

Date: December 18, 2024

To: Tennessee Valley Authority

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

Subject: Statistically Significant Levels (SSLs), September 2024 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 is currently in the Assessment phase of monitoring.

The second semi-annual monitoring event of 2024 was conducted at the NRL Landfill in September 2024. 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) in downgradient wells. SSLs were identified using the certified statistical methods.

The identified SSL above GWPSs based on the certified statistical methods is presented on **Table 1** below. This single SSL is the same as previously identified, and TVA has prepared an Alternate Source Demonstration showing that this lithium SSL in NRL301B pre-dates the NRL Landfill and therefore is not related to a release from the landfill.

Table 1: Statistically Significant Levels (SSLs) Above GWPSs, September 2024

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	None	NA	NA	NA
Lead (ug/l)	15	None	NA	NA	NA
Lithium (ug/l)	307	NRL301B	No	1470	Yes (f)
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 2024.

(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 2024) 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 2022 Annual Report.