



**Frequently Asked Questions  
Regarding the Disposal of Coal Ash  
at the  
Perry County Arrowhead Landfill  
Uniontown, Alabama**

**What is coal ash?**

Coal ash is a byproduct of burning coal to produce energy. Coal ash is a gray, powdery substance that is composed of the materials that are left over after the coal is burned, including fine sand (called silica), unburned carbon and various metals such as arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium and zinc.

**Where is the coal ash coming from?**

The coal ash was generated at the Tennessee Valley Authority (TVA) Kingston Fossil Fuel Plant in Roane County, Tennessee. On December 22, 2008, the failure of a containment structure at the facility resulted in the release of an estimated 5.4 million cubic yards of coal ash to the Emory River and surrounding areas. On May 11, 2009, TVA and the U.S. Environmental Protection Agency (EPA) entered into an Administrative Order and Agreement on Consent (AOC). Under the order, EPA is responsible for overseeing TVA's comprehensive cleanup of the site, including the removal and disposal of coal ash from the Emory River and surrounding areas. A time-critical response is underway to remove approximately 3 million cubic yards of coal ash from the Emory River.

**Why is disposal of the coal ash necessary?**

A primary cleanup objective at TVA's Kingston site is to protect human health and the environment by removing the coal ash from the Emory River as quickly as possible, and disposing of it properly, in order to prevent potential flooding and prevent the ash from moving downstream and impacting other areas of the river. The ash poses a significant ecological risk by smothering aquatic life and making the river bottom unsuitable for aquatic insects, and needs to be removed to return the river to its natural state. A time-critical response is underway to remove approximately 3 million cubic yards of coal ash from the Emory River.

## **How was the Perry County Arrowhead Landfill near Uniontown, Alabama, selected to receive the coal ash?**

As part of the AOC, TVA was ordered by the EPA to conduct an analysis of possible disposal options. EPA required that landfills considered for off-site disposal of coal ash include the use of a landfill liner, a system to collect any liquid (leachate) that may run off the landfill, groundwater monitoring, financial assurance, and provisions for long-term maintenance. The TVA analysis also evaluated loading, transportation and unloading options.

Several landfills in Alabama, Georgia, Pennsylvania and Tennessee were evaluated as part of the disposal options analysis. EPA agreed with the TVA selection of the Perry County Arrowhead Landfill near Uniontown, Alabama, based upon a number of reasons, including:

- 1) The Arrowhead Landfill is a municipal solid waste landfill that is in compliance with all applicable federal and state environmental regulations and is permitted to accept waste materials such as coal ash;
- 2) The Arrowhead Landfill meets and exceeds all technical requirements specified in EPA's order with TVA in that it is constructed with a compacted clay composite liner, a polyethylene geomembrane liner, a leachate collection system, a protective cover and a 100-foot buffer that surrounds the property. The landfill also conducts regular groundwater monitoring;
- 3) The Arrowhead Landfill has the capacity to accommodate the volume of coal ash anticipated to be disposed of in the landfill and prevailed in a competitive bidding process; and
- 4) Norfolk Southern has a direct rail line from the TVA facility to the Arrowhead Landfill. The benefits of rail transport greatly outweighed those of truck transport including reducing potential vehicle accidents, greater fuel efficiency of rail cars versus trucks, and avoiding burdens on local traffic and roads.

## **How were community impacts considered in selecting the Arrowhead Landfill for coal ash disposal?**

Prior to approving the Perry County Arrowhead Landfill as the disposal site for the ash being removed from the Emory River, EPA conducted a thorough review of TVA's options analysis to ensure the selected facility is operating in compliance with solid waste regulations and that potential risks to the community, especially any vulnerable populations, were addressed. Arrowhead Landfill is located 4 to 5 miles from Uniontown, which is the nearest population center. The landfill is in an isolated area, surrounded by large tracts of property, farms and ranches. The site has a 100 foot buffer that surrounds the entire landfill property. No waste is allowed to be placed in the buffer area. The nearest residence is approximately 250 to 300 feet away from the site.

**How are residents of Perry County being notified about the decision to dispose coal ash in the Arrowhead Landfill? How can the public comment on this decision?**

EPA will conduct outreach in the community to engage residents and local leaders to ensure they are aware of the disposal plan and any possible risks associated with the material being disposed. Though time-critical actions like this by their nature need to begin immediately, the public is invited to comment as work proceeds.

For longer-term response actions, including the removal and disposal of the remaining 2.4 million cubic yards of ash from other tributaries and surface areas from TVA's Kingston site, EPA will engage in public consultation and will provide an opportunity for community feedback on proposed actions before decisions are made.

