



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

October 12, 2021  
File: rpt\_001\_let\_175568465  
Revision 0

Tennessee Valley Authority  
1101 Market Street  
Chattanooga, Tennessee 37402

**RE:     Periodic Hazard Potential Classification Assessment  
          Active Ash Pond 2  
          EPA CCR Rule  
          TVA Johnsonville Fossil Plant  
          New Johnsonville, Tennessee**

---

## **1.0     PURPOSE**

This letter documents certification that the Active Ash Pond 2 at the Tennessee Valley Authority (TVA) Johnsonville 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 potential classification assessments to be performed, along with a certification from a qualified 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 Active 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, or impact other concerns. Because the Active Ash Pond 2 is surrounded by Kentucky Lake, a breach in any direction would likely result in the off-site release of CCR into the waters of the United States with no 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. Coal fired power generation at Johnsonville ceased operation in December 2017. The plant is currently undergoing stages of demolition.
2. The Interim Flow Management system (IFM) was put into operation and commissioned in April 2021. All previous flows to the pond are now processed through the IFM and then discharged directly into two of the spillway structures. The spillway was modified to handle the flow from the IFM with no reduction in conveyance capacity. The pond level has been



October 12, 2021

Page 2 of 3

Re: **Periodic Hazard Potential Classification Assessment**  
**Active Ash Pond 2**  
**EPA CCR Rule**  
**TVA Johnsonville Fossil Plant**  
**New Johnsonville, Tennessee**

reduced by about two feet, resulting in a positive effect on hazard potential by reducing the amount of water that would be released in the event of a failure.

3. Cross-sectional geometry of the perimeter dike system has not changed.
4. Summer and winter pool levels for Kentucky Lake have remained unchanged.
5. Annual and weekly inspections conducted since 2015 were reviewed as part of this assessment. There were no observations of deficiencies that would negatively affect the result of the hazard classification assessment.

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 potential classification assessment to have changed.

#### **4.0 SUMMARY OF ASSESSMENT**

Based on a review of the initial hazard potential classification assessment and the items listed in Section 3.0, the result of this hazard potential classification assessment is that the Active Ash Pond 2 at the Johnsonville Fossil Plant meets the requirements for classification as a “significant” hazard impoundment (as defined in 40 CFR § 257.53).



October 12, 2021  
Page 3 of 3

Re: **Periodic Hazard Potential Classification Assessment  
Active Ash Pond 2  
EPA CCR Rule  
TVA Johnsonville Fossil Plant  
New Johnsonville, 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 Johnsonville Fossil Plant's Active Ash Pond 2 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

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\_003\_let\_175565009  
Revision 0

Tennessee Valley Authority  
1101 Market Street  
Chattanooga, Tennessee 37402

**RE: Initial Hazard Potential Classification Assessment  
Active Ash Pond 2  
EPA Final Coal Combustion Residuals (CCR) Rule  
TVA Johnsonville Fossil Plant  
New Johnsonville, Tennessee**

---

## 1.0 PURPOSE

This letter documents Stantec's certification of the initial hazard potential classification assessment for the TVA Johnsonville Fossil Plant's Active 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, the Active 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 the Active 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, a study was completed that reviewed impacts of a potential failure. Because the Active Ash Pond 2 is surrounded by Kentucky Lake, a breach in any direction would likely result in the off-site release of CCRs into the waters of the United States. However, given the small size of the ash pond relative the surrounding water, it was concluded that a failure would result in no loss of human life. Review of the analysis and current conditions at the Active 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."



October 5, 2016  
Page 2 of 2

**RE: Initial Hazard Potential Classification Assessment  
Active Ash Pond 2  
EPA Final Coal Combustion Residuals (CCR) Rule  
TVA Johnsonville Fossil Plant  
New Johnsonville, 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 Johnsonville Fossil Plant's Active Ash Pond 2 meets the requirements specified in 40 CFR 257.73(a)(2).

SIGNATURE John S. Montgomery

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**

Johnsonville Fossil Plant – Active  
Ash Pond 2  
New Johnsonville, Tennessee



Prepared for:  
Tennessee Valley Authority  
Chattanooga, Tennessee

Prepared by:  
Stantec Consulting Services Inc.  
Lexington, Kentucky

October 5, 2016  
Revision 0

# INITIAL HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

## Table of Contents

<b>1.0</b>	<b>RATING .....</b>	<b>1</b>
<b>2.0</b>	<b>BASIS OF RATING .....</b>	<b>2</b>
2.1	INTRODUCTION.....	2
2.2	SOURCE DATA .....	2
2.3	POTENTIAL FAILURE SCENARIOS .....	2
2.4	HAZARD CLASSIFICATION .....	2
<b>3.0</b>	<b>REFERENCES.....</b>	<b>3</b>
<b>APPENDIX</b>	<b>SITE OVERVIEW FIGURE</b>	



# INITIAL HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

Rating  
October 5, 2016

## 1.0 RATING

This report documents the hazard potential classification assessment for the Active Ash Pond 2 at Johnsonville Fossil Plant (JOF) 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 Active 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.

JOF is located on the eastern shore of Kentucky Lake, an impoundment of the Tennessee River, one mile northwest of New Johnsonville, Tennessee. A site overview figure is included in the appendix.

### 2.2 SOURCE DATA

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

### 2.3 POTENTIAL FAILURE SCENARIOS

It was concluded in the 2013 study that because the Active Ash Pond 2 is surrounded by Kentucky Lake, a breach in any direction would likely result in the off-site release of CCRs into the waters of the United States. However, because of the size of Active Ash Pond 2 relative to the adjacent waters, a breach would not result in loss of human life.

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 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





Figure No.

1

Title

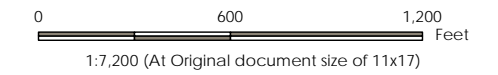
**Site Overview**  
**JOF - Active Ash Pond 2**

Client/Project

Tennessee Valley Authority  
 Johnsonville Fossil Plant (JOF)  
 Hazard Potential Classification Assessment

Project Location:  
 Humphreys County, TN

Prepared by MLW on 2015-06-29  
 Technical Review by mmm on 2016-09-30  
 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.



V:\17556\active\17556\_500\Map\Johnsonville\01.mxd  
 Revised: 2016-09-30 By: mmeshun  
 1377950