



October 6, 2016
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Revision 0

Tennessee Valley Authority
1101 Market Street
Chattanooga, Tennessee 37402

**RE: Initial Hazard Potential Classification Assessment
Slag Stilling Pond 2C
EPA Final Coal Combustion Residuals (CCR) Rule
TVA Paradise Fossil Plant
Drakesboro, Kentucky**

1.0 PURPOSE

This letter documents Stantec's certification of the initial hazard potential classification assessment for the TVA Paradise Fossil Plant's Slag Stilling Pond 2C. 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, Slag Stilling Pond 2C 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 Slag Stilling Pond 2C because a failure or mis-operation would result in no probable loss of human life, but could result in off-site release of process waters or CCRs into the Green River.

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."



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4.0 QUALIFIED PROFESSIONAL ENGINEER CERTIFICATION

I, John S. Montgomery, being a Professional Engineer in good standing in the Commonwealth of Kentucky, 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 Paradise Fossil Plant's Slag Stilling Pond 2C meets the requirements specified in 40 CFR 257.73(a)(2).

SIGNATURE

DATE October 6, 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

Paradise Fossil Plant – Slag Stilling
Pond 2C
Drakesboro, Kentucky



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 6, 2016

1.0 RATING

This report documents the Hazard Potential Classification Assessment for Slag Stilling Pond 2C at Paradise Fossil Plant (PAF) 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 Slag Stilling Pond 2C 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 observation of site conditions and review of available mapping.

INITIAL HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

Basis of Rating
October 6, 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.

PAF is located in Muhlenberg County, Kentucky. The plant is located adjacent to the Green River, approximately 50 miles northwest of Bowling Green, KY. Slag Stilling Pond 2C is located to the east of Slag Pond 2B and adjacent to the Green River. The pond receives process water from Slag Pond 2B through a concrete flume. The pond has 3 spillway structures consisting of a 48-inch diameter concrete riser and a 36-inch diameter reinforced concrete pipe (RCP) outlet. The layout of the facility and the potential failure directions are shown in the Appendix.

There is no available documentation of a previous hazard potential classification assessment for Slag Stilling Pond 2C. Therefore, Stantec has prepared this assessment for the unit.

2.2 SOURCE DATA

The following information was used to perform the hazard assessment of Stilling Pond 2C:

- Aerial Imagery (TVA Aerial Imagery dated 2016).
- Topographic Information (Tuck Mapping Solutions Inc. dated February, 2013 for the area around the Slag Stilling Pond).

2.3 POTENTIAL FAILURE SCENARIOS

Stilling Pond 2C is adjacent to Slag Pond 2B to the west. The normal water surface in Slag Pond 2B is approximately 412 feet, whereas the normal water surface elevation in Slag Stilling Pond 2C is approximately 408 feet. Because the water surface elevation is higher in Slag Pond 2B compared to the Stilling Pond 2C, a breach of the Stilling Pond 2C in the direction of Slag Pond 2B is not considered plausible.

A breach to the east would result in release of flow and possibly CCRs to the Green River.

A breach to the southeast would result in flow to Red Water Pond 1. It is possible this inflow could cause the Red Water Pond 1 to overflow into the Green River.

There is an on-site access road that could be impacted by either breach. Its location is shown on the figure provided in the appendix. Traffic over the road is intermittent. No other structures or critical infrastructure are located in the flow path of a potential breach.

INITIAL HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

Basis of Rating
October 6, 2016

Finally, given the small volume within Slag Stilling Pond 2C and Red Water Pond 1 relative to the Green River, impacts of a breach hydrograph on Green River's water surface elevation would be limited and would not likely impact critical infrastructure.

Based on these observations and reviews, it is Stantec's opinion a breach of Slag Stilling Pond 2C would result in no probable loss of human life.

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 CCR Rule §257.53).

INITIAL HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

References
October 6, 2016

3.0 REFERENCES

1. Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities [RIN-2050-AE81; FRL-9149-4]. April 2015.

