THE ONE YEAR ANNIVERSARY ON THE TENNESSEE VALLEY AUTHORITY'S KINGSTON ASH SLIDE: EVALUATING CURRENT CLEANUP PROGRESS AND ASSESSING FUTURE ENVIRONMENTAL GOALS

(111–81)

HEARING

BEFORE THE

SUBCOMMITTEE ON
WATER RESOURCES AND ENVIRONMENT

OF THE

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
HOUSE OF REPRESENTATIVES

ONE HUNDRED ELEVENTH CONGRESS

FIRST SESSION

December 9, 2009

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December 4, 2009

SUMMARY OF SUBJECT MATTER

TO: Members of the Subcommittee on Water Resources and Environment

FROM: Subcommittee on Water Resources and Environment Staff

SUBJECT: Hearing on "The One-Year Anniversary of the Tennessee Valley Authority's Kingston Ash Slide: Evaluating Current Cleanup Progress and Assessing Future Environmental Goals"

PURPOSE OF HEARING

The Subcommittee on Water Resources and Environment will meet on Wednesday, December 9, 2009, at 10:00 a.m., in room 2167 of the Rayburn House Office Building to receive testimony from representatives from the U.S. Environmental Protection Agency (EPA), the Tennessee Valley Authority (TVA), the TVA Office of Inspector General (OIG), Perry County, Alabama, and an engineering firm. The purpose of this hearing is to receive updates as to the status of the Kingston ash slide cleanup efforts, as well as disposal of reclaimed and dredged ash in Perry County, Alabama.

This hearing is being conducted as one of several hearings that meet the oversight requirements under clauses 2(n), (o), and (p) of Rule XI of the Rules of the House of Representatives.

BACKGROUND

December 22, 2008 Ash Spill

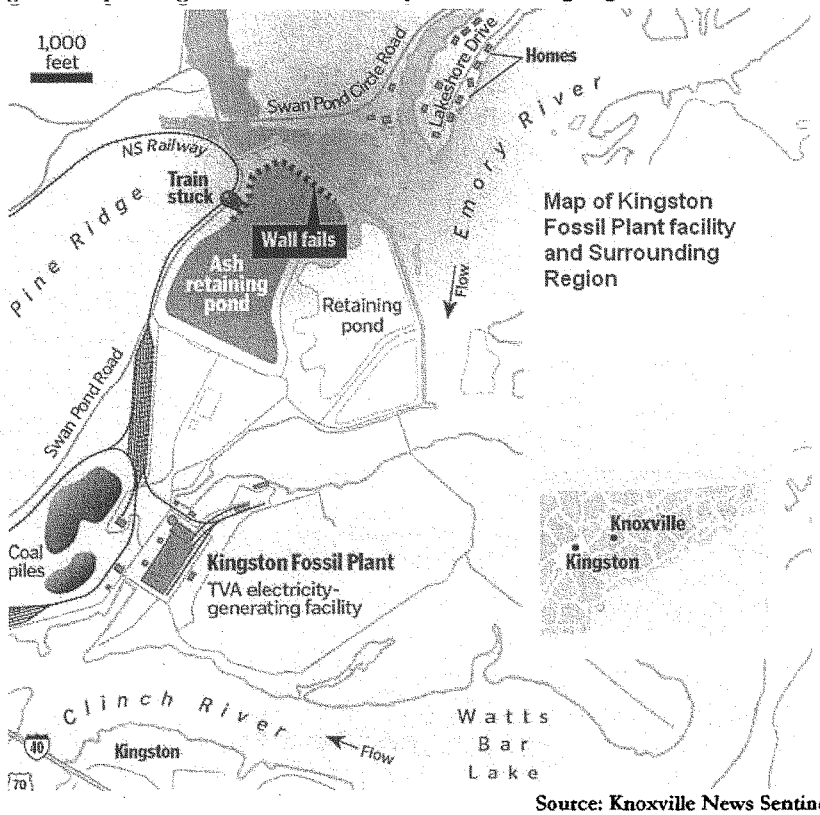
The Kingston Fossil Plant is a coal-fired power plant located in Harriman, Tennessee, 40 miles west of Knoxville, Tennessee. It is owned and operated by TVA. The facility is located at the confluence of tributaries of the Tennessee River: the Clinch and Emory Rivers. It is one of TVA's

larger coal-fired power plants and produces 1,700 megawatts per day, or 10 billion kilowatts per year (enough to supply power for 670,000 households). At full power, the Kingston Fossil Plant burns about 14,000 tons of coal every day. This results in about 1,000 tons of fly ash produced per day. The plant was completed in 1955.

At 1:00 a.m., on Monday, December 22, 2008, a retaining wall failed at a coal ash retention pond at TVA's Kingston Fossil Plant. The breach in the retaining wall resulted in the release of 5.4 million cubic yards of ash and 327 million gallons of water onto land adjacent to the plant, as well as into the nearby Clinch and Emory Rivers. The surface impoundment in question was comprised of Dredge Cell 1, Dredge Cell 2, and the Phase 1 Cell. The northern edge of the impoundment was bounded by a 200 foot wide setback, and then a final dike, Dike C. The dikes were initially built of naturally silty clays, and then bottom ash and fly ash. On December 22, 2008, Dredge Cell 2 and the Phase 1 Cell collapsed, but, for the most part, Dredge Cell 1 remained intact.

In terms of actual coverage on the land, over 300 acres have been affected by sludge, at points up to six feet deep. According to the Tennessee Department of Environment and Conservation (TDEC), over 5,000,000 cubic yards of coal ash were deposited into the Emory River and Emory River embayments. The Swan Pond Embayment, an inlet directly north of the impoundment, was largely filled with coal ash. Approximately 110,000 cubic yards were deposited on the ground surface.

Figure 1: Map of Kingston Fossil Plant Facility and Surrounding Region



Source: Knoxville News Sentinel

The EPA noted that the initial release of materials from the plant's retention facility "created a tidal wave of water and ash." While the ash spill rendered three homes uninhabitable and damaged the property of 42 property owners, much of the affected land area impacted by the spill is located on property managed by TVA. Immediately after the spill, a nearby community was evacuated. In addition, power to surrounding communities was disrupted, a major gas line and water main were ruptured, and nearby transportation routes (rail and road) were covered with the ash. No serious injuries were reported as a result of the immediate spill, but one fatality occurred in July 2009 during the clean-up efforts.

The coal ash release resulted in a number of human health and environmental risks. According to EPA, the absence of proper controls to limit human exposure to the spill site could

result in "unacceptable risks to humans and the environment."[1] Risks to humans include skin irritation from direct contact with the coal ash and irritation of the respiratory system from inhalation of airborne particulates. Spilled coal ash in the river can also smother aquatic life.

Current State of Clean-up Efforts

On May 11, 2009, EPA and TVA entered into an enforceable agreement (Administrative Order) whereby TVA is responsible for the comprehensive cleanup of coal ash from the Emory River and surrounding areas. EPA will oversee this cleanup process. This entails EPA reviewing and approving all TVA cleanup operations, in accordance with applicable Comprehensive Environmental Response, Compensation and Liability Act (Superfund) law. Upon removal of the ash, TVA is required to assess any residual contamination in order for a determination to be made about whether additional actions will be necessary.

Ash removal from the Emory River and surrounding areas is divided into two categories: Time-Critical Removal and Non-Time-Critical Removal.

Time-Critical Removal: As a result of the spill, the main channel of the Emory River became blocked. As a result, the river diverted around the blocked areas. Because the Emory River is a shipping channel, the blockage and subsequent diversion impacted navigation on the river. The Time-Critical Removal component of the clean-up includes the removal of ash from the Emory River. This consists of approximately three million cubic yards of spilled coal ash. Dredging of the river began on March 19, 2009. Priority 1 of the Time-Critical Removal consists of clearing the main channel to pre-spill levels to restore flow, minimize flooding, and prevent further migration of ash downstream. Priority 2 of the Time-Critical Removal consists of clearing the remaining substantive areas of ash from the Emory River. TVA and EPA estimate that Time-Critical Removal operations will be concluded in the spring of 2010.

Reclaimed, or dredged, ash from the river is stored in a series of holding areas to facilitate dewatering of the material. Having been dewatered to a desired level, the material is transported off-site for permanent disposal at a landfill in Perry County, Alabama (*see below.*)

The speed at which the spilled ash is removed from the river is contingent on a number of conditions. These include dredging and discharge line capacities, water quality considerations, and ash processing capacity (i.e., dewatering). The ash processing area, known as the "ball field", is also limited in size – constraining the amount of reclaimed ash that can be deposited there. Equipment and staffing capacity for the dredging operations allows dredging 24 hours a day, seven days a week, if necessary.

The target removal volume for dredged and excavated coal ash is 15,000 cubic yards per day. From the beginning of Emory River dredging in late March 2009 to May 11, 2009, TVA removed, on average, 2,596 cubic yards per day. From May 12, 2009 to August 8, 2009, an average of 7,252 cubic yards per day were removed. From August 9, 2009 to September 27, 2009, an average of

[1] EPA, "Questions and Answers on the Administrative Order on Consent for the Tennessee Valley Authority Kingston Fossil Fuel Plant Release," at 4 (http://www.epakingstontva.com/EPA%20Order/EPATVA%20Administrative%20Order%20and%20Agreement%20on%20Consent%20FAQs%20(May%2011,%202009).pdf (accessed November 27, 2009)).

13,971 cubic yards per day were removed. From September 28, 2009 to November 29, 2009, an average of 14,976 cubic yards per day were removed. From the beginning of dredging until late September, approximately a total of 1.2 million cubic yards had been removed as (810,000 cubic yards dredged; 390,000 cubic yards excavated). (*See Appendix for graphic representation of removed ash over time.*)

In November, however, dredging productivity decreased. EPA attributes this slow-down to weather conditions whereby prolonged rain was slowing the ash de-watering process. TVA had also been using only one train per day to move dewatered ash off-site. This necessitated a slow-down in dredging operations because of space constraints at the dewatering, or ash processing, site. As of early November 2009, EPA understood that TVA would begin using two train shipments a day to facilitate ash removal from the ash processing site.

Non-Time-Critical Removal: Non-Time-Critical Removal operations will remove spilled coal ash from areas other than the Emory River, including various embayments and sloughs. It will also remove any residual coal ash from the Emory River. This consists of approximately 2.5 million cubic yards of spilled material.

The May 11, 2009 Administrative Order required that TVA develop an engineering assessment and cost analysis workplan within 90 days of that date. TVA is expected to have workplans, assessments, and analyses in place so that the Non-Time-Critical Removal areas are ready for cleanup operations as soon as the Time-Critical Removal dredging operations are completed. This plan was submitted by TVA on July 10, 2009 and is now out for public comment. According to EPA, work on the Non-Time-Critical Removal is expected to begin in the spring of 2010 – at the completion of Time-Critical Removal dredging, as planned.

Under the Administrative Order, TVA is also required to comply with Section 404(b) of the Clean Water Act whereby it must: restore waters to functional levels of pre-spill conditions; assess and remove coal ash from embayments, sloughs, floodplains, and wetlands; and restore and mitigate any short- and long- term loss of natural resources as a result of the spill.

Coal Combustion Waste Disposal Site in Perry County, Alabama

The three million cubic yards of reclaimed coal ash from the Time-Critical Removal is, and will be, processed (de-watered) and temporarily stored at TVA's Kingston facility, before being shipped by train to the Arrowhead Landfill in Perry County, Alabama for permanent disposal. According to the provisions of the May 11, 2009 Administrative Order, the coal ash must be disposed of in accordance with the most stringent protective disposal standards for municipal solid waste landfills. EPA approved of TVA's application to use the Perry County site because EPA found that the Arrowhead Landfill meets and exceeds these standards.

According to the EPA:

> "Arrowhead Landfill complies with all technical requirements specified by federal and state regulations. The landfill is permitted to accept waste materials such as coal ash and has the capacity to accommodate the anticipated volume of material. The landfill

> features a compacted clay liner and a high density polyethylene liner; a leachate collection system that gathers liquids and pumps them to the surface for treatment; and a protective cover. The landfill staff conducts regular groundwater monitoring, and plans to conduct air monitoring to ensure worker safety."[2]

EPA and the Alabama Department of Environmental Management will routinely monitor the site to ensure proper operations.

Prior to its approval of the Perry County site, EPA considered both community reactions to the proposal, as well as location choice. EPA met with local residents and community leaders to gauge responses to the proposal. Location of the landfill was also a factor of consideration. The Arrowhead Landfill is located over four miles from Uniontown, Alabama – the closest population center.

Reclaimed ash from the future Non-Time-Critical Removal operations may be disposed of in the Arrowhead Landfill. However, any decision to do so would be subsequent to a public comment process on proposed disposal actions.

Stantec Engineering Findings

In January, 1999, TVA hired an engineering firm, Stantec Consulting Services Inc. (Stantec) to inspect, perform testing, and make recommendations to TVA on the structural integrity, maintenance, and operations concerning TVA's ash and gypsum disposal facilities at all of TVA's coal-fired power plants. These evaluations include both active and closed disposal facilities.

Stantec's evaluations consist of a number of phased stages:

1. Phase 1: Non-invasive review of the structural stability of all coal combustion waste impoundments. This includes visual inspections as well as document and archival reviews. Stantec's Phase 1 findings were released on June 24, 2009.

2. Phase 2: Engineering evaluations of all TVA coal combustion waste impoundments. These evaluations will include geotechnical explorations, hydraulic and hydrologic evaluations, conceptual designs for improvements, and general engineering support. Phase 2 is estimated to be complete in the fall of 2010.

3. Phase 3: Engineering technical assistance including planning assistance for short- and long-term coal combustion waste management, final design of conceptual repairs, preparation of construction plans and specifications, cost estimates, and permitting assistance.

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[2] EPA, "EPA Approves Plan for Disposal of Coal Ash from TVA Kingston Site at the Arrowhead Landfill in Perry County, Alabama" (http://yosemite.epa.gov/opa/admpress.nsf/2ac652c59703a4738525735900400c2c/02ec745d4bba7547852575e700476a8f!OpenDocument (accessed November 28, 2009)).

4. Phase 4: Assisting TVA with improvement of its dam safety program within the fossil power (coal) group, dam safety training for appropriate TVA staff, and annual facility inspections. This work was initiated in early 2009.

In its Phase 1 review, Stantec noted that some system-wide concerns exist across TVA's coal combustion waste impoundments in Tennessee, Alabama, and Kentucky. These findings include:

- Limited record drawings and construction testing and observation records: Stantec was unable to find many construction or construction testing records for coal combustion waste disposal facilities. These records can provide useful information including how the facilities were actually built, adjustments that may have been made, and compliance with the original plans.

- Construction of impoundments over ash ponds and the operation of fly ash dredge cells: Stantec notes that several impoundments were built over ash ponds, like the failed Kingston impoundment. This is significant because hydraulically-placed (or sluiced) fly ash in ponds and dredge cells generally has a soft consistency, and is loose in terms of density, porosity, and void ratio. As was demonstrated at Kingston, this condition can sometimes result in significant and sudden loss of shear strength within the sluiced ash, as a result of increased loadings (due to impoundment height). Stantec notes that this practice does represent a greater risk than constructing an impoundment over natural earth, but that the risk can be mitigated by ensuring that appropriate geotechnical analyses have been completed to support design and operation, and that operation includes instrumentation to monitor pore pressures, settlement, and slope movement. Stantec does not indicate the degree to which this monitoring or analyses were, or are being, done at TVA impoundments.

- Tall, unsupported weir structures: Weir structures in the TVA impoundments are usually vertical, push-together, concrete pipe or manhole sections. Stantec notes that a number of facilities have weir structures that are tall and unsupported.

- Conduit and weir abandonment procedures: As impoundments were raised to accommodate increased volumes of coal combustion waste, process water conduits and weirs were abandoned in place. This abandonment was not documented. Improper abandonment can lead to internal piping and loss of materials through joint separation in the conduits.

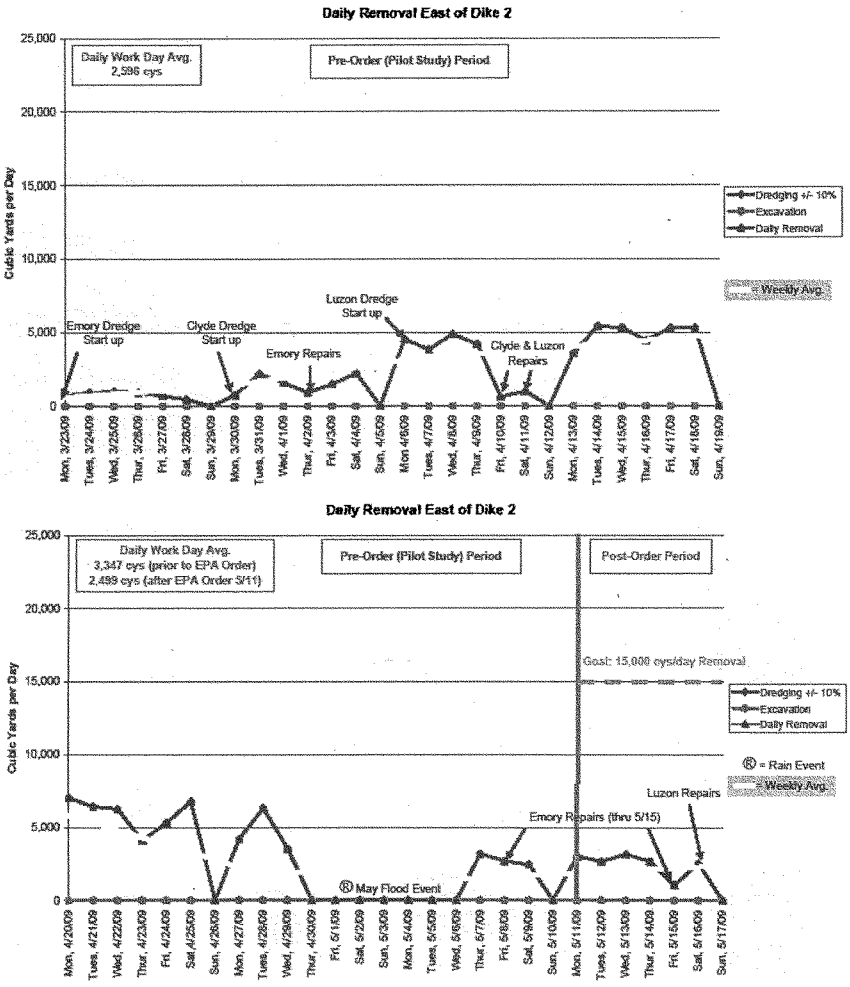
- Maintenance: Stantec noted that annual dike inspection reports were adequate in terms of identifying items for maintenance. However, Stantec identified a trend that TVA has not executed all of the maintenance recommendations provided in the reports. As a result, "In many instances, the same maintenance recommendations were made repeatedly in the annual reports from year to year."[3]

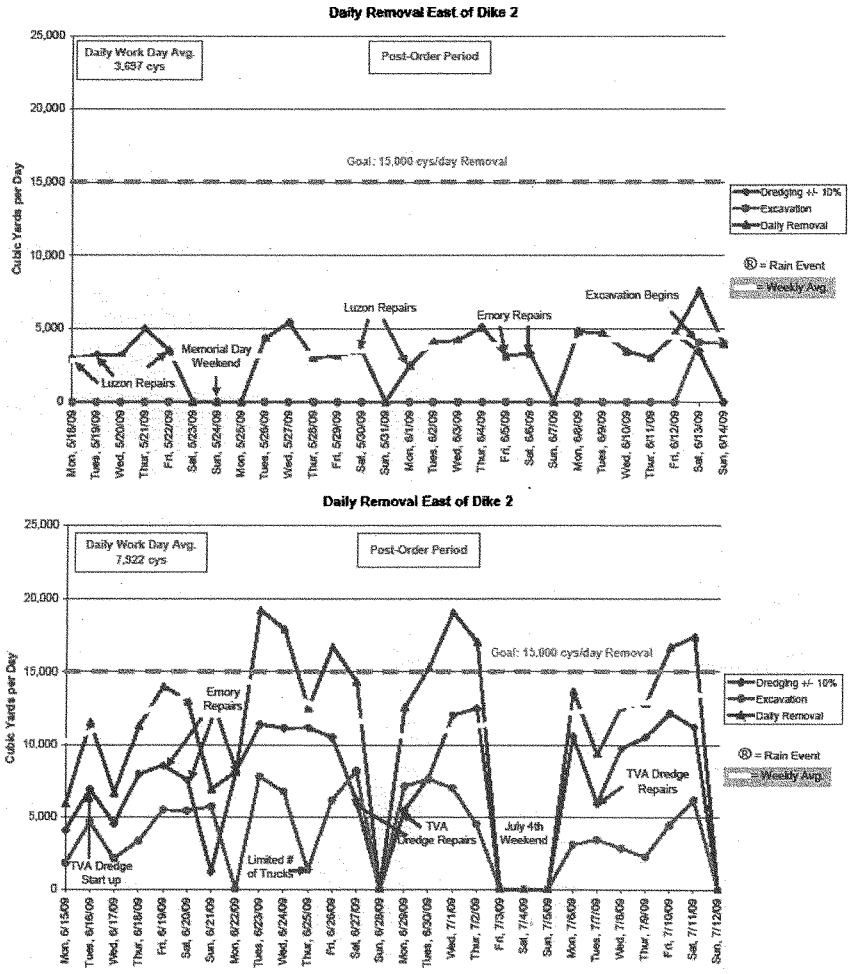
- Limited Operation and Maintenance Manuals and Emergency Action Plans: Stantec found relatively few Emergency Action Plans for TVA's impoundments. Stantec notes that these documents and processes are important for the safe operation of impoundments as well as for the protection of downstream communities and plant personnel.

