

Paradise Fossil Plant



MUHLENBERG COUNTY, KENTUCKY



QUICK FACTS



EPA CCR Rule Groundwater Monitoring for 2019

This fact sheet summarizes groundwater monitoring conducted by TVA for the Paradise Fossil Plant, as required by the U.S. Environmental Protection Agency (EPA) Coal Combustion Residuals (CCR) Rule for the 2019 calendar year. 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, refer to the Executive Summary that can be found by clicking on the following hyperlink www.tva.com/ccr.

Paradise Plant CCR Rule Groundwater Monitoring Network

In addition to ongoing groundwater monitoring required under State regulations, TVA established monitoring well networks for the Gypsum Disposal Area, Stilling Pond 1 & 2; for the Slag Ponds Area; and for Peabody Ash Pond, consisting of “background,” or upgradient, wells in locations that were not expected to be affected by the management of CCR and wells around the edge of the areas where CCR is managed. These wells are sometimes referred to as “downgradient wells” and placed in locations to monitor for releases to groundwater. These CCR Rule groundwater monitoring well networks are monitored in accordance with the CCR Rule during the baseline, Detection Monitoring, and Assessment Monitoring phases. The locations of the wells are shown on the figure on the next page.

Commissioning Date: 1967

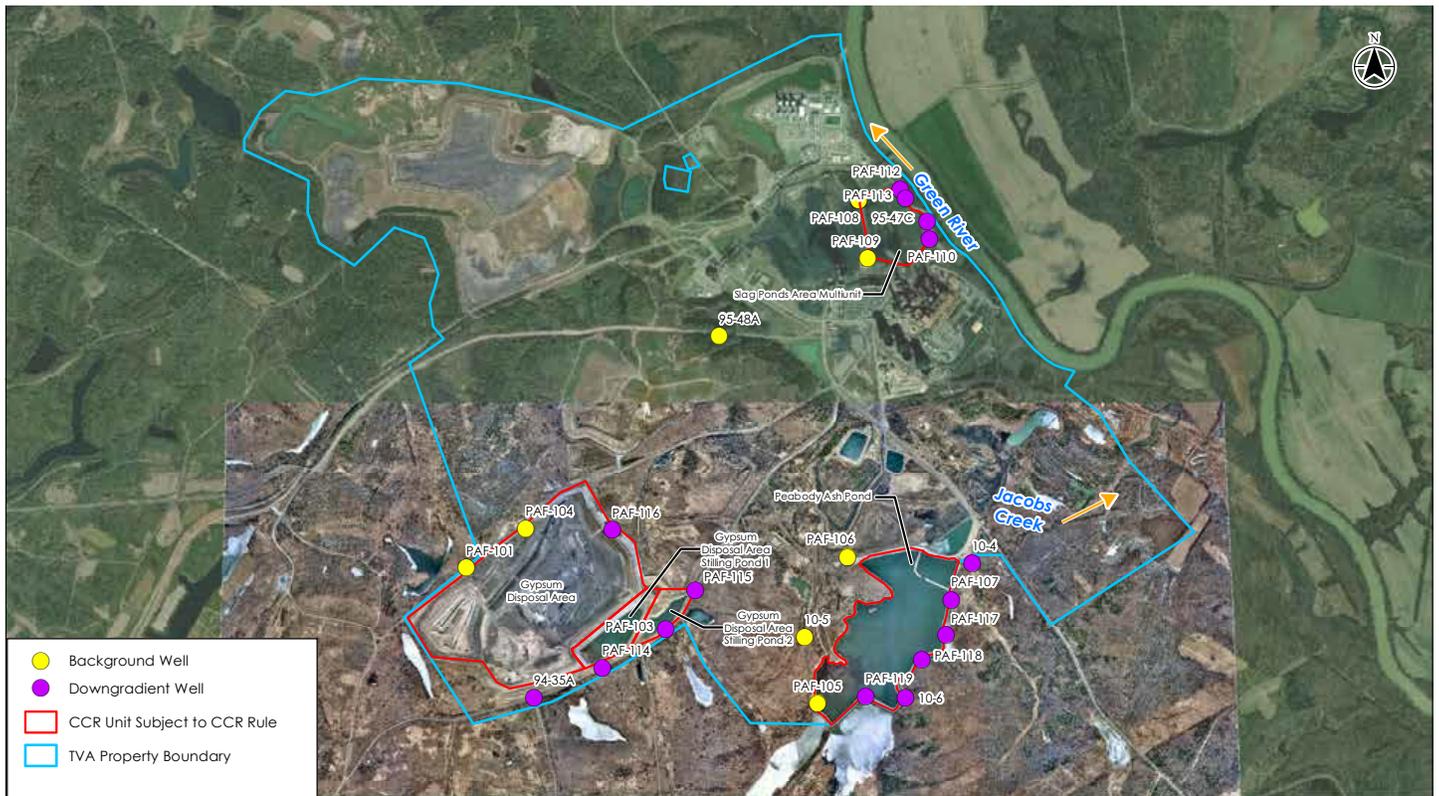
Output: 881 Megawatts
(6 Billion kilowatt-hours per year)

