

FREQUENTLY ASKED QUESTIONS  
**Coal Combustion Residuals  
Groundwater Monitoring**

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**Q.** What are coal combustion residuals (CCRs) and what are ash ponds?

**A.** CCRs are materials that remain after coal is burned to produce the steam needed to generate electricity. These include fly ash, bottom ash and boiler slag. Synthetic gypsum and FGD material - which result from the flue gas desulfurization process - also are considered CCRs. AEP actively seeks to sell, donate or use CCRs annually for beneficial reuse as structural fill and in products such as concrete and wallboard.

Material that cannot be sold is disposed of in facilities designed for that purpose. The usual method for disposing of fly ash, bottom ash and boiler slag has been to transport it with water (sluice) and place it in a surface impoundment where the ash settles to the bottom. These facilities are known as ash ponds. AEP has eliminated the use of wet storage for fly ash for the plants it operates and now places fly ash in lined landfills. AEP is actively phasing out the use of wet bottom ash systems as well. Synthetic gypsum and FGD material that are not beneficially reused are stored in landfills.

In 2015, the U.S. Environmental Protection Agency (EPA) passed a new rule addressing the handling, storage and disposal of these byproducts. It addresses location standards, liner design, structural integrity, operating criteria, groundwater monitoring and corrective action, and closure and post-closure requirements around new, operating and certain inactive facilities. The March 2, 2018, public posting requirement is related to the first step in the new groundwater monitoring program.

**Q.** How many facilities are affected by this rule and where are they located?

**A.** For AEP, the rule now applies to 23 CCR storage sites at 11 power plant locations.

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| <ul style="list-style-type: none"><li>• Amos Plant, Winfield, WV</li><li>• Big Sandy Plant, Louisa, KY (this plant no longer uses coal)</li><li>• Clinch River Plant, Cleveland, VA (this plant no longer uses coal)</li><li>• Flint Creek Plant, Gentry, AR</li><li>• Mitchell Plant, Moundsville, WV</li></ul> | <ul style="list-style-type: none"><li>• Mountaineer Plant, New Haven, WV</li><li>• Northeastern 3, Oologah, OK</li><li>• Pirkey Plant, Hallsville, TX</li><li>• Rockport Plant, Rockport, IN</li><li>• Turk Plant, Fulton, AR</li><li>• Welsh Plant, Pittsburg, TX</li></ul> |
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**Q.** What substances are being monitored in the groundwater?

**A.** Companies monitor boron, calcium, chloride, fluoride, pH, sulfate, total dissolved solids, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, lithium, mercury,

molybdenum, selenium, thallium and radium 226 & 228 combined.

**Q.** How is AEP conducting this groundwater monitoring program?

**A.** AEP is monitoring groundwater around each CCR storage sites. A total of 21 substances are monitored. AEP has sampled water from a total of more than 300 monitoring wells that represent conditions before (up-gradient) and after (down-gradient) the groundwater passes beneath the ash storage site. AEP collected eight baseline samples that established baseline levels for each substance at each site.

These baselines help determine if our ash storage sites are impacting the groundwater. We continue to monitor for potential changes in the amount of these substances before and after the groundwater flows beneath the ash storage sites. We also will watch whether levels of these substances vary from the baselines we observed.

AEP collects samples at these facilities twice per year. If AEP determines that an ash storage site is impacting the groundwater, we will expand monitoring to evaluate whether water quality may be impacted farther away from the storage site. If additional monitoring indicates that changes in groundwater quality are coming from our ash storage sites, we will seek public input as we develop a mitigation plan to address these impacts.

**Q.** What do the terms “up-gradient” and “down-gradient” mean?

**A.** Groundwater travels like a stream through rock formations in a particular direction. “Up-gradient” refers to the groundwater condition prior to reaching the boundary of the ash storage site. “Down-gradient” refers to the groundwater condition after it has passed beneath the storage site. Comparison of the two conditions helps determine the impact an ash storage site may have on the stream of groundwater.

**Q.** What is a liner?

**A.** A liner provides a physical barrier between the storage area for these materials and the natural geologic formations (including groundwater) below and around them. By current standards, a liner typically is made of several layers including compacted clay and a synthetic membrane much like the plastic lining of a back yard swimming pool. AEP built its CCR storage sites in compliance with all regulations and accepted practices in place at the time of their construction; liners as prescribed by the CCR rule were not required.

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