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COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
SUBCOMMITTEE ON WATER RESOURCES AND THE ENVIRONMENT

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Madam Chairwoman and members of the Subcommittee, thank you for the opportunity to provide testimony on the U.S. Environmental Protection Agency's (EPA's) role in the response and clean up of the release of coal ash from the Tennessee Valley Authority (TVA) Kingston Fossil Plant in Harriman, Roane County, Tennessee. I will discuss the actions EPA has taken as part of the response to this release, as well as our current and planned actions to ensure that the ash removal and disposal is conducted in a manner that protects public health and the environment.

Response to Kingston Coal Ash Release

On December 22, 2008, at 1:00 a.m., an ash disposal cell at the TVA Kingston Fossil Plant failed, causing the release of an estimated 5.4 million cubic yards of fly ash to the Emory and Clinch Rivers and surrounding areas. The release extended over approximately 300 acres outside the ash storage area. The failed cell was one of three cells at the facility used for settling the fly ash. The initial release of material created a wave of water and ash that destroyed three homes, disrupted electrical power, ruptured a natural gas line in a neighborhood located adjacent to the plant, covered a railway and roadways in the area, and necessitated the evacuation of a nearby neighborhood.

Shortly after learning of the release, EPA deployed an On-Scene Coordinator to the site of the TVA Kingston Fossil Plant coal ash release. EPA joined TVA, the Tennessee Department of Environment and Conservation (TDEC), the Roane County Emergency Management Agency, and the Tennessee Emergency Management Agency (TEMA) in a coordinated response (i.e., unified command in the National Incident Management System). EPA provided oversight, as well as technical advice, for the environmental response portion of TVA's activities. TVA has conducted extensive environmental sampling and shared results with EPA personnel. As discussed in more detail below, EPA staff and contractors have also conducted extensive independent sampling and monitoring to evaluate public health and environmental threats. In addition to providing information on environmental conditions at the site, EPA's data have also served as an independent verification of the validity of the TVA data.

EPA sampling has included: surface waters of the Clinch and Emory Rivers, municipal water supply intakes, finished water (distributed from the water treatment plant) from potentially impacted public water systems, soils, private drinking water wells, and coal ash. EPA also monitored airborne particulate levels in areas of ash deposition. The multimedia data are being used to determine appropriate response measures that are protective of the environment and human health.

In the aftermath of the incident, EPA sampled the coal ash and residential soil to determine if the release posed an immediate threat to human health. Sampling results for coal ash contaminated residential soil showed arsenic, cobalt, iron, and thallium levels above the residential Superfund soil screening values. Sampling results also showed average arsenic levels

in the Kingston coal ash and coal ash contaminated residential soil above the EPA Region 4 Residential Removal Action Levels (RALs). RALs are used to trigger time-critical removal actions while soil screening values, are used as a point of departure for EPA to take any action to investigate and/or remediate a release. In response to exceedances of RALs for ash contaminated residential soils, TVA relocated residents to interrupt this soil exposure pathway. All other compounds in the ash and ash contaminated residential soil were below these soil screening values. EPA also analyzed the coal ash under the Toxicity Characteristic Leaching Procedure to determine whether the material would be classified as a hazardous waste, were it not for an exemption under the Resource Conservation and Recovery Act. The analysis showed the material would not be classified as a hazardous waste.

Since the failure, EPA, TDEC, and TVA have sampled multiple locations along the Clinch and Emory Rivers. Those sampling efforts detected heavy metals known to be contained in coal ash, but concentrations were below applicable limits. To date, almost 800 surface water samples have been taken by TVA and TDEC, ranging from two miles upstream of the release on the Emory River to approximately eight miles downstream on the Clinch River. Sampling results of untreated river water showed that some metals were elevated just after the incident, including arsenic, cadmium, chromium, and lead. Elevated levels of metals in untreated river water were observed again after a heavy rainfall on January 6, 2009. However, subsequent sampling events found decreasing amounts of suspended ash, and showed metals concentrations below drinking water limits.