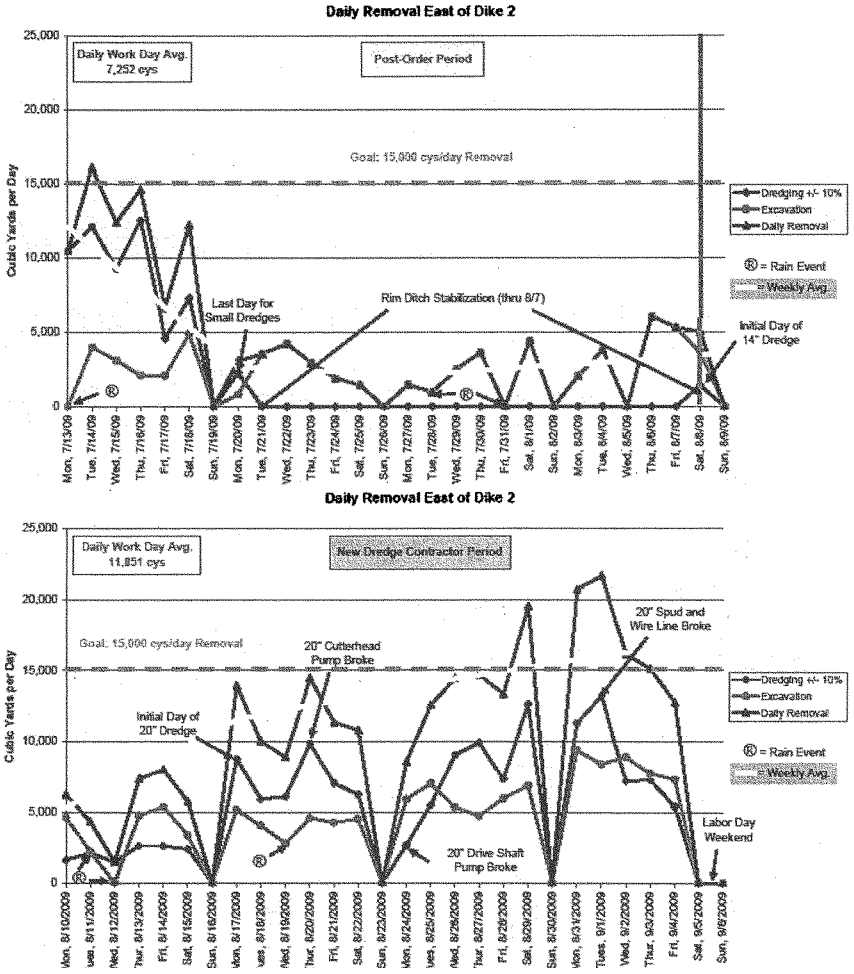
[3] Stantec, *Report of Phase 1 Facility Assessment: Coal Combustion Product Impoundments and Disposal Facilities, Various Locations, Tennessee*, at 8 (June 24, 2009).

- Limited geotechnical instrumentation: Stantec found limited geotechnical instrumentation at a majority of facilities, as well as the absence of a program to routinely obtain measurements. This type of instrumentation program is part of a dam safety management program and is used to monitor performance of, and condition changes in, a facility. Instrumentation may consist of piezometers to monitor pore pressures within embankments and foundations, slope inclinometers and surface monuments to monitor movement, and plates for monitoring settlement.

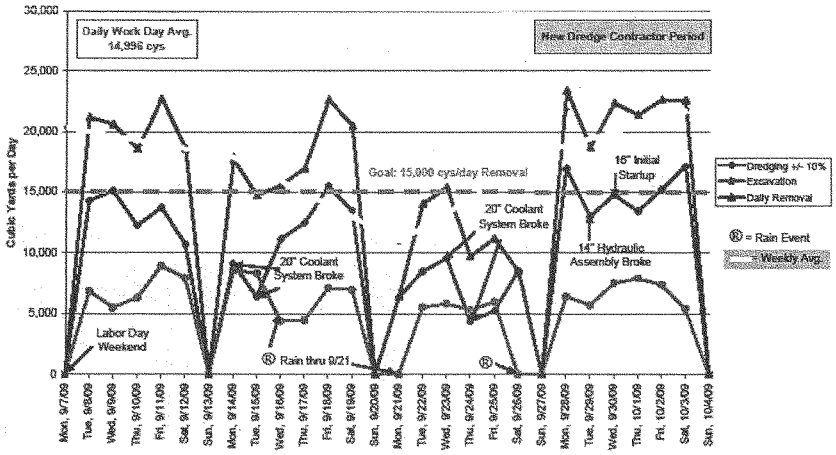
APPENDIX


Daily Removal East of Dike 2
Daily Work Day Avg.
2,596 cys
Pre-Order (Pilot Study) Period
Cubic Yards per Day
Dredging +/- 10%
Excavation
Daily Removal
= Weekly Avg.
Emory Dredge Start up
Clyde Dredge Start up
Emory Repairs
Luzon Dredge Start up
Clyde & Luzon Repairs
Daily Removal East of Dike 2
Daily Work Day Avg.
3,347 cys (prior to EPA Order)
2,499 cys (after EPA Order 5/11)
Pre-Order (Pilot Study) Period
Post-Order Period
Goal: 15,000 cys/day Removal
® = Rain Event
Luzon Repairs
Emory Repairs (thru 5/15)
® May Flood Event

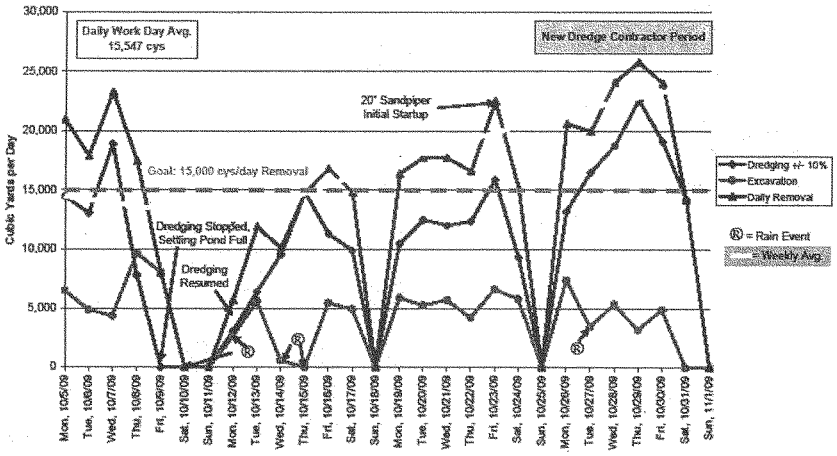

Daily Removal East of Dike 2
Daily Work Day Avg.
3,637 cys
Post-Order Period
Goal: 15,000 cys/day Removal
Cubic Yards per Day
Dredging +/- 10%
Excavation
Daily Removal
® = Rain Event
Weekly Avg
Luzon Repairs
Memorial Day Weekend
Luzon Repairs
Emory Repairs
Excavation Begins
Daily Removal East of Dike 2
Daily Work Day Avg.
7,922 cys
Post-Order Period
Goal: 15,000 cys/day Removal
Cubic Yards per Day
Dredging +/- 10%
Excavation
Daily Removal
® = Rain Event
Weekly Avg
Emory Repairs
TVA Dredge Start up
Limited # of Trucks
TVA Dredge Repairs
July 4th Weekend
TVA Dredge Repairs

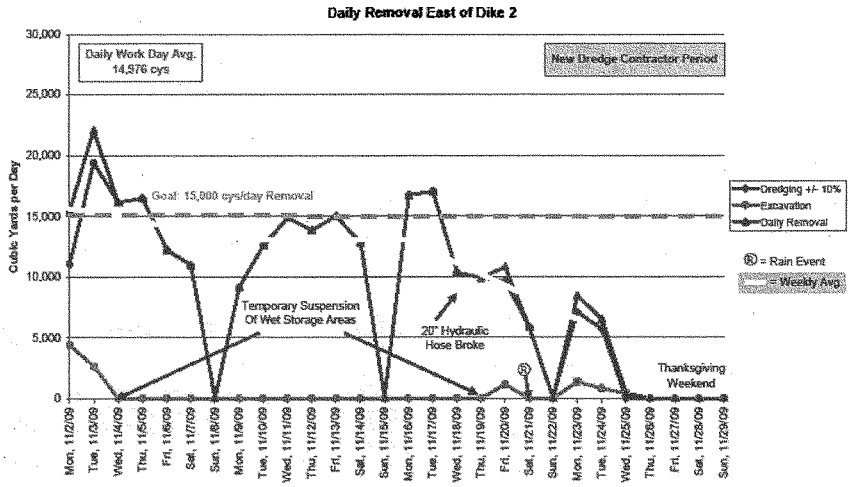

Daily Removal East of Dike 2
Daily Work Day Avg.
7,252 cys
Post-Order Period
Goal: 15,000 cys/day Removal
Cubic Yards per Day
Dredging +/- 10%
Excavation
Daily Removal
® = Rain Event
= Weekly Avg.
Last Day for Small Dredges
Rim Ditch Stabilization (thru 8/7)
Initial Day of 14" Dredge
Daily Removal East of Dike 2
Daily Work Day Avg.
11,851 cys
New Dredge Contractor Period
Goal: 15,000 cys/day Removal
20" Cutterhead Pump Broke
20" Spud and Wire Line Broke
Initial Day of 20" Dredge
20" Drive Shaft Pump Broke
Labor Day Weekend

Daily Removal East of Dike 2



Daily Removal East of Dike 2





Source: EPA (http://www.epakingstontva.com/productivity.aspx (accessed December 3, 2009))

WITNESSES

The Honorable Tom Kilgore
President and Chief Executive Officer
Tennessee Valley Authority

The Honorable Richard Moore
Inspector General
Tennessee Valley Authority

Mr. Stan Meiburg
Acting Regional Administrator, Region 4
United States Environmental Protection Agency

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District 1 – Perry County
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John Montgomery, P.E.
Senior Principal
Stantec Consulting Services Inc.

Mr. Michael Churchman
Executive Director
Alabama Environmental Council

HEARING ON THE ONE YEAR ANNIVERSARY ON THE TENNESSEE VALLEY AUTHORITY'S KINGSTON ASH SLIDE: EVALUATING CURRENT CLEANUP PROGRESS AND ASSESSING FUTURE ENVIRONMENTAL GOALS

Wednesday, December 9, 2009,

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
Washington, DC.

The subcommittee met, pursuant to call, at 10:00 a.m., in Room 2167, Rayburn House Office Building, the Honorable Eddie Bernice Johnson [chairwoman of the subcommittee] presiding.

Ms. JOHNSON. Good morning. The Committee will come to order. Thank you for being here today.

Our hearing this morning marks the fourth time this Subcommittee has exercised its oversight responsibility regarding the December 2008 TVA Kingston coal ash spill. Today's meeting will assess the adequacy of cleanup operations thus far, the structural integrity of TVA's other coal ash disposable sites, and explore coal ash disposal in Perry County, Alabama.

This hearing is also being conducted as one of several hearings that meet the oversight requirements under clauses 2(n), (o), and (p) of Rule XI of the Rules of the House of Representatives.

The December 28th, 2008 coal ash spill at the Tennessee Valley Authority's Kingston Fossil Plant unleashed a torrent of toxic coal ash over the landscape and into nearby water bodies. The volume itself is staggering: 5.4 million cubic yards of coal ash were released. I have visited Harriman, Tennessee. The sheer amount of coal ash sludge is truly staggering. This is even more the case when one considers that the vast majority of the spilled ash was deposited in the river.

In the river, the coal ash is out of sight, but it is certainly not invisible. Recent toxic release inventory figures from TVA indicate that the coal ash spill included 2.5 million pounds of toxic materials, such as arsenic, barium, and chromium. This is a larger figure than the collective sum of the toxics released in 2008 from all power plants combined. Because of the physical destruction that took place and the potential ecological and human risk presented by the coal ash toxics, all of this material must be cleaned up.

In our last meeting, Mr. Kilgore, TVA's President and CEO, publicly committed to restoring the environmental area to its natural

state, and I welcome that response and look forward to overseeing the work they will do there in the response to his commitment. I understand that we will hear today that the removal of ash from the river is proceeding more or less as planned. It is imperative that TVA continues to work with its State and Federal agency partners in the removal and cleanup operation.

TVA also needs to ensure that it anticipates and prepares for unforeseen eventualities—for example, more rain than expected—and properly overseeing its contractors and their work. In terms of the cleanup itself, I applaud the work being done by EPA in terms of their coordination and management of the project. Given EPA's longstanding experience in running Superfund cleanups and operations, the work it has done at Kingston has shown it was money well spent. This said, the Kingston impoundment was only one of many TVA coal ash disposable sites.

An engineering firm, Stantec Consulting, has been contracted by TVA to evaluate the structural integrity of other TVA impoundments. I look forward to today's testimony from our Stantec witness to get a better sense of how stable these structures are. It is important to remember, however, that just because TVA's impoundment may be stable, it does not mean that they are environmentally benign. I will look for assurances from EPA and TVA that all TVA impoundments and landfills—active, future, and closed—will not allow toxic contaminants to leach into groundwater supplies in the area.

I understand that TVA is planning on transitioning to dry ash landfills. I believe that it is a promising move. I would ask Mr. Kilgore, however, what will become of the wet ash in existing impoundments and how the leachate will be prevented from contaminating our water supplies.

Finally, today's hearing will touch on the disposal of reclaimed Kingston coal ash in the Arrowhead Landfill in Perry County, Alabama. This landfill has provided the surrounding community with employment opportunities. We must ensure, however, that EPA and the State of Alabama are vigilant in ensuring that all disposal, safety, and public health protocols, including proper and long-term monitoring, are followed to ensure good health of local residents.

Thank you very much for being here today. I apologize for running and being out of breath, and I now yield to the Subcommittee's Ranking Member, Mr. Boozman from Arkansas.

Mr. BOOZMAN. Thank you very much, Madam Chair. As always, we appreciate your leadership.

Today, the Subcommittee continues its review of coal ash storage, specifically the December 22nd, 2008 incident at the Tennessee Valley Authority's power generating facility in Kingston, Tennessee.

While there have only been a few documented failures of coal ash disposal sites, we all hope that what occurred at the Kingston coal ash disposal site was an isolated incident.

The witnesses today will help the Committee evaluate the conclusions drawn from the accident, report some of their observations about Kingston, and discuss the role played by the 11,000 residents of Perry, Alabama.

Moving forward, it appears that the Tennessee Valley Authority's Board of Directors and its officers have begun to recognize the shortcomings in its existing ash management practices, and seem to be making changes to ensure more appropriate risk management at its facilities. The Tennessee Valley Authority needs to continue to take aggressive steps at its other coal ash storage facilities to identify and reduce risks to the public and to the environment.

Lives and property were forever changed by the events of December 22nd, 2008. However, there is another side to the story. While no one should benefit from another's misfortune, Perry County, Alabama has positioned itself to perhaps lead the way in the disposal of coal ash. This unique facility will allow Perry County to construct new roads, new schools, and additional infrastructure.

By constructing a state of the art landfill, economic development opportunities have brought a renewed sense of optimism to this small rural county. And I would associate myself with the Chairwoman's remarks that certainly all of this is great, except adhering to the stringent requirements of making sure that it is a safe facility as we move forward.

So, with that, Madam Chairwoman, I appreciate your holding this hearing and certainly look forward to the testimony of our witnesses, and with that, I yield back.

Ms. JOHNSON. Thank you very much.

The Chair now recognizes Mr. Hall.

Mr. HALL. Thank you, Madam Chair and Ranking Member Boozman. I echo both of your sentiments and, just briefly, I am looking forward to hearing about the progress of the cleanup at the Kingston site. I have driven past it many times during the years that I lived in Tennessee. Living in the Hudson Valley, I have become more aware over the last couple years of how interconnected all of our water is; there is really no separating, ultimately, the aquifers we drink from, the rivers that run through our communities, and the runoff from various industrial processes.

One of the things I am hoping to hear, that I am sure you are learning as you study this, is what alternatives will be in the future for disposing of fly ash as we simultaneously are looking at carbon capture and sequestration. There has been some talk of precipitating combustion products into solids that can be mixed with, for instance, paving materials or building materials and turning what is seen as a liability into an asset in that regard, or at least into a stable form that we don't have to worry about being swept away by water.

So, with that, I yield back the balance of my time.

Ms. JOHNSON. Thank you very much.

The Chair recognizes Mr. Duncan, from Tennessee.

Mr. DUNCAN. Well, thank you very much, Madam Chairwoman.

Certainly Chairman Johnson is a long-time friend of mine, and no one could fault her, criticize her for her oversight on this situation.

As I have mentioned several times before, this spill was not in my district, but it is close by, and one of my staff members went, very shortly after it happened, to the site and gave me a detailed briefing. Then, within just a few more days, I went down and had a helicopter tour and a briefing, and I was very impressed by the

fact that there was a war room of activity with officials from all sorts of agencies and departments from the Federal, State, and local governments. In fact, in all this time, I suppose there have been hundreds of TVA employees, contractors, and people representing other Federal, State, and local agencies involved in this.

I am told that TVA still estimates that they will spend approximately $1 billion in cleaning up this mess, and I assume that does not count the time and salaries of all the different employees from all the different departments and agencies that are spending and have spent on this. I am not sure that there has ever been a mess in the history of the world where there has been more money spent or more people working to clean up a situation than in this regard.

So I certainly think a lot of progress has been made, but it has also been testified at other hearings that this billion dollars does not count potential regulatory fines and lawsuits. I have expressed this before, that I hope that agencies that intend to or that are considering fines for TVA will keep in mind a lot of lower income ratepayers who could be affected if we get into additional billions in fines and lawsuits.

Because I was a lawyer and a judge, I raise one other concern that probably nobody has thought of, and that is that the average Federal judge now tries only 12 jury trials a year, and we have seen a dramatic decline in State courts because very few jury trials are being tried now compared to, say, 25 or 30 years ago, or certainly when I first started practicing law; and that means that there are many young lawyers out there today that never get to court, and I think they are scared to go to court, and I hope that they won't give in to exorbitant demands just to settle a lawsuit to keep from trying a case. That is another concern I have.

