

Gallatin Fossil Plant



GALLATIN, TENNESSEE



QUICK FACTS



EPA CCR Rule Groundwater Monitoring

This fact sheet summarizes groundwater monitoring conducted by TVA for the Gallatin Fossil Plant, as required by the U.S. Environmental Protection Agency (EPA) Coal Combustion Residuals (CCR) Rule. The EPA published the CCR Rule on April 17, 2015. It requires companies operating coal-fired power plants to study whether constituents in CCR have been released to groundwater from active, inactive and new CCR impoundments, as well as active and new CCR landfills.

The CCR Rule establishes multiple phases of protective groundwater monitoring including baseline sampling, Detection Monitoring and Assessment Monitoring. Corrective action may be necessary at the completion of this process. For more information on the CCR Rule Groundwater Monitoring requirements, go to www.tva.com/ccr.

Gallatin Plant CCR Rule Groundwater Monitoring Network

In addition to ongoing groundwater monitoring required under State regulations, TVA installed additional wells around the CCR management units, as needed, and TVA implemented a baseline sampling program. After completion of baseline sampling, TVA began Detection Monitoring. The constituents specified by the CCR Rule for Detection Monitoring are boron, calcium, chloride, fluoride, pH, sulfate, and total dissolved solids (TDS). These seven constituents can occur naturally in soils, rock, groundwater and surface water, and can also be present in coal and CCR. They were selected by EPA because they can indicate groundwater conditions that may require further evaluation.

TVA installed “background”, or upgradient, wells in locations that are not expected to be affected by the management of CCR. Other wells were drilled around the edge of the areas where CCR is managed or already existed and were being monitored. These wells are sometimes referred to as “downgradient wells” and placed in locations to monitor for releases to groundwater. The locations of the wells are shown below.

Commissioning Date: 1956-1959

Output: 976 Megawatts (coal & combustion turbines)

Number of homes powered: 565,000

Plans for updating/expansion: Additional air pollution controls (selective reduction system and scrubbers) were installed in 2016.

Wet to Dry / Dewatered Conversion Program: Complete for fly ash and scrubber waste.

CCR Units Closed: 70 acres

TVA Wide CCR Conversion Program Total Spend: Approximately \$1.3 Billion

CCR Rule Detection Monitoring Results for Gallatin Fossil Plant

TVA prepared its initial **2017 Annual CCR Rule Groundwater Monitoring Reports** for the Gallatin Fossil Plant, which analyzed the results to determine if there were statistically significant increases (SSIs) over background levels. The reports were posted publicly March 2, 2018, and can be found by clicking on the following hyperlink www.tva.com/ccr. The initial comparison of downgradient wells to upgradient wells showed that concentrations of boron, calcium, chloride, sulfate and TDS around the CCR management units may be greater than naturally occurring levels. Data does not reflect the quality of public drinking water supplies, which are regularly tested to confirm they are meeting safe drinking water standards.

2018 Groundwater Monitoring Activities

Since the initial groundwater monitoring results identified SSIs, TVA conducted alternate source demonstrations to determine if the exceedances were the result of another source or the result of an error in the sampling or analytical method, or natural variability in groundwater quality. With respect to the CCR impoundments, no alternate source was determined resulting in the facilities moving into the Assessment Monitoring phase. The groundwater sampling for this phase is expanded to test for additional constituents, for which TVA has determined groundwater protection standards (GWPS), including antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, radium, selenium and thallium. With respect to the CCR landfill, the demonstration determined that the SSIs were due to sources other than the North Rail Loop Landfill CCR Unit. The demonstration is contained in the **2018 Annual CCR Rule Groundwater Monitoring Report – North Rail Loop Landfill** (www.tva.com/ccr).



Gallatin Fossil Plant CCR Rule Assessment Monitoring Results

The Assessment Monitoring results for the CCR impoundments are contained in the **2018 Annual CCR Rule Groundwater Monitoring Reports**. The reports can be found at www.tva.com/ccr. On the following page is the Gallatin Assessment Monitoring Results Matrix, which is based on comparative analysis of statistical analysis results versus GWPS. Refer to Appendix A – Statistical Analysis Report of the 2018 Annual Groundwater Monitoring and Corrective Actions Reports for more information.