APPENDIX BREACH SCENARIOS

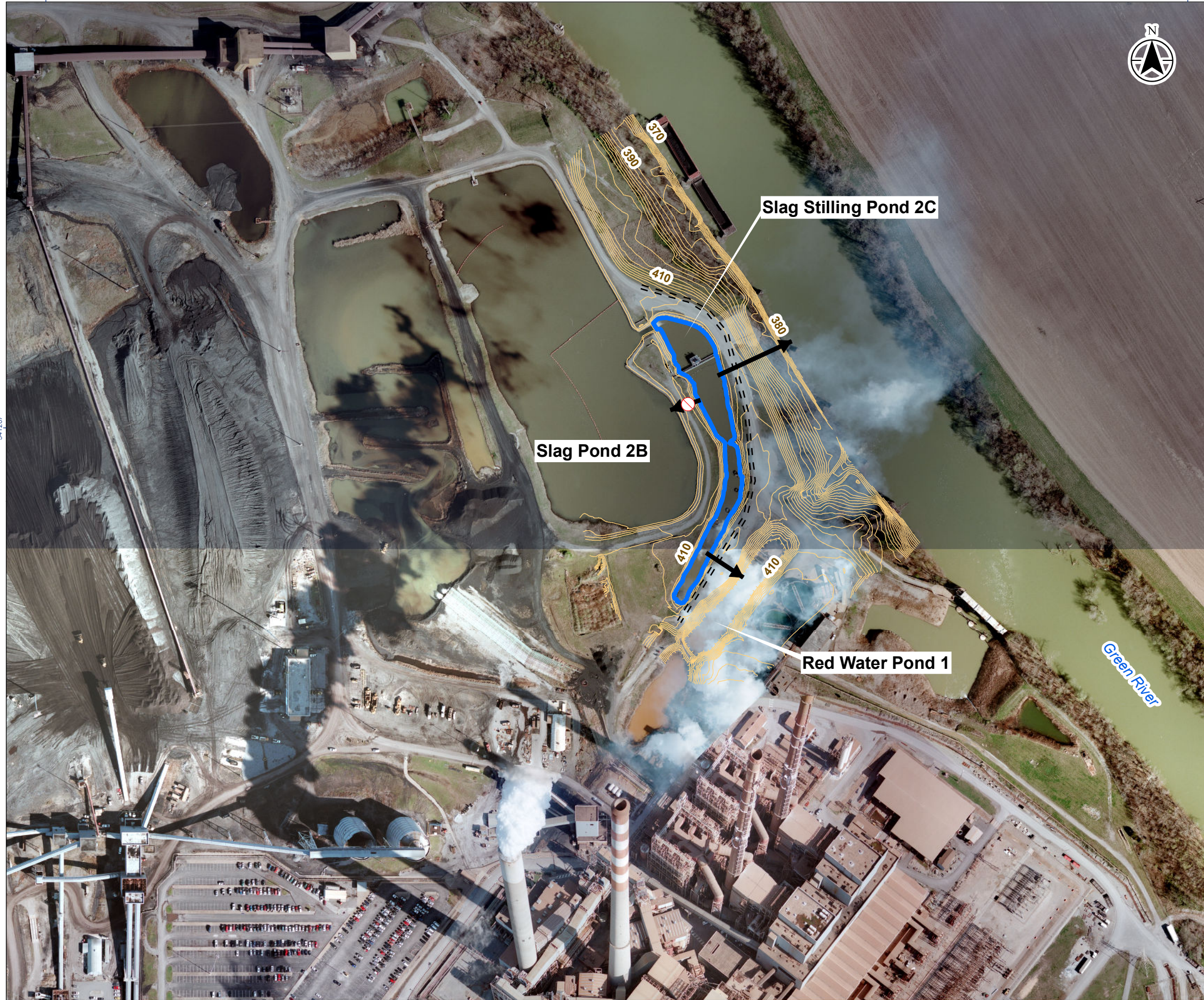


Figure No.

1

Title

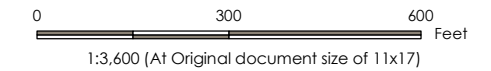
Breach Scenarios PAF - Slag Stilling Pond 2C

Client/Project

Tennessee Valley Authority
Paradise Fossil Plant (PAF)
Hazard Potential Classification Assessment

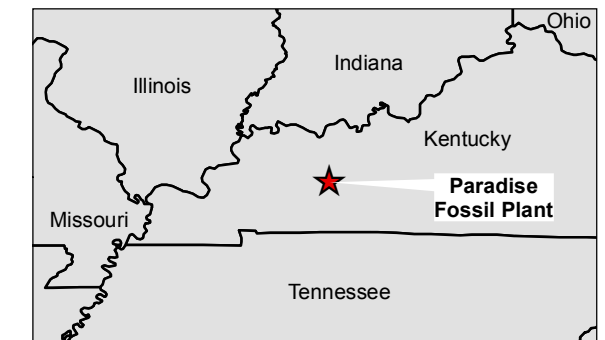
Project Location:

Muhlenburg County, KY
Prepared by mmm on 2015-10-21
Technical Review by awg on 2016-09-30
Independent Review by WRM on 2016-09-30



Legend

- Potential Breach Direction of Flow
- Direction in Which Breach Cannot Occur
- Access Roads Potentially Impacted by Breach
- 10ft Contours
- Approximate Facility Limits



Notes

1. Coordinate System: NAD 1927 StatePlane Kentucky South FIPS 1602
2. Topographic data from TVA dated February, 2013.
3. TVA Aerial Imagery dated 2016.



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