But I will say that there has been a lot of progress made and, in fact, as some people know, I spend over half my time in my district and people make comments to me every place I go, and I have heard almost nothing about this in my district over the past few months. Obviously, there was a lot of news about this and a lot of comments made in the first few months after it happened, but almost no comments now. In fact, Mr. Kilgore, I am hearing more about the problem that FEMA has raised about the dams not being high enough, and I am pleased that you are meeting with the homeowners association at Tellico Village next week and I hope you will listen to their concerns.

But I have, mostly before Mr. Kilgore and the present board came, but in past years, I have been pretty critical about several things that TVA has done. I have not hesitated to criticize TVA. But I also think TVA should be given credit when good work is being done, and I don't see how any department or agency could have done more than what has been done in this situation.

So I do have to go very shortly to another very important hearing, but I have already sat through several hearings and meetings and so forth.

I do have one other concern. I have had several companies who have come to me who have said that they can turn this flash into very usable valuable products if it is not classified as hazardous waste. They say if it is classified as hazardous waste, it loses its commercial value. Environmentalists in the past have been big ad-

vocates of recycling, and I hope that we will look closer at getting some sort of valuable use out of this material, instead of just dumping it into the ground.

Thank you very much.

Ms. JOHNSON. Thank you very much.

Congressman Hare?

Mr. HARE. Thank you, Madam Chairwoman. I want to thank you and Ranking Member Boozman for holding this important hearing today.

It has been almost one year since the breach in the retaining wall at the Kingston Fossil Plant in Harriman, Tennessee, an event that resulted in the release of a tidal wave of water and ash that sent 5.4 million cubic yards of ash and 327 million gallons of water onto adjacent lands and into rivers, causing the evacuation of the nearby community and one tragic death during the cleanup.

Following the spill, in May of 2009, the TVA, which owns and operates the Kingston Fossil Plant, came to an agreement with the Environmental Protection Agency. This agreement set the precedent for cleaner procedures from the Emory spill and surrounding areas affected by the spill.

It is with great importance that we meet here today to discuss the progress of the cleanup, as well as the new safety and security measures that have been put into place to prevent such an event from ever happening again. It is my understanding that the agreed upon time-critical removal of the ash has been occurring steadily, but has slowed in recent weeks. I feel that meeting the designated deadline of spring 2010 for the completion of those areas designated as time-critical is extremely important.

Madam Chair, as members of the Subcommittee, it is our duty to perform due diligence in the oversight of the TVA. We must also consider the public and workforce safety, and take a hard look at the environmental and economic impacts of this independent corporation, which is the Nation's public power company.

I look forward to hearing from all of our witnesses today. I welcome you before the Subcommittee.

And I thank you again, Madam Chairwoman. You have done a tremendous job on this issue and I know you will continue to push. Thank you so much, and I yield back.

Ms. JOHNSON. Thank you very much.

I will now introduce the panel. We only have one panel. The Honorable Tom Kilgore, President and Chief Executive Officer of the Tennessee Valley Authority, Knoxville, Tennessee; the Honorable Richard Moore, Inspector General, Tennessee Valley Authority, Knoxville, Tennessee; Mr. Stan Meiburg, Acting Regional Administrator, Region 4, of the United States Environmental Protection Agency, Atlanta, Georgia; Commissioner Albert Turner, Jr., District 1-Perry County, Marion, Alabama; Mr. John Montgomery, Senior Principal of the Stantec Consulting Services, Lexington, Kentucky; and Mr. Michael Churchman, Executive Director, Alabama Environmental Council, Birmingham, Alabama.

We will proceed with testimony as you are seated, so, Mr. Kilgore, you are recognized.

TESTIMONY OF THE HONORABLE TOM KILGORE, PRESIDENT AND CHIEF EXECUTIVE OFFICER, TENNESSEE VALLEY AUTHORITY, KNOXVILLE, TENNESSEE; THE HONORABLE RICHARD MOORE, INSPECTOR GENERAL, TENNESSEE VALLEY AUTHORITY, KNOXVILLE, TENNESSEE; STAN MEIBURG, ACTING REGIONAL ADMINISTRATOR, REGION 4, UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, ATLANTA, GEORGIA; COMMISSIONER ALBERT TURNER, JR., DISTRICT 1-PERRY COUNTY, MARION, ALABAMA; JOHN MONTGOMERY, P.E., SENIOR PRINCIPAL, STANTEC CONSULTING SERVICES, INC., LEXINGTON, KENTUCKY; AND MICHAEL CHURCHMAN, EXECUTIVE DIRECTOR, ALABAMA ENVIRONMENTAL COUNCIL, BIRMINGHAM, ALABAMA

Mr. KILGORE. Chairwoman Johnson, thank you very much, and Ranking Member Boozman and members of the Committee. Thank you for the opportunity to update you on the progress TVA is making following last year's coal ash spill at the Kingston Fossil Plant, as has been mentioned, on December the 22nd of 2008. I would like to briefly cover three things with you today: our progress in cleaning up the spill, our improvements at other impoundments, and the efforts we have underway to improve our performance and effectiveness across TVA.

Since my last appearance in July, TVA has maintained our schedule to clean up the 3 million cubic yards of time-critical ash that were deposited in the Emory River. We are averaging the removal of about 15,000 cubic yards per day and, to date, about two-thirds of that ash has been removed. This is a good milestone for us and we are on track to complete this progress in the spring of 2010.

The ash recovered from the river is loaded onto trains for transport to the Arrowhead Landfill in Perry County, Alabama. TVA has closely worked with EPA and the Alabama Department of Environmental Management and Perry County officials to ensure the safe transport and the disposal of the ash.

As ash continues to be removed from the Emory River, we are planning the next most important step, that is, the cleanup of the non-time-critical ash that remains in the northern slue and on the land. The engineering evaluation and cost analysis work is underway for this step and it will serve as the basis for our work going forward.

Our goal is to have a seamless transition between the time-critical ash and the non-time-critical ash removal. TVA currently estimates the removal of our non-time-critical ash to be complete in 2013 and our commitment is to restore the area to its natural state as it was before the spill.

We also continue to work closely with the Roane County community, attending public meetings and holding open houses, providing independent, confidential, medical evaluations and supporting the area's long-term economic development. This support and the cooperation of our neighbors has meant a great deal to us.

During the last hearing, I provided some information on TVA's other ash impoundments. As I noted then, TVA contracted with Stantec in early January of 2009 to conduct an independent, third-party analysis of our facilities. Stantec has completed an intrusive

investigation at our impoundments. Our aggressive schedule to incorporate their recommendations is ongoing.

In addition to Kingston, we have already placed almost a quarter of a million tons of rock for additional stability and removed about 30,000 cubic yards of trees and vegetation to allow for better visual inspections.

To sharpen our management focus on storage facilities, TVA created a specific organization called Clean Strategies & Project Development, which is responsible for all storage impoundments and the Kingston recovery project.

Also at Stantec's recommendation, TVA personnel who maintain the impoundments completed a comprehensive training program in September designed to increase the awareness of down failure modes, provide an understanding of what to look for in their work, and to recognize structural distress.

In August, TVA announced plans to convert six coal-burning plants currently using wet fly ash handling systems to dry. This program would close about 18 existing ash ponds and gypsum ponds. All of the plans are subject to the completion of the required environmental reviews and our obtaining regulatory approvals.

At the TVA Board's direction, we continue to make significant strides to implement our agency-wide organizational plan focused on change management, performance improvement, and compliance. We have strengthened our existing enterprise risk management system to further identify our financial and non-financial risks.

The real key for us will be to continue using the lessons we have learned in the past year and to build and to sustain a culture of accountability and high performance. Simply put, our goal is to be recognized by our customers, our employees, and Valley stakeholders as a company that does its job well.

In closing, I would like to say again that TVA deeply regrets the event that occurred last December, but you have our continued commitment to clean up the spill. We have made considerable progress this year on many fronts, and our focus is unwavering as we work to rebuild the public trust and to build a better TVA for the people of the Tennessee Valley.

Thank you, and I look forward to your questions.

Ms. JOHNSON. Thank you very much.

Mr. Moore.

Mr. MOORE. Madam Chairwoman Johnson, Ranking Member Boozman, and members of the Subcommittee, I appreciate the opportunity to testify before you on the eve of the one-year anniversary of the Kingston ash spill. My written testimony covers the specifics of our assessment of the degree to which TVA has responded to the findings and recommendations in the recent OIG reports concerning the coal ash spill, cleanup operations, and TVA's overall environmental management. My statement this morning, however, will be broader and a higher level analysis of the current status of TVA.

As you know, my office issued two reports. The first report, issued in June of this year, evaluated TVA's initial emergency response, response to the media, and reparations to the victims and restoration of the community. The second report was issued in July

of this year and focused on providing an independent peer review of the root cause analysis utilizing the services of our engineers, Marshall Miller & Associates, in reviewing TVA's ash management practices.

These reports resulted in nine very broad recommendations designed to improve specific business processes, develop a more robust risk management program, and take actions that would change TVA's culture to be more focused on developing sound business practices and driving compliance throughout the TVA organization.

Over the past year, we have seen TVA devote an extraordinary amount of time, money, and focus to addressing not only the recommendations of the Inspector General's Office, but also the recommendations of the McKenna Law Firm, which in many respects paralleled our findings and recommendations. TVA has extracted all of the detailed findings and recommendations, and they have cross-referenced the findings to develop a gap analysis and a tracking matrix.

TVA has detailed specific action that needs to be taken to address all findings and recommendations. They have contracted with a consultant to develop the necessary policies and procedures, and they are benchmarking other companies, including identifying best practices related to dry ash storage.

TVA has hired another consultant, McKensey & Company, to analyze TVA's culture and to assist TVA in effectively changing the culture that contributed to the Kingston ash spill.

Beyond these procedural changes are changes that are perhaps more difficult to measure but, in my opinion, are just as significant. Changes in personnel, changes in the tempo of how quickly things are done, and changes in attitudes are evident to us as we track the work of TVA management.

This all leads me to believe that TVA is marching in the right direction. As you know, we have been perhaps TVA's harshest critic in terms of how they handled the coal ash storage and how they handled the crisis after the fact. In many ways, the Kingston ash spill was TVA's darkest hour. Our impression now, however, is that TVA management is not just reacting to criticism to emerge from a crisis, but they are committed to transforming TVA into what we all hope it can be.

I would like to offer, however, some historical perspective on TVA in crisis. As you may know, this is not the first time that TVA has been under the microscope, nor the first time that findings and recommendations for significant change have been made. The McKenna Report aptly points out that in 1987, in response to TVA's nuclear safety issues and sustained regular increases in TVA rates, the Southern States Energy Alliance Board created an advisory committee which found some of the same problems with TVA in the 1980s as we are finding today. The McKenna Report also notes that my office has issued reports citing process problems at TVA that continued to resurface over the years.

While it is true that none of the attempts to reform TVA focused on culture and risk to the extent that has now been done in the aftermath of the Kingston spill, it is clear that there are some reoccurring themes in TVA history. One is that TVA has suffered from

an insular culture that shuns views outside the Valley. This defensive and protectionist philosophy has produced a tunnel vision that eschews input that might have aided in changing the very culture that contributed to TVA's current woes. That same culture resisted system-wide standards and accountability. All of this is based on an underlying philosophy that TVA's uniqueness as a hybrid government agency exempted it from adherence to standards and uniform processes.

My point here this morning is simply this: The challenge for TVA is a culture that is highly resistant to reform. The Kingston spill demonstrated that in a dramatic way. Changing a culture takes time. The same culture that existed on December 22nd, 2008, still exists today. Its residual effect is likely to be felt for years to come.

Despite all of this, I remain optimistic that the current efforts to effect meaningful changes at TVA will be successful for four basic reasons: number one, the kinds of reforms being implemented at TVA are system-wide process changes that have worked well in private sector companies and that have not had the system failures TVA has experienced; number two, TVA management has demonstrated a willingness to solicit input from culture experts outside the Valley and they appear to be taking all of this very seriously; number three, TVA management has recently gone through an extremely robust evaluation of risk that is unparalleled in TVA history; and, finally, TVA management has made personnel changes that, to me, provide credible evidence of a commitment to do whatever it takes to get this right.

Ultimately, the Office of the Inspector General will measure the process that TVA makes and we will report the facts as we find them. We appreciate this Subcommittee's efforts to protect the citizens of the Tennessee Valley by focusing on these important issues. My office will work with this Subcommittee to track TVA's progress and to issue reports that may be helpful to you.

I look forward to answering any questions that you may have.

Ms. JOHNSON. Thank you very much.

Mr. Meiburg.

Mr. MEIBURG. Madam Chairwoman, Ranking Member Boozman, and members of the Subcommittee, thank you very much for the opportunity to testify this morning and thank you for your words in your opening statement.

I would like to update you on EPA's actions in response to the coal ash release at the TVA Kingston facility and give an overview of the next phase of the cleanup.

EPA is committed to a cleanup that protects public health and the environment, and is consistent with the law and sound science. Part of our ongoing responsibility is to inform and involve the public and all interested parties in our activities.

The time-critical removal activities are progressing well. The objective here is to recover and manage the ash in the Emory River, and to minimize the potential for flooding and downstream ash migration. EPA has on site both an on-scene coordinator overseeing this effort and a community involvement coordinator to provide information to the public and local officials.

To date, over 2 million cubic yards of ash have been dredged or excavated from the area east of Dike 2 in the river. Since May, ash

removal has increased from an average of about 2500 cubic yards per day to about 15,000 cubic yards per day. The dredged ash is transported by rail for disposal at the Arrowhead Landfill in Perry County, Alabama, a Subtitle D solid waste facility permitted to receive such waste. The landfill was selected by TVA through competitive bidding and approved by EPA. At the current pace, the time-critical removal of the material east of Dike 2 will be completed by this coming May.

Since the release occurred, EPA, TDEC, and TVA have participated in extensive sampling and monitoring of the air, ash, surface water, and drinking water. There have been no exceedances of water quality standards for aquatic life in areas of the Emory, Clinch, or Tennessee Rivers that are open to the public. There were elevated levels in some samples from the Emory and Clinch Rivers right after the spill.

We recently found out that there were two confirmed samples in the Clinch River near the power plant which slightly exceeded EPA's arsenic drinking water standards. Additional analysis is underway. But samples of treated water at municipal water treatment plants, which draw from the Tennessee River downstream from the spill, have shown no exceedances of any maximum contaminant levels for drinking water.

Some exceedances of drinking water and aquatic life water quality standards have been detected in the northern embayment, distilling pond, and in the dredge plume. These areas are heavily impacted by the spill and are closed to the public. Downstream data indicates that the public and the environment continue to be protected.

Air monitoring results for particulate matter are below the National Ambient Air Quality Standards. Air monitoring for workers in contact with or close proximity to the ash has shown no exceedances of established occupational exposure limits.

We are preparing to move into the next phase of the cleanup, to address the residual ash in the river, ash released to embayments west of Dike 2, restoration activities, investigation of ecological risks and impacts, and long-term human health impacts. EPA uses an Engineering Evaluation/Cost Analysis, known as an EE/CA, to evaluate alternatives to do this. As required, TVA submitted a draft EE/CA work plan to EPA on August 10th. This work plan is now open for public comment. Because of high public interest in the site and efforts to ensure public participation, EPA extended the original 30-day comment period for a total of 60 days for public comment, through this December 20th.

After consideration of comments on the work plan, EPA will produce an EE/CA report describing a range of alternatives to remove ash west of Dike 2. Following comments on the EE/CA report, TVA will submit an action memorandum to EPA that responds to public comments and describes the selected response actions. TVA can implement the response only after EPA approves the action memorandum.

Public involvement and transparency are very important to us. I stress this because the EE/CA raises important choices for the non-time-critical removal phase. Options include excavation of ash and disposal at the site, excavation and disposal offsite, and exca-

vation and disposal offsite of both the spilled ash and some additional ash still remaining in the failed landfill. Each of these options has advantages and drawbacks.

To help the community understand site activities and provide input on the cleanup, EPA assisted TVA in the development of its technical assistance plan program that will provide the community advisory group with a technical advisor. The technical advisor will help the community interpret technical information and assist the community with commenting on future work plans.

In closing, I want to thank you again for the opportunity to testify and to reiterate EPA's commitment to a comprehensive cleanup and the long-term restoration of the area, and I look forward to your questions. Thank you.

Ms. JOHNSON. Thank you very much.

Mr. Turner.

Mr. TURNER. Madam Chairwoman, members of this Committee, the day has come when Perry County, Alabama, the birth home of Coretta Scott King, has finally pulled itself up by its own bootstraps and has joined in on the American dream. A place where the unemployment rate is above 15 percent, but our high school graduation rate is above 95 percent.

Perry County, Alabama is the place where, in the 1970s, had more Ph.D.s per capita than any other county in Alabama. Perry County, Alabama is the place where the modern Voting Rights Movement started in 1965 with the night march and death of Jimmy Lee Jackson, who was shot at point blank range for seeking the right to vote in a demonstration march led by my father Albert Turner, Sr.

Perry County, Alabama is the only county in the Nation to hold an official county holiday celebrating the historic election of President Barack Obama. Perry County, Alabama now is the first place in the South to construct a state of the art landfill that will be an environmental safe disposal site for coal ash. The economic development opportunity, along with safe environmental management practices has put renewed hope back into a once proud county.

Perry County led the way during the 1960s in the field of civil rights and voting rights. We are now poised to lead the way in environmental safe disposal of coal ash. The contract between TVA and Arrowhead Landfill has provided the county with an economic boost, unseen since the State of Texas struck oil.

The windfall has allowed the county to put together a master plan of economic development and infrastructure advancements unseen in this rural Alabama county. A county that now will have a budget of $8 million a year to service 11,000 citizens. In plain words, we now have a budget that $8 million a year and 11,000 citizens, almost $1 million per 1,000 citizens. Unheard of. The Perry County Commission is set to move our county in a direction that will see a much improved community starting with our infrastructure.

Through President Barack Obama's stimulus package and the monies that we have received from the coal ash agreement, we have parlayed $300,000 into a $5,000,000 water expansion for our residents. Thanks to both the President and TVA's decision to dispose of its coal ash in Perry County, now, more than 96 percent

of the residents of Perry County will have clean fresh drinking water.

Thanks to Arrowhead and TVA, the tonnage payments will provide our school system with more than $500,000 over the next year. These funds saved our school system from massive layoffs and the cutting of vital educational after-school programs. These funds will keep our school system with a reserve and push ahead with plans to keep our system ranked in the top 15 percent of all school systems in Alabama. Tonnage fees have allowed both cities located in Perry County, Marion and Uniontown, to meet their obligations and allow room for economic growth. The monies have allowed us to seek grants, now that we have matching funds as required.

Now that Perry County is poised to join the ranks of the haves, those naysayers shout environmental racism. It would be economic racism if EPA or TVA stopped the flow of cash for ash. It would be environmental racism if the way the industry, prior to Arrowhead Landfill's state of the art facility, be allowed to continue to dig a hole in the backyards of African-American communities and fill it with water and coal ash.

There are hundreds of unlined ash ponds around the Country that have been in operation for decades. These ash ponds do not have the level of controls that are in place at the Perry County Arrowhead landfill facility; however, environmentalists have not said a word. Now that Perry County stands to make millions of dollars per year on the spill in the river, and even more from the remainder of ash on site at TVA, environmentalists are now concerned about the environment. I wonder if the concern is about a once poor economically depressed African-American government-run county joining the ranks of the affluent, educated, infrastructurally sound, and economically poised to move her to the American dream is real concern and not the environment.