Comments to EPA should be directed to:

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Comments to TVA should be directed to:

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**How much coal ash will the landfill receive and over what period of time?**

Over the next year, as part of the time-critical response, it is expected that approximately three (3) million cubic yards of ash being removed from the Emory River, of the total 5.4 million cubic yards of ash spilled at the Kingston site, will be disposed of in the Arrowhead Landfill. The Arrowhead Landfill has a total capacity of 11 million cubic yards. It is proposed that approximately 9,000 cubic yards of ash will be disposed of daily. This volume may increase as TVA increases the rate of removal of ash from the river.

### **How will the coal ash be transported to the landfill?**

Based on the disposal options analysis, the benefits of rail transport greatly outweighed those of truck transport including reducing potential vehicle accidents, greater fuel efficiency of rail cars versus trucks, and avoiding burdens on local traffic and roads. All of the ash will be transported by Norfolk Southern rail line on a direct route from the TVA Kingston Power Plant to the Arrowhead Landfill, a distance of about 325 miles that takes about three days to travel.

### **What assurances does the community have that transporting and disposing of coal ash at the Arrowhead Landfill is a safe option?**

The Arrowhead Landfill is a modern, rail-served facility, with two liners, a leachate collection system and buffer that conducts regular groundwater monitoring and is permitted to accept waste materials such as coal ash. It is in compliance with all applicable federal and state environmental regulations. The landfill is designed to safely manage large quantities of waste and plans to hire additional personnel to assist in management of the coal ash from TVA's Kingston site. Transporting the coal ash by rail will not add to the traffic burden in the Perry County area and is considered a safer and more efficient means of transporting the material from Tennessee to Alabama than truck transport.

### **What about the safety of the workers?**

Current employees of the Arrowhead Landfill are experienced in handling waste materials. New employees at the Arrowhead Landfill will receive health and safety training, including appropriate job-specific training. Workers at the landfill are required to wear personal protective equipment, including hard hats, safety glasses and earplugs.

Landfill employees who will be responsible for unloading and cleaning out railcars will receive specialized Hazardous Waste Operations and Emergency Response (HAZWOPER) training and will be required to wear protective coveralls and respiratory protection designed to protect them from particulate matter. Ash in the rail cars will be kept moist to prevent dust from spreading when the material is transferred to trucks at the landfill. The trucks will be covered with a tarp as they transport material to the disposal location in the landfill. Arrowhead Landfill will monitor worker's exposure by conducting regular air sampling, and will make adjustments to the levels of protection as information is obtained.

### **Does radiation from the coal ash pose a risk to workers or the community?**

Coal naturally contains small amounts of the radioactive substance radium, which remains in the coal ash after the coal is burned. Radiation levels in the coal ash were compared to EPA and Alabama criteria and guidance for disposal and worker safety, and the analysis showed the material meets all federal and state criteria for disposal at the Arrowhead Landfill. In fact, radiation levels in the coal ash are only slightly above the

level that Alabama allows in materials such as backfill soil or in home building products. The landfill itself is a controlled setting for disposal of the coal ash as it has a liner system, a leachate collection system, groundwater monitoring, limited public access, and provisions for long-term maintenance.

**What safeguards are being taken to ensure that the coal ash will not negatively impact local water quality in Perry County?**

The Arrowhead Landfill is equipped with two liners, a leachate collection system and a protective cover, to prevent contaminants from entering groundwater. The leachate from the landfill is collected and transported off-site for treatment. Groundwater quality around the landfill is monitored by the periodic collection and analysis of samples from groundwater wells installed at various locations on the landfill site. These protections will ensure that groundwater in the vicinity of the landfill is protected. Landfill management and the groundwater monitoring program are overseen by the Alabama Department of Environmental Management (ADEM).

**Who is responsible for overseeing and monitoring the disposal of the coal ash once it reaches the landfill?**

The Arrowhead Landfill is managed under the rules and regulations of the Resource Conservation and Recovery Act (RCRA). Subtitle D of RCRA establishes a federal approval process for individual states to manage their own solid waste permitting programs, and Alabama received a Determination of Adequacy for its Subtitle D permitting program in 1996. ADEM will ensure proper disposal of the coal ash at the Arrowhead Landfill. Regular monitoring of the landfill takes place in accordance with RCRA guidelines and regulations, and both the Arrowhead Landfill and ADEM are responsible for regular monitoring. EPA and TVA have taken considerable measures to ensure proper handling of the coal ash is conducted. EPA RCRA staff and ADEM participated in a site visit of the Arrowhead Landfill on June 10, 2009, to become familiar with the facility and surrounding areas.

**For further information, please contact:**

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