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October 16, 2017

Tennessee Valley Authority
1101 Market Street
Chattanooga, Tennessee 37402

Groundwater Monitoring System
Dry Fly Ash Stack Lateral Expansion
TVA Bull Run Fossil Plant
Anderson County, Tennessee

1.0 Introduction

This letter documents AECOM's certification of the groundwater monitoring system for the TVA Bull Run Fossil Plant Dry Fly Ash Stack Lateral Expansion. Based on the information compiled by AECOM, the groundwater monitoring system, first year baseline monitoring phase of TVA'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 Dry Fly Ash Stack Lateral Expansion at the Bull Run Fossil Plant in Anderson County, Tennessee, AECOM developed a hydrogeologic characterization of the site, designed and reviewed the installation of the monitoring wells, and evaluated available groundwater data. Based upon review of the available information, the groundwater monitoring system well network at the Dry Fly Ash Stack Lateral Expansion 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 five wells, including two background wells (Well I and MWC) representing conditions unaffected by CCR (257.91(a)(1) and (c)(1)); thus, the number of wells exceeds the minimum specified in 257.91(c)(1).
- The system contains three downgradient wells (MW-3H/P-3, BRF-107, Well J) monitoring groundwater near the waste boundary (257.91(a)(2) and (c)(1)).
- The three downgradient wells are installed along the downgradient edge of the active Dry Fly Ash Stack Lateral Expansion CCR unit. Because this active CCR unit is a relatively small expansion of an inactive CCR management unit, the downgradient boundary is limited in

extent. Therefore, three downgradient wells are sufficient to adequately monitor the active CCR unit. All three wells are screened in the same geologic unit.

- Wells are constructed appropriately (257.91(e)).

3.0 Qualified Professional Engineer Certification

I, Thomas Kovacic, 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; actual conditions may vary from those encountered at the times and locations where data are obtained, despite the use of due care.

SIGNATURE: _____ DATE: 10/16/17

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Attachments:
CCR Rule Monitoring System Plan
Table 1 – Well Construction Information

