



**Stantec Consulting Services Inc.**  
9200 Shelbyville Road, Suite 800, Louisville, Kentucky 40222-5112

April 12, 2023  
File: let\_009\_175578372  
Revision 0

Tennessee Valley Authority  
1101 Market Street  
Chattanooga, Tennessee 37402

**RE:     Periodic Hazard Potential Classification Assessment  
          Sluice Trench and Area East of Sluice Trench  
          EPA CCR Rule  
          TVA Kingston Fossil Plant  
          Harriman, Tennessee**

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## **1.0     PURPOSE**

This letter documents certification that the Sluice Trench and Area East of Sluice Trench at the Tennessee Valley Authority (TVA) Kingston Fossil Plant complies 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 qualified professional engineer, every five years. The initial certification of hazard potential classification was placed in the operating record on April 17, 2018.

## **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 "low" for the Sluice Trench and Area East of Sluice Trench 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     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 at the site.

In the initial assessment conducted in 2018, the unit was in the process of being closed; therefore, it was evaluated in the closed condition. Closure of the unit was complete on May 6, 2019, and was completed per the general design. Based on our current 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 periodic hazard potential classification assessment is that the Sluice Trench and Area East of Sluice Trench at the Kingston Fossil Plant meets the requirements for classification as a "low" hazard impoundment (as defined in 40 CFR § 257.53).



April 12, 2023

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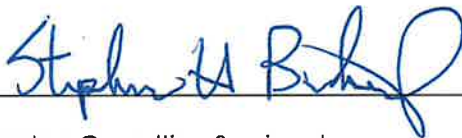
Re: **Periodic Hazard Potential Classification Assessment  
Sluice Trench and Area East of Sluice Trench  
EPA CCR Rule  
TVA Kingston Fossil Plant  
Harriman, Tennessee**

### 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 this periodic hazard potential classification assessment for the TVA Kingston Fossil Plant's Sluice Trench and Area East of Sluice Trench meets the requirements specified in 40 CFR 257.73(a)(2).

SIGNATURE



DATE 04/12/2023

ADDRESS:

Stantec Consulting Services Inc.  
9200 Shelbyville Road, Suite 800  
Louisville, Kentucky 40222-5212

TELEPHONE:

(502) 212-5075

ATTACHMENTS:

Initial Hazard Potential Classification Assessment



# **INITIAL HAZARD POTENTIAL CLASSIFICATION ASSESSMENT**



**Stantec Consulting Services Inc.**  
3052 Beaumont Centre Circle, Lexington KY 40513-1074

June 4, 2018  
File: rpt\_036\_let\_175565009  
Revision 1

Tennessee Valley Authority  
1101 Market Street  
Chattanooga, Tennessee 37402

**Re: Initial Hazard Potential Classification Assessment  
Sluice Trench and Area East of Sluice Trench  
EPA Final Coal Combustion Residuals (CCR) Rule  
TVA Kingston Fossil Plant  
Harriman, Tennessee**

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## **1.0 PURPOSE**

This letter documents Stantec Consulting Services Inc.'s (Stantec) certification of the initial hazard potential classification assessment for the TVA Kingston Fossil Plant's Sluice Trench and Area East of Sluice Trench. 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 Sluice Trench and Area East of Sluice Trench 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 the Sluice Trench and Area East of Sluice Trench 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."



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**Re: Initial Hazard Potential Classification Assessment  
Sluice Trench and Area East of Sluice Trench  
EPA Final Coal Combustion Residuals (CCR) Rule  
TVA Kingston Fossil Plant  
Harriman, Tennessee**

**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 Kingston Fossil Plant's Sluice Trench and Area East of Sluice Trench meets the requirements specified in 40 CFR 257.73(a)(2).

SIGNATURE

DATE

ADDRESS:

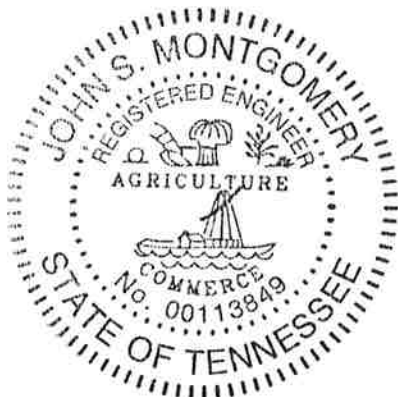
Stantec Consulting Services Inc.  
3052 Beaumont Centre Circle  
Lexington, Kentucky 40513-1703

TELEPHONE:

(859) 422-3000

ATTACHMENTS:

Initial Hazard Potential Classification Assessment



## **Initial Hazard Potential Classification Assessment**

Kingston Fossil Plant  
Sluice Trench and Area East of  
Sluice Trench  
Harriman, Tennessee



Prepared for:  
Tennessee Valley Authority  
Chattanooga, Tennessee

Prepared by:  
Stantec Consulting Services Inc.  
Lexington, Kentucky

June 4, 2018

Revision 1

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## INITIAL HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

Rating  
June 4, 2018

### 1.0 RATING

The Sluice Trench and Area East of Sluice Trench at the Kingston Fossil Plant (KIF) is regulated under 40 CFR § 257 Subpart D as an inactive surface impoundment. 40 CFR § 257.100(e)(3)(v) of the EPA Final Coal Combustion Residuals (CCR) Rule requires that a hazard potential classification assessment be prepared and placed in the facility's operating record by April 17, 2018.

