Tom Kilgore, President and Chief Executive Officer

Tennessee Valley Authority

Before the

U.S. House Committee on Transportation and Infrastructure

Subcommittee on Water Resources and Environment

March 31, 2009

Testimony of
Tom Kilgore
President and Chief Executive Officer, Tennessee Valley Authority,
before the
U.S. House Committee on Transportation and Infrastructure
Subcommittee on Water Resources and Environment
March 31, 2009

Opening Statement

Chairwoman Johnson, Ranking Member Boozman, and members of the Committee. I appreciate this opportunity to discuss the coal ash spill at the Tennessee Valley Authority's (TVA) Kingston Fossil Plant, the actions taken in response to the event, and our progress and plans for remediation of the site and protection of the environment.

The incident being discussed today occurred at TVA's Kingston Fossil Plant in Roane County, Tennessee. On behalf of TVA, we deeply regret the failure of the ash storage facility dike, the damage to adjacent private property in the Swan Pond community, and the impact on the environment. We are extremely grateful that no one was seriously injured.

TVA is committed to cleaning up the spill, protecting the public health and safety, and restoring the area. In the process, we will look for opportunities, in concert with the leaders and people of Roane County, to make the area better than it was before the spill occurred. This commitment will stand because TVA is part of the Kingston community through our employees who live and work there, and through the partnership of our historic mission to work for the economic progress of the Tennessee Valley region.

We are also committed to sharing information and lessons-learned from this event and the recovery with those in regulatory and oversight roles, such as this committee, and with others in the utility industry.

Today marks the 99th day since the spill occurred. We have made steady progress in the initial recovery work, including development of a Corrective Action Plan that includes comprehensive monitoring of the air, water and soil. It is important to note that according to the Tennessee Department of Health, the environmental monitoring analyzed to date has not shown any adverse health threat to the immediate or surrounding community, including air quality or drinking water supplies. On March 19, we began the initial phase of dredging ash from the Emory River channel adjacent to the failed storage facility. This activity is being thoroughly monitored and precautions are in place to prevent or minimize environmental impacts during the dredging process. The dredging plan was approved by the Tennessee Department of Environment and Conservation (TDEC) and the U.S. Environmental Protection Agency (EPA).

An investigation by an outside engineering firm is under way to determine the root cause of the event. The results of the report are expected this summer. In the meantime, we are proceeding with the recovery work. We understand this is a difficult time for residents of the Kingston community, and we are working to make things right.

Our objectives are:

(1) To protect the health and safety of the public and recovery personnel.
(2) Protect and restore environmentally sensitive areas.
(3) Keep the public and stakeholders informed and involved in formulation of the response activities.
(4) Clean up the spill and improve the area wherever possible in coordination with the people of Roane County.

My comments today will cover three areas: what occurred; the response and initial recovery thus far; and TVA's plans going forward for full recovery and site remediation. Before discussing the Kingston event, I want to briefly describe TVA and its mission.

About TVA

TVA is a corporate agency and instrumentality of the United States government, is wholly owned by the United States, and is the nation's largest public power supplier. Under the TVA Act, TVA's hydroelectric dams and other power generation facilities are designed and operated as part of a multipurpose system to help improve navigation, control floods, meet national defense needs and promote the development of the Tennessee Valley region. Since 1959, in accordance with the direction of Congress, TVA has operated the power system to be financially self-supporting. Today, we use our power revenues to buy fuel, pay wages, service our debt, maintain assets, and fund our environmental stewardship and economic development activities.

In partnership with 158 local utilities, TVA provides reliable, affordable electricity to nine million people and 650,000 businesses in Tennessee and parts of six surrounding states. The 158 local utilities are our wholesale customers. The local utilities purchase TVA power for retail sale to their residential, commercial and industrial customers. TVA also sells power directly to about 60 large industrial customers and federal installations, such as Oak Ridge National Laboratory.

TVA has stewardship responsibilities for the Tennessee Valley region's natural resources, including the nation's fifth-largest river system. TVA's management of an integrated river systems and innovative watershed management are recognized as national and international models for government and community collaboration for improving and protecting water quality. TVA also is a catalyst for economic development and job creation throughout its 80,000-square-mile service area, working in partnership with local governments and economic development agencies.

