

# Johnsonville Fossil Plant



NEW JOHNSONVILLE, TENNESSEE



## QUICK FACTS



## EPA CCR Rule Groundwater Monitoring

This fact sheet summarizes groundwater monitoring conducted by TVA for the Johnsonville 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](http://www.tva.com/ccr).

## Johnsonville CCR Rule Groundwater Monitoring Network

In addition to ongoing groundwater monitoring required under State regulations, TVA installed an additional well around the CCR management units and implemented a baseline sampling program. After completion of the baseline sampling, the CCR Rule requires TVA to begin monitoring groundwater in a step that is called "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 occur naturally in soils, rock, groundwater and surface water, and they are also present in coal and in CCR. They were selected by EPA because they can indicate groundwater conditions that may require further evaluation.

**Commissioning Date:** 1955

**Site Plans:** Ten coal-fired turbine units are retired and in the process of being decommissioned.

**CCR Units Closed:** 154 acres

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

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.



## CCR Rule Detection Monitoring Results for Johnsonville Fossil Plant

TVA prepared its initial **2017 Annual Groundwater Monitoring and Corrective Action Report** for the Johnsonville Fossil Plant, which analyzed the detection monitoring results to determine if there were statistically significant increases (SSIs) over background levels. The report can be found by clicking on the following hyperlink [www.tva.com/ccr](http://www.tva.com/ccr). The initial comparison of downgradient wells to upgradient wells shows 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 an alternate source demonstration 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. No alternate source was determined resulting in the facility 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.

## Johnsonville Fossil Plant CCR Rule Assessment Monitoring Results

The Assessment Monitoring results are contained in the **2018 Annual Groundwater Monitoring and Corrective Action Report**. The report can be found at [www.tva.com/ccr](http://www.tva.com/ccr). Below is the Johnsonville 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 Action Report for more information.

		GROUNDWATER QUALITY MONITORING WELL LOCATIONS					
		Background Wells		Active Ash Pond 2			
Constituent	GWPS mg/L	B-9	JOF-101	JOF-103	JOF-104	10-AP1	10-AP3
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 Johnsonville Fossil Plant CCR Rule Groundwater Monitoring

TVA will continue to monitor and evaluate the groundwater at the Johnsonville Fossil Plant site. In January 2019, TVA completed an evaluation of whether there were exceedances of GWPS detected at Active Ash Pond 2. During assessment monitoring, SSLs of Appendix IV constituents were reported above GWPS in two downgradient monitoring wells. 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.