For drinking water, concentrations measured on December 23, 2008, near the intake of the Kingston Water Treatment Plant (WTP) were below federal Maximum Contaminant Levels (MCLs) for drinking water with the exception of elevated thallium levels. Subsequent EPA testing on December 30, 2008, of samples at the same intake found that concentration levels for thallium had fallen below the MCL. On December 29, 2008, and again during the December 30, 2008, sampling event, EPA sampled the finished water at the Kingston WTP. These samples were below MCLs. Additional testing conducted during the December 30, 2008, sampling event confirmed that samples from the Cumberland and Rockwood WTPs did not exceed MCLs. A regular sampling program implemented by TDEC at the Kingston WTP is in place and continues in operation.

Some residents near the site rely on private wells as their source of drinking water. EPA identified and sampled several potentially impacted residential wells in the immediate area on December 30, 2008. No contaminants above MCLs were detected. In coordination with EPA testing, TDEC offered to sample all residential wells within a four-mile radius of the facility. As of March 26, 2008, TDEC has taken 112 water samples (both spring water and well water). To date, all of the samples have met the Drinking Water MCLs. Well sampling is a voluntary process that must be initiated by each resident, and TDEC continues to receive and accommodate sampling requests within four miles of the facility.

EPA and TDEC recognize that windblown ash poses a potential risk to public health. With EPA oversight, TVA commenced air monitoring for coarse (10 microns in size) and fine (2.5 microns in size) particulate matter (PM_{10} and $PM_{2.5}$, respectively). Concurrently, EPA and

TDEC commenced monitoring for PM_{10} and $PM_{2.5}$ to validate TVA's findings. To date, almost 26,000 air samples have been collected. Particulate levels in the air have measured below the National Ambient Air Quality Standards for these parameters. TVA has constructed five air monitoring stations in residential neighborhoods surrounding the site and developed a strategy for air monitoring throughout the duration of the clean up. TVA is also implementing a number of dust control measures, including water trucks, vehicle cleaning, and erosion control mulch.

TVA also obtained several air samples on TVA property to measure potential levels of specific contaminants of concern in the air. No constituents were detected with the exception of silica in a single sample. After consultation with the Agency for Toxic Substances and Disease Registry (ATSDR), the level of silica detected was determined not to pose an imminent threat to public health. Sampling results for sediment, air, and water testing are available on the TDEC, TVA, and EPA Region 4 websites.

While protection of public health and safety was the primary concern during the initial phase of emergency response, EPA's mission also calls for protection of the environment, in this case the long-term ecological health of the Emory and Clinch Rivers. As part of its response, TVA constructed an initial rock weir across the Emory River to minimize downstream sediment transport, and a second weir to contain ash which is located in Swan Pond Embayment adjacent to the Emory River. A detailed ecological assessment will determine appropriate future actions to restore the functions of this aquatic system and its tributaries. TVA has also constructed drainage channels across the ash in the Swan Pond Embayment to reduce the potential for flooding in the three tributary systems that feed the embayment and to reduce water flowing

through the ash. TVA has submitted a storm water construction permit for the embayment area, and this permit has been approved by TDEC. This permit involves the construction of two additional dikes at the upstream extent of the ash in the tributaries to reduce the mixing of stormwater flows with the ash, and a stormwater pond for treatment. The pond is presently being constructed adjacent to the second weir across Swan Pond Embayment.

Key Cleanup Activities

The ash disposal cell which failed had been permitted by TDEC as a Class II Solid Waste Landfill under State regulations, and TDEC remains the lead oversight agency for this clean up. On January 12, 2009, the Commissioner of TDEC issued an order to TVA that among other things required TVA to submit a Corrective Action Plan for addressing the clean up of the ash spill. In addition, on February 4, 2009, EPA Region 4 and TDEC sent a letter to TVA notifying TVA that, pursuant to Executive Order (EO) 12088, EPA considers the Kingston spill to be an unpermitted discharge of a pollutant under the Clean Water Act. EO 12088 specifies that when EPA finds an Executive agency in violation of a pollution control standard, upon notice from EPA, that agency shall provide to EPA a plan to achieve and maintain compliance with the applicable pollution control standard. In order to meet the requirements of both the TDEC Commissioner's Order and Executive Order 12088, and to ensure the most efficient and expeditious collaboration between the three agencies, the letter directs TVA to provide copies of all plans, reports, work proposals and other submittals to EPA and TDEC simultaneously. EPA and TDEC are coordinating reviews and approvals of the submittals within our respective authorities. EPA's overall objectives for our review and oversight are to ensure that the clean up protects public health, is in full compliance with all applicable Federal law, proceeds in

accordance with sound scientific principles, is done as quickly as possible, consistent with prudent management, and restores the ecosystem.

