



Stantec Consulting Services Inc.
10509 Timberwood Circle, Suite 100, Louisville, Kentucky 40223-5308

October 12, 2021
File: rpt_006_let_175568465
Revision 0

Tennessee Valley Authority
1101 Market Street
Chattanooga, Tennessee 37402

**RE: Periodic Hazard Potential Classification Assessment
 East Ash Disposal Area
 EPA CCR Rule
 TVA Allen Fossil Plant
 Memphis, Tennessee**

1.0 PURPOSE

This letter documents certification that the East Ash Disposal Area at the Tennessee Valley Authority (TVA) Allen Fossil Plant is in compliance with the hazard potential classification requirements set forth in 40 CFR 257.73(a)(2) of the EPA CCR Rule. The EPA CCR Rule requires periodic hazard classification assessments, certified by a professional engineer, every five years. The initial certification of hazard potential classification was placed in the operating record on October 12, 2016.

2.0 INITIAL HAZARD CLASSIFICATION ASSESSMENT

The initial hazard potential classification assessment is attached. The results of the initial assessment assigned a hazard potential classification rating of "significant" for the East Ash Disposal Area because a failure or mis-operation could result in off-site release of coal combustion residuals (CCR) and is unlikely to result in loss of human life.

3.0 CURRENT HAZARD CLASSIFICATION ASSESSMENT

Stantec reviewed the result of the initial hazard classification assessment and the changes in site conditions that have occurred in the past five years. The following items summarize changes that have occurred:

1. East Ash Disposal Area ceased receiving all CCR and non-CCR waste streams. The main spillway has been temporarily plugged and a drawdown/dewatering pump system has been installed that discharges to the Mississippi River.
2. East Ash Disposal Area operating pool level has decreased from El. 225.7 ft to El. 219.6 ft.
3. Cross-sectional geometry of the perimeter dike system has not changed.
4. Annual inspections indicate that stability related conditions have not changed.



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Re: **Periodic Hazard Potential Classification Assessment
East Ash Disposal Area
EPA CCR Rule
TVA Allen Fossil Plant
Memphis, Tennessee**

5. Monthly instrumentation (i.e., piezometer) monitoring conducted since 2015 has been reviewed and the phreatic condition at the critical cross section has reduced or remained consistent.

Based on our review, there are no conditions that have changed in the past five years that would cause the result of the initial hazard classification assessment to have changed.

4.0 SUMMARY OF ASSESSMENT

Based on a review of the initial hazard potential classification assessment and the current site conditions, the result of this hazard potential classification assessment is that the East Ash Disposal Area at the Allen Fossil Plant meets the requirements for classification as a "significant" hazard impoundment (as defined in 40 CFR § 257.53).

5.0 QUALIFIED PROFESSIONAL ENGINEER CERTIFICATION

I, Stephen H. Bickel, 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 hazard potential classification assessment for the TVA Allen Fossil Plant's East Ash Disposal Area meets the requirements specified in 40 CFR 257.73(a)(2).

SIGNATURE

DATE 10/12/2021

ADDRESS:

Stantec Consulting Services Inc.
10509 Timberwood Circle, Suite 100
Louisville, Kentucky 40223-5308

TELEPHONE:

(502) 212-5075





October 12, 2021

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Re: **Periodic Hazard Potential Classification Assessment**
East Ash Disposal Area
EPA CCR Rule
TVA Allen Fossil Plant
Memphis, Tennessee

ATTACHMENTS: Initial Hazard Potential Classification Assessment

INITIAL HAZARD POTENTIAL CLASSIFICATION ASSESSMENT



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

October 5, 2016
File: rpt_001_let_175565009
Revision 0

Tennessee Valley Authority
1101 Market Street
Chattanooga, Tennessee 37402

**RE: Initial Hazard Potential Classification Assessment
East Ash Disposal Area
EPA Final Coal Combustion Residuals (CCR) Rule
TVA Allen Fossil Plant
Memphis, Tennessee**

1.0 PURPOSE

This letter documents Stantec's certification of the initial hazard potential classification assessment for the TVA Allen Fossil Plant's East Ash Disposal Area. 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, the East Ash Disposal Area 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 the East Ash Disposal Area 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, a breach on the south side of the East Ash Disposal Area was modeled because several roads and water treatment facility buildings were identified in this area. It was determined that the roads were intermittently used and the at-risk populations were considered transient. Therefore probable loss of human life due to a breach was not envisioned. The analysis also indicated that flood depths and velocities at the water treatment facility buildings from a potential breach would be low and would not likely result in loss of life. To the north, a breach would likely result in the release of CCR materials to McKellar Lake. Review of the analysis and current conditions at the East Ash Disposal Area concluded that the existing hazard classification was applicable.



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**RE: Initial Hazard Potential Classification Assessment
East Ash Disposal Area
EPA Final Coal Combustion Residuals (CCR) Rule
TVA Allen Fossil Plant
Memphis, Tennessee**

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;
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 Allen Fossil Plant's East Ash Disposal Area meets the requirements specified in 40 CFR 257.73(a)(2).

SIGNATURE

DATE October 5, 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

Allen Fossil Plant – East Ash
Disposal Area
Memphis, Tennessee



Prepared for:
Tennessee Valley Authority
Chattanooga, Tennessee

Prepared by:
Stantec Consulting Services Inc.
Lexington, Kentucky

October 5, 2016
Revision 0

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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 the East Ash Disposal Area at Allen Fossil Plant (ALF) 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 the East Ash Disposal Area 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.

ALF is located in Shelby County Tennessee, on McKellar Lake, which is adjacent to the Mississippi River. The East Ash Disposal area is located east of the power plant and adjacent to McKellar Lake. A site overview figure is included in the appendix.

2.2 SOURCE DATA

For the ALF East Ash Disposal Area, an assessment was previously conducted in 2013. Based on the findings, it was recommended that the hazard classification be listed as a significant hazard.

2.3 POTENTIAL FAILURE SCENARIOS

As part of the 2013 study, a breach on the south side of the East Ash Disposal Area was modeled because several roads and water treatment facility buildings were identified in this area. It was determined that the roads were intermittently used and the at-risk populations were considered transient. Therefore probable loss of human life due to a breach was not envisioned. The analysis also indicated that flood depths and velocities at the water treatment facility buildings from a potential breach would be low and would not likely result in loss of life.

To the north of the East Ash Disposal Area is McKellar Lake. It was noted in the 2013 assessment that a breach in this direction 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 that the hazard classification determination is appropriate.

2.4 HAZARD CLASSIFICATION

Findings of this review and assessment demonstrate that a breach of the East Ash Disposal Area 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).

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



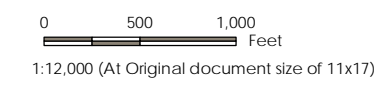
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Title
Site Overview
ALF - East Ash Disposal Area

Client/Project
Tennessee Valley Authority
Allen Fossil Plant (ALF)
Hazard Potential Classification Assessment

Project Location: Shelby County, TN

Prepared by B.S.J. on 2015-06-29
Technical Review by MMM on 2016-09-30
Independent Review by AWG on 2016-09-30



Notes

1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. TVA Aerial Imagery dated 2015.
3. State boundaries produced by ESRI, U.S. Department of Commerce, U.S. Census Bureau.



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