

Memo

To: Tennessee Valley Authority
Chattanooga, TN

From: Matthew Dagon, LPG
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File: Notification Identifying Appendix IV
Constituents Exceeding Groundwater
Protection Standards at the
John Sevier Fossil Plant Bottom Ash
Pond Vacatur CCR Unit

Date: August 13, 2020

Reference: Notification Identifying Appendix IV Constituents Exceeding Groundwater Protection Standards for the John Sevier Fossil Plant Bottom Ash Pond Vacatur CCR Unit Pursuant to 40 CFR § 257.95(g)

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 Bottom Ash Pond CCR unit at its John Sevier Fossil Plant (JSF) in Rogersville, Tennessee. Monitoring at the Bottom Ash Pond CCR Unit is in the Assessment phase.

As required by the CCR Rule (40 CFR § 257.95(g)), the owner of operator of a CCR unit shall establish groundwater protection standards (GWPSs) for Appendix IV parameters detected during Assessment monitoring and determine if one or more Appendix IV parameters are detected at statistically significant levels (SSLs) above their GWPS. GWPSs for all Appendix IV parameters have been established as required by 40 CFR § 257.95(d)(2) and are included on Tables 1 and 2 for the residuum and bedrock saturated zones, respectively (attached). Monitoring wells in the certified network that are screened in overburden (residuum) deposits include 10-36, JSF-103, JSF-104, JSF-105 and W-32. Monitoring wells JSF-200, JSF-201, JSF-202, JSF-203, JSF-204 and JSF-205 are screened in the Sevier Shale bedrock aquifer.

Assessment monitoring groundwater sampling was conducted in January and February 2020 (40 CFR § 257.95(b) and 257.95(d)). The groundwater monitoring data for the assessment monitoring events were evaluated using statistical procedures as required by 40 CFR § 257.93(f) through 257.93(h) and 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). The sampling results used to identify potential groundwater protection standards exceedances were obtained during groundwater monitoring events that were performed between January 2019 and February 2020. Comparisons were made against a fixed groundwater protection standard via a confidence interval or confidence interval band. No retesting was conducted and none of the individual compliance point measurements were directly compared against the groundwater protection standard. All the Appendix IV monitoring data collected in 2019 and 2020 were used to construct the confidence interval bands. Cross-sections of each confidence interval band were then compared to the groundwater protection standard for the most recent assessment monitoring event in each case for the purpose of identifying any SSLs. A well constituent pair is considered out of compliance only if the lower confidence interval band at the last assessment monitoring event exceeds the GWPS. No SSLs were recorded during Assessment Monitoring in the certified monitoring well network for the JSF Bottom Ash Pond.

Pursuant to 40 CFR § 257.95(g), on July 14, 2020, no SSLs above GWPSs were identified in the residuum as presented on Table 1 below.

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TABLE 1: Statistically Significant Levels (SSLs) Above GWPSs – JSF Bottom Ash Pond CCR Unit - Residuum

Appendix IV Parameter	GWPS (a)	Downgradient wells with Assessment monitoring results above GWPSs (b)	Calculated LCB on the mean (c)	SSL (d) LCB > GWPS
Antimony (mg/l)	0.006	None	NA	NA
Arsenic (mg/l)	0.01	None	NA	NA
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)	0.1	None	NA	NA
Cobalt (mg/l)	0.006	None	NA	NA
Fluoride (mg/l)	4	None	NA	NA
Lead (mg/l)	0.015	None	NA	NA
Lithium (mg/l)	0.04	None	NA	NA
Mercury (mg/l)	0.002	None	NA	NA
Molybdenum (mg/l)	0.1	None	NA	NA
Radium-226+228 (pCi/l)	5	None	NA	NA
Selenium (mg/l)	0.05	None	NA	NA
Thallium (mg/l)	0.002	None	NA	NA

NA – Not applicable

(a) GWPSs documented in notice dated 04/14/2020

(b) Assessment monitoring events January and February 2020 (per 40 CFR § 257.95(b) and (d))

(c) Value of 99% lower confidence band (LCB) on the mean of Appendix IV groundwater sampling events between January 2019 and February 2020. Upper confidence band (UCB) not shown as it is greater than the LCB.

(d) SSL is statistically significant level over GWPS

Pursuant to 40 CFR § 257.95(g), on July 14, 2020, no SSLs above GWPSs were identified in the bedrock as presented on Table 2 below.

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TABLE 2: Statistically Significant Levels (SSLs) Above GWPSs – JSF Bottom Ash Pond CCR Unit - Bedrock

Appendix IV Parameter	GWPS (a)	Downgradient wells with Assessment monitoring results above GWPSs (b)	Calculated LCB on the mean (c)	SSL (d) LCB > GWPS
Antimony (mg/l)	0.006	None	NA	NA
Arsenic (mg/l)	0.01	None	NA	NA
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)	0.1	None	NA	NA
Cobalt (mg/l)	0.006	None	NA	NA
Fluoride (mg/l)	4	None	NA	NA
Lead (mg/l)	0.015	None	NA	NA
Lithium (mg/l)	0.04	None	NA	NA
Mercury (mg/l)	0.002	None	NA	NA
Molybdenum (mg/l)	0.1	None	NA	NA
Radium-226+228 (pCi/l)	5	None	NA	NA
Selenium (mg/l)	0.05	None	NA	NA
Thallium (mg/l)	0.002	None	NA	NA

NA – Not applicable

(a) GWPSs documented in notice dated 04/14/2020

(b) Assessment monitoring events January and February 2020 (per 40 CFR § 257.95(b) and (d))

(c) Value of 99% lower confidence band (LCB) on the mean of Appendix IV groundwater sampling events between January 2019 and February 2020. Upper confidence band (UCB) not shown as it is greater than the LCB.

(d) SSL is statistically significant level over GWPS