Environmentalists groups have not called for a congressional hearing. Environmental groups have not called for an investigation into the disposal of coal ash. Environmentalists have not appeared on any 60 Minutes television documentaries to highlight their concerns about unlined coal ash ponds. Environmentalists have not requested any EPA oversight. No protest by environmentalists or any other group over the disposal of coal ash prior to Perry County receiving coal ash.

To this date, there have been no mentions of the effects of the legacy ponds that exist in Alabama and across this Country. This lack of action by environmentalists leads me to believe that all the attention placed on Perry County and its agreement with TVA and Arrowhead is about economics, not the environment.

Since the deployment of the ash to Perry County in June of 2009, 65 Perry County residents have been employed making more than average salaries; the Perry County Commission has received more than a half million dollars; the county has expanded its water system; new home construction has increased; and there have been zero foreclosures. Thirty-six miles of new roads have been paved, bond debt payments from our two cities have been caught up, and 15 grant applications have been approved ranging from housing to health care to education. Now, the Marion wastewater treatment

facility is in line for necessary upgrades with money being received from tonnage payments.

I come to Washington today to ask that you implement the procedures that we have implemented at Arrowhead Landfill as a state of the art disposal for coal ash. Thank you.

Ms. JOHNSON. Thank you very much.

Mr. Montgomery.

Mr. MONTGOMERY. Chairwoman Johnson and Ranking Member Boozman, thank you and the Subcommittee for holding this hearing and providing me the opportunity to testify on behalf of Stantec Consulting Services. My name is John Montgomery, and I am a senior principal with the firm. I am also a licensed engineer with over 22 years of experience in dam and ash disposal facility design and management.

Following the December 22nd, 2008, breach of the ash dredge cell at the Tennessee Valley Authority's Kingston Fossil Plant, TVA requested Stantec assess the conditions of the coal combustion product disposal impoundments at TVA's 11 fossil plants. Stantec proposed a four phase approach for the assessment program, and the details are provided in the written testimony.

In summary, Phase 1 included a records review of available TVA documents and site reconnaissance of the facilities at the 11 fossil plants. Phase 2 consists of performing geotechnical explorations and engineering evaluations, providing recommendations for initial renovation options, and offering general engineering support.

Phase 3 includes planning assistance for short-and long-term coal combustion product management, final design of conceptual repairs, preparation of construction plans and specifications, cost opinions and permitting assistance. Phase 4 involves assisting TVA with improving its dam safety program by conducting training sessions for applicable TVA staff and performing annual facility inspections.

The current status of the program is as follows: Phase 1 is complete and the final report was submitted to TVA on June 24th, 2009. Phase 2, 3, and 4 are ongoing. Phase 2 activities were initiated in early 2009 and it is anticipated that these engineering evaluations will be completed during the third quarter of 2010; however, the schedule may change depending on future findings or conditions not yet determined. The schedule for completing Phase 3 activities can't be determined until Phase 2 is complete. The initial dam safety training for Phase 4 has been completed. To date, over 300 TVA staff have received training in dam safety inspection and reporting.

During Phase 1 of the program, Stantec identified the following seven system-wide concerns: one, limited record drawings and construction testing and observation records; two, construction of stacks over ash ponds and the operation of fly ash dredge cells; three, tall, unsupported weir structures; four, conduit and weir abandonment procedures; five, implementation of maintenance recommendations; six, limited Operation and Maintenance Manuals and Emergency Action Plans; seven, limited geotechnical instrumentation.

To address these concerns, the following actions have been taken or are being taken:

Geotechnical explorations are being conducted on all significant active coal combustion product disposal impoundments and fills over sluiced ash ponds; initial geotechnical drilling has been completed for impoundments at 10 of the 11 plants; geotechnical instrumentation for short-and long-term monitoring have been installed at all sites; draft geotechnical reports have been prepared for four impoundments; and Stantec has determined conditions at these four impoundments are not similar to the failed Kingston dredge cell.

Slope stability analyses have been completed for nine disposal facilities; Stantec has determined the as-found conditions at the Paradise Ash Pond meet generally accepted slope stability factors of safety. In addition, renovations to the Widows Creek Gypsum Stack have been completed and this facility currently meets accepted slope stability criteria.

Significant renovations in design and construction are ongoing or completed at various other sites. That work includes slope regrading, rock armoring, slope buttressing, spillway retrofit and replacement, seepage collection systems, pool reductions, and conduit abandonment.

In addition, Stantec continues to monitor the installed geotechnical instrumentation, inventory and inspect conduits, perform hydrologic and hydraulic analyses, perform breach analyses and develop inundation mapping.

TVA has completed an initial reassessment of hazard classifications and determined four sites have high hazard impoundments. Emergency action plans have been prepared for these sites.

In closing, TVA and Stantec have worked together to aggressively address the conditions of TVA's coal combustion product facilities. To date, 45 work plans have been developed, providing recommendations and plans to improve observed conditions. Construction associated with 31 of the work plans has been completed and is in progress for the remaining 14.

Again, I appreciate this opportunity and look forward to answering your questions. Thank you.

Ms. JOHNSON. Thank you very much.

Mr. Michael Churchman.

Mr. CHURCHMAN. Chairwoman Johnson, Ranking Member Boozman, and members of the Committee, I appreciate the opportunity to travel all the way from Alabama to share comments with you at this important hearing. I also appreciate the previous hearings and oversight related to the coal ash spill at the TVA's Kingston Fossil Plant. I recognize that previous meetings were mostly about the spill and subsequent cleanup, and I appreciate this hearing bringing in more discussion about the disposal in Alabama at the Arrowhead Landfill in Perry County.

I agree with Commissioner Turner that this has resulted in a windfall of funds for Perry County and a number of local communities. However, I do not share his enthusiastic opinion of this matter, and neither do a large number of people in Alabama. As my local congressman and I discussed, this is another illustration of our ongoing systemic problem of how we structured our rural economies to become so dependent on undesirable markets and unsustainable systems.

However, the fact remains that when I attended a brief meeting in Uniontown in Perry County on September the 16th, I heard a lot of residents of Perry County that still had a lot of questions about this disposal and windfall. Residents seemed not to have had all their fears and concerns answered to alleviate their anxiety. It appeared to me then, and every time I talk to someone from there, that there are more questions than there are answers, and it doesn't seem to be subsiding. Within the last month, a number of residents have come forward with health concerns that did not seem to be present before the disposal began.

I am here to bring a number of concerns to your attention that need to be evaluated before this disposal continues any further:

How can removal of coal ash in Roane County be performed with such a deliberate containment process to prevent airborne exposure and yet the exact opposite is true in Perry County?

How can individual elements like heavy metals and other toxic substances be listed as hazardous when considered individually, yet considered non-hazardous solid waste when contained within coal ash?

Are all regulations pertaining to Superfund sites being followed according to CERCLA?

Are the Operating Permits Groundwater Monitoring Parameters adequate to protect public health and the environment in Perry County?

How can the Perry County Landfill be found in compliance of all applicable State requirements that "does not currently have any relevant violations" when it is discharging leachate to the Marion Wastewater Treatment Plant without a required State permit and when the plant has been in violation of its NPDES permit since August of 2003?

Why has the hydrological characterization of the landfill site not received careful scrutiny before millions of tons of hazardous substances were allowed to be added to the landfill, particularly in view of the evidence that monitoring wells contained elevated levels of pollutants?

Why do operating permit's post-closure requirements fail to require at least 30 years of post-closure monitoring to protect residents when Perry County Associates are long gone?

Are Solid Waste Disposal Act regulations being enforced and is the coal ash waste being "stored separately from the other material there" as reported in Mr. Tom Kilgore's written statement on July 28, 2009 before this very Committee?

Are all Clean Air Act regulations being enforced and monitored to protect public health from toxic exposure?

Why has this not been identified as an environmental justice issue with extra agency support to local communities? When waste is being collected in a mostly affluent, white Roane County and being disposed in a mostly poor, African-American Perry County, this action should be labeled the injustice that it is.

Have EPA, ADEM, TVA, and Perry County Associates attempted to alleviate all concerns and questions to Perry County citizens who continue to suffer through the worst environmental disaster in U.S. history?

I would not have served the citizens of Alabama to the best of my ability had I not asked these questions. Please understand that these comments, questions, and extensive written statement have been collected in a short period of time and may not reflect the full environmental and public health impacts of this disposal plan. However, many think there is enough reason for this plan to be further scrutinized and reviewed before allowing the toxic waste to continue to be dumped on the people of Perry County, Alabama.

I look forward to the good work of this Committee to answer these questions, alleviating all public health and environmental health for citizens of Perry County, Alabama and other citizens across our great State. Thank you for the opportunity to address this Committee and I look forward to your questions.

Ms. JOHNSON. Thank you very much.

Before we go to questions, I want to recognize our distinguished Chair of the full Committee, Mr. Oberstar.

Mr. OBERSTAR. Thank you, Madam Chair, and thank you for your continued follow-up and vigilance on this very, very important issue.

Our Committee has had a great deal of experience with spills and structural failures, whether the Torrey Canyon wreck off the shores of Normandy, France that led to the first oil spill liability legislation or the Exxon Valdez and the cleanup that followed it and the need for a major Coast Guard program to clean up oil spills; Katrina and Hugo and other previous hurricanes that wrecked devastation; gas pipeline failures that we have followed up on; and now this tragedy. Our Committee is very familiar with this type of calamity and the effects it has on the people, on the economies, and on the lives—especially the lives and the safety of communities.

We want to know that EPA is following up on its job and managing its responsibility. We have had several hearings in years past on TVA, which is under the jurisdiction of this Committee. First on their nuclear reactor program and the very considerable failures that TVA experienced. We maintained a great vigilance over the response of TVA to getting their regulatory program back in order, their oversight program in order, and increasing their internal vigilance, as is necessary.

We had, in my congressional district, just a little ahead of the Kingston ash tragedy, a similar one on the north shore of Lake Superior. In that instance, some of the ash actually made its way into the headwaters of one-fifth of all the freshwater on the face of the earth; blocked a highway; wiped out a shoreline; and dumped toxic ash into Lake Superior. We have taken steps in Minnesota, in the State and with regard to this mining company and its power plant, to rectify the problem.

We want to be sure that TVA is doing that as well, that EPA is following up; that people's lives are not distressed and disturbed, as Commissioner Turner has said so well, and that the environment is being protected, as Mr. Churchman has advocated.

Wherever there is a failure of human oversight and human response, we need to take actions and we need to see that institutions and agencies are being responsive. TVA is much revered. You can go all throughout the rural south and hear people say, as I

have heard time and again, before TVA, before the Appalachian Regional Commission, the only way up was a bus ticket north. Much of the south was characterized, I think as Commissioner Turner's testimony suggests, as 80 acres and a mule.

TVA has lifted the sights, lifted the economies, and raised the hopes and opportunities for people. We respect TVA—I do particularly. I have enormous admiration for what it has accomplished. But like all institutions, from time to time, there are lapses, and we want to be sure this is only a temporary failure.

So Ms. Johnson's vigilance over this issue derives from the longstanding role of this Committee. I want you to understand we will stand by you and also make sure that EPA lives up to its commitments and TVA lives up to its commitments as well.

Thank you, Ms. Johnson.

Ms. JOHNSON. Thank you very much.

I will start the first round of questioning.

Mr. Meiburg, I know that you listened to Mr. Churchman's testimony. Do you have any comments you would like to make concerning his statements?

Mr. MEIBURG. Madam Chairwoman, I would say a couple of things. The first is that we completely agree that with the Perry County community, as with any community, we want to make sure that any landfill that is sited meets all of our technical compliance standards and that the disposal of materials is conducted safely. So we very much agree with both he and with Commissioner Turner on that point. We are, in fact, exercising our oversight vigilantly, together with our partners in Alabama, to make sure that that is the case.

Ms. JOHNSON. Thank you very much.

Mr. Kilgore, I noticed that you have a completion time for a portion, and then a longer completion time for the other portion. Have you made a determination as to how frequently you must move the ash off of the site, once again, before it gets to a point of spill?

Mr. KILGORE. I am not sure I understand your question totally, but let me try, and then you can elaborate. We have made a determination that we have to move faster with getting the ash processed and offsite. Right now, the dredging is slightly about one percent behind schedule, but it is doing well. We have gotten 2 million cubic yards out of the river; we have 1 million cubic yards that have been shipped, so that means we have 1 million cubic yards that we need to get offsite.

We are working with EPA and TDEC to determine how to move that faster. We are building some additional rail facilities so that we can begin to move more trains off the site. We were averaging about 65 cars a day; yesterday we sent, I think, 105 cars out. Our attempt is to send at least 105 cars each day to keep this from accumulating.

Did that answer your question, Madam Chairman?

Ms. JOHNSON. To a degree. But, if you recall, when you were here before, I asked if you would submit a plan where you have determined how frequently you must move this ash for it not to spill over.

Mr. KILGORE. Yes, ma'am. We have a plan that calls for us to get all the ash out of the river by next spring. We feel confident that

we will accomplish that. Then we will do the non-time-critical ash by 2013, that is, all the ash that is in the northern embayment; it is on the land, it is behind the dike, so it is not in jeopardy of moving out into the river. So our real goal is to move to get all of this out of the river before the spring is up so that recreation and other boating users can use the river again.

Ms. JOHNSON. How are you dealing with the ash that continues to accumulate on-site, though, while you are moving it out?

Mr. KILGORE. I am sorry, I missed your question. We are not running those units except in emergency. They have run very little and only in very, very cold weather or very, very hot weather. We got through all the summer with running those very little. It is pretty cold back in Tennessee yesterday and, really, we aren't running those units. So we put them at the bottom of the dispatch order and do not accumulate more ash as we are cleaning this out.

I am sorry I missed your question the first time.

Ms. JOHNSON. Now, what about the other TVA sites?

Mr. KILGORE. We are aggressively looking at the other sites, and I would just tell you where we are going to spend about $1 billion cleaning up Kingston, we will spend at least that much cleaning up the other sites that haven't failed. As testimony from Mr. Montgomery indicated, we have drilled 10 of the 11 sites; we have Shawnee, I think, that is left to drill.

We have aggressively, with Stantec's direction, drilled all of those to find out not only what is down there, but what we need to correct, and we are already working on all of those sites. So if you really think about it, we have Kingston that we are cleaning up, we are remediating the other ponds and we have committed to close wet ponds and convert those to dry ash facilities. So those are the three major elements that we are doing in our program.

Ms. JOHNSON. So you don't anticipate another spill at any TVA sites?

Mr. KILGORE. Madam Chairwoman, I am working as hard as I can to make sure this never happens again. I do not want to go through this; none of us do. So we are keeping a close eye, being very intrusive as far as our investigation is; we are looking back. As Mr. Montgomery noted, our records were not good, so we are trying to update our records by looking at the drilling and we are doing everything we can to make sure that this is not a repeatable incident.

Ms. JOHNSON. Thank you.

Mr. Turner.

Mr. TURNER. Yes, ma'am.

Ms. JOHNSON. How much of this ash can you accommodate?

Mr. TURNER. All they can send.

Ms. JOHNSON. Pardon me?

Mr. TURNER. All that they can send. We have an enormous landfill and they have options on thousands of other acres that are on this Selma chalk. As you know and others may know, this Selma chalk barrier that we have in the black belt cannot be used for anything else; it is the ideal soil for this type of thing. It would take thousands and thousands of years for water to penetrate it.

So on top of the lining that is in these cells that they are building, you still have the natural barrier of Selma chalk, which is

ideal ground for landfill; and we have no problems. EPA and TVA, as well as ADEM, has been very vigilant, and they are testing and coming down. There is not a month, actually, there is not two weeks that somebody from ADEM, TVA, or EPA is not in contact with what is going on in Perry County.

It amazes me how these people who do not live in Perry County, Alabama know so much about what is good for Perry County, Alabama. They don't have to worry about people calling them at night, 11:00 and 12:00, talking about my well has run dry because we don't have clean, fresh drinking water.

Now, 95 percent, more than 95 percent of the people in our county will have this, and this is the godsend. We will take all the ash. We have done our own independent test and the ash has the components of stuff that is in the ground today. If I took a shovel and dug up some dirt, traces of the same elements that are found in ash will be found in dirt.

So I can't see any toxicity levels that are so high that are going to cause us—they have been dumping this stuff 30 miles away from my county line for decades, it is in the ground; dig a hole, put some water and put some ash in it, and nobody said one word because those counties weren't getting any money. Those counties weren't making any progress. Now that our county is getting money, making progress, here they come running, talking about how bad it is. It wasn't bad 40 years ago?

Ms. JOHNSON. Who is they that come running?

Mr. TURNER. These environmentalists that come around running, talking about you are going to die, you are going to drink water. We have a cheese plant in Uniontown next door to my mother-in-law's house. Nobody has said a word about that cheese plant, and I smell it every time I go to my mother-in-law's house. That's an excuse for me not going down there because of that cheese plant.

[Laughter.]

Ms. JOHNSON. Has EPA looked at this and given their approval?

Mr. TURNER. Of the landfill or this cheese plant?

[Laughter.]

Ms. JOHNSON. Both.

Mr. TURNER. They have given their approval of this landfill, but I don't think anybody even called EPA about the air pollution from this cheese plant. Mr. Churchman hasn't been down there; he hasn't said anything about the cheese plant.

Ms. JOHNSON. Mr. Churchman, would you like to comment?

Mr. CHURCHMAN. I would just simply add I am not aware of anything about the cheese plant specifically. I would say that for a number of years a number of environmental organizations, if that is who Mr. Turner is referring to, have been concerned about coal ash, and there is much documented investigation, research, development on the negative impacts, the toxicity of such a product and its need to be addressed in a certain way that we feel is potentially not being taken care of at this time.

Thank you, Chairwoman.

Ms. JOHNSON. The Environmental Protection Agency, does this area entail the same region?

Mr. TURNER. Yes, ma'am.

Ms. JOHNSON. Excuse me. Mr. Meiburg.

Mr. MEIBURG. I am sorry, when you say this area entails the same region, I missed the question.

Ms. JOHNSON. Most regional offices take in more than one State.

Mr. MEIBURG. Yes, ma'am.

Ms. JOHNSON. And I was wondering if this was within the same region.

Mr. MEIBURG. Yes, both Tennessee and Alabama are both located within Region 4, yes.

Ms. JOHNSON. Have you gotten any complaints or have you been to check to see about the safety of this storage?

Mr. MEIBURG. Yes, we have. We have sent staff out on a number of occasions, most recently last Wednesday, to go look and make sure that operations are proceeding as they should be, as well as we have oversight conducted by the Alabama Department of Environmental Management, which has the regulatory authority over the landfill.

And we believe that the operations—well, first of all, we would not have approved the disposal of the ash in the landfill itself unless we were satisfied that the landfill itself was constructed with appropriate technical standards; and the landfill was sited in Perry County and the siting decision is not within EPA's jurisdiction, but it was sited in Perry County prior to the spill, so it was not built or created for the spill. But we made sure that it was constructed appropriately, with a clay liner, with a geosynthetic membrane, with leachate collection, with financial responsibility, all the kind of things you want to make sure that if the ash is disposed there, it was properly disposed of.

The management of it, the information that we have suggests that there have been no exceedances of air quality standards from monitoring conducted at the landfill and that the disposal operations have been proceeding properly. So we and our partners in Alabama have been watching this very closely.

Ms. JOHNSON. Now, according to Mr. Turner, they can take all that they can be supplied with. You have seen this location. Does it appear that it has no limit as to how much coal ash it can accommodate?

Mr. MEIBURG. The landfill, as it stands now, does have additional capacity. I don't remember off the top of my head just exactly what the full capacity of the landfill is, but there is additional capacity beyond what will be used to dispose of the material being transported as part of the time-critical removal. There has been no decision made about offsite transport of material beyond the time-critical removal; that is the reference to the EE/CA that I was referring to in my oral testimony, that is a decision subsequently about what will happen with the remaining ash once the time-critical removal phase is finished.

