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April 13, 2018

Tennessee Valley Authority
1101 Market Street
Chattanooga, Tennessee 37402

Initial Inflow Design Flood Control System Plan
Sluice Trench and Area East of the Sluice Trench
EPA Final CCR Rule
TVA Kingston Fossil Plant
Roane County, Tennessee

1.0 PURPOSE

This letter documents AECOM's certification of the initial inflow design flood control system plan for the TVA Kingston Fossil Plant's Sluice Trench and Area East of the Sluice Trench. Based on the assessment, the Sluice Trench and Area East of the Sluice Trench comply with the inflow design flood control requirements in the Final CCR Rule 40 CFR §257.82.

2.0 INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN

As described in 40 CFR §257.82(c), an inflow design flood control system plan must be prepared to document how the inflow design flood control system has been designed and constructed to manage the design storm required by the hazard classification. Based on the Hazard Potential Classification, the Sluice Trench and Area East of the Sluice Trench have been assigned a significant hazard potential classification rating. However, under existing conditions, the Sluice Trench is completely closed and cannot impound water. Therefore, hydraulic calculations are not necessary for this demonstration.

4.0 Limitations

The signature of AECOM's authorized representative on this document represents that to the best of AECOM's knowledge, information and belief in the exercise of its professional judgment, it is AECOM's professional opinion that the aforementioned information is accurate as of the date of such signature. Any recommendation, opinion, or decisions by AECOM are made on the basis of AECOM's experience, qualifications and professional judgment and are not to be construed as warranties or guaranties. In addition, opinions relating to environmental, geologic, and geotechnical conditions or other estimates are based on available data and actual conditions may vary from those encountered at the times and locations where data are obtained, despite the use of due care.

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4.0 Qualified Professional Engineer Certification

I, Thomas A. Kovacic PE, 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 inflow design flood control system plan for the TVA Kingston Fossil Plant's Sluice Trench and Area East of the Sluice Trench meet the requirements specified in 40 CFR §257.82(a), (b), and (c)(1).

SIGNATURE _____ DATE 4/13/18

ADDRESS: AECOM

1300 E. 9th Street, Suite 500

Cleveland, OH 44114

TELEPHONE: (216) 622-2300

ATTACHMENTS: Initial Inflow Design Flood Control System Plan for Coal Combustion Residuals (CCR) Inactive Surface Impoundment

COAL COMBUSTION PRODUCT DISPOSAL PROGRAM

TENNESSEE VALLEY AUTHORITY - SLUICE TRENCH AND AREA EAST OF THE SLUICE TRENCH
KINGSTON FOSSIL PLANT
HARRIMAN, TENNESSEE

INITIAL INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN (40 CFR §257.82) FOR COAL COMBUSTION RESIDUALS (CCR)

EXISTING SURFACE IMPOUNDMENT

Prepared for

Tennessee Valley Authority
1101 Market Street
Chattanooga, TN 37402-2801

April 13, 2018

Prepared by

AECOM

TABLE OF CONTENTS

FIGURES

APPENDICIES

1.0 BACKGROUND

This plan outlines compliance to **Rule §257.82** of the EPA Final CCR Rule.

The owner or operator of an existing CCR surface impoundment must design, construct, operate, and maintain an inflow design flood control system as specified in **Rule §257.82 (a),** which is directly stated below for clarity.

Rule §257.82(a)(1): The inflow design flood (IDF) control system must adequately manage flow into the CCR unit during and following the peak discharge of the inflow design flood.

Rule §257.82(a)(2): The inflow design flood control system must adequately manage flow from the CCR unit to collect and control the peak discharge resulting from the inflow design flood.

Rule §257.82(a)(3): The inflow design flood is:

(i): For a high hazard potential CCR surface impoundment, the probable maximum flood;

(ii): For a significant hazard potential CCR surface impoundment, the 1,000-year flood;

(iii): For a low hazard potential CCR surface impoundment, the 100-year flood; or

(iv): For an incised CCR surface impoundment, the 25-year flood.

According to **Rule §257.82(b)**, discharge from the CCR unit must be handled in accordance with the surface water requirements under **§257.3-3.**

Section **§257.82(c)(1)** states that the owner or operator must prepare initial and periodic inflow design flood control system plans for the CCR unit according to the timeframes specified in paragraphs **(c)(3)** and **(4)**. The plans must document how the inflow design flood control system has been designed and constructed to meet the requirements of the section. Each plan must be supported by appropriate engineering calculations. The owner or operator of the CCR unit has completed the inflow design flood control system plan when the plan has been placed in the facility's operating record.