Kingston Fossil Plant and Fly Ash Storage

The ash spill that is the subject of today's hearing occurred at Kingston Fossil Plant, which is about 40 miles west of Knoxville, Tennessee. Construction began on Kingston in 1951 and it was completed in 1955. The plant was built in accordance with congressional authorization, primarily to meet the defense needs of the nation – specifically, to provide power for the production of atomic defense materials at Oak Ridge, Tennessee.

Today, Kingston is part of a diverse mix of generating resources that TVA uses to supply electricity for nine million people in our service region in the Southeast. About half of our nation's electricity supply comes from coal, and TVA's supply is similar. While we are

working to increase the amount of carbon-free generation, about 60 percent of TVA electricity comes from coal. And like utilities nationwide, we must manage the ash that is a by-product of coal-fired power production.

At the Kingston plant, ash material that remains after the coal is burned is stored in a wet ash pond. Six of TVA's eleven fossil plants use wet fly ash storage cells. The other five plants use a dry fly ash storage method. All of TVA's ash disposal sites are engineered facilities governed by the permit requirements of the states where they are located. The storage cells are surrounded by dikes, and the facilities have engineered drainage systems and water runoff controls.

The storage areas at all TVA fossil plants undergo a formal inspection annually, and other inspections are conducted on a daily and quarterly basis. The storage cells at Kingston are visually checked daily by plant personnel. In addition, plant personnel inspect for seepage on a quarterly basis. Annually, TVA engineering staff members perform a comprehensive inspection and document their findings and recommendations. Kingston's most recent inspection was in October 2008, and the formal report was being compiled at the time of the event. The completed report is now posted on the TVA Web site. Nothing that would indicate a catastrophic failure was likely to occur was observed during the annual inspection.

History of the Event and Emergency Response

On Monday, December 22, 2008, between midnight and 1 a.m., a portion of the dike on the northwestern side of the Kingston storage cell failed, releasing about 5.4 million cubic yards of fly ash and bottom ash onto land and adjacent waterways, including the Emory River, which flows into the Clinch River near the plant. The Clinch then flows into the Tennessee River. The released ash covered about 300 acres of which eight acres were privately-owned lands, not owned or managed by TVA. TVA has now purchased all but one of those acres. The spilled material covered most of the Swan Pond Embayment and reservoir shorelines, along with parts of Swan Pond Road and Swan Pond Circle and portions of the rail line used for coal deliveries to the Kingston plant. Surveys done since the event show that ash was released from about 60 acres of the 84-acre storage facility, which is surrounded by dikes about 60-feet high.

I received a call notifying me about the failure shortly after 1 a.m. and arrived at the plant within the hour. The initial response by the Roane County Office of Emergency Management and Homeland Security personnel, along with the Tennessee Emergency Management Agency, was excellent; and we will always be grateful for their swift and professional response. Other agencies were notified, including the National Response Center.

Our first concern was for the safety of the neighbors near the plant. With the help of the Roane County response personnel, we learned about 5 a.m. that there was no loss of life and no injuries that required medical attention. We ordered visual inspections of the ash retention dikes at all of our other plants to detect any changes in conditions, and those inspections continue on a daily basis.

Our first priority was to help the people immediately impacted, especially the three families whose homes were severely damaged and deemed uninhabitable. We ensured they were safe and that they had temporary housing, meals, and other necessities. We established a team of TVA employees and retirees to provide a single point of

contact for each family impacted to ensure their needs were met and concerns addressed.

We set up a 1-800 number and opened a Community Outreach Center in Kingston that was open initially seven days a week to handle property damage claims and respond to residents' questions and concerns. Claims adjustors and field staff were provided by a national claims management company at the outreach center to conduct on-site damage assessments, and TVA Police supported local law enforcement in maintaining security for homes in the affected area. The Community Outreach Center is now open from 2 to 6 p.m. Monday through Friday. The center has been in touch with almost 750 households and received nearly 400 real estate-related claims and 241 health-related concerns.

In the early stages of the event, TVA followed its approved Agency Emergency Response Plan which provides an agency-wide response to emergencies or threats that require integrated agency action. The Senior Management Executive was responsible for directing the emergency response through the Agency Coordination Center. The U.S. Environmental Protection Agency (EPA) joined TVA, TDEC, and other agencies in a coordinated response and provided oversight and technical advice for the environmental response portion of TVA's activities. TVA transitioned its emergency response to a Unified Command Center as defined by the National Incident Management System. On January 11, EPA turned the lead federal role over to TVA, and the Unified Command structure was transitioned into an onsite recovery response organization, using TVA's Fossil Emergency Plan procedure (FPG.EP.14.000).