To facilitate coordination of internal activities, on January 21, 2009, EPA Region 4 formed a Kingston Ash Spill Task Force (Task Force). Senior staffers from the Region's air, water, waste, and laboratory programs are represented on the Task Force to ensure complete and adequate coverage of all issues. Draft plans, products and data produced by TVA and TDEC are reviewed by the Task Force and approval by the Region is coordinated through each of these programs. Members of the Task Force and their staff review data for quality control, participate in site visits and reviews, and have kept in close contact with TDEC and TVA during all phases of the recovery to date. Region 4 is also coordinating with EPA Headquarters. This coordination will continue until the site has been restored.

With respect to ash in Emory River, on February 5, 2009, TVA submitted to EPA and TDEC the draft Phase One Dredging Plan. The Phase One dredging plan was revised, and then approved by both TDEC and EPA on March 19, 2009, after final approval of the associated sampling plan and quality assurance plan for the Phase One dredging operations. Phase One dredging began on March 19, 2009, and involves using a hydraulic dredge and a mechanical dredge to remove the ash from the main channel of the Emory River down to a level of 710 feet above mean sea level. Removal of this material is critical to reopening the channel enough to reduce the potential for upstream flooding which could occur with seasonal high water discharges during the spring. TDEC and EPA have required TVA to develop an extensive monitoring and sampling plan to monitor any releases that might occur during the dredging

operation and prevent additional harm to human health or the environment. As the dredging is conducted, if any sampling indicates a release of any toxic substances or a turbidity problem, the agencies will order the dredging to stop until additional measures can be put in place.

Phase One dredging is expected to last for at least several months. Phase Two and Phase Three of the dredging will begin after completion of Phase One. Phase Two dredging will address any remaining ash in the Emory River channel down to the original substrate. Phase Three dredging will address ash in the Swan Pond Embayment and its tributaries. The dredging plans for these later phases have not yet been developed by TVA. EPA and TDEC, as well as other local, state and Federal agencies, will be involved as the plans are prepared. EPA and TDEC will also approve the plans before they are implemented.

EPA and TDEC are also reviewing the overall Corrective Action Plan (CAP) which TVA submitted, pursuant to the Commissioner's Order, on February 27, 2009. The CAP, as submitted, was an initial statement of short-term and long-term plans for recovery of the site and final disposal of the ash, and discussed TVA's initial plan for site assessment, environmental monitoring, protection of water supplies and options for ash disposal. Pursuant to the Commissioner's Order and EPA's authority, TVA's CAP, including any updates, will be reviewed and revised to ensure that the clean up provides continued protection of human health and the environment. As part of the review of the CAP, EPA and TDEC met with TVA on March 19, 2009, to begin revisions of the CAP and to discuss next steps for selection of final disposal sites for the ash, to be located off-site. Plan revisions will involve EPA, TDEC and other local, state and Federal agencies and must be approved by both EPA and TDEC.

EPA recognizes that there are ongoing community concerns regarding the impacts from the ash spill and related cleanup activities. To help facilitate communications, EPA, along with TDEC, ATSDR and the Tennessee Department of Health (DOH) participated in a March 5, 2009, public meeting in Harriman, Tennessee, in which TDEC provided sampling data to the community and residents were able to ask questions and express any concerns to agency representatives. TDEC expects to host additional public meetings while the cleanup process continues. We also understand that TVA has planned a public meeting for March 30, 2009, and we encourage TVA to continue efforts to reach out and involve the affected citizens of the surrounding community in the planning and conduct of the clean up.

Conclusion

EPA will use its authorities and expertise to continue oversight and technical assistance efforts to protect human health and the environment during the clean up of this incident and promote the restoration of the surrounding ecosystem. EPA will continue to work with other agencies to share information with the community, and will keep Subcommittee staff informed on progress related to the response. Again, we appreciate the opportunity to testify today and will be pleased to answer any questions you may have.