



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

October 5, 2016
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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
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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

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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

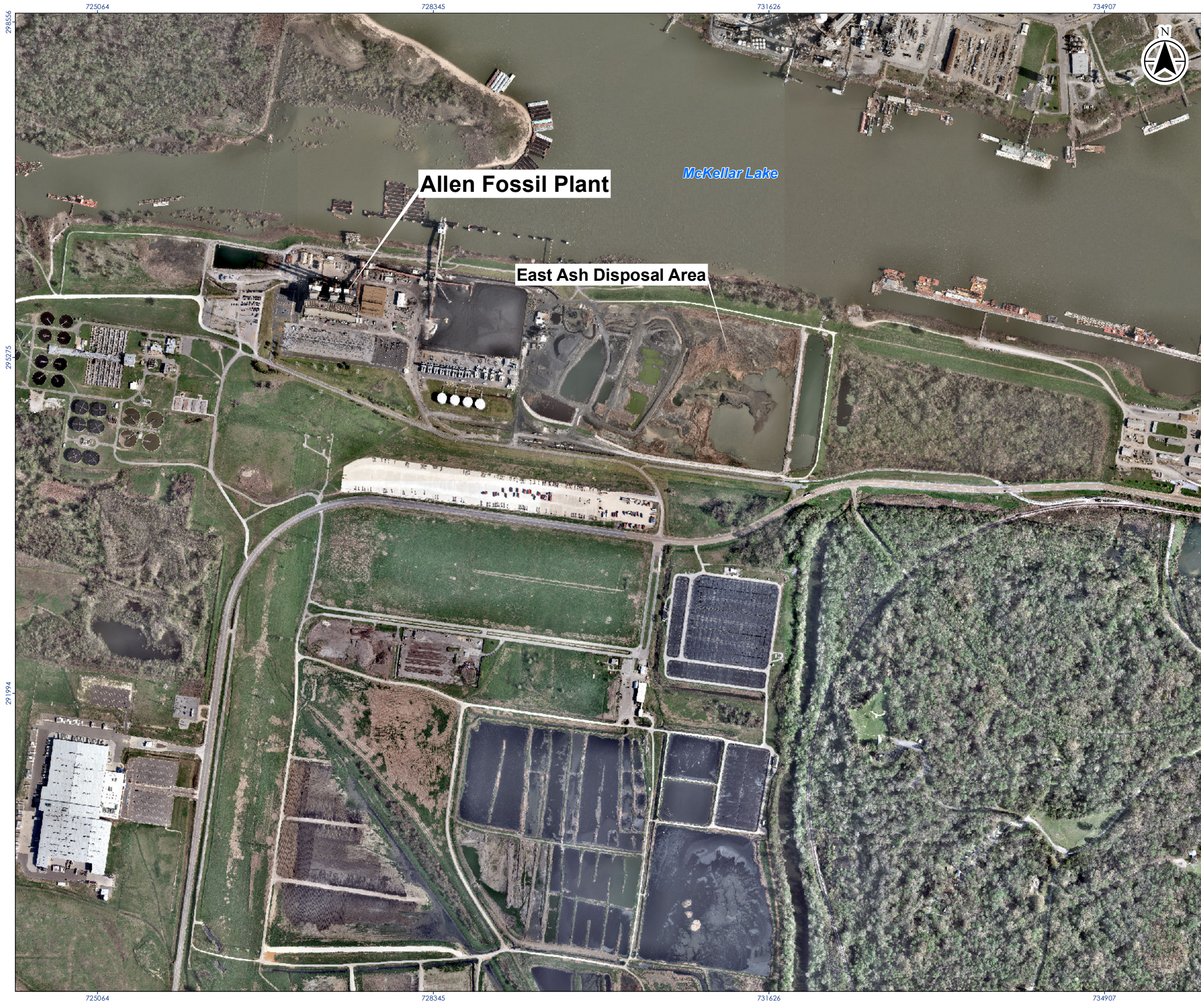
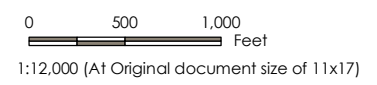


Figure No.
1

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: BSJ 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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 Revised: 2016-09-29 By: mpreene