Initial results of all environmental sampling and updates on the response activities were communicated to the public through media briefings at the Joint Information Center that was established at the Roane County Rescue Squad headquarters building near Kingston. Other information and test results are posted on the TVA public Web site.

In addition to media briefings at the Joint Information Center, TVA hosted a public open-house with representatives from key state and federal agencies on January 15 at Roane State Community College where residents could pose questions to experts and obtain information. The latest open house was held last night (March 30) at the community college to bring residents up to date and answer their questions. TVA representatives attended several public meetings and other forums to provide information and answer questions. Information was made available in the form of Material Safety Data Sheets to help make residents aware of potential hazards and actions they could take to minimize any risk.

Within the first month, TVA began purchasing affected properties using appraisals by state certified residential and general appraisers. Offers were made based on the higher of two independent appraisals. The appraisals are based on property values on December 20, 2008, before the spill. In addition, an amount significantly above the fair market value is added to the appraised value to assist the property owner in re-establishing residence. Property owners who accept the offers also are given first right of refusal to re-purchase the property at market value if TVA decides to sell the property in the future. TVA has extended offers on 92 tracts in the area, including primary and secondary residences, vacant lots, and two businesses.

Environmental Efforts

A principal concern regarding air quality comes from airborne particulates in the form of dust blown from dry ash deposits that can irritate the respiratory system if breathed over long periods. We took immediate measures to keep the ash residue damp and monitor air quality in the area. The dust suppression measures were expanded during the first week to include aerial grass seeding and mulching with straw to provide a vegetative cover to minimize dust and erosion. The seeding measures covered about 213 acres. We also are conducting a continuous schedule of watering from pumping trucks and employing vacuum sweeper trucks on paved roads in the area. Three wheel-washing stations are installed for heavy trucks leaving the site to prevent the spread of ash onto roads. TVA has prepared and implemented plans for air monitoring and dust suppression activities. These TVA plans were developed with regulatory oversight by TDEC and EPA. The dust suppression plan is being updated to reflect additional suppression techniques. Both agencies have visited the site to monitor TVA's progress in implementing the plans.

The air monitoring results are a measure of the efficacy of dust suppression efforts. Air monitoring results to date indicate airborne particulate levels (PM10 and PM2.5) within daily National Ambient Air Quality Standards. Metals analysis of the airborne dust indicates levels in the range of normal background levels and not at a level of a health concern. TVA installed new PM2.5 air monitors (previous PM2.5 monitors were demobilized on February 3) and placed them into service on February 12. Air monitoring is done 24 hours a day at fixed stations located in residential areas near the plant and on the plant site.

Testing of offsite soil samples shows that metals are well below the limits for classification as a hazardous waste. They are 10 to 100 times below the limits for toxic metals. The trace concentrations of metals in the offsite material sampled are consistent with and generally lower than that of the historic sampling results from the storage cell. The data shows that the concentrations of most metals in the deposited ash are not significantly different from concentrations found in natural, non-agricultural soils in Tennessee, with the exception of arsenic. Total arsenic results were above the average that occurs naturally, but well below levels found in soils that are well-fertilized and significantly below the limits to be classified as a hazardous waste.

According to the Tennessee Department of Health, public drinking water supplies continue to meet state and federal drinking water standards, and private wells and springs tested within four miles of the site are not impacted by the coal ash release. TVA will continue to work with TDEC to monitor the water quality at private wells and springs in the vicinity of the ash release to ensure their protection. Periodic monitoring of private wells and springs located within approximately 0.25 mile of ash-impacted property bordering the Emory River and its tributaries will be performed. Some 47 land parcels having inferred well or spring water supplies are indicated within the designated monitoring region.

Early-warning groundwater monitoring wells are being installed, as needed, at selected locations to ensure protection of water supplies deemed by TDEC to be at potential risk. Sampling frequency will vary from quarterly to semiannually during the first year depending on proximity of each well or spring to ash deposits. The frequency and ultimate duration of sampling of off-site wells and springs will be re-evaluated annually

by TVA and TDEC based on monitoring results and perceived risks. Water samples will be analyzed for several constituents including radio-nuclides.