Ms. JOHNSON. When I visited, I saw a lot of coal ash. Maybe it will look different when I go again, but I am concerned about the safety of the storage. Is it located near where there are residents?

Mr. MEIBURG. You are talking about the landfill now, and not the Kingston plant?

Ms. JOHNSON. The landfill where it is going.

Mr. MEIBURG. There are some residences that are within a few hundred yards of the facility. It is largely out in a predominantly

rural area, but there are some residences that are within a few hundred yards. There is a 100-yard buffer around the landfill itself where there are no residences, but there are some down the road from there, yes. And, again, Mr. Turner can speak to the proximity of people to the landfill itself with more accuracy even than I can.

Ms. JOHNSON. Mr. Turner, you are convinced that this is safe for all of the citizens in the area?

Mr. TURNER. Yes, ma'am. I wouldn't be here, I wouldn't be supporting it if I did not feel that this is the proper way to dispose of coal ash. This should be the model of how coal ash should be disposed of. In the Alabama legislature, when the session comes in in January, there will be a bill put forth in the Alabama legislature that will codify the disposal in Alabama of coal ash in the manner that it is being disposed of at Arrowhead Landfill.

This is the state of the art. I have looked at other legacy ponds that do not have the leachate system, do not have the clay buffer up under it like they have at Arrowhead, and I am convinced beyond a shadow of a doubt that this is the safest way to dispose of coal ash in America.

Ms. JOHNSON. Have you been in touch with any of the scientists or EPA, or are you just making that assumption?

Mr. TURNER. I have been in touch with EPA, TVA, ADEM. I have been in touch with everybody that—University of Alabama's geological center to look at the quality of the buffer. I am not just going to take somebody's word for it when I am a public official charged with being responsible for the citizens of Perry County. I am not going to take somebody's word that is benefitting from it; the would be benefitting from it. I want to make sure that what I say is truthful, make sure what I say I can stand behind and go to bed at night, and I sleep very well every night knowing that we have coal ash in the ground and cash in the bank.

Ms. JOHNSON. Any complaints from any of the residents?

Mr. TURNER. I have one lady who came to a commission meeting. Every other Tuesday we have commission meetings where we have one hour set aside for citizens to discuss any problem. In the time period that we have discussed about coal ash, we have had one female who has come to the commission meeting, and she didn't complain to us about receiving coal ash, she complained about how much coal ash would be coming in. She had no problem.

That is the same thing with the landfill. Nobody said they don't want us to have a landfill; they just didn't want us to have a landfill receiving trash from Tennessee, New York, New Jersey. This is an economic venture that we look to profit from. Not only are we profiting just from the coal ash being disposed of; the property tax every time they bill a sale, it increases the property taxes they are paying. It has just been a positive windfall and I see no need to declassify it and change the classification.

I hear your people talking about it is toxic ash. There is no toxicity. I think those kinds of words do scare people who are not as educated about this issue as I am.

Ms. JOHNSON. Is there any possibility of any of it leaking out or is deep enough to leach into the water system?

Mr. TURNER. There is a possibility that in thousands of years, when I am dead and my children are dead, we won't be dead from

coal ash, it will be from old age. The University of Alabama has said that the Selma chalk is the best surface that you can put a landfill on. On top of that, the liner on top of it collects any water. Then, on top of that, it has a system that sucks away the water.

And, you know, they have this guy running around now talking about he is going to sue for the leachate. But the ammonia levels at that facility that he talked about had been high and had exceeded 35 times prior to the leachate being deposited. The company, once they found that breach, they moved from depositing that leachate in the Marion facility and moved to another facility that has no breaches; and we are working now with USDA, with the grant to update our water treatment facility in Marion so that we can return those leachate collections back to the Marion system.

Ms. JOHNSON. What is your goal? Do you have any other landfills? Are you planning on building a city of landfills? What is your goal?

Mr. TURNER. Well, our goal is to move our county. Before we entered in this, we had zero community centers. Now we have three on the way being built.

Ms. JOHNSON. I don't mean that aspect of it; I am talking about collecting this waste.

Mr. TURNER. Well, our goal is to fill the landfill with as much waste as it can hold because it is the most environmentally safe way to dispose of it. I don't think we should be selfish and say only give us two million tons of it. Give me all five million tons of it.

I want to be benevolent with TVA and let them know that they are welcome. They have been good corporate members of our community; they have helped in numerous ways. They have any concern, we have a quarterly meeting with the citizens in Perry County, updating them on what is going on at the landfill. They are always there; EPA has been there, ADEM has been there, the county commission has been there.

Most of the concerns are still talking to us about why we built the landfill, not about the ash. They keep hollering at us about we didn't want any landfill. The same 15 people that were talking back in 2000, when this landfill was being considered, are the same 15 folks that are talking about the landfill now. We have moved away from the landfill; we are talking about ash, and they have not complained about ash.

Ms. JOHNSON. Thank you very much.

Mr. Boozman.

Mr. BOOZMAN. Thank you, Madam Chair. Mr. Shuster has to be at another meeting, so I am going to go ahead and defer mine down to him and then come back in the rotation.

Ms. JOHNSON. Mr. Shuster.

Mr. SHUSTER. I thank the Chairwoman and I thank Mr. Boozman for doing that.

Mr. Turner, you are a breath of fresh air coming in here, and you are a guy that is out there where the rubber meets the road and has to deal with these problems day in and day out, and you certainly know what you are talking about and you have the facts behind you.

I am equally concerned about certainly the tragedy happened at the TVA, and we need to have oversight, need to fix the problem,

but my concern is what the EPA is going to do, possibly classifying coal ash and other coal combustion byproducts as hazardous. That is a big concern because not only we don't have enough landfills if it all of a sudden becomes a hazardous material, but the way you are storing it seems to work.

I know Pennsylvania, where I am from, has had almost 30 years of oversight and monitoring of coal ash storage and use, and they have not found any degradation to the water, to the groundwater. So the proof is in the pudding, I think, in that case.

But there are also about 40 percent of the coal ash produced in the United States goes into recycling products in a positive way, from mine reclamation projects to wallboard and also into transportation construction. And I know there are a lot of programs at the EPA and the Federal Highways that support these recycling programs.

So my concern and my question is I know EPA is in the process of a rulemaking. If they designate coal ash as a hazardous material, my question, Mr. Meiburg, I believe, would be what is the impact going to be to recycling?

Mr. MEIBURG. To answer the question about the rule first, the Administrator said that we obviously, after a lot of review, are trying to propose a rule on the future management of coal combustion residuals by the end of the year. Beyond that, I really can't say a whole lot about the rule itself.

I will just simply note that EPA is very aware of the potential for appropriate beneficial use of some of these materials, and that is something that has been a lot of concern to the folks in headquarters who have tried to design the rule. Hopefully, there will be some more information on that forthcoming as the proposal and a robust opportunity for public comment.

Mr. SHUSTER. I would hope so, because I view it as a potential outcome of saying coal ash that is being stored is hazardous, but coal ash that is being recycled is not hazardous, and I don't understand how that works. You have two trucks that roll out of a plant; one goes to be recycled and the other goes to be put in a landfill. The economics of that—there is no logic, first of all, to it, and then the economics of it start to become staggering.

And then me, as a producer of wallboard, let's say, I decide not to use coal ash and my competitor is using it, then I will just run an ad campaign saying he is using hazardous products; I will destroy his business. So, again, it is frightening to think that we come up with that kind of illogical ruling and, as I said, I think the proof is out there that it can be used and stored in a safe way.

Again, transportation projects. My concern there, if you are going to not be able to use that, that becomes an increase in raw materials. On the transportation projects, do you have any view on that? Is there any difference in your view?

Mr. MEIBURG. Again, probably my best answer is that there will be a proposed rule on that coming out very soon, and I should probably defer comments beyond that.

Mr. SHUSTER. All right. Well, again, I hope that is taken into great consideration. I realize it was a terrible disaster that occurred down at the TVA and oversight had lapsed, and we need to make sure we are making changes, but I think to say that we are

going to take a product that has been positively used and positively stored for decades is going to be a hazardous material, like I said, to me, it just doesn't seem there is any logic to that.

Again, thank you and thank you, Mr. Boozman, for yielding.

Ms. JOHNSON. Thank you very much.

Mr. Hare.

Mr. HARE. Thank you, Madam Chair.

Just so I am clear, Mr. Meiburg, do you personally think coal ash is a toxic substance now?

Mr. MEIBURG. Again, from my own view, we feel that the material at the Kingston site—and that is probably the way to best frame this, the material at the Kingston site that is being collected out of the river and being transported for disposal is being transported and disposed in an appropriate way. This is one of those cases where the material is a high volume and low concentration of some of the toxic chemicals of concern, and you want to make sure, in doing that, that that is handled appropriately.

Beyond the situation at Kingston, there is, as Congressman Shuster just said, a rulemaking about the future management of this material, which will be coming out very soon. As far as the national rulemaking, I should defer comments on that until the proposal.

Mr. HARE. Okay, I appreciate that. Let me ask somebody on the panel or, Mr. Meiburg, you. I have a lot of coal-fired plants in my district and Southern Illinois, as you know, uses a lot of coal. There are some ponds that don't have berms around them, but they have coal ash in them. Some of the electric companies want to top those off with clay, instead of having to move it out, because of the expense. Do you think that that is a proper way to be able to do that or do you think it ought to go—anybody want to take a shot at that one?

Mr. KILGORE. I will take a shot at it.

Mr. HARE. Okay.

Mr. KILGORE. May I?

Mr. HARE. Sure. Absolutely.

Mr. KILGORE. If we have proper monitoring wells under these existing facilities so that we know what might be going out the bottom. Mr. Turner referred to the Selma chalk. There are different impermeabilities under these, so if we are monitoring it correctly, then I think, yes, we should be able to submit to EPA a plan to close these out with proper monitoring, cap them off so that you keep the water off the top and, therefore, they are allowed to just exist.

To me, that is probably safer than trying to move this stuff again. But with all the new stuff, we will be able to go to lined landfills. We, TVA, are going to dry collection, so that keeps the water out of it to start with.

Mr. HARE. Okay.

Then I have a question for Mr. Churchman. It is a two-part question. Does the operating permit for the Arrowhead Landfill issued by the State of Alabama, allow the use of coal ash as an alternative daily cover? Is that correct?

Mr. CHURCHMAN. That is something that I do believe that I remember seeing, that that is in contradiction. Originally it was

going to be segregated as a separate material, but now it is being left as an open dome.

Mr. HARE. So why would they allow coal ash to cover coal ash?

Mr. CHURCHMAN. I guess I don't know the answer to that question. I could look further into, if someone else doesn't.

Mr. HARE. Mr. Turner, is that correct, that they are covering the coal ash with coal ash at the landfill? Do you know? And if they are, why would they do that? I mean, it would seem to me you would want to cover it with something other than coal ash. Maybe I am missing something here.

Mr. TURNER. They are hauling in, they have trucks of dirt coming in there. When I am down there—and I visit it at least twice a month—I see these big trucks hauling in dirt. They are covering up something; they are not covering it with coal ash.

And they are separating the solid waste material from the coal ash. I thought I heard him say that they are mixing it all up together. That is not true. The garbage that we get from households is being disposed of on another side of the landfill and the coal ash is segregated from that. They have an operation there that I invite all of you to come on down to Alabama and see this thing.

Mr. HARE. I might do that. I heard you had a pretty good football team, by the way.

Mr. TURNER. We do.

Mr. HARE. Let me just ask you this. If you could, for the Committee, because I am just wondering about that. If you could just double-check to find out—or if somebody does know here—whether they are, in effect, at this landfill covering coal ash with coal ash.

Mr. MEIBURG. I can perhaps speak to that.

Mr. HARE. Okay, great.

Mr. MEIBURG. One of the issues of beneficial use of coal ash in the past has been as a daily cover, and municipal solid waste landfills were using that as cover for municipal waste. The plan for the closure of the cells at the landfills, as I understand it, has been that the ash itself will be covered with soil. But I will be happy to supply additional information to you to be precise on that.

Mr. HARE. Thank you. I would appreciate it.

Mr. TURNER. I can make one phone call and answer that question to you before you leave here, if I am allowed to use my cell phone.

Mr. HARE. Well, you can give me a holler later, Mr. Turner. That is fine. And, listen, I appreciate your fighting for your county. In bad economic times, it is nice to see people that actually are going back to work and building things.

Thank you, Madam Chair.

Ms. JOHNSON. Thank you very much.

Mr. Boozman.

Mr. BOOZMAN. Thank you, Madam Chair.

Mr. Turner, you don't want to talk about the Alabama football team too much, because the Chairlady is a Texan. We have had extensive testimony, several sessions, and it does appear that things are moving in the right direction.

Mr. Moore, Stantec noted in its testimony that the annual inspection reports identified items for maintenance, but there was a trend of not executing all of the maintenance recommendations. I

guess what I would like to know is what the role of the TVA IG was in that and if you have had some internal assessments. What has been the role? Again, not in an accusatory fashion, but how have you kind of responded so that, in the future, you will play a better role?

Mr. MOORE. Well, thank you for the question. Our role currently—and I will go back in time, but our role currently is to have our engineers, as I mentioned earlier, Marshall Miller, do a peer review of the work that Stantec has been doing, and they have been doing, as you know, excavation work, clearing work around some of these impoundments.

As to our role in retrospect, we depend, frankly, on TVA to identify risk in order for us to do our audits and inspections. We have 100 people in our office; TVA has about 12,000, 13,000 people. We try to look around the curve, too; sometimes we get that right, sometimes we don't. As you may know, there was an opportunity for TVA to spend $25 million to correct this problem years ago. I am not sure if our office made that recommendation back then, but it would have been followed.

Mr. BOOZMAN. Okay, very good.

Mr. Meiburg, this has been a terrible tragedy. It has been, also, somewhat of an experiment, though, in the toxicity of the coal ash in the sense you have had this tremendous spill, and I guess the measuring that we are doing right now is probably like no other in the sense of testing and finding out the hazardous. Again, I don't want to put words in your mouth, but it appears that the toxicity surrounding has not been that great. Is that a fair statement?

Mr. MEIBURG. Well, we have been pleased that the results downstream from the spill have not shown exceedances, and that has been very encouraging. You do see some elevated levels in the area right in the stilling pond, which is where the ash normally collects.

Mr. BOOZMAN. Just a massive amount of stuff there.

Mr. MEIBURG. Exactly. And I think for us what that has meant is it sort of validated our sense that the most important thing we could do was to get the main body of the material out of the river, because the longer it sits there, the more opportunity you have for something to happen that you don't want to.

So, from our standpoint, that is justified. We have been pleased that you have a couple of circumstances here that are very helpful, one of which is you have a very high volume of water surrounding it, so you get some dilution, and that has been helpful. But, still, you really need to get the stuff out of the river, and that is where our main emphasis has been.

Mr. BOOZMAN. Right. Very good.

Mr. Churchman, it is obvious in Mr. Turner's testimony he is concerned about funding his community and things like that. I guess it helps us to learn about who funds different areas. Can you tell us about your funding, where you get your funds? You are, I guess, an environmental advocate group. Can you tell us maybe your top two or three funding streams?

Mr. CHURCHMAN. I would say that we are a 501(c)(3) non-profit organization, statewide organization, environmental advocacy in the State of Alabama. We receive funding from numerous individuals, corporate, some small company donations, one local munici-

pality for helping with recycling efforts and different things like that. I can provide you with more specific information if you would like to hear more about that.

Mr. BOOZMAN. Are you anti-coal, are you anti-coal-fired?

Mr. CHURCHMAN. We are interested in environmentally sustainable efficient and renewable uses of energy.

Mr. BOOZMAN. So, as far as coal-fired plants, do you feel like we need to get rid of those or not?

Mr. CHURCHMAN. I think that there are a number of detrimental impacts to the full life cycle of coal, and I think that this is an illustration of one of those. So I would say that I am very enthusiastic about moving forward towards a cleaner energy system.

Mr. BOOZMAN. To nuclear or——

Mr. CHURCHMAN. There are a lot of different options and I think——

Mr. BOOZMAN. Are you anti-nuclear also?

Mr. CHURCHMAN. I am not necessarily anti-nuclear. I would say that there are a lot of options that are going to have to be implemented, that are going to have to be looked at very closely.

Mr. BOOZMAN. Again, this bothers me, your question 10: Why has this not been identified as an environmental justice issue with extra agency support to local communities? When waste is being collected in a mostly affluent, white Roane County and being disposed in a mostly poor, African-American Perry County, this action should be labeled for what it is.

I don't really understand, in the sense that, for years and years the waste was deposited in Roane County, unlined, just dumped there. Then, all of a sudden we have this environmental accident, so then we have to find a place to put it. The mayor is begging for it and you are implying that there is some sort of racial thing in that regard. That makes no sense to me at all.

Mr. CHURCHMAN. I would say that, first of all, I think that there is a lot of concerns about coal ash to begin with.

Mr. BOOZMAN. Yes, but you agree this was stored unlined and would still be stored there right now if it hadn't been for the incident that occurred.

Mr. CHURCHMAN. And as I would mention, I would agree that I don't think that that is the proper way to store it. I think that we need to look at other ways——

Mr. BOOZMAN. Okay, but how are we——

Mr. CHURCHMAN. And in this particular incident, what I would say is that it seems like an environmental injustice whenever there are a number of permitted landfills in Tennessee, is my understanding, that could accept that material, there are other materials——

Mr. BOOZMAN. But your implication from the question—the way you worded it is affluent, white Roane County. That is not what you are saying. The implications there is something totally different. So, again, I resent that. I think that you are trying to just dredge up things that are very inappropriate to be dredged up to make your point.

Mr. CHURCHMAN. I would say, after attending the hearing, that there are a number of people that feel like this is—that people were taken advantage of by it going into this community that

doesn't always have enough people to speak up for this issue that has gone on.

Mr. BOOZMAN. Even though, like I say, it was stored in affluent, white Roane County and would still be stored there if it hadn't been for this.

What do you think about this, Mr. Turner?

Mr. TURNER. I think you are right, Congressman. This testimony is way off base. He doesn't live in Perry County. We have 11,000 residents. In the meeting he attended, we may have had 75 folks there. I get elected there every six years, and since 2000 I have been getting 80 percent. Just had an election last year where I won with 85 percent, and I have been speaking in support of landfill and coal ash ever since I heard of it. So I don't think all the people in Perry County are so distraught.

This may be the same group that wants to settle and go away if we could somehow cut them in financially. I have gotten some calls where if you all help us financially, we will go away; they leave a message on my phone. I tell you, this sounds like some of those kinds of calls that want to go away if they can get in on the windfall. So I am not going to—they can go away, but they certainly are not going to get in on the windfall. I want them to know that today.

Mr. BOOZMAN. Thank you, Mr. Turner.

Thank you, Madam Chair.

Ms. JOHNSON. Thank you.

Mr. Griffith.

Mr. GRIFFITH. Thank you, Madam Chair. I appreciate the diligence that this Committee has exhibited in this entire situation. But I do think it is an opportunity for us to see how a crisis can be handled in a very positive, proactive way. I think it sets the stage and sets the bar very, very high, because we are going to have these accidents periodically in America based on our history of manufacturing and economic development. All over the geography of the United States we have potential Kingstons that might occur, and I think this sets the stage for how we might handle them and how we might prevent them.

I might say that, as the State Senator in Alabama, we were very much aware of the landfill. It is a state of the art $58 million landfill that takes wastes from all States east of the Mississippi and all States lined by the Mississippi River. The dumping in the landfill is monitored by GPS, it is mapped; it is a state of the art facility, so if you have in your head that there is a big levee somewhere and the trucks are backing up and dumping it and racing off, you are mistaken. So we need landfills; we have to have them. We appreciate the EPA and ADEM and their diligence there.

I particularly want to commend the TVA's response. They have been frank, they have been honest. They have never denied that it was a tragedy; they have never denied that it was something to correct; and they have never denied that they wanted to prevent this in the future. It is a refreshing response from a large corporate entity in America, and I think it changes the tone.

