

# Coal Fly Ash Release

## Fact Sheet



*Revised as of March 5, 2009*

A number of agencies from the state of Tennessee responded immediately to the Tennessee Valley Authority (TVA) coal ash release in Kingston on Dec. 22 and will continue to be engaged over the long term. The Tennessee Department of Environment and Conservation (TDEC) is overseeing the cleanup and investigative activities at the site, and continues to conduct independent sampling. TDEC coordinates closely with the Tennessee Department of Health (TDH) and U.S. Environmental Protection Agency (EPA) and continually works to ensure the health of the community and the environment remain priorities throughout the cleanup process.

### State oversight of cleanup

Governor Phil Bredesen announced an enforcement order on Tuesday, Jan. 13 that formalizes the state's ongoing oversight of cleanup activities at the Kingston site, requires information related to the cause of the release and addresses the stability of other TVA sites in Tennessee. The order requires TVA's cooperation with the state in supporting independent assessments and inspections at Kingston and other TVA coal-waste sites around the state as well as the development of a corrective action plan detailing the steps TVA will take to clean up the Kingston site and ensure safe operations in the future.

To date, TVA has met the deadlines for submitting information required by the order. TVA has submitted reports, studies and memoranda that are potentially relevant to explaining or analyzing the cause of the catastrophic failure of the containment structures surrounding portions of the Kingston ash disposal site, as required. These are under review by the department. TVA has submitted and the department and EPA have approved a revised version of the Phase I Dredge Plan that outlines how TVA will begin removing ash from the Emory River. TVA estimates it will begin dredging on or about March 20, 2009. TVA has also submitted and TDEC and EPA are reviewing the comprehensive Corrective Action Plan required by the order.

The enforcement order and TVA submittals responsive to that order are posted on the TDEC Web site at [www.tn.gov/environment/kingston](http://www.tn.gov/environment/kingston)

In addition to the Department of Environment and Conservation, a number of state agencies have responded to the coal ash release. TDEC coordinates closely with the Tennessee Department of Health, which analyzes the samples TDEC collects at the state laboratory. TDH also provides risk assessors to determine whether adverse health effects are likely based on the data. TDH has also gone door-to-door to conduct a health survey and to share information with area residents, and has provided information to area medical practitioners.

The Tennessee Wildlife Resources Agency (TWRA) is conducting fish and wildlife surveys in the area near the coal ash spill. The Tennessee Emergency Management Agency responded during the emergency phase of the release and coordinated the work of the state agencies involved.

### Federal government assistance

EPA mobilized its emergency response unit in response to the coal ash release and continues to be a partner in the ongoing oversight of the cleanup. All information submitted to TDEC must also be submitted to EPA and both agencies work together to review materials and coordinate responses. Additionally, the federal Agency for Toxic Substances and Disease Registry is a resource for both EPA and the Tennessee Department of Health.

## Independent Sampling Activities

The Department of Environment and Conservation is regularly conducting independent sampling related to the Kingston release. The department has sampled air, drinking water, private wells, river water, soil and ash. Samples are analyzed at the state lab and results are posted to TDEC's Web site as they are received from the lab.

## Air Monitoring

TDEC has required TVA to take action to prevent, as much as possible, ash from becoming airborne, particularly as the weather warms and the ash begins to dry. Measures the department is overseeing include straw and seeding the site, applying an encrusting agent to the ash, spraying the ash with water and installing wheel washers for trucks leaving the site.

In addition to auditing TVA's air monitoring activities, TDEC's Division of Air Pollution Control has set up two air monitors near Lake Shore Drive for independent analysis. One sampler continuously collects fine particulate matter (PM10). This sampler has been in operation since January 21, 2009. The other sampler collects particles that can be analyzed for metals. Metals analyses includes aluminum, arsenic, barium, beryllium, cadmium, chromium, lead, manganese, mercury, selenium, thallium and vanadium.

All sample results for particulate matter indicate that air quality meets National Ambient Air Quality Standards. Lab analysis has detected some metals only at very low levels. The Department of Health indicates these levels do not cause health concerns.

Information about air sampling results and additional measures being taken for air quality protection, including the "Fugitive Dust Control and Suppression Plan" that TVA has submitted to the state, can be found on TDEC's Web site.

## Drinking Water

Ensuring a safe drinking water supply has been a priority of the state since the spill occurred. Daily samples of river water and treated drinking water collected at the Kingston and Rockwood water treatment plants between Jan. 2-22 never indicated a problem. Weekly sampling at each plant continues. The individual facilities also perform routine sampling of both raw and treated water. To date, all sample results indicate drinking water meets drinking water standards.

## Well Water

The Department of Environment and Conservation has sampled more than 100 private wells within a four-mile radius of the spill site for metals at no charge. Results are shared directly with the property owners when they are received from the lab. As of March 5, results have not indicated exceedances of the primary drinking water standards for metals. This sampling does not include sampling for bacteria or other constituents that would not be attributed to the fly ash release. Wells also are being identified for regular sampling over time in order to find any contaminants that could potentially migrate into private wells in the future.

If you live within four miles of the site and would like your well sampled, you may call Environment and Conservation's Knoxville Field Office at 865-594-6035 or 888-891-8332.

## River Water

On Jan. 2, 2009, TDEC began twice weekly sampling for heavy metals at several stations in the area of the Kingston ash spill. Metals levels were highest immediately following the spill and whenever the ash has been resuspended by rainfall or disturbances such as boat traffic. Generally, higher metals have been observed to be associated with solids in water samples.

Specific metals that were measured above Tennessee's chronic water quality criteria for protection of fish and aquatic life at least once include aluminum, cadmium, copper, iron and lead. Most of the violations were in the Emory River near the ash spill.