Air, water and soil sampling by TVA and TDEC includes: more than 27,000 air samples; more than 1,050 utility and surface water samples; more than 100 well and spring water samples taken from within a four-mile radius of the spill site; 81 ash samples; and 47 soil and sediment samples. The City of Kingston has also conducted more than 140 tests on utility drinking water. Each agency uses certified laboratories for testing. Sampling results have not indicated a heath concern, according to the Tennessee Department of Health.

I know that technical data and monitoring equipment do not make the physical effects of the situation go away. But I hope that the results of the environmental monitoring data during the past three months and the objectivity provided by multiple agencies and certified labs will help reassure the public. The information is available on the TVA Web site, along with other information, including the Corrective Action Plan.

TVA is developing a plan to respond to individual health concerns, including a process for determining whether there are health effects that may be related to the ash released from Kingston. We are in the process of contracting with Oak Ridge Associated Universities (ORAU) to provide community members and the local medical community with access to medical and toxicology experts who have experience and knowledge in the health effects related to the contaminants in the Kingston ash. ORAU has expertise in public health communication, design of medical monitoring programs, and independent verification of the clean-up of contaminated sites. ORAU is a consortium of 100 academic universities that collaborate to advance scientific research and education.

Recovery Actions

In addition to ensuring the health and safety of the public and our employees, TVA then moved quickly to stabilize, contain, and plan for recovery of the ash material.
In response to an order from the Tennessee Commissioner of Environment and Conservation, TVA prepared a Corrective Action Plan that was submitted to the State of Tennessee and the EPA.

The recovery work began with clearing more than 350,000 cubic yards of material from the areas around Swan Pond Road, Swan Pond Circle, the rail line, and nearby sloughs. The two roads are now open for use by construction vehicles involved in the recovery, and 2,100 feet of rail line was reconstructed and returned to service for coal deliveries to the plant. Reconstruction of the rail line within a month of the event avoided the potential use of local roads for coal deliveries and assured efficient use of the Kingston plant power output for the region's electricity supply.

About 5,800 feet of drainage trench has been installed in the Swan Pond Embayment, and 6,400 feet of drainage trench is installed around the roads and rail line. In addition, 11,000 feet of isolation barrier was installed in the affected areas to contain the ash.

To prevent migration of the ash from the Swan Pond Embayment and the Emory River channel a 615-foot-long underwater rock weir was constructed across a section of the Emory River, and a dike was constructed along the embayment.

TVA is also managing the flows of the Clinch and Tennessee Rivers in the Kingston area to minimize downstream movement of the ash and to maintain a positive flow downstream to protect the integrity of the Kingston water supply intake. The water intake is on the Tennessee River about one-half mile upstream from the confluence of the Clinch and Tennessee Rivers.

The Corrective Action Plan submitted under order to the Tennessee Department of Environment and Conservation and to EPA provides a framework for making future decisions about environment remediation, monitoring during cleanup activities, for protecting water supplies, protecting work and public health, and management of spilled ash and future ash produced at Kingston.

The plan proposes the formation of an Interagency Team consisting of personnel from all involved and interested federal, state and local agencies. We propose that the team be involved in all steps of the cleanup and recovery effort. We also plan to develop a Community Involvement Plan to provide a structure for public review and input into the recovery and remediation.

Recovery Effort Milestone - Dredging

The first major phase of the recovery was the start of dredging operations on March 19 in the Emory River channel adjacent to the failed storage cell. Construction of the dike and weir support the first phase of dredging, which serves as a pilot for future dredging operations. A plan for the first phase was developed for TVA by an environmental services contractor and has been approved by the state and the EPA. The plan is designed to remove an estimated 2 million cubic yards of ash material.

An Environmental Assessment, consistent with the National Environmental Policy Act, was developed for the dredging operations, and a comprehensive environmental sampling plan was submitted for review to state and federal regulators. The sampling plans include six floating hydro-labs to monitor key environmental criteria, such as dissolved oxygen and turbidity, during the dredging operations. Containment booms are also being installed on the water to prevent migration of any floating ash material.

Ash is being dredged from the Emory River channel, de-watered, and temporarily stored at a prepared site on the plant property until an approved process is in place for long-term disposal or storage. The de-watering area is sloped to drain into the plant's existing ash pond and drainage has been engineered at the site to contain the runoff. Groundwater wells have been drilled in the area for monitoring.