I will say to Mr. Churchman, we have a lot in common. I am familiar with Louisiana College and I might say that I was a Boy Scout as well. I am a board certified radiation oncologist, very con-

cerned with heavy metal; I am a cell biologist and a physicist. I have been monitoring this very, very carefully, so I am very, very tuned in to what may be situations that may cause malignant disease. I was interested in your bio, however, on Twitter. My bio is I'm a tree-hugging, dirt-worshiping, water-loving climate protecting fool. So you may bring a little bias here; I am not sure, just my opinion on that.

Mr. CHURCHMAN. As I think everybody on the Committee probably would also bring their own biases as well.

Mr. GRIFFITH. I hear you. But I think it is good to have differences of opinion. Madam Chair has encouraged it and we are going to live in a part of the transitioning into sensitivity to the environment, so we appreciate your. But we also appreciate the corporate response, and I think our environmental groups need to understand that there are some very, very good and sensitive people running our companies in America today, and they are not looking for a shortcut.

So we appreciate the panel testifying today.

Mr. Turner, 95 percent graduation rate. We ought to accept that as a standard for the rest of Alabama. Appreciate that.

Madam Chair, I return my time. Thank you.

Ms. JOHNSON. Thank you very much.

Mr. Westmoreland.

Mr. WESTMORELAND. Thank you, Madam Chair.

Commissioner Turner, is this a—does Marion own this landfill or is this a privately owned landfill?

Mr. TURNER. No, this is a privately owned landfill. Perry County receives what we will call a tipping fee from them on the per tonnage amount of deposits that are left in the landfill.

Mr. WESTMORELAND. So it is a privately owned landfill and you just receive a tipping fee. Do you share that tipping fee with other cities surrounding there?

Mr. TURNER. Yes, sir. We are giving them an opportunity to be good stewards. We have given $400,000 to the two municipalities and $550,000 to our school district, and that will leave us roughly about $2 million in the county coffins that we will use to spur on economic development in our county.

Mr. WESTMORELAND. Mr. Churchman, I kind of take the opposite argue with you. I would think that there would be a lot of communities such as Commissioner Turners wanting to get that revenue that had some facility.

Mr. Kilgore, how was it determined that this waste was going to go to Alabama? How was that determined? Because I am sure there are other sites closer that would have maybe enjoyed some of this revenue benefit from this.

Mr. KILGORE. We did a request for bids and we got bid packages in. But you said closer. There were not other permitted facilities closer than the Perry County; we had one in Georgia and one in Alabama that wound up being the finalists for this, and we selected the Perry County after an investigation to look at their permits, talk to EPA and ADEM, and see that everything was in order.

Mr. WESTMORELAND. So Georgia did have a facility? We have a good football team too, but was it just a straight bid situation is the reason that Perry, Alabama got it?

Mr. KILGORE. I don't know the exact answer on that, but it was not just cost; it was quality and the permitting, so we did a bid evaluation and I do know that cost wasn't the only thing there.

Mr. WESTMORELAND. Okay. And could you just let me know just what those qualifications may have been? Mr. Kilgore, one other thing. Are you doing the same bidding for removal of this, as far as who is actually removing the ash from the site?

Mr. KILGORE. We do have a contractor there and TVA personnel are working on that. There is only one rail line out, so basically we had to do a negotiated contract with Norfolk Southern; they are hauling all of the ash out, but we do have another contractor that is helping us load those trains.

Mr. WESTMORELAND. Mr. Meiburg, I will ask you the same question. What did the EPA—what kind of input did you have into it as far as what type of site this would go to?

Mr. MEIBURG. Well, we had to look at it from the standpoint primarily of the technical side. There was a landfill, an appropriately constructed landfill that had the requisite liners, the leachate collection and financial responsibility and good compliance record, so those were the main criteria that we applied.

Mr. WESTMORELAND. So did you——

Mr. MEIBURG. And I will add one other thing, which is that one of the critical criteria turned out to be—and I think this was very much in TVA's consideration as well—was the access to rail transport, because the alternative to that would have been a tremendous amount of truck traffic in Eastern Tennessee, which would have had all kinds of adverse environmental impacts. So the rail access was very important.

Mr. WESTMORELAND. Sure. And I can appreciate that. But what I am asking, I guess, is EPA did have some input into what the request for bid would have been as far as what that facility would have had to have been like.

Mr. MEIBURG. EPA specified in Section 45 of the Order as to what characteristics any offsite disposal landfill had to meet. Beyond that, the conduct of the bidding process was TVA, once the selection was made, it could not be actually transported until EPA had approved that.

Mr. WESTMORELAND. And one final question just to clarify this as far as what Mr. Churchman is inferring. EPA has looked at this as far as being classified as a hazardous waste and, just for the record, EPA feels very comfortable that this can be disposed of in a suitable, specified solid waste landfill environment?

Mr. MEIBURG. EPA is very comfortable with where this particular material is going. We specified that it had to be in compliance with the laws in place for handling this material, and this material meets that test.

Mr. WESTMORELAND. Thank you, sir.

I yield back, Madam.

Ms. JOHNSON. Thank you very much.

Ms. Edwards.

Ms. EDWARDS. Thank you, Madam Chairwoman, and thank you very much for this hearing. I know that this is, I believe, the third of the hearings that I have attended on this issue.

I want to just clarify for the record, Mr. Churchman. Your organization, the Alabama Environmental Council, have you, as the Executive Director, or any members of your board contacted Mr. Turner or any legislator in Perry County asking for a deal to be cut and then you would go away?

Mr. CHURCHMAN. No, ma'am.

Ms. EDWARDS. Thank you very much. And you are a nonprofit organization and you are not required by law to disclose your donors because you have a First Amendment right to freedom of association. So to the extent that you disclose those, you are doing that voluntarily, isn't that correct?

Mr. CHURCHMAN. That is correct.

Ms. EDWARDS. Thank you very much.

Mr. Kilgore, let me just turn to you, because in late November there was a high hazard coal ash dam in West Virginia that was discovered by the West Virginia Department of Environmental Protection to be in a condition that was similar to the Kingston pond that failed. It was given an unsatisfactory rating by the agency and an order to investigate. It appears now that the failure in Kingston may not be the result of totally rare circumstances. Do you agree that we may find additional dams that have a potential to fail similarly?

Mr. KILGORE. I am not totally familiar with that particular incident. I have been following all the other ones that have made the news recently and obviously there is a lot more attention on those. We have looked at ours and I would say yes is the simple answer to your question.

Ms. EDWARDS. Thank you. And I would appreciate very much—I mean, I looked at the questions that were outlined in Mr. Churchman's testimony, and to which he responded; they were his own questions. I found them very thoughtful and interesting, and I would appreciate a response on the record from you, Mr. Kilgore, as to each one of those 11 questions. I think the Chairwoman will probably hold the record open for some period of time that would allow you to get those responses in to the Subcommittee. Thank you.

I wonder, Mr. Meiburg, in your testimony you note that the EPA Region 4 has a "exceptional working relationship with the State of Tennessee" and I would just note that the State has 147 major sources with clean water permits, and of these 110, or 75 percent of them, are in significant noncompliance in 2008 according to TVA's own numbers. That is a sizable portion of Tennessee's facilities that are on EPA's enforcement watch list.

So I wonder if you could just tell the Subcommittee how Region 4 can have such an exceptional relationship when so many major facilities are polluting the waters and a sizable number have not had any enforcement action taken against them, and wonder what it is about that exceptional relationship that might in fact get in the way of EPA being able to do its job properly in terms of oversight and enforcement?

Mr. MEIBURG. A couple of points on that. One is that the reference in the testimony, of course, is to our relationship with respect to the management of the incident at Kingston itself. We do exercise an oversight responsibility, which we take very seriously,

with respect to the State of Tennessee on all aspects of their operation of delegated environmental programs.

The issue you mention has been an issue across the Country, and the Administrator has been very clear that EPA is going to step up its oversight with respect to compliance and enforcement with the Clean Water Act. Having said that, what we find in Tennessee is that the numbers that you quote from come from a database which does not necessarily distinguish types of violations that had people appear on the list.

Ms. EDWARDS. Fair.

Mr. MEIBURG. There are at least three different kinds of things: there are some that are sure enough violations that we need to be continuing to work on; there are some that result from errors in data transfer between the EPA and the State of Tennessee, which we very much need to do; and there are some that, while all violations are of concern to us, there are some that are less significant than others that may be simply some data or record-keeping. So we do exercise a review with Tennessee, as with all the States in our region, to make sure that we are in fact seeing compliance with the environmental laws of the United States.

Ms. EDWARDS. Thank you. And I do appreciate the leadership of Administrator Jackson and that she is going to step up the kind of oversight that I think EPA should have been exercising for some time.

I have just another question for you, Commissioner Turner. I understand your concerns about moving forward with economic development. I am an environmentalist myself, so I am going to confess to that. But I happen to believe that it is important to try to balance environmental concerns, and particularly environmental justice concerns, with positive economic development. I don't think any community, however it is situated, should have to sacrifice clean water and clean air because it wants economic development.

So I would hope that you are able to reach out fully to your community. I encourage you to get a community advisory group in Perry County established in the same way that one was established in Roane County. As you know, Roane County is sending its coal ash to you. I would encourage the TVA, in fact, to invest in the same relationship in Perry County that it invested in in Roane County.

I wonder, Commissioner Turner, how many public hearings have you held, or what kind of oversight do you exercise on the medical and health conditions of the community as related to the landfill site?

Mr. TURNER. To our knowledge, we haven't had anyone come forth and acknowledge or say that they have been sick because of the landfill. The thing just got there in June. You know, they act like it has been there for 100 years.

Ms. EDWARDS. What is your plan, though, that is in place to monitor the health and well-being of the citizens of Perry County?

Mr. TURNER. We give every citizen in our county an opportunity for one hour every two weeks to come before the full Commission and address any concerns. We have, every quarter, quarterly meetings at night to go out in the community. We don't make them

come to Marion, we have it in Uniontown at the City Hall, right there. Every quarter they come with the meeting.

We have had our first meeting; we are getting ready for our second meeting. We are doing everything we can; we did before they came here and we are doing it now. I don't want to make it seem like we are sacrificing our citizens. I wouldn't do that, sacrifice our citizens for money. We are not in the slave trade. So I want to make clear——

Ms. EDWARDS. Let me just interrupt you because my time has expired. I don't believe that you are—I won't even use the term. That is not what I was referring to.

I will just close by saying to the Chairwoman we might want to explore more directly how the Perry County community can monitor effectively the health and well being of its citizens so that we don't come before this Committee a year from now, two years from now and find, in fact, that we are seeing some of the same concerns that are raised in Roane County regarding the health and well-being and medical condition of the citizens of Roane County. I wouldn't want that to happen to Perry County as a recipient community, and I think a plan needs to be in place early on to do that monitoring so that we have some idea of what is happening to the citizenry.

And I apologize for going over my time, Madam Chairwoman.

Mr. TURNER. Ms. Chairwoman, could I mention that we do have a committee already set up, an environmental committee that is already set up that meets on a quarterly basis. It is a five member committee made up of citizens from each one of the commission districts that meet regularly and receive any complaints from the landfill, whether it is dealing with coal ash or household garbage.

Ms. JOHNSON. Thank you to the entire panel.

Let me ask Mr. Turner one final question. I did have some people come by my office and ask if it was possible to get some of this for making highway materials. I didn't know, but I did refer them to TVA. If you were approached to sell some of this or get rid of some of this coal ash, are you amenable?

Mr. TURNER. It does not belong to the county, so they would have to deal with Arrowhead Landfill about that; the County Commission couldn't make that decision. But if we could make that decision, I certainly would sell it if it is used in highway material. Concrete now is used in granite. I spent thousands of dollars for granite cabinet tops in my house and I have coal ash in them.

Ms. JOHNSON. Thank you very much.

Mr. BOOZMAN. In follow-up, Mr. Meiburg, is that one of the considerations? My understanding is that a significant percentage of this stuff is going into roads and into various uses. If it is declared a hazardous waste, would we not have more of this type of problem in having to come up with landfills and all of the related possibly leaching and that regard, as opposed to what so far has been demonstrated to be, to the best of my knowledge, a very safe, where once it is part of the road or whatever, we really don't have the problem of it leaching into this and that? I hope that will be a consideration, because what percentage are we talking about, 30, 40 percent more that we will have to deal with as far as finding an application, a landfill or whatever?

Mr. MEIBURG. Congressman Boozman, I know this speaks again to the prospective rule with respect to the future management of coal combustion residuals, and what I probably can say is that EPA is very aware of the beneficial use aspect with respect to coal ash, and I can assure you that that is a consideration. There will be considerable discussion of that in the proposal, about the beneficial use of the material.

Ms. JOHNSON. Thank you very much to the panel.

Thanks to the members. The meeting is adjourned.

[Whereupon, at 11:58 a.m., the Subcommittee was adjourned.]

OPENING STATEMENT OF
THE HONOROABLE RUSS CARNAHAN (MO-03)
HOUSE TRANSPORTATION AND INFRASTRUCTURE COMMITTEE
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT

Hearing on
The One-Year Anniversary of the Tennessee Valley Authority's Kingston Ash Slide: Evaluating Current Cleanup Progress and Assessing Future Environmental Goals
Wednesday, December 9, 2009

Chairwoman Johnson and Ranking Member Boozman, thank you for holding this hearing on the one year anniversary of the Tennessee Valley Authority's Kinston Ash Slide.

Nearly a year ago the coal ash spill at the Tennessee Valley Authority's Kingston Fossil Plant released an unprecedented amount of toxic coal ash over the surrounding landscape and waterways. The reach of this spill is staggering. It has been estimated that over 300 acres have been affected by sludge, at point up to six feet deep, and over five million cubic yards of coal ash were deposited into the nearby Emory River.

The magnitude of the clean up effort to such a large spill is vast. I am pleased to see clean up operations have been placed under the Environmental Protection Agency oversight and coordination. This allows the EPA to review and approve all TVA cleanup operations, in accordance with the Superfund law. Additionally, the EPA's experience with large scale and on-scene coordination has been instrumental in the time-critical removal of ash from the Emory River.

Finally, it is critical that the disposal of the reclaimed Kingston coal ash is done in a manner that follows all public health protocols including long-term monitoring so that there is not adverse impact to the surrounding communities. I look forward to hearing more from our witnesses about the safety protocol that is going to be followed at the Arrowhead Landfill in Perry County, Alabama.

In closing, I would like to thank Chairwoman Johnson for the continued oversight done by the Subcommittee since this very unfortunate spill. I want to thank our witnesses for joining us today and I look forward to hearing their testimony.

Statement of Rep. Harry Mitchell
House Transportation and Infrastructure Committee
Subcommittee on Water Resources and Environment
12/9/09

--Thank you Madam Chair.

--As you know, this subcommittee has a responsibility to protect our nation's water resources.

--Nearly a year ago, the coal ash spill at the Tennessee Valley Authority's (TVA) Kingston Fossil Plant put water resources at risk, and I believe it is appropriate for us to examine not only how and why this happened, but how we can avoid another such spill in the future.

--This is the third hearing we have had on this issue, and thanks to your efforts, we now know a good deal more.

--However, there is still more we need to know.

--I am pleased that the TVA has hired an engineering firm to conduct engineering evaluations of all TVA coal combustion waste impoundments and the report is expected to be complete by late next year.

--I look forward to hearing from today's witnesses.

--I yield back.

Statement of
Michael J. Churchman, Executive Director
Alabama Environmental Council
Before the
U.S. House Committee on Transportation and Infrastructure
Subcommittee on Water Resources and Environment
Wednesday, December 9, 2009

Introduction:

Chairwoman Eddie Bernice Johnson, Ranking Member John Boozman, and members of the committee. I appreciate the opportunity to travel from Alabama to share comments with you at this important hearing. I also appreciate the previous hearings related to the coal ash spill at the Tennessee Valley Authority's (TVA) Kingston Fossil Plant. I recognize that previous meetings were mostly about the spill and subsequent cleanup and I appreciate this hearing bringing in more discussion about the disposal in Alabama at the Arrowhead Landfill in Perry County.

I agree with Commissioner Turner that this has resulted in a windfall for Perry County and a number of local communities. However, I do not share his enthusiastic opinion. And neither do a number of people in Alabama. In fact, when I attended a brief meeting in Uniontown in Perry County on September 16th, I heard a lot of residents of Perry County that still had a lot of questions about this disposal and "windfall." Residents seemed not to have had all their fears and concerns answered to alleviate their anxiety. In fact, it appeared to me that there were more questions than there were answers and it doesn't seem to have subsided. Within the last month, a number of residents have come forward with health concerns that did not seem to be present before the disposal began.

I am here to bring a number of concerns to your attention that need to be evaluated before this disposal continues any further:

1. How can removal of Coal Ash in Roane County be performed with such a deliberate containment process to prevent air-borne exposure and yet the exact opposite is true in Perry County?
2. How can individual elements like heavy metals and other toxic substances be listed as hazardous when considered individually, yet considered non-hazardous Solid Waste when contained within Coal Ash?
3. Are all regulations pertaining to Superfund sites being followed according to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)?
4. Are the Operating Permit's Groundwater Monitoring Parameters adequate to Protect Public Health and the Environment in Perry County? Without proper

regulations concerning disposal of Coal Ash Waste in Alabama, a "verbal" commitment by ADEM to "increased monitoring of the site than usual landfill permitting" is inadequate.

5. How can the Perry County Landfill be found in compliance of "all applicable State requirements" and "does not currently have any relevant violations..." when it is discharging leachate without a required state permit to the Marion Wastewater Treatment Plant without a required state permit and when that plant that has been in violation of its NPDES Permit No AL0023809 since August 2003?
6. Why has the hydrological characterization of the landfill site not received careful scrutiny before millions of tons of hazardous substances were allowed to be added to the landfill, particularly in view of evidence that monitoring wells contained elevated levels of pollutants?
7. Why do operating permit's post-closure requirements fail to require at least 30 years of post-closure monitoring to protect the residents when Perry County Associates are long gone?
8. Are Solid Waste Disposal Act regulations being enforced and is the Coal Ash waste being "stored separately from the other material there" as reported in Mr. Tom Kilgore's written statement on July 28, 2009 before this committee?
9. Are all Clean Air Act regulations being enforced and monitored to protect public health from exposure?
10. Why has this not been identified as an Environmental Justice issue with extra agency support to local communities? When waste is being collected in a mostly affluent, white Roane County and being disposed in a mostly poor, African-American Perry County, this action should be labeled the injustice that it is.
11. Have EPA, ADEM, TVA, and Perry County & Associates attempted to alleviate all concerns and questions to Perry County citizens who continue to suffer through the worst environmental disaster in US history?

I would not have served the citizens of Alabama to the best of my ability had I not asked these questions. Please understand that these comments and questions have been collected in a short period of time and may not reflect the full environmental and

public health impacts of this disposal plan. However, many think there is enough reason for this plan to be further scrutinized and reviewed before allowing the toxic waste to continue to be dumped on the people of Perry County, Alabama.

I look forward to the good work of this committee to answer these questions alleviating all concerns for citizens of Perry County, Alabama and other citizens across our great state. Thank you for the opportunity to address this committee and I look forward to your questions.

In Depth Comments on Questions:

1. *How can removal of Coal Ash in Roane County, TN be performed with such a deliberate containment process to prevent air-borne exposure and yet the exact opposite be true in Perry County, AL?*

In reviewing Mr. Kilgore's past testimony, reviewing operating procedure and through visible observations of activities being implemented on the ground in Roane County, TN, compared to the procedures for disposal of the same Coal Ash in Perry County, AL, it is easy to see that precautions are not the same. In Roane County, it appears that all precautions are being taken to keep the Coal Ash from having any negative airborne impacts to the surrounding community. Yet, that is not the case in Perry County where the Coal Ash is being deposited and left open to have a devastating impact on local residents near the landfill.