Section **§257.82(c)(2)** allows amendments to the written inflow design flood control system plan at any time and requires amendments to the written inflow design flood control system plan whenever there is a change in conditions that would substantially affect the written plan in effect. The revised plan must be placed in the facility's operating record.

Section **§257.82(c)(3)** requires that the initial inflow design flood control system plan be completed no later than October 17, 2016.

Section **§257.82(c)(4)** states that the owner or operator must prepare periodic inflow design flood control system plans every five years.

Section **§257.82(c)(5)** requires a certification from a qualified professional engineer stating that the initial and periodic inflow design flood control system plans meet the requirements of **Rule §257.82**.

According to **Rule §257.82(d)**, the owner or operator must comply with recordkeeping, notification, and internet requirements specified elsewhere in the Rule.

1.1 SITE LOCATION

Tennessee Valley Authority (TVA) owns and operates the Kingston Fossil Plant (KIF) in Harriman, Roane County, Tennessee. KIF is located in Watts Bar Reservoir on the confluence of the Emory and Clinch Rivers. The Sluice Trench and Area East of the Sluice Trench are centrally located within KIF and adjacent to the Emory River (See **Figure 1**). The Sluice Trench is an inactive Coal Combustion Residual (CCR) impoundment that was closed and capped in 2017. Closure began in 2016 and was completed in September of 2017. The Non-CCR Process Water Basin was constructed over the capped Sluice Trench to provide water treatment for KIF process flow. The Area East of Sluice Trench will be closed in 2018 but cannot currently impound water.

