



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

October 5, 2016
File: rpt_005_let_175565009
Revision 0

Tennessee Valley Authority
1101 Market Street
Chattanooga, Tennessee 37402

**RE: Initial Hazard Potential Classification Assessment
Ash Pond 2 (Main Ash Pond/Stilling Pond)
EPA Final Coal Combustion Residuals (CCR) Rule
TVA Shawnee Fossil Plant
West Paducah, Kentucky**

1.0 PURPOSE

This letter documents Stantec's certification of the initial hazard potential classification assessment for the TVA Shawnee Fossil Plant's Ash Pond 2 (Main Ash Pond/Stilling Pond), herein referred to as Ash Pond 2. The EPA Final 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 2 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 2 because a failure or mis-operation would result in no probable loss of human life, but could cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns. In 2013, an assessment was completed. No structures or property was identified within the paths of the potential breach scenarios reviewed. Loss of life was considered improbable due to the intermittent and transient nature of persons within these areas. However, a breach would likely result in the release of CCRs to the Ohio River. Review of the analysis and current conditions at Ash Pond 2 concluded that the existing hazard classification was applicable.

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."



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West Paducah, Kentucky**

4.0 QUALIFIED PROFESSIONAL ENGINEER CERTIFICATION

I, John S. Montgomery, being a Professional Engineer in good standing in the Commonwealth of Kentucky, 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 initial hazard potential classification assessment for the TVA Shawnee Fossil Plant's Ash Pond 2 (Main Ash Pond/Stilling Pond) meets the requirements specified in 40 CFR 257.73(a)(2).

SIGNATURE


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

DATE October 5, 2016

ADDRESS:

TELEPHONE:

(859) 422-3000

ATTACHMENTS:

Initial Hazard Potential Classification Assessment



Initial Hazard Potential Classification Assessment

Shawnee Fossil Plant – Ash Pond
2 (Main Ash Pond/Stilling Pond)
West Paducah, Kentucky



Prepared for:
Tennessee Valley Authority
Chattanooga, Tennessee

Prepared by:
Stantec Consulting Services Inc.
Lexington, Kentucky

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INITIAL HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

Rating
October 5, 2016

1.0 RATING

This report documents the Hazard Potential Classification Assessment for Ash Pond 2 (Main Ash Pond/Stilling Pond), herein referred to as Ash Pond 2, at Shawnee Fossil Plant (SHF) 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 2 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 review of a previous assessment conducted by Stantec in September, 2013.

INITIAL HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

Basis of Rating
October 5, 2016

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.

SHF is located in McCracken County, Kentucky approximately 10 miles northwest from Paducah. Ash Pond 2 is located west of the plant and near the south bank of the Ohio River. A site overview figure is included in the appendix.

2.2 SOURCE DATA

For Ash Pond 2, an assessment was previously conducted in 2013. Based on the findings, it was recommended that the hazard classification of Ash Pond 2 be listed as a significant hazard.

2.3 POTENTIAL FAILURE SCENARIOS

As part of the 2013 study, review of aerial mapping identified no structures or critical infrastructure within the paths of the potential breach scenarios considered. Buildings and roadways within the vicinity of the impoundment were found to be either positioned above the elevation of the impoundment or separated by distances which would permit the dissipation of a potential breach wave within existing waterways. Therefore, loss of life from a breach of the impoundment was not envisioned. However, because Ash Pond 2 is located in proximity to the Ohio River to the north, a breach would likely result in the off-site release of CCRs into the waters of the United States.

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 the hazard classification determination is appropriate.

2.4 HAZARD CLASSIFICATION

Findings of this review and assessment demonstrate that a breach of the impoundment results 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).

INITIAL HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

References
October 5, 2016

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

1154853



Ohio River

Ash Pond 2
(Main Ash Pond/Stilling Pond)

Little Bayou Creek

Figure No.

1

Title

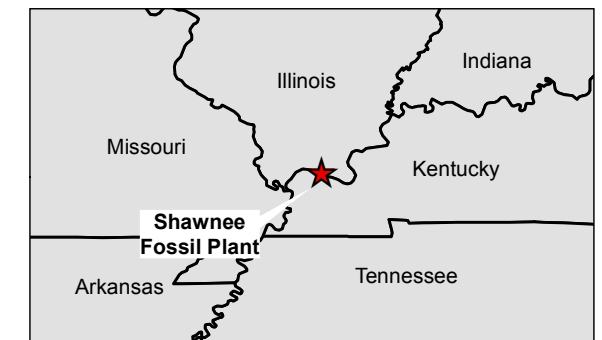
Site Overview SHF - Ash Pond 2

Client/Project
Tennessee Valley Authority
Shawnee Fossil Plant (SHF)
Hazard Potential Classification Assessment

Project Location: McCracken County, KY
Prepared by: BSJ on 2015-06-29
Technical Review by: mmm on 2016-09-30
Independent Review by: awg on 2015-09-30

0 200 400 Feet

1:4,800 (At Original document size of 11x17)



- Notes**
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
 2. TVA Aerial Imagery dated 2013.
 3. State boundaries produced by ESRI, U.S. Department of Commerce, U.S. Census Bureau.



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