Number of homes powered:
Approximately 400,000 homes

Wet to Dry / Dewatered Conversion Program: Associated activities underway

CCR Units Closed: 152 acres

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



2019 Paradise Fossil Plant CCR Rule Assessment Monitoring Results

The Assessment Monitoring results are contained in the **2019 Groundwater Monitoring and Corrective Action Reports***. The reports can be found on the CCR Rule website at www.tva.com/ccr.

For the 2019 assessment monitoring, no new statistically significant levels (SSLs) above the groundwater protection standard (GWPS) were observed at monitoring wells. As identified in the 2018 Annual Groundwater Monitoring and Corrective Action Reports, there continue to be SSLs above the groundwater protection standard for arsenic at PAF-113 and PAF-119.

The table on the following page shows the reported statistical exceedances of GWPS, as reflected by the red dots. Out of the 23 wells sampled, two wells contain SSLs for a single constituent, arsenic. Refer to Appendix A – Statistical Analysis Report of the 2019 Annual Groundwater Monitoring and Corrective Action Reports for more information.

*The results in this report reflect quality of groundwater beneath the CCR units and are not necessarily an indication of impacts beyond TVA property. Local utilities are required to test public drinking water supplies to ensure that they are safe for consumption. Monitoring data consistently shows that surface water quality is not being adversely impacted by TVA's operations of its coal plants, including ash management practices.

| 2019 | | GROUNDWATER QUALITY MONITORING WELL LOCATIONS | | | | | | | | | | | | | |
|-------------|-----------|---|---------|---------|---------|---------|---|---------|---------|---------|---------|---------------------------|--------|---------|---------|
| Constituent | GWPS mg/L | Background Wells | | | | | Gypsum Disposal Area, Stilling Pond 1 & 2 | | | | | Slag Ponds Area Multiunit | | | |
| | | 95-48A | PAF-101 | PAF-104 | PAF-108 | PAF-109 | 94-35A | PAF-114 | PAF-103 | PAF-115 | PAF-116 | PAF-110 | 95-47C | PAF-113 | PAF-112 |
| 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 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

| 2019 | | GROUNDWATER QUALITY MONITORING WELL LOCATIONS | | | | | | | | | | |
|-------------|-----------|---|------|---------|---------|------------------|------|---------|---------|---------|------|---|
| Constituent | GWPS mg/L | Background Wells | | | | Peabody Ash Pond | | | | | | |
| | | 95-48A | 10-5 | PAF-105 | PAF-106 | PAF-119 | 10-6 | PAF-118 | PAF-117 | PAF-107 | 10-4 | |
| 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 groundwater protection standards (GWPS)
- Monitoring data results are below GWPS, but results are 65% or more of the GWPS
- Monitoring data results exceed GWPS (TVA has initiated and completed assessment of corrective measures report)

Next Steps for Paradise Fossil Plant CCR Rule Groundwater Monitoring

TVA will continue to monitor and evaluate the groundwater at the Paradise Fossil Plant site. The Gypsum Disposal Area, Stilling 1 & 2 CCR Unit remains in assessment monitoring, as there continue to be no SSLs. TVA has completed assessment of corrective measures reports for the Peabody Ash Pond and the Slag Ponds Area CCR units to analyze the potential effectiveness of potential corrective measures. These reports were posted on the CCR Rule website on August 14, 2019. As a final groundwater remedies have not been selected, semiannual reports on the progress of remedy selection were prepared for these units and posted on the CCR Rule website on February 14, 2020.