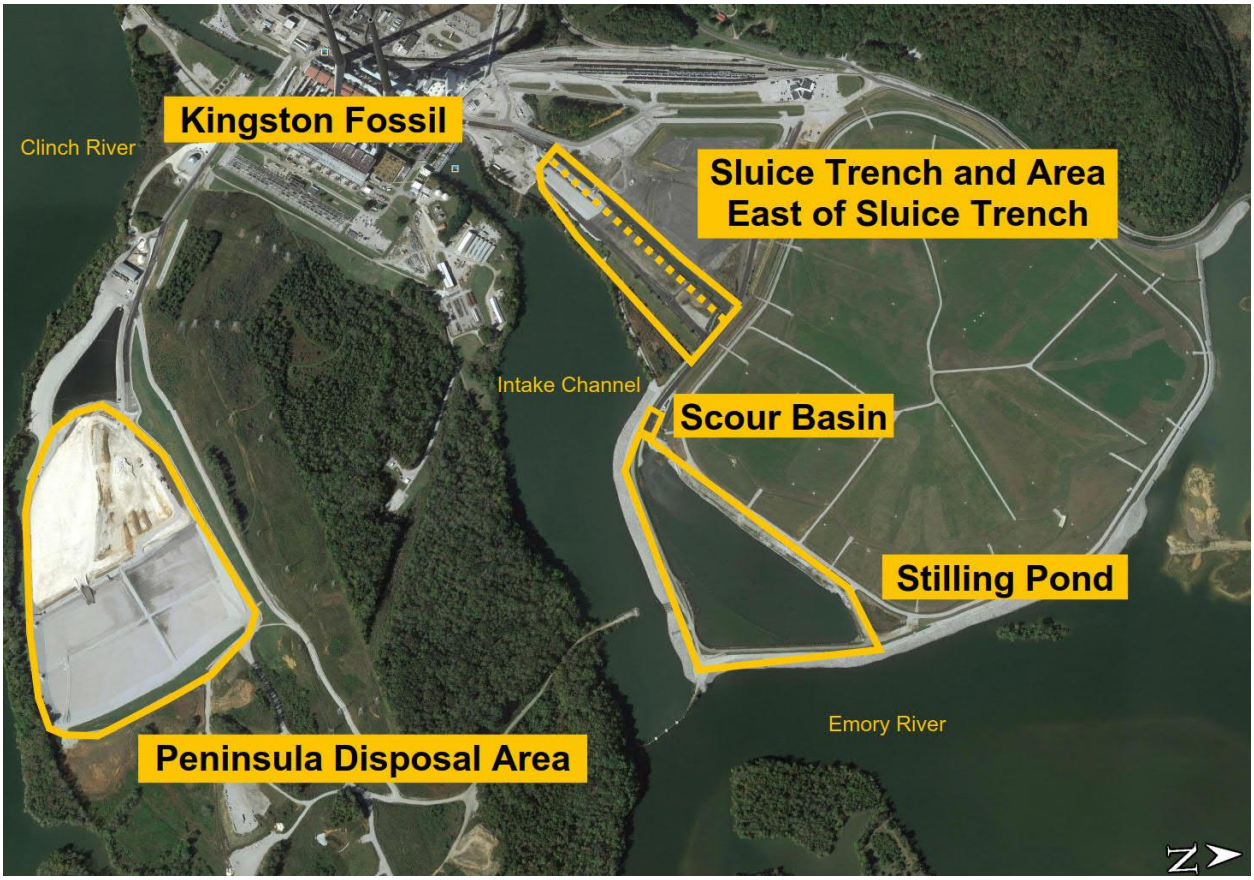


Figure 1: Site Overview

1.2 SITE HISTORY

The Sluice Trench was constructed in the southeastern portion of the Initial Ash Pond. As of October 14, 2015, TVA began managing bottom ash from the plant by sluicing it to a series of freestanding tanks. The Sluice Trench was closed in place between 2016 and September 2017. CCRs were removed to the extent possible prior to closure. Refer to the Kingston Fossil Plant

(KIF) Sluice Trench and Area East of the Sluice Trench Closure (40 CFR 257.102(B)(1)) and Post-Closure Plan ((40 CFR 257.104(D)(1)) For Coal Combustion Residuals (CCR) for details on the closure of The Sluice Trench.

2.0 EXISTING CONDITIONS - §257.82(a)(1)

Under existing conditions, the Sluice Trench cannot impound water and its closure cap surface area drains to the Scour Basin. The Scour Basin has a total drainage area of approximately 112 acres. The following areas are included in the drainage area:

- The Closed Recovery Area
- Ditch 11 and surrounding areas
- The Initial Ash Pond Cap Closure system
- The Dewatering Facility
- The Scour Basin

Stormwater runoff from the south Initial Ash Pond Closure area, Dewatering Facility, and Sluice Trench closure drain to a perimeter ditch and gravity flows to Ditch 11. The closed Recovery Area, Initial Ash Pond Closure area, and areas surrounding Ditch 11 gravity flow through Ditch 11 to the Scour Basin. The Scour Basin includes a drop box and culvert outlet structure and conveys stormwater to the new stormwater outfall that discharges into the Emory River through the approved National Pollutant Discharge Elimination System (NPDES) outfall. See the attached reference drawings in Appendix A.