317 Uniontown Residents live within one half mile of the landfill with another 3,500 plus within 5 miles. "The EPA is allowing the transport of millions of tons of a hazardous substance, namely coal ash, to a state that has *no* regulations governing the disposal of the waste. Yet it is the EPA's responsibility to ensure that the residents of Uniontown are protected from both short-term and long-term exposure to the hazardous constituents of the TVA coal ash. The current operating permit of the Arrowhead Landfill, however, is deficient in critical areas, and these deficiencies potentially place this community at risk..."

"In line with the recommendations set forth in the Duke Study, the TVA's remediation activities at the Kingston disaster site have focused directly on preventing the spilled ash from becoming airborne. According to TVA officials, an aggressive dust suppression and control program has been implemented that includes the use of road vacuums and water trucks to suppress dust generation by vehicle traffic, wetting ash areas with truck-mounted water cannons, and establishing vegetative cover for longer-term dust management. Also according to the TVA, a comprehensive air-monitoring program has been established in the spill area. Residents of Perry County are potentially exposed to the same dangerous ash as the Tennessee residents, and they deserve at least a commensurate, if not greater level of protection, because those residing near the final disposal site—the Arrowhead Landfill—face a much longer-term health threat. To establish a commensurate level of protection, the EPA should require, in an amendment to the AOC, that disposal of coal ash be terminated at any landfill that does not guarantee adequate control of fugitive dust. (October 27, 2009 Letter to Stan Meiburg, from Concerned Citizens of Perry County and Earthjustice)

2. *How can individual elements like heavy metals and other toxic substances be listed as hazardous when considered individually, yet considered non-hazardous Solid Waste when contained within Coal Ash?*

"The threat to human health from inhalation of the coal ash released from the Kingston facility has been recently examined by scientists from Duke's Nicholas School of the Environment, Duke's Pratt School of Engineering, the Duke Comprehensive Cancer Center, and the Georgia Institute of Technology. Their double-blind, peer reviewed study was published on August 15, 2009 in the journal *Environmental Science and Technology. (See* Ruhl, L. Vengosh, A, Dwyer, G. Hsu-Kim, H, Deonarine, A, Bergin, M., Kravchenko, J.) Survey of the Potential Environmental and Health Impacts in the Immediate Aftermath of the Coal Ash Spill in Kingston, Tennessee. (*Environ.Sci. Technol.* **2009**, *43*(22), 6326–6333.) This study examined the potential human health impacts from inhalation of the coal ash released from the TVA plant. According to the authors, the study "highlights the high probability of atmospheric resuspension of fine fly

ash particulates, which are enriched in toxic metals and radioactivity, and could have a severe health impact on local communities and workers."

"In the study, the scientists analyzed the toxic elements of the TVA coal ash that is currently being disposed at the Arrowhead Landfill. Their analysis of ash samples revealed that the Kingston ash contains high levels of toxic metals and radioactivity, including 75 parts per million of arsenic, 150 parts per billion of mercury, and 8 picocuries per gram of total radium. According to the study, the high concentrations of trace metals and radioactivity in the bulk TVA coal ash "are expected to magnify, as fine fractions of fly ash (which may be re-suspended and deposited in the human respiratory system) are typically 4-10 times enriched in metals relative to the bulk ash and the coarse size fraction." In addition, the study notes that the "toxic metal content in coal ash, the sizes of fly ash particulates, and the ionizing radiation (IR) exposure (both incorporated and external) may act synergistically or, less frequent, antagonistically, affecting human health directly (predominantly through inhalation of contaminated air)."

"The study also notes that coal ash is a Group I human carcinogen associated with increased risks of skin, lung, and bladder cancers. Arsenic and radium exposures in humans are associated with increased risks of skin, lung, liver, leukemia, breast, bladder, and bone cancers for exposure predominantly due to chronic ingestion or chronic inhalation, with the dose-response curve dependent on location, sources, and population susceptibility and/or tolerance. The study states that coal ash particulates: affect lung epithelial and red blood cells in animal studies and human in vitro models, causing inflammation, changing the sensitivity of epithelia, altering immunological mechanisms and lymphocyte blastogenesis, and increasing the risk of cardiopulmonary disease (e.g., pulmonary vasculitis/hypertention). Individuals with pre-existing chronicobstructive pulmonary disease, lung infection, or asthma are more susceptible to the coal ash affliction. Several epidemiological studies have proved the significant health hazards (such as enhanced risk for adverse cardiovascular events) of fine-particulate air pollution for individuals with type II diabetes mellitus and people with genetic and/or disease-related susceptibility to vascular dysfunction, who are a large part of the population.

"Lastly, in addition to the threats posed by inhalation of trace metals such as arsenic and lead, the study also identifies risk from inhalation of radium in the Kingston ash: Radium-226 and 228Ra, which are the main sources of low-dose IR exposure in coal ash, can remain in the human lung for several months after their inhalation, gradually entering the blood circulation and depositing in bones and teeth with this portion remaining for the lifetime of the individual. When inhaled, the radionuclides can affect the respiratory system even without the presence of the other coal ash components. Thus, the airborne particles containing radioactive elements inhaled by cleanup workers of the nuclear accident at the Chernobyl nuclear power plant caused bronchial mucosa lesions, in some cases preneoplastic, with an increased susceptibility to the invasion of micro organisms in bronchial mucosa. Consequently, the combined radioactivity of coal ash at the TVA spill, together with other enriched trace metals such as Ni, Pb, and As, may increase the overall health impact in exposed populations, depending on duration of exposure, and particularly for susceptible groups of the population.

"Thus, it is imperative that the landfill permit and the AOC require that adequate safeguards be established to eliminate or minimize exposure to airborne coal ash from disposal operations." (October 27, 2009 Letter to Stan Meiburg, from Concerned Citizens of Perry County and Earthjustice)

3. *Are all regulations pertaining to Superfund sites being followed according to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)?*

"CERCLA § 121(d)(3), 42 U.S.C. § 9621(d)(3), requires that "[i]n the case of any removal or remedial action involving the transfer of any hazardous substance or pollutant or contaminant offsite, such hazardous substance or pollutant or contaminant shall only be transferred to a facility which is operating in compliance with . . . all applicable State requirements." Pursuant to CERCLA § 121(d)(3), 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440, on January 16, 2008, EPA "made an affirmative determination of acceptability for the receipt of [CERCLA] wastes at the Perry County

Associates Landfill (PCA Landfill) located along Cahaba Road at Route 2, Box 110A in Uniontown, Alabama." This determination was based on representations by the Alabama Department of Environmental Management that the landfill "does not *currently* have any relevant violations..." (Emphasis added). EPA noted that this determination is subject to rescission.

Perry County Associates, LLC violation of Alabama Admin. Code Chap. 335-3-1

Ala. Admin. Code R. 335-3-1-.08 provides:

No person shall permit or cause air pollution, as defined in Rule 335-3-1-.02(1)(e) of this Chapter by the discharge of any air contaminant for which no ambient air quality standards have been set under Rule 335-3-1-.03(1).

"Air Pollution" means "the presence in the outdoor atmosphere of one or more air contaminants in such quantities and duration as are, or tend to be, injurious to human health or welfare, animal or plant life, or property, or would interfere with the enjoyment of life or property . . .." Ala. Admin. Code R. 335-3-1-.02(1)(e). "Air Contaminant" means "any solid, liquid, or gaseous matter, any odor, or any combination thereof, from whatever source." Ala. Admin. Code R. 335-3-1-.02(1)(d). "Odor" means "smells or aromas which are unpleasant to persons or which tend to lessen human food and water intake, interfere with sleep, upset appetite, produce irritation of the upper respiratory tract, or cause symptoms or nausea, or which by their inherent chemical or physical nature or method or processing are, or may be, detrimental or dangerous to health. Odor and smell are used interchangeably herein." Ala. Admin. Code R. 335-3-1-.02(1)(ss).

Since July 2009, Perry County Associates, LLC has been operating the Perry County Associates, LLC Landfill in such manner as to permit or cause the presence of one or more contaminants, including odors, in the outdoor atmosphere which are injurious to human health and welfare, interfere with the enjoyment of life and property, are unpleasant to persons, tend to upset appetite, lessen food intake, interfere with sleep, produce irritation of the upper respiratory tract, and cause dizziness, headache, nausea

and vomiting. Thus, Perry County Associates, LLC is permitting or causing air pollution in violation of Ala. Admin. Code R. 335-3-1-.08. Accordingly, the Perry County Associates LLC Landfill is not operating in compliance with Ala. Admin. Code R. 335-3-1-.08 and the January 16, 2008 determination of acceptability granted by EPA under CERCLA § 121(d)(3), 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440 should be rescinded.

Perry County Associates, LLC violation of the Alabama Water Pollution Control Act

Ala. Code § 22-22-9(g) provides:

> It shall be the duty of the commission to receive and examine applications, plans, specifications and other data and to issue permits for the discharge of pollutants, industrial wastes entering directly or through a municipal or private treatment facility and other wastes into the waters of the state, stipulating in each permit the conditions under which such discharge may be permitted.

Ala. Code § 22-22-9(i)(3) provides:

> Every person, prior to discharging any new or increased pollution into any waters of this state, shall apply to the commission in writing for a permit and must obtain such permit before discharging such pollution.

Since July 14, 2008, Perry County Associates, LLC has been discharging pollutants contained in leachate generated at the Perry County Associates LLC Landfill, through the Marion Wastewater Treatment Plant, into Rice Creek, a water of the State. Perry County Associates, LLC has not obtained a permit from the Alabama Department of Environmental Management as required by the above-referenced statutory provisions to discharge pollutants directly or through a municipal or private treatment facility into waters of the State. Thus, the Perry County Associates LLC Landfill is not operating in compliance with Ala. Code §§ 22-22-9(g) and 22-22-9(i)(3). Accordingly, the January 16, 2008 determination of acceptability granted by EPA under CERCLA § 121(d)(3), 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440 should be rescinded.

Perry County Associates, LLC violation of Alabama Admin. Code Chap. 335-6-5

Ala. Admin. Code R. 335-6-5-.04(2) provides:

No significant industrial user shall introduce pollutants into publicly owned treatment works without having first obtained a valid State Indirect Discharge (SID) Permit from the Department.

Perry County Associates, LLC qualifies as a "significant industrial user" under one or more of the provisions identified in Ala. Admin. Code R. 335-6-5-.02(oo).

Since July 14, 2008, Perry County Associates, LLC has been discharging pollutants contained in leachate generated at the Perry County Associates LLC Landfill, through the Marion Wastewater Treatment Plant, into Rice Creek, a water of the State. Perry County Associates, LLC has not obtained a State Indirect Discharge (SID) Permit therefor from the Alabama Department of Environmental Management as required by the above-referenced rules. Thus, the Perry County Associates LLC Landfill is not operating in compliance with Ala. Admin. Code R. 335-6-5-.04(2). Accordingly, the January 16, 2008 determination of acceptability granted by EPA under CERCLA § 121(d)(3), 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440 should be rescinded. (December 7, 2009 David Ludder Petition to Rescind Determination that the Perry County Associates, LLC Landfill is Acceptable for the Receipt of CERCLA Waste)

4. *Are the Operating Permit's Groundwater Monitoring Parameters adequate to Protect Public Health and the Environment in Perry County?*

Groundwater monitoring parameters for the Arrowhead Landfill do not include several contaminants found commonly in leachate generated by coal ash disposal. According to Table IV.3 of the Permit Modification for the Arrowhead Landfill, the parameters to be monitored on a semi-annual basis are those parameters listed in Appendix I of Chapter 335-13-4 of the Alabama Administrative Code. These parameters do *not* include boron, manganese, molybdenum or sulfate, four very common coal ash pollutants. *See* U.S. Environmental Protection Agency, Report to Congress on the

Wastes from the Combustion of Fossil Fuels, March 1999 at 3-17. In fact, EPA's list of 67 "damage cases," defined as sites contaminated by coal combustion waste, include 38 sites contaminated by sulfate, 24 sites contaminated by manganese, 10 sites contaminated by boron, and 3 sites contaminated by molybdenum. *See* U.S. EPA, Coal Combustion Waste Damage Case Assessments, July 2007. Lastly, the EPA's draft Human Health and Ecological Risk Assessment for Coal Combustion Wastes (July 2007) specifically identified elevated risk to human health and the environment from the leaching of both boron and molybdenum from coal ash landfills. *Id.* at ES 1-2. We therefore request that the AOC be amended to require that any landfill accepting coal ash provide baseline data for these pollutants, sample for these additional parameters, and perform monitoring quarterly rather than semi-annually for all contaminants. (October 27, 2009 Letter to Stan Meiburg, from Concerned Citizens of Perry County and Earthjustice)

Without proper regulations concerning disposal of Coal Ash Waste in Alabama, a "verbal" commitment by ADEM to "increased monitoring of the site than usual landfill permitting" is inadequate.

5. *How can the Perry County Landfill be found in compliance of "all applicable State requirements" and "does not currently have any relevant violations..." when it is discharging leachate without a required state permit to the Marion Wastewater Treatment Plant without a required state permit and when that plant that has been in violation of its NPDES Permit No AL0023809 since August 2003?*

As brought to the attention of Stanley Meiburg, Acting Regional Administrator, EPA Region IV by the Cahaba River Society, "We are very concerned that the City of Marion Waste Water Treatment Plant (WWTP) may not be adequately capturing heavy metals from the very large volume of leachate from the Arrowhead Landfill in Perry County." (November 23, 2009 Letter from Cahaba River Society to Mr. Stanley Meiburg) And, as found on the Enforcement & Compliance History Online (ECHO,) Ammonia levels have been exceedingly high before the deposits, and have increased again recently. (http://www.epa-echo.gov/echo/compliance_report_water_icp.html)

The City of Marion was sued by the State for such violations on April 9, 2008. *State of Alabama ex rel Troy King v. City of Marion*, Case No. 53-CV-2008-900016. That lawsuit remains pending.

Until the Marion WWTP is brought into compliance, deposition of this "wet" material should not be allowed in the Arrowhead Landfill in Perry County.

6. *Why has the hydrological characterization of the landfill site not received careful scrutiny before millions of tons of hazardous substances were allowed to be added to the landfill, particularly in view of evidence that monitoring wells contained elevated levels of pollutants?*

The operating record of the Arrowhead Landfill does not contain documents indicating that there has been a full and accurate characterization of groundwater flow and the interconnections to groundwater and surface water in the vicinity of the landfill. Groundwater data and maps supplied by the operator are conflicting and fail to provide a full and accurate description of the area's hydrogeology. Further, the operator's baseline (background) monitoring of the groundwater and surface water is wholly insufficient to determine baseline conditions. Lastly the number of monitoring wells is insufficient and the few wells existing are poorly placed to identify contamination from the landfill. A full investigation into the local hydrogeology is necessary so that regulators can determine baseline conditions and an appropriate groundwater and surface water monitoring system.

7. *Why do operating permit's post-closure requirements fail to require at least 30 years of post-closure monitoring to protect the residents when Perry County Associates are long gone?*

According to Section VIII of the Permit Modification for the Arrowhead Landfill, the length of the period of post-closure groundwater and surface water monitoring is left to the discretion of the Alabama Department of Environmental Management (ADEM). It is essential, however, for the protection of the community that at least 30 years of post closure groundwater and surface water monitoring be required at the Arrowhead

Landfill. According to the EPA's Human Health and Ecological Risk Assessment for Coal Combustion Wastes, the risk of leachate migration and contamination of underlying groundwater increases with time. Therefore monitoring must continue for a substantial period after disposal ends to make sure that pollutants do not migrate from the landfill and contaminate the underlying groundwater or surface water. According to the operating permit and Alabama regulations, the ADEM has authority to decrease the length of the post-closure care period. *See* ADEM Rule 335-13-4-.20(3)b. While 30 years is the standard period of post-closure monitoring for non-hazardous waste, it would be preferable to monitor the wells in perpetuity, unless it can be demonstrated that monitoring is no longer necessary to protect human health and the environment. Thus the EPA should amend the AOC to permit coal ash disposal only at a landfill that provides sufficient long-term post-closure monitoring.

Further, according to an August 19, 2009 memorandum from Wesley S. Edwards of ADEM's Hydrogeology Section, Groundwater Branch to Phillip D. Davis, Chief of ADEM's Solid Waste Branch, groundwater monitoring at the landfill has already resulted in a statistically significant increase (SSI) for concentrations of barium in two of the landfill's down gradient monitoring wells. *See* ADEM Memorandum. There is nothing in the record that indicates that the Arrowhead Landfill owner or operator has submitted the notice required by state regulations or that enhanced "assessment monitoring" has been initiated to determine the extent of the elevated barium. In view of the ADEM's determination that groundwater contamination may already be occurring, it is essential that adequate monitoring be immediately required and that the period of monitoring be sufficient to detect contamination over the long-term. The EPA should investigate whether the landfill is in compliance with ADEM regulations that require specific measures be taken by the operator of the landfill following the determination of a SSI. *See* ADEM Rule 335-13-4-27. (October 27, 2009 Letter to Stan Meiburg, from Concerned Citizens of Perry County)

8. *Are Solid Waste Disposal Act regulations being enforced and is the Coal Ash waste being "stored separately from the other material there" as reported in Mr. Tom Kilgore's written statement on July 28, 2009 before this committee?*

Pursuant to the Solid Waste Disposal Act § 4004(a), 42 U.S.C. § 6944(a), EPA promulgated criteria for the operation of municipal solid waste landfills. Among these criteria is the following:

Owners or operators of all MSWLFs must ensure that the units not violate any applicable requirements developed under a State Implementation Plan (SIP) approved or promulgated by the Administrator pursuant to section 110 of the Clean Air Act, as amended.

40 C.F.R. § 258.24(a). Failure to comply with this criterion makes a landfill a prohibited "open dump." Solid Waste Disposal Act § 4005(a), 42 U.S.C. § 6945(a), and 40 C.F.R. § 258.1(g) and (h).

Pursuant to Clean Air Act § 110, 42 U.S.C. § 7410, the State of Alabama adopted and EPA approved, Ala. Admin. Code R. 335-3-1-.02 and 335-3-1-.08 as part of the State Implementation Plan for Alabama. Ala. Admin. Code R. 335-3-1-.08 provides:

No person shall permit or cause air pollution, as defined in Rule 335-3-1-.02(1)(e) of this Chapter by the discharge of any air contaminant for which no ambient air quality standards have been set under Rule 335-3-1-.03(1).

Since July 2009, Perry County Associates, LLC has been operating the Perry County Associates, LLC Landfill in such manner as to permit or cause the presence of one or more contaminants, including odors, in the outdoor atmosphere which are injurious to human health and welfare, interfere with the enjoyment of life and property, are unpleasant to persons, tend to upset appetite, lessen food intake, interfere with sleep, produce irritation of the upper respiratory tract, and cause dizziness, headache, nausea and vomiting. Accordingly, Perry County Associates, LLC is permitting or causing air pollution in violation of the State Implementation Plan for Alabama and in violation of 40 C.F.R. § 258.24(a). Thus, Perry County Associates, LLC is operating a prohibited "open dump" in violation of the Solid Waste Disposal Act. (David Ludder)

9. *Are all Clean Air Act regulations being enforced and monitored to protect public health from exposure?*

Pursuant to Clean Air Act § 110, 42 U.S.C. § 7410, the State of Alabama adopted and the U.S. Environmental Protection Agency (EPA) approved, Ala. Admin. Code R. 335-3-1-.02 and 335-3-1-.08 as part of the State Implementation Plan for Alabama. Ala. Admin. Code R. 335-3-1-.08 provides:

No person shall permit or cause air pollution, as defined in Rule 335-3-1-.02(1)(e) of this Chapter by the discharge of any air contaminant for which no ambient air quality standards have been set under Rule 335-3-1-.03(1).

