TESTIMONY FOR THE RECORD
U.S. ENVIRONMENTAL PROTECTION AGENCY
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

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Madam Chairman and members of the Committee, thank you for the opportunity to provide testimony on the U.S. Environmental Protection Agency's (EPA's) role in the response to the recent release of coal ash from the Tennessee Valley Authority (TVA) Kingston Fossil Plant in Harriman, Roane County, Tennessee. In addition to a description of the actions EPA has taken as part of the response to this release, the testimony also discusses EPA's regulatory efforts regarding the management of coal ash in landfills and surface impoundments, such as the surface impoundment that was the source of the recent release in Tennessee. The testimony concludes with information on EPA's efforts to encourage the beneficial use of coal ash: a set of practices which are yielding significant environmental and economic benefits, including reducing greenhouse gas (GHG) emissions to the environment, as well as the need for land disposal of coal ash.

Response to Kingston Coal Ash Release

On December 22, 2008, at 1:00 a.m., a retaining wall in a surface impoundment at the TVA Kingston Fossil Plant breached, 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 breached impoundment was one of three impoundments at the facility used for settling the fly ash and discharging the water that was

used to transport the fly ash to the disposal site. The initial release of material from the plant's surface impoundment 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 railway and roadways, 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 is providing 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 sampling and air 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, and 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 will be used to determine appropriate response measures that are protective of the environment and human health.

In the days following the breach, EPA and TVA jointly sampled multiple locations along the Clinch and Emory Rivers. Those sampling efforts detected heavy metals known to be contained in coal ash in the Clinch and Emory Rivers. Concentrations measured on December 23, 2008 near the intake of the Kingston Water Treatment Plant (WTP) were below federal Maximum Contaminant Levels (MCL) 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 met all MCLs, as well. Additional testing conducted during the December 30th sampling event confirmed that samples from the Cumberland and Rockwood WTPs did not exceed any MCLs. A regular sampling program implemented by TDEC at Kingston WTP is in place.

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 January 5, 2009, TDEC had sampled 27 residential wells. Results from 20 of these wells is complete, and all 20 wells met the MCLs. Results from the remaining seven are expected soon. Well sampling is a voluntary process that must be initiated by each resident, and TDEC continues to receive (and accommodate) sampling requests.

EPA and TVA 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 commenced independent monitoring for PM_{10} and $PM_{2.5}$ to validate TVA's findings. To date, 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 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.

While protection of public health and safety is the primary concern during the initial phase of emergency response, EPA's mission also calls for protection of the environment (including, the long-term ecological health of the Emory and Clinch Rivers). As part of its initial response, TVA constructed a rock weir across the Emory River to minimize sediment transport; a second weir is in the design phase. A detailed ecological assessment will determine appropriate future actions. EPA will continue to work with TDEC and TVA on the long term remediation effort

Regulation of Coal Ash Surface Impoundments

Wastewater discharges from surface impoundments are regulated by National Pollutant Discharge Elimination System (NPDES) permits that incorporate both technology-based requirements (i.e., effluent limitations guidelines) and water-quality based effluent limits. The effluent guidelines for steam electric power plants were last issued in 1982 and are codified in Part 423 of the Code of Federal Regulations (40 CFR part 423).

Since 2005, EPA has been carrying out an intensive review of wastewater discharges from coal-fired power plants to determine whether new Clean Water Act regulations are needed. As part of this effort, EPA has sampled wastewater from surface impoundments and advanced wastewater treatment systems, conducted on-site reviews of the operations at more than two dozen power plants, and issued a detailed questionnaire to thirty power plants using authority granted under section 308 of the Clean Water Act. EPA's data collection efforts are primarily focused on three target areas: (1) identifying treatment technologies for the wastewater generated by newer air pollution control equipment; (2) characterizing the practices used by the industry to manage or eliminate discharges of fly ash and bottom ash wastewater; and (3) identifying methods for managing power plant wastewater that allow recycling and reuse, rather than discharge to surface waters. We've engaged in extensive dialogue with our state partners to hear their views and ensure their concerns about power plant discharges are taken into account.

