

September 10, 2020

Tennessee Valley Authority
1101 Market Street
Chattanooga, Tennessee 37402

**Groundwater Monitoring System, Revision 2
Ash Pond Complex
TVA Gallatin Fossil Plant
Gallatin, Tennessee**

1.0 Introduction

This letter documents AECOM's updated certification of the groundwater monitoring system for the Tennessee Valley Authority (TVA) Gallatin Fossil Plant Ash Pond Complex (APC), which includes Ash Pond A, Ash Pond E, Middle Pond A, and the Bottom Ash Pond. The monitoring system was initially certified on October 16, 2017, and revised on June 13, 2018 (Rev 1). This update (Rev 2) reflects the replacement of monitoring well GAF-451C with a new well GAF-451CR. The original GAF-451C is now located in a newly constructed paved area that is subject to heavy traffic related to the management of bottom ash. The replacement well GAF-451CR was drilled nearby just outside the traffic area. As described in the 2019 Annual Groundwater Monitoring and Corrective Action Report, sampling has shown that conditions at GAF-451CR are similar to GAF-451, so the new well will replace the existing well in the monitoring network as of this certification. In addition, well survey and pump intake depth information has been updated.

Based on the information evaluated by AECOM, the updated groundwater monitoring system 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 Ash Pond Complex at the Gallatin Fossil Plant in Gallatin, 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 at the Ash Pond Complex meets the performance standard specified in 40 CFR § 257.91, based on the following criteria:

- The monitoring system is a multi-unit system (257.91(d)) for the following CCR units: Ash Pond A, Ash Pond E, Middle Pond A, and the Bottom Ash Pond.
- 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 7 background wells and 16 downgradient monitoring wells, thus the number of wells exceeds the minimum specified in 257.91(c)(1).
- The system contains 7 background wells (GAF-412C, GAF-412L, GAF-414L, GAF-426C, GAF-426L, GAF-427C, and GAF-427L) representing conditions unaffected by CCR (257.91(a)(1) and (c)(1)).
- The system contains 16 downgradient wells (24, GAF-402C, GAF-402L, GAF-405C, GAF-406L, GAF-410U, GAF-416C, GAF-422C, GAF-446C, GAF-449L, GAF-450C, GAF-450L, GAF-451CR, GAF-452C, GAF-452L, and GAF-453C) 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, Gabriel W. Lang, PE, 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:  _____

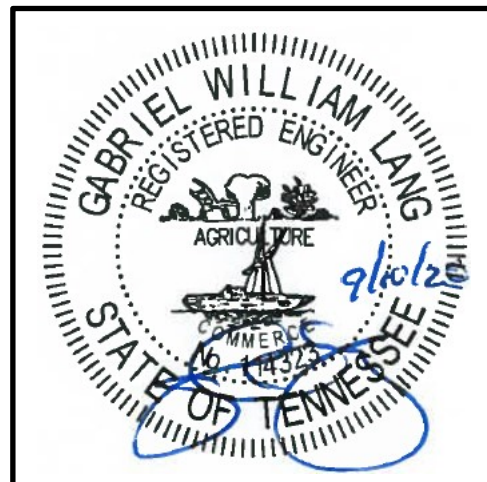
DATE: September 10, 2020

PRINTED NAME: Gabriel W Lang, PE

ADDRESS: AECOM
1600 Perimeter Park Drive, Suite 400
Morrisville, NC 27560

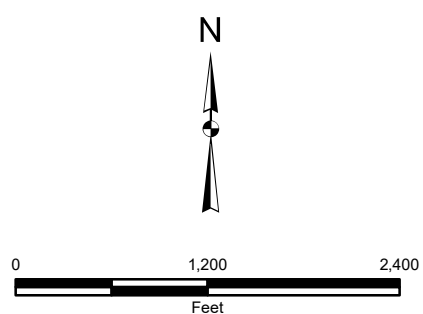
TELEPHONE: 919-461-1344

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





- LEGEND**
- CCR Rule Monitoring System Wells
 - TVA Gallatin Fossil Plant Property Boundary (Approximate)
 - Ash Pond Complex
 - Stilling Ponds



NOTE: Aerial image dated February 2017

AECOM

Figure 1

**CCR RULE MONITORING SYSTEM
ASH POND COMPLEX (APC)**

<small>DRAWN BY:</small> MARK.P.SMITH	<small>REVIEWED BY:</small> C.GARLINGTON	<small>APPROVED BY:</small>	<small>REVISION NUMBER:</small> REV. 2
GALLATIN FOSSIL PLANT TENNESSEE VALLEY AUTHORITY			
<small>DATE:</small> 2/20/2020	<small>DEPT:</small> FOSSIL AND HYDRO ENGINEERING		

**TABLE 1
WELL CONSTRUCTION INFORMATION
CCR RULE GROUNDWATER MONITORING SYSTEM
ASH POND COMPLEX (MULTI-UNIT)
TVA GALLATIN FOSSIL PLANT**

