

**Date:** January 12, 2023

**To:** Tennessee Valley Authority

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**Subject:** Statistically Significant Levels (SSLs), September 2022 Assessment  
Monitoring  
CCR Rule Groundwater Monitoring  
Gallatin Fossil Plant, North Rail Loop Landfill

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 North Rail Loop (NRL) Landfill at its Gallatin Fossil Plant (GAF) in Gallatin, Tennessee. The NRL Landfill groundwater monitoring system has been designed as a multi-unit monitoring system covering all three of the constructed/proposed landfill cells (existing Cells 1 and 2, and proposed Cell 3). The NRL Landfill transitioned to the Assessment phase of monitoring in 2022.

The first Assessment monitoring event at the NRL Landfill took place in September 2022. The statistical method certification was updated in 2022 to reflect the transition to Assessment monitoring and for consistency with the methods being used at other TVA fossil plants. 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 identified SSL(s) above GWPSs based on the certified statistical methods are presented on **Table 1**. TVA is in the process of preparing an Alternate Source Demonstration showing that the lithium in NRL301B pre-dates the NRL Landfill and so is not related to a release from the landfill.

**Table 1: Statistically Significant Levels (SSLs) Above GWPSs, September 2022  
GAF NRL Landfill**

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	None	NA	NA	NA
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	None	NA	NA	NA
Fluoride (mg/l)	4	NRL301B	No	3.75	No
Lead (ug/l)	15	None	NA	NA	NA
Lithium (ug/l)	307	NRL301B	No	1480	<b>Yes (f)</b>
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 1/11/2023.

(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. No statistically significant trends identified.

(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., April 2015 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) Alternate Source Demonstration in preparation; see 2022 Annual Report.