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 40 CFR § 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 Sluice Trench and Area East of Sluice Trench 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 review of available data.



# INITIAL HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

Basis of Rating  
June 4, 2018

## 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 for selected impoundments at various TVA Plants.

KIF is located in Roane County, Tennessee adjacent to Watts Bar Lake of the Emory River, approximately 40 miles west of Knoxville, Tennessee. The Sluice Trench and Area East of Sluice Trench is located northeast of the plant. Active ash sluicing operations into the Sluice Trench ceased in October 2015. A Notification of Intent to Initiate Closure was placed in the facility's operating record on December 15, 2015.

Historically, bottom ash sluice and other plant process waters were directed to the Sluice Trench and then to three 48" diameter pipes that discharged into the Stilling Pond. After sluicing operations ceased, the Sluice Trench and Area East of Sluice Trench was reconfigured. Bottom ash is now processed through the Bottom Ash Dewatering Facility. Process water is routed to a lined water quality channel (south of the former Sluice Trench), then flows to an inflow channel which discharges into a polishing pond. The polishing pond is approximately 6.6 acres in size with an operating depth of 5.5 feet and a capacity of approximately 32.8 acre-feet. The pond discharges through an outlet structure and ultimately to Outfall 001.

Another feature is the East Dike. This is an earth embankment which formed the eastern boundary of the former CCR surface impoundment.

Figure 1 shows the approximate limits of the Sluice Trench and Area East of Sluice Trench CCR unit and the current features described.

## INITIAL HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

Basis of Rating  
June 4, 2018



**Figure 1 Site Overview**

Much of the Sluice Trench and Area East of Sluice Trench containing CCRs has been closed by regrading the ash and constructing cover systems. The cover systems beneath the polishing pond and water quality/inflow channels include geosynthetic materials. The area west of the water quality/inflow channel was covered with two feet of soil. Current planning calls for the area between the polishing pond/water quality/inflow channel and the East Dike to be covered in 2018.

There is no documentation available of a previous hazard potential classification assessment for the Sluice Trench and Area East of Sluice Trench, 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.

## INITIAL HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

Basis of Rating  
June 4, 2018

### 2.2 SOURCE DATA

The following information was used to perform the hazard assessment of the Sluice Trench and Area East of Sluice Trench:

- Drainage and Flow Management (Downstream) drawings prepared by AECOM dated June 1, 2016
- Polishing Pond Engineering Report – Drainage and Flow Management Project (Downstream) prepared by AECOM dated April, 2016
- Ball Field Interim Ash Staging Area Closure drawings prepared by AECOM dated June 1, 2016
- Seepage Mitigation Engineering Report – East Dike Seepage Mitigation Project prepared by AECOM dated June, 2017
- Evaluation of Existing Geotechnical Data Report, Revision 2, prepared by Stantec dated March 2, 2018.
- Kingston Fossil Plant Channel and Pad Liner Final As-Builts prepared by Trans-Ash dated October 16, 2015
- Kingston Fossil Plant Channel and Pad Liner sketches prepared by Trans-Ash dated June 26, 2015
- Aerial Imagery prepared by Tuck Mapping Solutions, Inc. dated November, 2014 and March, 2017

### 2.3 POTENTIAL FAILURE SCENARIOS

The Sluice Trench and Area East of Sluice Trench is in the process of being closed and no longer impounds or functions to retain CCR water. The most likely failure scenario for the Sluice Trench and Area East of Sluice Trench would be a mis-operation of the polishing pond leading to overtopping. It is anticipated that any erosion occurring due to the pond overtopping would likely be limited in size, could be mitigated, and any off-site release would be de minimis.

### 2.4 HAZARD CLASSIFICATION

It is Stantec's opinion that any impacts from a failure of the Sluice Trench and Area East of Sluice Trench would be principally limited to TVA property and would result in no probable loss of life. Therefore, the impoundment fits the definition for a low hazard potential CCR surface impoundment as defined in the EPA Final CCR Rule §257.53.

## INITIAL HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

References  
June 4, 2018

### 3.0 REFERENCES

1. Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule. 80 FR 21301, April 17, 2015.
2. Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Extension of Compliance Deadlines for Certain Inactive Surface Impoundments; Response to Partial Vacatur. 81 FR 51802, August 5, 2016.
3. AECOM, June 1, 2016. Drainage and Flow Management (Downstream) drawings, Kingston Fossil Plant.
4. AECOM, June 1, 2016. Polishing Pond Engineering Report – Drainage and Flow Management Project (Downstream), Kingston Fossil Plant.
5. AECOM, June 1, 2016. Ball Field Interim Ash Staging Area Closure drawings, Kingston Fossil Plant.
6. AECOM, June, 2017. Seepage Mitigation Engineering Report – East Dike Seepage Mitigation Project.
7. Stantec, March 2, 2018. Evaluation of Existing Geotechnical Data, Kingston Fossil Plant. Revision 2.
8. Trans-Ash, October 16, 2015. Kingston Fossil Plant Channel and pad Liner Final As-Builts.
9. Trans-Ash, June 26, 2015. Kingston Fossil Plant Channel and pad Liner sketches.
10. Tuck Mapping Solutions, Inc., November 2014 and March 2017. Aerial Imagery, Kingston Fossil Plant.