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

April 12, 2018
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Revision 0

Tennessee Valley Authority
1101 Market Street
Chattanooga, Tennessee 37402

Re: Initial Hazard Potential Classification Assessment
Stilling Pond
EPA Final Coal Combustion Residuals (CCR) Rule
TVA Kingston Fossil Plant
Harriman, Tennessee

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 Stilling Pond. 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 Stilling Pond 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 Stilling Pond 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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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 Stilling Pond meets the requirements specified in 40 CFR 257.73(a)(2).

SIGNATURE John S. Montgomery DATE April 12, 2018

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
Stilling Pond
Harriman, Tennessee

Prepared for:
Tennessee Valley Authority
Chattanooga, Tennessee

Prepared by:
Stantec Consulting Services Inc.
Lexington, Kentucky

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LIST OF FIGURES

1.0 RATING

The Stilling Pond 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 Stilling Pond 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.

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 Stilling Pond is located northeast of the plant. Ash sluicing operations into the pond ceased in October 2015. A Notice of Intent to Initiate Closure was placed in the operating record on December 15, 2015. The Stilling Pond is in the process of being closed. Closure of the pond includes: removal of impounded water, placement of subgrade, and construction of an engineered cap system over the subgrade. At the time of this report, the pool has been eliminated, subgrade has been placed, and the majority of the cap system has been placed. Closure is anticipated to be complete in May, 2018. The facility no longer functions as an impoundment. A plan view showing the surface contours of the closed facility is provided as Figure 1.

Two flumes and a perimeter ditch will control surface water runoff from the closed facility. The perimeter ditch will convey stormwater to a culvert at the eastern edge of the closed facility. This culvert consists of four 48" diameter pipes which will outlet to the Emory River.

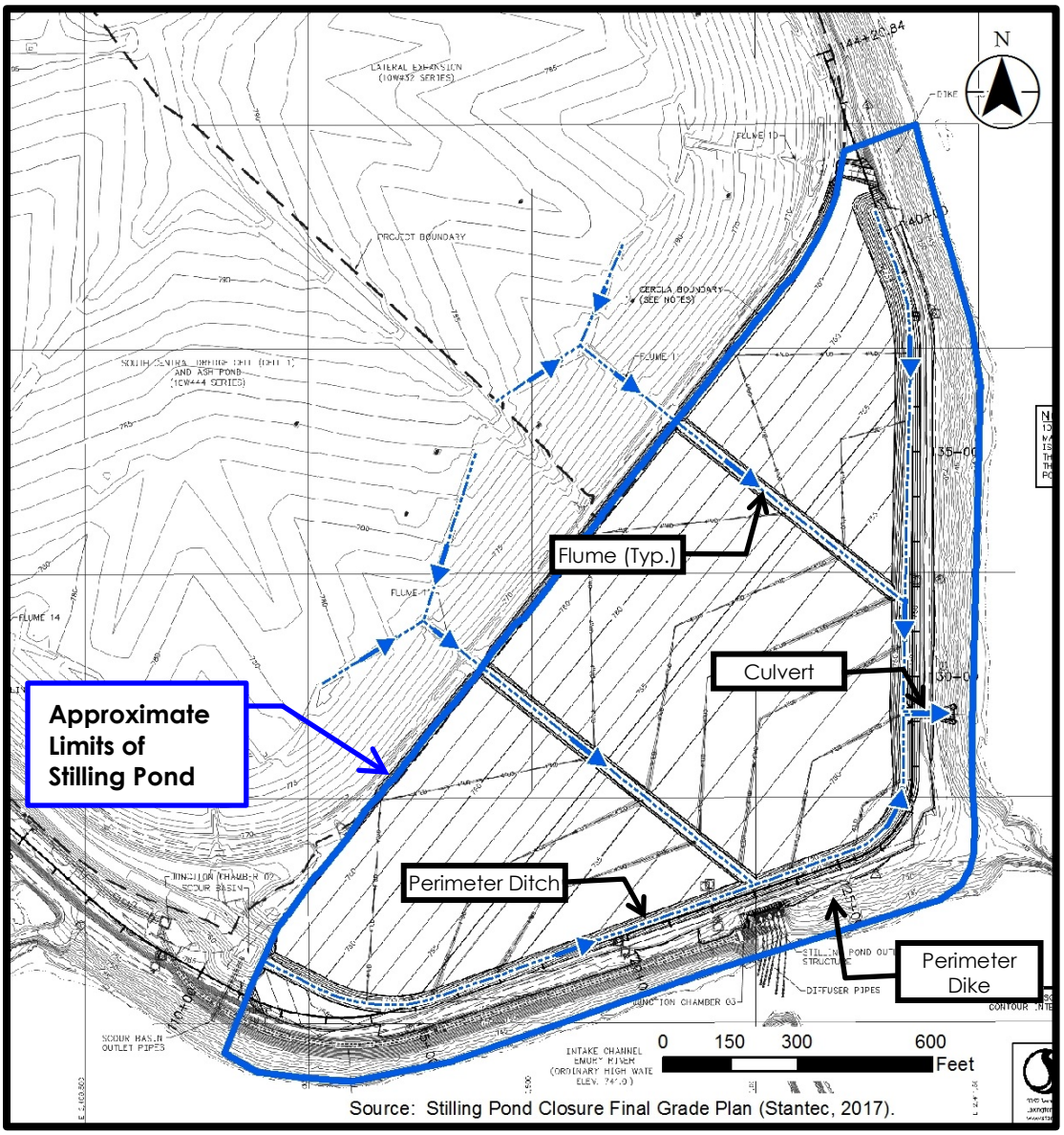

Figure 1 Site Overview

The hazard classification of the Stilling Pond was assessed in 2013 at a time when the pond operated as a CCR impoundment. Due to revised conditions occurring as part of the closure process, Stantec has prepared this updated assessment.

2.2 SOURCE DATA

The following information was used to perform the hazard assessment of the Stilling Pond:

- Basis of Design Report (dated March 29, 2017) documenting closure design of the unit.
- Photographs (dated February 27, 2018) depicting the Stilling Pond closure construction.

2.3 POTENTIAL FAILURE SCENARIOS

The Stilling Pond is in the process of being closed and once closed will no longer impound water. Therefore, a typical breach analysis is not appropriate. This assessment considered possible deformation and release of material assuming a postulated perimeter slope failure. The perimeter slope is an earthen embankment that was constructed to form the original pond, overlain by a rock buttress with a graded filter. Closure design evaluated deformation of the slope considering seismic loading conditions. Results of this analysis concluded that localized ground deformations would occur, but would not result in a massive outward flow (flow failure) wherein CCR material would displace into the river. A photograph of the Stilling Pond depicting the placement of liner and the cover material (dated February 27, 2018) is shown in Figure 2.

Figure 2 Stilling Pond Closure Construction (February 27, 2018)

2.4 HAZARD CLASSIFICATION

It is Stantec's opinion that impacts associated with a failure of the Stilling Pond slopes 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.

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. Stantec Consulting Services Inc., September 30, 2013. Dam Safety Hazard Classification Projects Summary Report.

4. Stantec, March 29, 2017. Basis of Design Report (Rev. 0) Stilling Pond Closure, Kingston Fossil Plant.