

Date: January 12, 2023

To: Tennessee Valley Authority

From: A. Elizabeth Perry, PG
Chris Garlington, PG

Subject: Statistically Significant Levels (SSLs), September 2022 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.

The second semi-annual Assessment monitoring event of 2022 at the Ash Pond Complex took place in September 2022. 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; see **Table 1**).

SSLs were identified using the certified statistical methods. The statistical method certification was updated in 2022 to be more consistent with the methods being used at other TVA fossil plants. As a result of the updated methods, the GWPS for lithium has been updated and there is no longer an SSL for lithium in groundwater at the Ash Pond Complex. The previous lithium SSL in one well was successfully attributed to an Alternate Source.

The identified SSLs above GWPSs based on the updated statistical methods are presented on **Table 1**. There are no new SSLs. An Alternate Source Demonstration has been completed for the cobalt SSL as described in the 2019 Annual Report.

**Table 1: Statistically Significant Levels (SSLs) Above GWPSs, September 2022
GAF Ash Pond Complex**

Appendix IV Parameter	GWPS (a)	Downgradient wells with results above GWPSs (b)	Statistically significant trend (c)	Calculated LCL on the mean (d)	SSL (e)
Antimony (ug/l)	6	None	NA	NA	NA
Arsenic (ug/l)	10	GAF-410U	Yes	NA	Yes
		GAF-450L	Yes	NA	Yes
Barium (ug/l)	2,000	None	NA	NA	NA
Beryllium (ug/l)	4	None	NA	NA	NA
Cadmium (ug/l)	5	None	NA	NA	NA
Chromium (ug/l)	100	None	NA	NA	NA
Cobalt (ug/l)	6	GAF-450L	No	7.62	Yes (f)
Fluoride (mg/l)	4	None	NA	NA	NA
Lead (ug/l)	15	None	NA	NA	NA
Lithium (ug/l)	224	None	NA	NA	NA
Mercury (ug/l)	2	None	NA	NA	NA
Molybdenum (ug/l)	100	None	NA	NA	NA
Radium-226+228 (pCi/l)	5	None	NA	NA	NA
Selenium (ug/l)	50	None	NA	NA	NA
Thallium (ug/l)	2	None	NA	NA	NA

NA – Not applicable

(a) GWPSs documented in notice dated 12/20/2022.

(b) Assessment monitoring event in September 2022.

(c) As described in the statistical method certification, if a statistically significant trend is present, a confidence band approach is used to identify SSLs. Graphs showing the data and confidence bands are attached.

(d) As described in the statistical method certification, if no statistically significant trend is identified, an SSL is identified when both the upper and lower confidence limits (UCL and LCL) on the mean of all sampling events (i.e., November 2016 through September 2022) is above the GWPS. UCL not shown as it is greater than LCL.

(e) SSL is statistically significant level over GWPS.

(f) Successful Alternate Source Demonstration completed, see 2019 Annual Report.

