4 HAZARD CLASSIFICATION

Findings of this review and assessment demonstrate that a breach of Middle Pond A would result in no probable loss of life. In addition, it is Stantec's opinion that any impacts to would be principally limited to TVA property. Therefore, the impoundment fits the definition for a low hazard potential CCR surface impoundment (as defined in the EPA Final CCR Rule §257.53).

3.0 REFERENCES

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

APPENDIX
BREACH SCENARIOS

Figure No.
1

Title
Breach Scenarios
GAF - Middle Pond A

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

Project Location:
Sumner County, TN

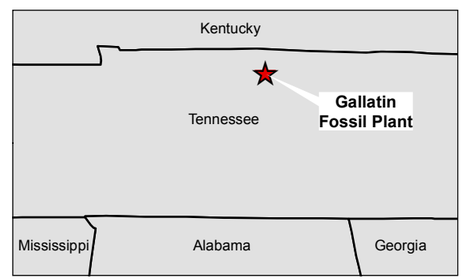
Prepared by MMM on 2015-09-30
Technical Review by AWG on 2016-09-30
Independent Review by WRM on 2016-09-30

0 400 800 Feet

1:4,800 (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