

**Date:** February 14, 2020

**To:** Tennessee Valley Authority

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**Subject:** Statistically Significant Levels (SSLs), September 2019 Assessment  
Monitoring  
CCR Rule Groundwater Monitoring  
Gallatin Fossil Plant, Ash Pond Complex

In accordance with federal regulations for management of coal combustion residuals (the CCR Rule; 40 CFR 257), the Tennessee Valley Authority (TVA) is monitoring groundwater at the Ash Pond Complex at its Gallatin Fossil Plant (GAF) in Gallatin, Tennessee. The Ash Pond Complex consists of four surface impoundments subject to the CCR Rule: Ash Pond A, Ash Pond E, Middle Pond A, and the Bottom Ash Pond. All four impoundments are monitored together under a multi-unit monitoring system. The Ash Pond Complex is currently in the Assessment phase of monitoring.

Pursuant to 40 CFR 257.95(g), this memorandum serves as notification to identify the constituents in Appendix IV that have statistically significant levels (SSLs) above groundwater protection standards (GWPSs). GWPSs for all Appendix IV parameters were previously established (October 2018) and are provided on **Table 1**, attached here.

The second 2019 semi-annual Assessment monitoring event at the Ash Pond Complex took place in September 2019. Verification sampling was performed in November 2019 to confirm one of the September 2019 results. The evaluation provided here is based on the November verification sampling results (where available) or September results where verification sampling was not conducted. The identification of SSLs was performed as a two-step process:

1. At each downgradient well, the sampling result for each Appendix IV parameter was compared directly to the GWPS. Where the concentration was below the GWPS, no SSL was identified.
2. Where the direct comparison indicated a concentration above the GWPS, further statistical analysis was performed to identify levels statistically greater than the GWPS, using procedures recommended in the USEPA's Unified Guidance for Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities (EPA 530/R-09-007; March 2009). For each situation where the concentration was greater than the GWPS, the 95% upper and lower confidence levels (UCL, LCL, respectively) on the mean concentration in that monitoring well were calculated using CCR Rule monitoring data for the two most recent years (i.e., September 2017 to September 2019) to provide a statistical dataset. As recommended in the Unified Guidance, where both the UCL and LCL exceed the GWPS, SSLs were identified.

The identified SSLs above GWPSs are presented on **Table 1**. There are no new SSLs; these are the same SSLs at the same wells as previously identified.

**Table 1: Statistically Significant Levels (SSLs) Above GWPSs, September 2019  
GAF Ash Pond Complex**

Appendix IV Parameter	GWPS (a)	Downgradient wells with results above GWPSs (b)	Calculated LCL on the mean (c)	SSL (d) LCL>GWPS
Antimony (mg/l)	0.006	None	NA	NA
Arsenic (mg/l)	0.010	GAF-410U	0.0219	<b>Yes</b>
Barium (mg/l)	2	None	NA	NA
Beryllium (mg/l)	0.004	None	NA	NA
Cadmium (mg/l)	0.005	None	NA	NA
Chromium (mg/l)	0.100	None	NA	NA
Cobalt (mg/l)	0.006	GAF-450L	0.0087	<b>Yes</b>
Fluoride (mg/l)	4	None	NA	NA
Lead (mg/l)	0.015	None	NA	NA
Lithium (mg/l)	Carters: 0.045	GAF-452C	0.0899	<b>Yes</b>
	Lebanon: 0.189	None	NA	NA
Mercury (mg/l)	0.002	None	NA	NA
Molybdenum (mg/l)	0.100	None	NA	NA
Radium-226+228 (pCi/l)	5	None	NA	NA
Selenium (mg/l)	0.050	None	NA	NA
Thallium (mg/l)	0.002	None	NA	NA

NA – Not applicable

(a) GWPSs documented in notice dated 10/15/2018.

(b) Semi-annual Assessment monitoring event in September 2019 with results from verification sampling in November 2019 where available.

(c) Lower confidence limit (LCL) on the mean of 4 sampling events (6 events for GAF-450L) between September 2017 and September 2019. Upper confidence limit (UCL) not shown as it is greater than LCL.

(d) SSL is statistically significant level over GWPS.