

October 16, 2017

Tennessee Valley Authority
1101 Market Street
Chattanooga, Tennessee 37402

**Groundwater Monitoring System
Slag Ponds Area Multiunit
TVA Paradise Fossil Plant
Muhlenberg County, Kentucky**

1.0 Introduction

This letter documents AECOM's certification of the groundwater monitoring system for the Tennessee Valley Authority (TVA) Paradise Fossil Plant Slag Ponds Area Multiunit. The Multiunit includes the Slag Ponds 2A & 2B and the Slag Stilling Pond 2C coal combustion residuals (CCR) units. Based on the information evaluated by AECOM, the groundwater monitoring system, first year baseline monitoring phase of TVA's 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 Slag Ponds Area Multiunit at the Paradise Fossil Plant in Muhlenberg County, Kentucky, 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 at the Slag Ponds Area Multiunit meets the performance standard specified in 40 CFR § 257.91, based on the following criteria:

- The Slag Stilling Pond 2C and Slag Ponds 2A & 2B are monitored as a multiunit groundwater monitoring system, in accordance with 40 CFR § 257.91(d).
- 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 three background and four 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 (95-48A) representing conditions unaffected by CCR and two upgradient wells (PAF-108, PAF-109) (257.91(a)(1) and (c)(1)).

- The system contains four downgradient wells (95-47C, PAF-110, PAF-112, PAF-113) monitoring groundwater near the waste boundary (257.91(a)(2) and (c)(1)).
- The system includes additional wells beyond the minimum requirements as needed to meet the performance standard (257.91(c)(2)).
- Wells are constructed appropriately (257.91(e)).

3.0 Qualified Professional Engineer Certification

I, Nicholas Golden, being a Registered Professional Engineer in good standing in the State of Kentucky 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

PRINTED NAME: Nicholas Golden, PE

ADDRESS: AECOM
564 White Pond Drive
Akron, OH 44320

TELEPHONE: 330-800-2769

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



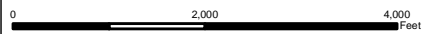


Service Credits: Google Earth

FIGURE:

1

CCR Rule Monitoring System Plan
 Slag Ponds Area Multiunit
 Paradise Fossil Plant
 Tennessee Valley Authority



Legend

- CCR Rule Monitoring System Wells
- TVA PAF Property Boundary

DATE:	DRAWN BY:	PROJECT NUMBER:
10/12/2017	TEG	60439352

AECOM ENVIRONMENT
 800 ENTERPRISE DRIVE, SUITE 1A
 ROCKY HILL, CT 06867
 PHONE: (860) 263-2777
 WEB: WWW.AECOM.COM



Table 1
WELL CONSTRUCTION INFORMATION
CCR RULE GROUNDWATER MONITORING SYSTEM
SLAG PONDS AREA MULTIUNIT
TVA PARADISE FOSSIL PLANT

Well ID	UNID#	Position Relative to CCR Unit	Top of Casing Elevation	Ground Surface Elevation	Screened Interval (ft btoc)	Screened Formation	Well Depth (ft btoc)	Pump Intake Set Depth (ft btoc)	Well Diameter (in) / Material	Well Coordinates	
										KY South State Plane Northing NAD 27 (ft)	KY South State Plane Easting NAD 27 (ft)
95-47C	PAF-00-GW-43-016	Downgradient	414.63	411.8	45.6 - 55.5	Mine Spoils	55.8	54	2-in PVC	341304.67	1642448.79
95-48A	PAF-00-GW-43-017	Background	450.91	449.7	12.5 - 22.5	Mine Spoils / Shale	22.5	19.5	2-in PVC	339018.37	1638241.96
PAF-108	PAF-00-GW-43-029	Upgradient	416.36	413.3	38.0 - 48.0	Sandstone	48.0	46	4-in PVC	341723.87	1641051.31
PAF-109	PAF-00-GW-43-030	Upgradient	418.37	418.8	53.1 - 63.1	Alluvium	63.5	61	4-in PVC	340575.06	1641223.13
PAF-110	PAF-00-GW-43-031	Downgradient	417.98	414.2	52.7 - 62.7	Sandstone / Shale	62.8	61	4-in PVC	340960.26	1642484.91
PAF-112	PAF-00-GW-43-032	Downgradient	418.18	414.4	68.0 - 78.3	Mine Spoils / Alluvium	78.6	76.5	4-in PVC	341958.83	1641897.80
PAF-113	PAF-00-GW-43-033	Downgradient	418.40	414.7	63.2 - 72.5	Mine Spoils / Alluvium	72.5	70.5	4-in PVC	341773.68	1641989.23

Well information based on data provided by TVA Well Inventory, October 1, 2017.
Screened Formation based on data provided in boring logs.
ft btoc - feet below top of casing
Elevation in National Geodetic Vertical Datum 1929