Well ID	UNID #	Position Relative to CCR Unit	Top of Casing Elevation (ft)	Ground Elevation (ft)	Screened Interval (ft btoc)	Screened Formation	Pump Intake Depth (ft btoc)	Well Diameter (in) / Material	Well Coordinates	
									TN State Plane NAD27 Northing (ft)	TN State Plane NAD27 Easting (ft)
24	GAF-00-GW-43-005	Downgradient	464.13	461.6	19.6 - 29.6	Carters Limestone	25	2-in PVC	707910.94	1878249.28
GAF-402C	GAF-00-GW-43-010	Downgradient	464.03	460.3	18.7 - 28.7	Carters Limestone	24	4-in PVC	707480.95	1880331.92
GAF-402L	GAF-00-GW-43-011	Downgradient	464.93	460.8	75.2 - 85.2	Lebanon Limestone	80	2-in PVC	707495.09	1880320.44
GAF-405C	GAF-00-GW-43-014	Downgradient	486.46	482.7	23.1 - 43.1	Carters Limestone	31	2-in PVC	702448.24	1880731.00
GAF-406L	GAF-00-GW-43-015	Downgradient	471.54	467.5	48.0 - 58.0	Lebanon Limestone	52	2-in PVC	706682.96	1877107.19
GAF-410U	GAF-00-GW-43-017	Downgradient	458.51	455.2	21.8 - 31.8	Unconsolidated	27	2-in PVC	704889.21	1877749.93
GAF-412C	GAF-00-GW-43-018	Background	477.64	473.9	43.7 - 63.7	Carters Limestone	54	4-in PVC	710932.13	1880022.78
GAF-412L	GAF-00-GW-43-019	Background	477.58	473.7	109.9 - 129.9	Lebanon Limestone	123	4-in PVC	710930.63	1880028.39
GAF-414L	GAF-00-GW-43-021	Background	481.45	478.6	92.8 - 102.8	Lebanon Limestone	98	4-in PVC	710439.64	1880406.18
GAF-416C	GAF-00-GW-43-023	Downgradient	466.87	464.2	31.7 - 51.7	Carters Limestone	42	2-in PVC	709169.01	1881134.20
GAF-422C	GAF-00-GW-43-028	Downgradient	463.78	460.1	20.6 - 35.6	Carters Limestone	28	4-in PVC	707542.84	1879331.41
GAF-426C	GAF-00-GW-43-029	Background	505.58	501.7	39.9 - 59.9	Carters Limestone	57	4-in PVC	711269.23	1881638.95
GAF-426L	GAF-00-GW-43-030	Background	506.83	502.6	176.3 - 186.3	Lebanon Limestone	181	2-in PVC	711283.43	1881641.44
GAF-427C	GAF-00-GW-43-031	Background	489.76	485.7	61.0 - 71.0	Carters Limestone	68	4-in PVC	710615.35	1882082.78
GAF-427L	GAF-00-GW-43-032	Background	488.41	484.2	144.2 - 159.2	Lebanon Limestone	152	4-in PVC	710607.73	1882087.46
GAF-446C	GAF-00-GW-43-034	Downgradient	461.06	457.3	23.8 - 33.8	Carters Limestone	29	4-in PVC	704742.37	1877728.72
GAF-449L	GAF-00-GW-43-036	Downgradient	463.09	458.2	61.3 - 71.3	Lebanon Limestone	66	4-in PVC	703983.12	1877823.34
GAF-450C	GAF-00-GW-43-050	Downgradient	466.73	463.7	51.6 - 56.6	Carters Limestone	53	4-in PVC	702528.72	1878185.59
GAF-450L	GAF-00-GW-43-051	Downgradient	466.62	463.6	78.0 - 98.0	Lebanon Limestone	88	3-in PVC	702526.37	1878175.15
GAF-451CR	GAF-00-GW-43-087	Downgradient (Replacement for GAF-451C)	482.19	479.4	46.4 - 56.4	Carters Limestone	52	4-in PVC	702485.62	1879518.52
GAF-452C	GAF-00-GW-43-038	Downgradient	484.13	480.6	102.4 - 112.4	Carters Limestone	107	4-in PVC	708456.68	1883010.70
GAF-452L	GAF-00-GW-43-039	Downgradient	484.31	480.7	159.7 - 169.7	Lebanon Limestone	164	4-in PVC	708439.46	1883003.73
GAF-453C	GAF-00-GW-43-040	Downgradient	467.78	464.2	48.6 - 58.6	Carters Limestone	54	4-in PVC	709164.82	1882811.05

Notes:
Survey information from DDS Survey; elevation in National Geodetic Vertical Datum (NGVD) 1929, coordinates based on North America Datum (NAD) 1927.
ft btoc - feet below top of casing
in - inches (inside diameter)