Arsenic was found in five samples in the Emory near the spill site at levels above our criteria for domestic water supply, though there are no drinking water intakes in this area and results at other sites were lower. Mercury was detectable in four samples, above and below the spill site, at levels above our criteria for protection of fish tissue for human consumption.

Criteria for waters that serve as a source of drinking water and from which fish are consumed have also been violated by some of thallium samples from both the Tennessee and Emory Rivers. There has been no violation of the thallium standard for drinking water only.

As mentioned on Page 1, TVA has submitted and both TDEC and EPA have approved a revised version of the Phase I Dredge Plan that outlines how TVA will begin removing ash from the Emory River. TVA estimates it will begin dredging on or about March 20, 2009.

## Fish Tissue Monitoring

The Tennessee Wildlife Resources Agency (TWRA) advises until further notice that fishing should be avoided in the lower section of the Emory River, and that existing advisories for Watts Bar should be followed.

TWRA has collected fish tissue samples from the impacted area. Fish tissue will be monitored regularly over time to determine whether concentrations of metals associated with the ash, such as selenium, arsenic, mercury, cadmium and lead accumulate in the tissue. The first set of analyses is not yet complete. If the results indicate advisories are appropriate, the department will issue them.

There are existing fish consumption advisories in the Watts Bar Reservoir that predate the TVA ash spill. In the Clinch River arm of Watts Bar, which would include the lower Emory River, there is a fish consumption advisory against eating striped bass and a precautionary advisory for catfish and sauger. A precautionary advisory means that children, pregnant women and nursing mothers should not consume the fish species named. All other persons should limit consumption of the named species to one meal per month.

## Recreational Safety

We are aware that many people are concerned about boating, swimming and fishing. People are advised to avoid contact with the ash, which is in the lower Emory River. At this time, recreation on Watts Bar outside the lower Emory River impact zone has not changed from the condition that existed before the ash spill. It is safe to swim, boat and eat most kinds of fish. See the “Fish Tissue Monitoring” section for more details on the existing fish consumption advisories. Monitoring will continue and decisions about appropriate activities will be reassessed using the current sampling data.

## About Coal Ash

Coal ash is a byproduct of burning coal to produce energy. It is a gray, powdery material collected by air pollution control equipment at the power plant. The ash is dusty and often kept wet to prevent it from getting into the air. The ash largely consists of different oxides of metals produced during the combustion process such as silica dioxide, aluminum oxide, iron oxide, calcium oxide and magnesium oxide. Coal ash also contains small amounts of heavy metals that could be harmful to human health under certain conditions – primarily through ingestion or inhalation. Metals found in coal ash include: arsenic, beryllium, cadmium, chromium, lead, selenium, thallium and vanadium.

## Soil and Ash

TDEC collected 29 soil and ash samples, which were analyzed at the state lab. Sixteen were soil from impacted residences, as well as some background samples from outside the impacted area. The remaining 13 samples were ash. Soil and ash samples are being analyzed for total metals, TCLP metals (which helps to determine how likely metals are to leach from the material), radioactivity and polynuclear aromatic hydrocarbons.

For residential soil, the results indicated that concentrations were well below any levels that could cause harm. The ash contains some metals, including arsenic, and some radioactive materials of natural origin.

The Tennessee Department of Health has indicated that, based on current sampling results, there should be no adverse health effects from accidentally and occasionally ingesting the ash. The metals and radiation should not contribute to adverse health effects from breathing coal ash containing dust, though breathing any kind of dust can aggravate pre-existing respiratory conditions.

We encourage everyone to avoid contact with coal ash. If you do contact the ash, then practice good hygiene, especially washing your hands before eating or smoking. Remember, the metals are bound to the ash. Occasional exposures for brief periods of time should not pose a threat.

## Ash Disposal

The enforcement order issued against TVA requires a corrective action plan. That plan was submitted to TDEC on March 2 and is available on TDEC's Web site. The order requires the plan to include information on how TVA intends to safely manage the ash in both the short and long term. The corrective action plan is currently under review by both TDEC and EPA for adequacy. Once that review is complete, the department will meet with TVA and communicate any revisions that are deemed necessary.

## TDEC Local Office

The state is committed to overseeing the cleanup of the coal ash release to ensure it is done with the health of the public and the environment as the key priorities. TDEC has established a local office at the Roane County Health Department facility for community contacts. The Roane County Health Department building is located at 1362 N. Gateway Ave. in Rockwood. TDEC staff may be reached by calling 865-354-1220 ext. 103.



**Authorization No. 343989**  
**March 2009**  
**Web site & Public Meeting use**

## Useful Web sites

Tennessee Department of Environment and Conservation:  
[www.tn.gov/environment](http://www.tn.gov/environment)  
("TVA Kingston Update" Link)

Tennessee Department of Health:  
[www.tn.gov/health](http://www.tn.gov/health)

TVA:  
[www.tva.gov](http://www.tva.gov)

Environmental Protection Agency:  
[www.epa.gov/region4](http://www.epa.gov/region4)

## Important Numbers

TDEC:	888-891-8332
TN Dept. of Health:	800-404-3006
Roane Co. Health Dept.:	865-354-1220
TVA Public Information:	865-717-4006
TVA Outreach Office:	865-632-1700

### If you have questions, contact:

**Tennessee Department of Environment and Conservation**  
**888-891-8332**

Updates, including sample results, monitoring plans, the enforcement order and TVA submittals are available on the Internet at  
[www.tn.gov/environment](http://www.tn.gov/environment)  
under "TVA Kingston Update."