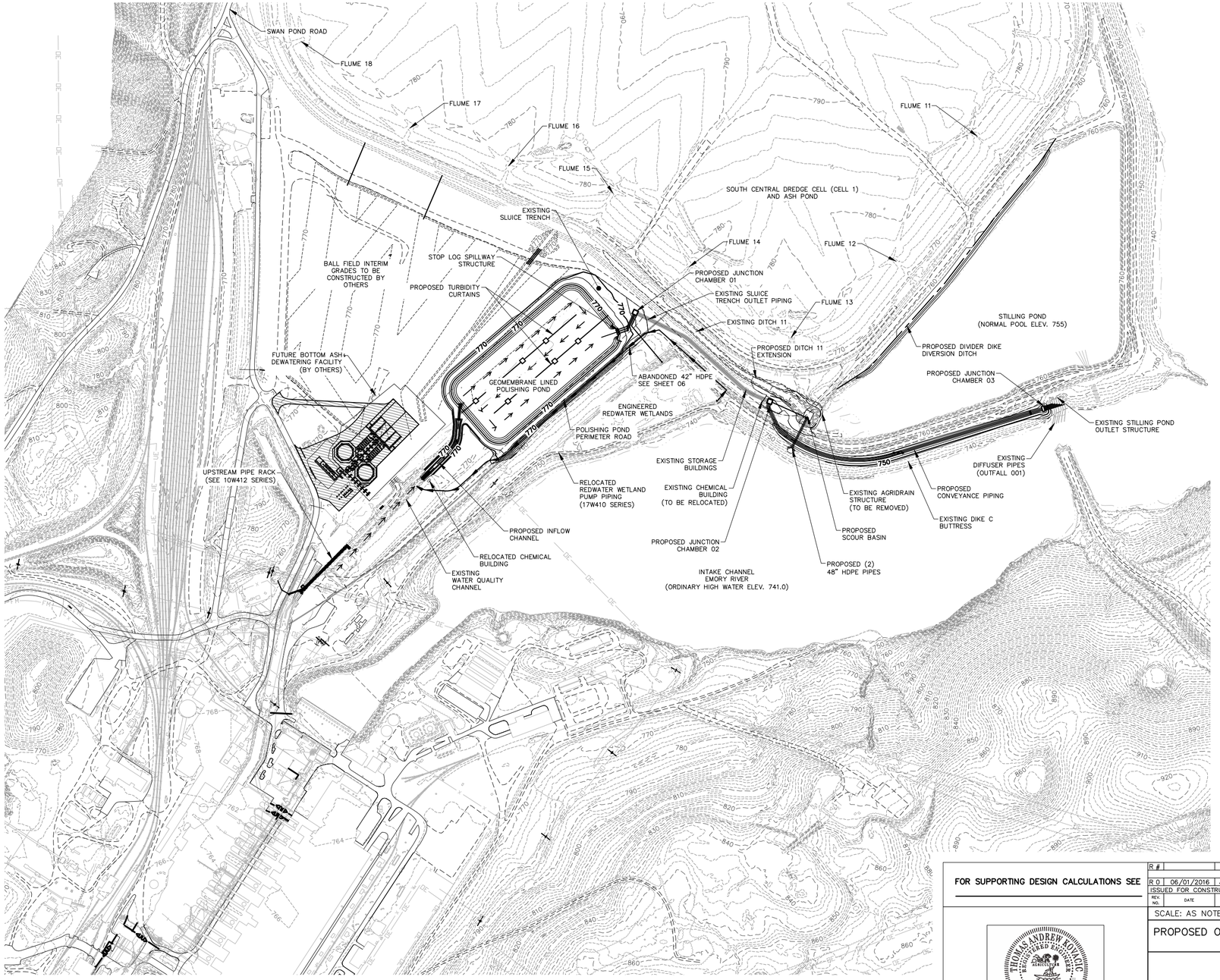
3.0 CONCLUSIONS

The entire Sluice Trench footprint is completely closed per Final CCR Rule 40 CFR §257.82 and no longer can impound water. Therefore, hydraulic calculations are not necessary for this demonstration. The Area East of the Sluice Trench is anticipated to be closed in 2018. Again, this area does not have the ability to impound water so hydraulic calculations are not necessary for this area.

4.0 REFERENCES

1. Environmental Protection Agency, “Final Rule: Disposal of Coal Combustion Residuals from Electric Utilities”, Federal Register, April 17, 2015.
2. AECOM, Sluice Trench, History of Construction 257.73(c)(1) prepared for CCR Certification, 2016
3. Stantec Consulting Services Inc., Hazard Potential Classification Assessment, Sluice Trench, 2016
4. National Oceanic and Atmospheric Administration, Atlas 14, Volume 2, Version 3; 2016
5. United States Army Corps of Engineers, Hydrologic Modeling System (HEC-HMS), Version 4.0, 2016.

APPENDIX A
REFERENCE DRAWINGS



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SCALE IN FEET

NOTE:

1. AERIAL TOPOGRAPHY DEVELOPED BY TUCK MAPPING SOLUTIONS, INC. VIA 11/10/2014 FLIGHT.
2. EXISTING UTILITIES SHOWN WERE OBTAINED FROM HISTORIC TVA DRAWINGS AND FROM SURVEY OF UTILITY LOCATE MARKINGS PERFORMED NOVEMBER 2015. UTILITY LOCATIONS ARE APPROXIMATE AND WILL BE FIELD VERIFIED BY THE CONTRACTOR.

REFERENCE DRAWINGS:

10W412 UPSTREAM PIPE RACK

17W410 REDWATER WETLANDS PIPING

FOR SUPPORTING DESIGN CALCULATIONS SEE

THOMAS ANDREW KOVACIC
REGISTERED ENGINEER
STATE OF TENNESSEE
June 1, 2016

AECOM

R #											
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ISSUED FOR CONSTRUCTION DCN 117580347											

REV. NO.	DATE	DSGN	DRWN	CHKD	SUPV	RVWD	APPD	ISSD	PROJECT ID	AS CONST	REV. DESC

DISCIPLINE INTERFACE

SCALE: AS NOTED EXCEPT AS NOTED

PROPOSED OVERALL SITE PLAN

KINGSTON FOSSIL PLANT

DRAINAGE AND FLOW MANAGEMENT PROJECT

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:
AMP	APM	CAB	TAK	RBC	MST	JCK

KINGSTON FOSSIL PLANT
TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING

AUTOCAD 2015	DATE 06/01/16	36	C	10W388-04	R 0

AECOM	
TASK COMPLETED BY:	REV NO.

PLOT FACTOR:XX
W_TVA

C.A.D. DRAWING
DO NOT ALTER MANUALLY

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