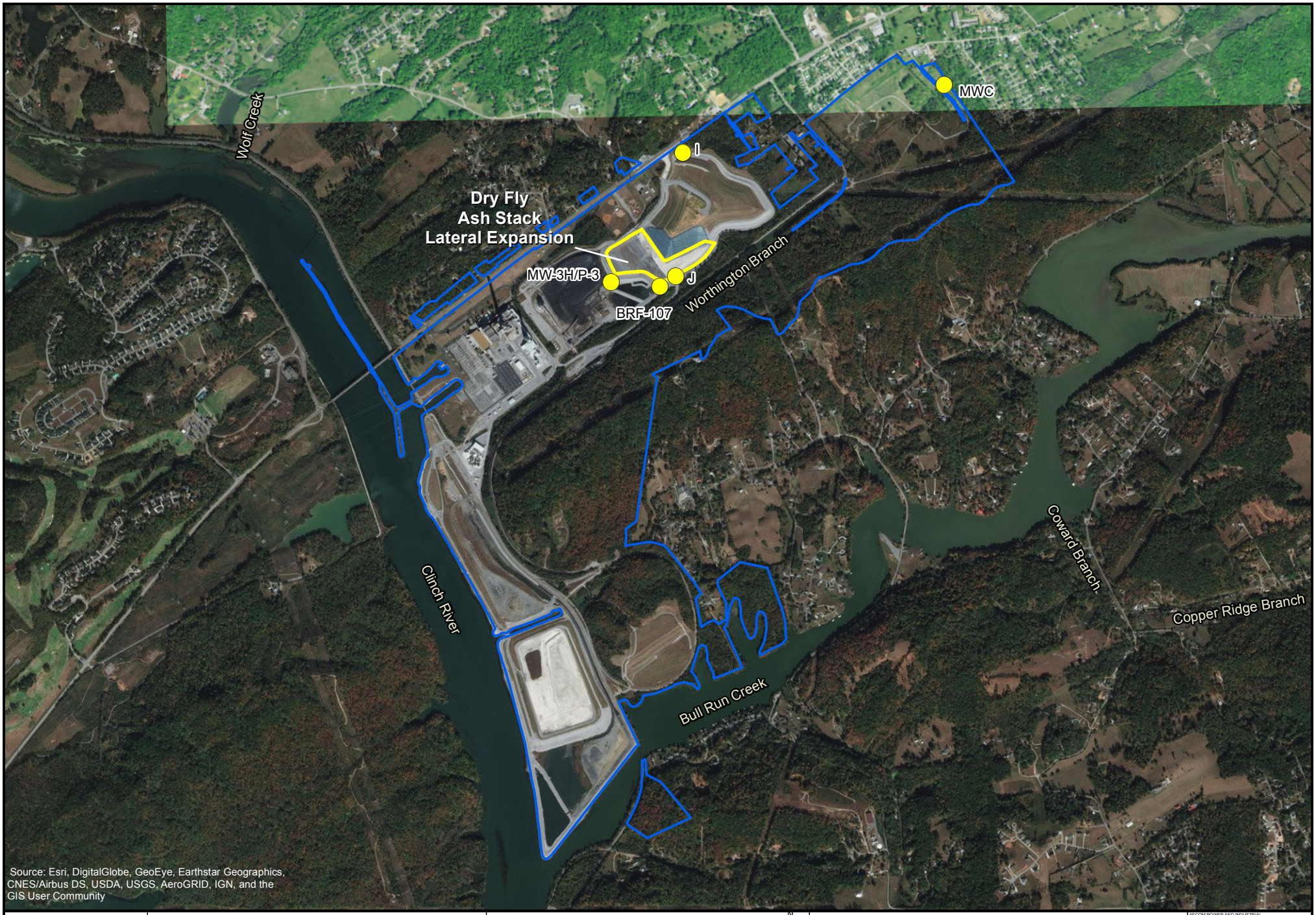

FIGURE:	CCR Rule Monitoring System Plan Bull Run Fossil Plant Tennessee Valley Authority							
1	DATE:	DRAWN BY:	PROJECT NUMBER:					
	10/13/2017	MBE						

0 2,000 4,000
Feet

N

- Monitoring Well
- CCR Management Unit
- TVA Property Boundary

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Document Path: I:\GIS\TVA\BRF\Working Maps\Optimization_Plan_2016\CCR Finalization Figs\BRF_DFAS_CCR_Final.mxd

TABLE 1
WELL CONSTRUCTION INFORMATION
CCR RULE GROUNDWATER MONITORING SYSTEM CERTIFICATION
DRY FLY ASH STACK LATERAL EXPANSION
TVA BULL RUN FOSSIL PLANT

Well ID	UNID #	Position Relative to CCR Unit	Top of Casing Elevation (ft)	Ground Elevation (ft)	Screened Interval (ft btoc)	Screened Formation	Total Well Depth (ft btoc)	Pump Intake Depth (ft btoc)	Well Diameter / Material	Well Co-ordinates	
										TN State Plane NAD27 Northing (ft)	TN State Plane NAD27 Easting (ft)
BRF-107	BRF-00-GW-43-010	Downgradient	825.55	821.9	26.3 - 36.4	Bedrock	37.1	35	4-inch PVC	598717.96	2547674.27
I	BRF-00-GW-43-014	Background	876.57	871.7	15.0 - 25.8*	Bedrock	25.7	22	6-inch steel casing 6-inch open hole	600860.24	2548043.73
J	BRF-00-GW-43-015	Downgradient	834.39	829.0	38.4 - 64.5*	Bedrock	64.5	60	6-inch steel casing 6-inch open hole	598876.02	2547928.86
MWC	BRF-00-GW-43-017	Background	865.24	861.1	11.1 - 20.9	Bedrock	21.6	19	2.5-inch PVC	601948.75	2552237.51
MW-3H/P-3	BRF-00-GW-43-030	Downgradient	834.27	827.2	34.0 - 44.0	Bedrock	44.6	38	2-inch PVC	598787.86	2546887.45

Well information based on data provided by Geotechnical Field Services for Well Installations and Closures (Stantec, September 2017) and TVA iSite Cental database
* Open bedrock hole between the depths indicated; no well screen.
ft bgs - feet below ground surface
ft btoc - below top of casing