		GROUNDWATER QUALITY MONITORING WELL LOCATIONS												
		Background Wells							Stilling Pond					
Constituent	GWPS mg/L	GAF-412C	GAF-412L	GAF-414L	GAF-426C	GAF-426L	GAF-427C	GAF-427L	24	GAF-422C	GAF-402C	GAF-402L	GAF-416C	GAF-453C
Antimony	0.006	●	●	●	●	●	●	●	●	●	●	●	●	●
Arsenic	0.01	●	●	●	●	●	●	●	●	●	●	●	●	●
Barium	2	●	●	●	●	●	●	●	●	●	●	●	●	●
Beryllium	0.004	●	●	●	●	●	●	●	●	●	●	●	●	●
Cadmium	0.005	●	●	●	●	●	●	●	●	●	●	●	●	●
Chromium	0.1	●	●	●	●	●	●	●	●	●	●	●	●	●
Cobalt	0.006	●	●	●	●	●	●	●	●	●	●	●	●	●
Fluoride	4	●	●	●	●	●	●	●	●	●	●	●	●	●
Lead	0.015	●	●	●	●	●	●	●	●	●	●	●	●	●
Lithium	0.04	●	●	●	●	●	●	●	●	●	●	●	●	●
Mercury	0.002	●	●	●	●	●	●	●	●	●	●	●	●	●
Molybdenum	0.1	●	●	●	●	●	●	●	●	●	●	●	●	●
Rad226+228	5 pCi/L	●	●	●	●	●	●	●	●	●	●	●	●	●
Selenium	0.05	●	●	●	●	●	●	●	●	●	●	●	●	●
Thallium	0.002	●	●	●	●	●	●	●	●	●	●	●	●	●

		GROUNDWATER QUALITY MONITORING WELL LOCATIONS									
		Ash Pond A		Ash Pond E						Bottom Ash Pond	
Constituent	GWPS mg/L	GAF-452C	GAF-452L	GAF-406L	GAF-410U	GAF-446C	GAF-449L	GAF-450C	GAF-450L	GAF-451C	GAF-405C
Antimony	0.006	●	●	●	●	●	●	●	●	●	●
Arsenic	0.01	●	●	●	●	●	●	●	●	●	●
Barium	2	●	●	●	●	●	●	●	●	●	●
Beryllium	0.004	●	●	●	●	●	●	●	●	●	●
Cadmium	0.005	●	●	●	●	●	●	●	●	●	●
Chromium	0.1	●	●	●	●	●	●	●	●	●	●
Cobalt	0.006	●	●	●	●	●	●	●	●	●	●
Fluoride	4	●	●	●	●	●	●	●	●	●	●
Lead	0.015	●	●	●	●	●	●	●	●	●	●
Lithium	0.04	●	●	●	●	●	●	●	●	●	●
Mercury	0.002	●	●	●	●	●	●	●	●	●	●
Molybdenum	0.1	●	●	●	●	●	●	●	●	●	●
Rad226+228	5 pCi/L	●	●	●	●	●	●	●	●	●	●
Selenium	0.05	●	●	●	●	●	●	●	●	●	●
Thallium	0.002	●	●	●	●	●	●	●	●	●	●

Color Coding Key

- Monitoring data results are below GWPS
- Monitoring data results are below GWPS, but results are 65% or more of the GWPS
- Monitoring data results exceed GWPS (TVA will initiate assessment of corrective measure)

Next Steps for Gallatin Fossil Plant CCR Rule Groundwater Monitoring

TVA will continue to monitor and evaluate the groundwater at the Gallatin Fossil Plant site. In January 2019, TVA completed an evaluation of whether there were SSLs over established GWPS detected at the Ash Pond Complex (APC) (including Ash Pond A, Ash Pond E, Middle Pond A, and Bottom Ash Pond). During assessment monitoring one SSL of Appendix IV constituents was reported above GWPS in a downgradient monitoring well. TVA has since completed an Assessment of Corrective Measures Report to analyze the potential effectiveness of potential corrective measures. This report will be posted to the CCR website on August 14, 2019. A semiannual report describing the progress in selecting and designing the final remedy will be completed in January 2020. Based upon an agreement between TDEC and TVA on June 13, 2019, the closure method for the APC will be by removal of the CCR.