

## Air Facts for Kingston Fossil Plant Vicinity

### Background

As reported an ash slide occurred on December 22, 2008 at the TVA Kingston Fossil Plant. The bulk of this fly ash consists of inert material not harmful to the environment. The material does contain trace amounts of some metals that can be harmful in sufficient quantities. Sampling was initiated immediately afterwards to determine if there was a threat to public health. All results of air quality sampling have been below National Ambient Air Quality Standard (NAAQS) for particulate matter. Also, all metal analysis results have been below detectable limits.

### Air Particulates

- Air particulates are tiny particles of solid or semi-solid material found in the atmosphere. They can be emitted by cars, power plants, and industrial sources, but they can also be caused by fugitive dust emissions, such as wind blowing over a farmer's field or an ash pile.
- Air particulates are typically measured as particulate matter less than 10 micrometers in diameter (PM10) and particulate matter less than 2.5 micrometers in diameter (PM2.5). Inhalation of air particulates in sufficient quantity can reduce lung function and aggravate respiratory ailments. Air particulates can be made up of a number of different chemicals, so it is important to analyze the chemical composition of the particulates.
- TVA has already implemented a fugitive dust control plan to limit the source of air particulates at Kingston from the ash spill event.

How small is 2.5 micrometers? Think about a single hair from your head. The average human hair is about 70 micrometers in diameter – making it 30 times larger than the largest fine particulate.

### Current Air Sampling

- The Center for Toxicology and Environmental Health (CTEH) is monitoring real-time air particulate matter with handheld devices both on-site and off-site in nearby residential areas. Over 2,600 on-the-spot readings have been taken by CTEH through January 13, 2009.
- CTEH is conducting stationary air sampling, initially at four on-site locations and now at five off-site residential locations. These monitors provide information on the 24-hour concentrations of 21 metals that may be found in air particulates. In the future, the current monitors will be

replaced with high-volume samplers that can detect even lower concentrations than those being read at present.

- TVA has set up a mobile laboratory on-site which is sampling 24-hour air particulates, including PM10, PM2.5, and their chemical composition. Meteorological data, including wind speed and wind direction, are also being monitored at this location.

### **Results of Air Sampling**

- All readings of real-time monitoring of particulate matter are well below the level of the 24-hour PM10 National Ambient Air Quality Standard. These readings are through January 14, 2009.
- Results of stationary air samplings have been received for the samples collected through January 9, 2009 and all samples indicate metal concentrations below detection levels.
- Results of the TVA Mobile Laboratory finds all readings of particulate matter are well below the level of the 24-hour PM10 and 24-hour PM2.5 National Ambient Air Quality Standards (NAAQS). The most recent results are through January 13, 2009.

### **Additional Air Monitoring**

- TDEC has been monitoring PM2.5 in Harriman, approximately 2.5 miles from the Kingston plant, since 1999. While this monitor exceeded the level of the annual NAAQS in 1999, 2000, 2001, and 2005, current readings are below the standard. Readings at monitors in Knoxville have exceeded the level of the annual PM2.5 NAAQS for eight of the past nine years. The greater Knoxville area, including Knox, Anderson, Blount, and Loudon Counties as well as a portion of Roane County (the census block that includes the Kingston plant) has been designated as Non-Attainment for the PM2.5 NAAQS.
- TVA has developed an air monitoring plan to ensure the health and safety of workers and residents in the vicinity of Kingston.
- TVA, CTEH, US EPA, and Tennessee Department of Environment and Conservation (TDEC) are all monitoring air quality in the vicinity of Kingston.

Summaries of data to date can be found at:  
<http://www.tva.gov/emergency/air/index.htm>.