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

April 17, 2019

Tennessee Valley Authority
1101 Market Street
Chattanooga, Tennessee 27402

Reference: Groundwater Monitoring System Sluice Trench and Area East of Sluice Trench TVA Kingston Fossil Plant Harriman, Tennessee

1.0 INTRODUCTION

This letter documents Stantec Consulting Services Inc. (Stantec) certification of the groundwater monitoring system for the Tennessee Valley Authority (TVA) Kingston Fossil Plant coal combustion residual (CCR) facility Sluice Trench and Area East of Sluice Trench. The Sluice Trench and Area East of Sluice Trench is an inactive CCR surface impoundment under the CCR Rule (i.e., a vacatur unit) and is subject to the deadlines set forth in 40 CFR 257.100. Based on the information evaluated by Stantec, the groundwater monitoring system, baseline monitoring phase ofTVA's Coal Combustion Residuals (CCR)-Rule Groundwater Quality Monitoring Program, meets the performance standard specified in the Final CCR Rule at 40 CFR § 257.91.

2.0 SUMMARY OF FINDINGS

In establishing the groundwater monitoring system for the Sluice Trench and Area East of Sluice Trench at the Kingston Fossil Plant in Harriman, Tennessee, Stantec evaluated available groundwater data, developed a hydrogeologic investigation and characterization of the site, and designed and reviewed the installation of the monitoring wells. Based upon review of the available information, the groundwater monitoring system at the Sluice Trench and Area East of Sluice Trench meets the performance standard specified in 40 CFR § 257.91, based on the following criteria:

- There are a sufficient number of wells installed at appropriate locations and depths to yield groundwater samples that accurately represent the quality of background groundwater unaffected by CCR, and the quality of groundwater at the downgradient waste boundary (257.91(a)(1) and (2)).
- The wells provide samples from the uppermost aquifer (257.91(a) and 257.53).
- The groundwater monitoring system contains one background monitoring well and five downgradient monitoring wells, thus the number of wells in the system exceeds the minimum specified in 257.91 (c)(1).
- The system contains one background well (AD-1) representing conditions unaffected by CCR (257.91(a)(1) and (c)(1)).
- The system contains five wells located downgradient (KIF-105, KIF-106, KIF-107, AD-2 and AD-3) to monitor groundwater near the waste boundary (257.91(a)(2) and (c)(1)).
- The system includes additional wells as needed to meet the performance standard (257.91(c)(2)).
- Wells are constructed appropriately (257.91(e)).

Reference: **Groundwater Monitoring System Sluice Trench and Area East of Sluice Trench TVA Kingston Fossil Plant Harriman, Tennessee**

3.0 QUALIFIED PROFESSIONAL ENGINEER CEERTIFICATION

I, Stephen Bickel being a Registered Professional Engineer in good standing in the State of Tennessee do hereby certify, to the best of my knowledge, information, and belief that the information contained in this certification is prepared in accordance with the accepted practice of engineering; that the information contained herein is accurate as of the date of my signature below; and that the design and construction of the groundwater monitoring system as described above meets the requirements of 40 CFR § 257.91. Opinions relating to environmental, geologic, and hydrogeologic conditions or other estimates are based on available data and that actual conditions may vary from those encountered at the times and locations where data are obtained, despite the use of due care.

Signature

17 April 2019
Date

Printed Name: Stephen Bickel

Address: 10509 Timberwood Circle, Suite 100, Louisville, KY 40223

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Figure No.
1

Title

CCR Rule Monitoring System Plan, Sluice Trench and Area East of Sluice Trench

Client/Project

Tennessee Valley Authority
Kingston Fossil Plant

Project Location
Roane County, Tennessee

182603369
Prepared by DMB on 2019-04-17
Technical Review by LP on 2019-04-17

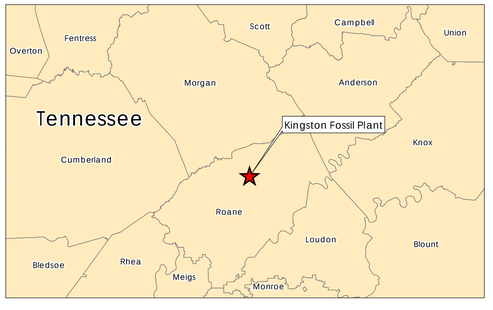
0 300 600 900 1,200 Feet

1:3,600 (At original document size of 22x34)

Legend

- Existing Groundwater Monitoring Well
- TVA Property Boundary (Approximate)
- CCR Unit Area (Approximate)

Notes
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Imagery provided by TVA and flown by Tuck Mapping on March 16, 2017.
3. This imagery does not show the current condition of the Stilling Pond. The Stilling Pond has been closed since the imagery was collected.



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TVA

TABLE 1
TVA Kingston Fossil Plant - Sluice Trench and Area East of Sluice Trench
Well Construction Information
CCR Rule Groundwater Monitoring System

Well ID	UNID#	Position Relative to CCR Unit	Top of Casing Elevation (ft NGVD 29)	Ground Surface Elevation (ft NGVD 29)	Screened Interval (ft btoc)	Screened Formation	Total Well Depth (ft btoc)	Pump Intake Set Depth (ft btoc)	Well Inside Diameter (in)	Well Coordinates	
										TN State Plane Northing NAD83 (ft)	TN State Plane Easting NAD83 (ft)
AD-1	KIF-00-GW-43-006	Background	781.13	777.4	25.5 - 35.4	Residuum	35.7	30	2.0	576,822.00	2,406,886.98
AD-2	KIF-00-GW-43-007	Downgradient	757.10	753.0	18.5 - 28.4	Residuum	28.6	23	2.0	574,675.84	2,408,290.88
AD-3	KIF-00-GW-43-008	Downgradient	752.30	748.4	13.9 - 18.8	Residuum	18.9	17	2.0	575,150.21	2,409,231.74
KIF-105	KIF-00-GW-43-033	Downgradient	757.26	753.0	38.8 - 48.4	Residuum	48.8	43.0	4.0	574,819.38	2,408,462.83
KIF-106	KIF-00-GW-43-034	Downgradient	761.27	757.6	32.6 - 42.6	Residuum	42.9	38.0	4.0	574,439.09	2,408,024.18
KIF-107	KIF-00-GW-43-035	Downgradient	762.86	759.5	10.7 - 20.3	Residuum	20.7	15.5	4.0	575,325.18	2,408,965.78

Well information based on data provided by TVA Well Inventory dated April 8, 2019.

Abbreviations:

ft	feet
ft btoc	feet below top of casing
ft NGVD 29	feet National Geodetic Vertical Datum 1929
in	inches
NAD 83	North America Datum 1983