Plans call for dredging only to a depth that will restore flow to the original channel without disturbing existing "legacy" and native river sediments. Restoring original flow to the channel will lessen the possibility of flooding upstream on the Emory River in the event of unusually heavy rains. We have advised residents in the potential flooding areas about the situation and have assured them that TVA will assume responsibility for any damage to homes above the traditional flood stage.

While most of the fly ash deposited in the water sank, there was a lighter, inert part of the ash that floats. This hollow, sand-like material, called cenospheres, is collected and sold for use in a variety of products, including cosmetics and bowling balls. We have used more than 12,000 feet of boom skimmers to collect and dispose of more than 3.2

million gallons of slurry containing this material. The containment booms and other equipment will be used to collect this material released during dredging.

At this time, future plans call for proposing two more phases of dredging. The second phase would restore the river channel to its original depths, and the third phase would focus on removing ash deposits that are outside of the Emory River channel.

Going Forward

TVA has commissioned a comprehensive study of all its coal by-product storage facilities by an outside engineering firm. The study includes invasive testing of dike walls to evaluate their composition and structural integrity. We are also looking at the feasibility of converting to dry fly ash storage at all six of our plants where wet storage is used.

TVA has committed to ceasing wet ash storage in the failed cell at Kingston, and the cell must be closed and capped. This will be done once the conclusions of the root cause analysis are known and the site subsurface investigations are complete. In early January 2009, TVA retained a global engineering firm that possesses substantial experience in design, construction quality management, and forensic failure analyses of dikes, containment ponds, and landfills, to conduct an independent Root Cause Failure Analysis (RCA) of the Kingston dike failure.

Data from both the Root Cause Failure Analysis and the impoundment assessments are shared with TDEC, EPA and TVA's Office of Inspector General, who comprise a Structural Integrity Team.

We do not have a completed cost schedule for the recovery and remediation, but based on the dredging and other identified tasks ahead, we estimate that it will cost between $525 million to $825 million (not including litigation, penalties or settlements) depending on methods of disposal and other variables. We are evaluating several potential sources for funding the recovery. These include insurance, using a portion of a trust fund established for the retirement of non-nuclear assets, using debt for funding over a longer period, and recovering some of the costs through rates.

Widows Creek

The committee staff requested that I also provide information about the accidental spill of slurry from the Gypsum storage pond at TVA's Widows Creek Fossil Plant near Stevenson, Alabama, that occurred on January 9, 2009. The spill occurred when a cap dislodged on a 36-inch diameter drainage pipe that was no longer in use due to reconfiguring of the storage pond over the years.

The event allowed water from the gypsum pond to drain into an adjacent settling pond, filling it to capacity and causing it to overflow. Although most of the overflow was contained in the settling pond, some did drain into adjacent Widows Creek and into a slough on the Tennessee River. The event was discovered about 6 a.m. by plant workers who were conducting a routine inspection of the ponds.

The impoundment contains byproducts from the scrubbers that clean sulfur dioxide from the plant's coal-burning emissions. Scrubbers produce a number of byproducts while

cleaning the air, the primary one being calcium sulfate - commonly known as gypsum. Beneficial uses of gypsum are numerous and include drywall and cement manufacturing. Gypsum is also used as a soil amendment in place of lime in agricultural and construction activities.

We notified appropriate federal, state and local authorities, and water sampling was conducted that indicated there was no danger to water supplies in the area or downstream. TVA, the EPA and the Alabama Department of Environmental Management estimate that less than 5,000 cubic yards of material entered the waters.

A cleanup operation was begun, and repairs and improvements were made to the storage ponds, including pouring concrete into the abandoned drain pipe. An investigation showed that a major contributing factor was omission of the abandoned drainpipe on engineering drawings of the storage pond.

Continuing Commitment

As I stated earlier, TVA is an integral part of the Roane County community. About 300 TVA employees live and work in the area, and they care deeply about their community. We will continue to reach out to Roane County residents to keep them informed and ensure they have the information they need. We will continue working, as well, with federal, state, and local elected officials and agencies, and with you and other members of Congress.

We are committed to do a first-rate job of remediation of the problems caused by the spill and ensure the integrity of all of our coal by-product storage facilities across the TVA system. Thank you for the opportunity to discuss our recovery efforts.

I look forward to your questions.

# # #