In August 2008, EPA published an interim report describing the status of the detailed study and findings to date. Much of the information EPA had collected, including the laboratory data from sampling and the questionnaire data were made available to the public. The study is

still in progress and in December 2008 EPA received the laboratory results from its most recent sampling event. Upon completion of the study this year, EPA will determine whether the current national effluent limitations guidelines for power plants need to be updated. EPA's interim study report, *"Steam Electric Power Generating Point Source Category: 2007/2008 Detailed Study Report,"* can be found online at http://epa.gov/waterscience/guide/304m/2006/steam-interim.pdf.

EPA is also currently considering potential regulatory approaches under the Resource Conservation and Recovery Act (RCRA). In May 2000, EPA issued a "Regulatory Determination on Wastes from the Combustion of Fossil Fuels," which conveyed EPA's determination that coal combustion wastes, including coal ash, did not warrant regulation as hazardous waste under Subtitle C of RCRA. However, EPA also concluded that these wastes did warrant federal regulation as non-hazardous wastes under Subtitle D of RCRA and based this determination on the following findings: 1) the constituents present in these wastes include toxic metals that could present a danger to human health and the environment under certain conditions; 2) EPA identified 11 documented cases of proven dangers to human health and the environment through the improper management of these wastes in landfills and surface impoundments; 3) many sites managing these wastes lack controls, such as liners and groundwater monitoring; and 4) while state regulatory programs had shown improvement, gaps in state oversight existed. EPA also determined that beneficial uses of these wastes, such as the use of coal ash as a constituent in concrete, posed no significant risk and did not require additional federal regulation, except for possibly the placement of coal combustion products (CCPs) in minefill operations.

EPA based the May 2000 Regulatory Determination on information collected prior to 1995. Since the determination, EPA collected new information and conducted additional analyses that it believed should be considered as part of its evaluation regarding the development of regulations for the management of coal combustion waste in landfills and surface impoundments. Thus, in August 2007, EPA made this information available for public comment through a Notice of Data Availability (NODA, 65 FR 32214). In response to public requests, EPA extended the comment period on the NODA twice. The second extension for comments closed on February 11, 2008. EPA received close to 400 comments in response to this NODA.

The August 2007 NODA solicited comment on three documents – an updated EPA risk assessment characterizing potential human and ecological risks associated with the placement of coal combustion wastes in surface impoundments and landfills, an updated report on damage cases associated with disposal of coal combustion wastes, and a DOE-EPA survey of more recent disposal practices; in addition the NODA made available for comment alternative regulatory approaches recommended by a consortium of environmental groups and by industry. After the conclusion of the comment period on the August 2007 NODA, EPA commissioned a peer review of the draft risk assessment. The peer review concluded in September 2008. EPA is currently reviewing comments on the August 2007 NODA and the peer review comments to inform follow-up actions to the May 2000 Regulatory Determination.

Beneficial Use of Coal Ash

Through the Coal Combustion Products Partnerships (C2P2) program, EPA works in cooperation with the American Coal Ash Association, the Utility Solid Waste Activities Group,

the U.S. Department of Energy, the U.S. Department of Agriculture's Research Service, the U.S. Federal Highway Administration, and the Electric Power Research Institute to promote the safe beneficial use of CCPs and the environmental benefits that result from their use. As noted previously, the Agency's May 2000 Regulatory Determination concluded that the legitimate beneficial use of CCPs did not present a risk and did not need further federal regulation, except for possibly the placement of CCPs in minefill operations. The beneficial use of CCPs saves virgin resources, reduces energy consumption, reduces GHG emissions, and reduces the need for land disposal. In one example of beneficial use, coal ash can typically replace between 15 percent and 30 percent of the Portland cement used in concrete. The inclusion of coal ash can strengthen concrete and make it more durable than concrete made with only Portland cement. This beneficial use of coal ash also reduces energy use and other environmental impacts associated with Portland cement.

For example, in 2007, by recycling 13.7 million tons of fly ash and using it in place of Portland cement, the United States saved nearly 73 trillion BTUs of energy, equivalent to the annual energy consumption of more than 676,000 households. GHG emissions were also reduced by 12.4 million metric tons of carbon dioxide equivalent, equivalent to the annual GHG emissions of 2.3 million cars.

Conclusion

EPA will continue its oversight and technical assistance efforts associated with the Kingston coal ash release to help ensure protection of human health and the environment. The

Agency will continue to keep the Committee informed on progress related to the response and on its regulatory efforts related to power plant impoundments and coal combustion wastes.