"Air Pollution" means "the presence in the outdoor atmosphere of one or more air contaminants in such quantities and duration as are, or tend to be, injurious to human health or welfare, animal or plant life, or property, or would interfere with the enjoyment of life or property . . .." Ala. Admin. Code R. 335-3-1-.02(1)(e). "Air Contaminant" means "any solid, liquid, or gaseous matter, any odor, or any combination thereof, from whatever source." Ala. Admin. Code R. 335-3-1-.02(1)(d). "Odor" means "smells or aromas which are unpleasant to persons or which tend to lessen human food and water intake, interfere with sleep, upset appetite, produce irritation of the upper respiratory tract, or cause symptoms or nausea, or which by their inherent chemical or physical nature or method or processing are, or may be, detrimental or dangerous to health. Odor and smell are used interchangeably herein." Ala. Admin. Code R. 335-3-1-.02(1)(ss).

Since July 2009, Perry County Associates, LLC has been operating the Perry County Associates, LLC Landfill in such manner as to permit or cause the presence of one or more contaminants, including odors, in the outdoor atmosphere which are injurious to human health and welfare, interfere with the enjoyment of life and property, are unpleasant to persons, tend to upset appetite, lessen food intake, interfere with sleep, produce irritation of the upper respiratory tract, and cause dizziness, headache, nausea and vomiting. Accordingly, Perry County Associates, LLC is permitting or causing air

pollution in violation of Ala. Admin. Code R. 335-3-1-.08, the State Implementation Plan for Alabama, and the Clean Air Act. (David Ludder)

10. Why has this not been identified as an Environmental Justice issue with extra agency support to local communities? When waste is being collected in a mostly affluent, white Roane County and being disposed in a mostly poor, African-American Perry County, this action should be labeled what it is.

Section 2-2 of Executive Order 12898 directs each Federal agency to conduct its programs

> "that substantially affect human health or the environment in a manner that ensures that such programs... do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such programs, policies and activities because of their race color or national origin."

See Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 FR 7629 (February 16, 1994).

11. Have the EPA, ADEM, TVA, and Perry County and Associates attempted to alleviate all concerns and questions to Perry County citizens who continue to suffer through the worst environmental disaster in US history?

As Rev. James R. Murdock, President of the Concerned Citizens of Perry County and resident of Uniontown, AL told me on Monday, December 7, 2009,

> "We don't want it, we don't need it, and we wish they'd stop sending it to us."

Mr. Murdock and his wife are suffering from respiratory illness that they feel is directly attributable to the disposal of Coal Ash at the Perry County Landfill. Numerous other residents of Perry County feel the same way. They are experiencing illness and ill-effect that were not present before the disposal began.

Conclusion:

My intention was to bring these questions to this committee and seek the answers that many in Alabama have been asking for some time. This has been an emergency action that was not planned. However, many would say that judgment was made too swiftly and proper procedures were not followed resulting in a continuation of this disaster. Please make every attempt to answer these questions as you seek to conclude these hearings.

Tennessee Valley Authority (TVA) Responses to Questions
Submitted by Michael J. Churchman, Executive Director,
Alabama Environmental Council
Before the
U.S. House Committee on Transportation and Infrastructure
Subcommittee on Water Resources and Environment
Wednesday, December 9, 2009
As Requested by Representative Donna Edwards (D-MD)

1. How can removal of Coal Ash in Roane County be performed with such a deliberate containment process to prevent air-borne exposure and yet the exact opposite is true in Perry County?

It is our understanding that the Arrowhead Landfill has a comprehensive environmental monitoring program in place that utilizes two air quality monitoring stations; one at the rail yard near the unloading operation and the other on the property line near the active cell. In addition, air monitors are periodically placed on workers in the active cells, with data reviewed on a weekly basis and reported on a monthly basis to ensure compliance with the appropriate regulations. To date, we understand that none of the monitoring data show exceedances of EPA's National Ambient Air Quality Standards.

2. How can individual elements, like heavy metals and other toxic substances, be listed as hazardous when considered individually yet considered non-hazardous solid waste when contained in coal ash?

We respectfully refer this question back to the Committee and recommend that the Environmental Protection Agency (EPA) is better suited to respond.

3. Are all regulations pertaining to Superfund sites being followed according to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)?

As Mr. Churchman notes in his testimony, EPA is required to, and on January 16, 2008, made "an affirmative determination of acceptability for the receipt of (CERCLA) wastes at the Perry County Associates Landfill (PCA Landfill) located along Cahaba Road at Route 2, Box 110A in Uniontown, Alabama".

In response to statements that Perry County Associates is operating the landfill in violation of Alabama codes and EPA should rescind its determination of acceptability, TVA has no knowledge that Perry County Associates is operating

the landfill in violation of any Alabama code and recommends further questions to EPA and the Alabama Department of Environmental Management.

Questions 4-6 pertain to the Operating Permit's Groundwater Monitoring Parameters; Perry County Landfill compliancy; and hydrological characterization of groundwater flow, respectively, at the landfill. We respectfully refer these questions back to the Water Resources and Environment subcommittee to be addressed by the Alabama Department of Environmental Management.

7. Why do operating permit's post-closure requirements fail to require at least 30 years of post-closure monitoring to protect the residents when Perry County Associates are long gone?

As we understand it, the permit for the Arrowhead Landfill is in full compliance with ADEM solid waste regulations, including post-closure requirements. The permit does require post-closure care activities to be conducted for a period of 30 years following closure of the facility. For additional information on post-closure monitoring activities, the Committee may wish to consult with ADEM officials.

8. Are Solid Waste Disposal Act regulations being enforced and is the Coal Ash waste being "stored separately from the other material there" as reported in Mr. Tom Kilgore's written statement on July 28, 2009 before this committee?

It is our understanding that the Arrowhead Landfill is in full compliance with applicable solid waste disposal regulations. Representatives of EPA and ADEM visit the Arrowhead Landfill on a routine basis to verify regulatory compliance. The TVA coal ash is not being co-mingled with municipal solid waste.

9. Are all Clean Air Act regulations being enforced and monitored to protect public health from exposure?

It is our understanding that the Arrowhead Landfill is in full compliance with applicable ADEM regulations for air emissions. Representatives of EPA and ADEM visit the Arrowhead Landfill on a routine basis to verify regulatory compliance.

10. Why has this not been identified as an Environmental Justice issue with extra agency support to local communities? When waste is being collected in a mostly affluent, white Roane County and being disposed in a mostly poor, African-American Perry County, this action should be labeled the injustice that it is.

Potential Environmental Justice issues associated with disposal of TVA coal ash at the Arrowhead Landfill have been fully assessed by the EPA, and there have

been no significant findings associated with this project to date. We respectfully refer the Committee to EPA for additional insight into their assessment.

11. Have EPA, ADEM, TVA, and Perry County & Associates attempted to alleviate all concerns and questions to Perry County citizens who continue to suffer through the worst environmental disaster in US history?

Representatives from EPA, ADEM, TVA, and the Arrowhead Landfill have participated in two public meetings in Perry County to answer questions from local citizens about TVA coal ash and the Arrowhead Landfill. The landfill operator has met individually with citizens living in the vicinity of the landfill to provide additional information, and has hosted several landfill tours for local citizens. Prior to the commencement of the project, TVA hosted local elected officials at the Kingston Plant site to share information about coal ash and the Kingston Recovery effort. TVA executives visit the landfill, tour the community, and meet with local elected officials on a routine basis. EPA and ADEM routinely visit the landfill to confirm regulatory compliance and respond to questions from local citizens on a continual basis.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG 3 1 2010

OFFICE OF CONGRESSIONAL AND
INTERGOVERNMENTAL RELATIONS

The Honorable Eddie Bernice Johnson
Chairwoman
Subcommittee on Water Resources and Environment
Committee on Transportation and Infrastructure
United States House of Representatives
Washington, D.C. 20515

Dear Chairwoman Johnson:

Thank you for your post-hearing questions to the U.S. Environmental Protection Agency (EPA) from the December 9, 2009, Committee on Transportation and Infrastructure Subcommittee on Water Resources and Environment hearing titled, "The One Year Anniversary of the Tennessee Valley Authority's Kingston Ash Slide: Evaluating Current Cleanup Progress and Assessing Future Environmental Goals."

Please find enclosed responses to these questions. A copy of EPA's responses was emailed to Committee staff on March 1, 2010. I hope this information will be useful to you and members of the Subcommittee. If you have further questions, please contact me or your staff may contact Amy Hayden in EPA's Office of Congressional and Intergovernmental Relations at (202) 564-0555.

Sincerely,

Arvin R. Ganesan
Deputy Associate Administrator
for Congressional Affairs

Enclosure

Committee on Transportation and Infrastructure
Subcommittee on Water Resources and Environment
December 9, 2009
Follow-up Questions for Written Submission as Provided to the Committee from
Mr. Michael Churchman, Executive Director, Alabama Environmental Council

Question 1. How can removal of coal ash in Roane County be performed with such a deliberate containment process to prevent air-borne exposure and yet the exact opposite is true in Perry County?

Answer: The U.S. Environmental Protection Agency (EPA) has been actively engaged in overseeing activities at the Tennessee Valley Authority (TVA) Kingston Site (Site) since the initial release of ash in December 2008. Activities at the Site, as well as those at the Arrowhead Landfill (Landfill), are conducted with an emphasis on minimizing airborne exposure. At the Site, air monitoring data continues to show no exceedences of air quality standards. All rail cars leaving the Site are fully lined and the coal ash is completely covered to protect against fugitive air emissions or leakage of liquids during transport to the Landfill. In addition, the coal ash shipped from the Site typically has a 25 to 30 percent moisture content which also minimizes the likelihood of fugitive air emissions. More specifically, the coal ash is contained in what is commonly referred to as a "burrito wrap" while being transported to the Landfill. This "burrito wrap" requires the placing of the coal ash (which has 25 to 30 percent moisture content) in rail cars for transport after each rail car is lined with a large tarp which drapes over the rail car edges. Once the coal ash has been placed inside the rail cars, each end/side of the tarp is folded, tucked, and tied for transport.

After arriving at the Landfill, the rail cars are carefully unloaded and the wraps and the coal ash are transported directly from the rail cars to the Landfill cell where the waste will remain. The moisture content of the coal ash minimizes the risk of fugitive dust emissions during this transfer. In addition air monitoring is conducted at the Landfill for particulate matter, although not required as a condition of the permit issued by the Alabama Department of Environmental Management (ADEM) or EPA regulations as to conduct such monitoring. EPA Region 4 requested available monitoring data from the Landfill and has evaluated these data to determine if air quality issues exist. These data show no exceedences of air quality standards. More current data has been requested.

Question 2. How can individual elements like heavy metals and other toxic substances be listed as hazardous when considered individually, yet considered non-hazardous Solid Waste when contained within Coal Ash?

Answer: The Comprehensive Environmental Response, Compensation and Liability ("CERCLA") uses the terms "hazardous substances" or "pollutant or contaminant" when describing materials which are being addressed in a CERCLA response action, rather than "toxic" or "non-toxic." The coal ash released at the TVA Kingston Site is not currently regulated as a hazardous waste under Subtitle C of the Resource Conservation and Recovery Act ("RCRA") as it is excluded from regulation under Section 3001(b)(3)(A)(i), 42 U.S.C. Section 6921(b)(3)(A)(i). The material does, however, contain measurable concentrations of a number

of hazardous substances as defined under Section 101(14) of CERCLA, 42 U.S.C. Section 9601(14), including arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, and zinc. – which are also considered RCRA hazardous constituents.

The Toxicity Characteristic Leaching Procedure (TCLP) is the analytical method employed to determine the leachability of contaminants from a waste sample and whether it meets the definition of a RCRA characteristic hazardous waste under 40 CFR § 261.24. The TCLP test is designed to simulate landfill conditions to determine if a solid waste might release hazardous constituents in liquid leachates above prescribed concentrations. Under this method, the solid phase of the waste (coal ash in this case) is extracted with an amount of fluid equal to 20 times its weight. As part of TVA's waste profiling process prior to disposal, representative samples of the coal ash were subjected to the TCLP, and determined to be nonhazardous waste as defined under 40 CFR § 261.24 (toxicity) for the hazardous constituents in the coal ash that are listed in Table 1 of this rule. Therefore, disposal of the coal in a RCRA Subtitle D landfill as a nonhazardous waste is appropriate.

Question 3. Are all regulations pertaining to Superfund sites being followed according to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)?

Answer: Pursuant to an Administrative Order and Agreement on Consent (AOC) entered into between EPA and TVA on May 11, 2009, the entire cleanup at the Kingston Site is being conducted in accordance with CERCLA and the National Contingency Plan (NCP). In terms of off-site disposal at the Arrowhead Landfill, the NCP's Off-Site Rule, 40 C.F.R. § 300.440 (the CERCLA Off-Site Rule), requires that before a site is selected for off-site shipment of materials generated as part of a CERCLA response action, EPA must conduct a review of the receiving facility for any relevant violations or releases under any applicable federal or state environmental programs. On January 16, 2008, EPA approved the Landfill for the receipt of CERCLA hazardous substances under CERCLA's Off-Site Rule. It was determined at that time that the Landfill did not have any relevant violations or releases under any federal or state environmental programs.

As required by the AOC, TVA went beyond the requirements of the NCP and performed an "Off-Site Options Analysis" to evaluate all potential options for off-site disposal of the coal ash. EPA then conducted a thorough review of TVA's Options Analysis to ensure that the selected disposal facility was operating in compliance with applicable solid waste management regulations and that potential risks to the community, especially vulnerable populations, were addressed. Specifically, EPA found that:

- the Landfill meets or exceeds all technical requirements specified in the AOC in that it has a composite liner that includes a compacted clay liner and a high density polyethylene liner, a leachate collection system, a 100 ft buffer that surrounds the property, regular groundwater monitoring, financial assurance, and permit provisions for closure and post-closure care;

- the Landfill has the capacity to accommodate the volume of coal ash anticipated to be disposed of from the time critical removal action and prevailed in a competitive bidding process to secure the disposal contract;
- Norfolk Southern has a direct rail line from the TVA facility to the Landfill which minimizes truck traffic and the likelihood of accidents;
- the Landfill is located in an isolated area surrounded by large tracts of property, farms, and ranches approximately 5 miles from Uniontown, the nearest population center; and
- the Landfill is located approximately 250 to 300 feet from the nearest residence.

Question 4. Are the operating permit's groundwater monitoring parameters adequate to protect public health and the environment in Perry County? Without proper regulations concerning disposal of coal ash waste in Alabama, a "verbal" commitment by ADEM to "increased monitoring of the site than usual landfill permitting" is inadequate.

EPA believes that the monitoring parameters specified under the Landfill's operating permit are adequate for protecting public health and the environment. A review of geologic conditions in the area shows that the Landfill is sited on the Selma Chalk Formation, which occupies a belt 20 to 30 miles wide, extending from the western edge of Russell County in Alabama, westward to Selma, then northwestward to the Mississippi line and lying immediately south of the surface terrain of the Eutaw Formation. The Selma Chalk Formation primarily consists of white limestone and chalk of low permeability. The Landfill is constructed on top of this thick geologic bed of chalk. Underlying the Selma Group is the Eutaw Formation, which consists of gray glauconitic fine to medium sand. The Eutaw Formation represents the uppermost aquifer underlying the facility. The Selma Group serves as the confining layer for the aquifer (Eutaw formation).

Five groundwater monitoring wells (GWM-1 - GWM-5) were set to intersect groundwater approximately 500 - 600 feet below ground surface (in the upper portion of the Eutaw Formation). Three wells (GWM-15 - GWM-17) were set to intersect shallow groundwater in the Selma Group Clay and chalk near the ground surface (within 25 feet). See "Report of Water Quality Result, Baseline Sampling Events (N1-N4)," August 24, 2007. The groundwater quality monitoring system, approved by ADEM, consists of these eight groundwater monitoring wells. Two hydrologically upgradient groundwater monitoring wells are tested for background conditions at the Landfill. Six monitoring wells are tested for groundwater conditions downgradient from the Landfill. Groundwater in the three shallow wells (GWM-15 - GWM-17) is generally a seasonal feature, as these wells are typically dry during periods of low precipitation.

Alabama Administrative Code (Code) R. 335-13-4-.27 provides the requirements for groundwater monitoring and corrective action at municipal solid waste landfills (MSWLFs). Groundwater monitoring requirements are specifically listed under Code R. 335-13-4-.27(2) and the groundwater monitoring requirements (i.e., the parameters and frequency) set forth in the ADEM-issued solid waste disposal facility permit for the Landfill meet these requirements. The ADEM-issued permit is also at least as stringent as the requirements established in the Resource Conservation and Recovery Act (RCRA) Subtitle D regulations in 40 C.F.R. Part 258 with one

addition: ADEM requires analysis for mercury, a constituent not included in 40 C.F.R. Part 258, Appendix I. The Landfill currently monitors groundwater for sixty-three constituents as required by its operating permit and Alabama Administrative Code R. 335-13-4, Appendix I. The Permit was issued on July 6, 2006, and was most recently amended on July 20, 2009.

Alabama's regulations require in Code R. 335-13-4-.27(2)(j)-(k) that the owner or operator establish background groundwater quality at hydraulically upgradient or background wells(s), and that the number of samples collected to establish groundwater quality data must be consistent with appropriate statistical procedures. These statistical procedures must be specified in writing to ADEM and include the details used in evaluating groundwater data (Code R. 335-13-4-.27(2)(l)). The owner or operator must determine and certify in writing to ADEM if there is a statistically significant increase (SSI) over background levels for each parameter evaluated (Code R. 335-13-4-.27(2)(n)). In determining whether an SSI has occurred, the owner or operator must compare the groundwater quality of each constituent to the background value according to the specified statistical procedures and performance standards (Code R. 335-13-4-27(2)(n)(1).

The purpose of performing a statistical analysis in accordance with the performance criteria specified in Code R. 335-13-4.27(2)(m) for statistical analysis of groundwater data is to determine if a release of leachate has occurred from the landfill cells to the groundwater at the site. The outcome of any statistical test is judged to be statistically significant or non-significant. A SSI is determined by a specified, accepted method of statistical analysis. "A [SSI] (the kind of result typically of interest under RCRA detection and compliance monitoring) represents an observed increase in concentration at one or more compliance wells. . . . . What constitutes a statistically significant result depends on the phase of monitoring and the type of statistical test being employed. "*March 2009 Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities—Unified Guidance*" which can be found at http://www.epa.gov/osw/hazard/correctiveaction/resources/guidance/sitechar/gwstats/unified-guid.pdf. If an SSI over background water quality is detected for one or more of the constituents in Code R. 335-13-4, Appendix I, the facility must notify ADEM within 14 days (Code R. 335-13-4.27(4)(n)).

Groundwater samples were collected at seven groundwater monitoring wells (two upgradient background wells and five monitoring wells as one was purged dry before sampling and there was no recharge) on March 3, 2009, at the Landfill. The groundwater samples were analyzed for Code R. 335-13-4, Appendix I parameters. Laboratory analysis of the groundwater samples detected concentrations of total barium in each of the seven wells sampled, acetone in one background and two monitoring wells, and 2-hexanone in one background well. No concentrations were detected above ADEM's maximum concentration levels (MCLs). The report dated May 15, 2009, *Report of Groundwater Quality Results and Statistical Analysis,* submitted by Hodges, Harbin, Newberry & Tribble, Inc., Consulting Engineers, relaying this information, stated that the source of acetone and 2-hexanone detections was very likely the black steel risers that make up the casing of the monitoring wells.

The May 2009 statistical analysis indicated a calculated SSI for total barium in two wells. Statistical analysis for acetone and 2-hexanone did not indicate a SSI. ADEM reviewed the data

and prepared an internal memo, Review of Groundwater Reports, dated August 19, 2009. In regard to the SSI for total barium, the memo stated that additional samples should be collected in the future to validate the sample results and to determine whether a SSI for total barium had in fact occurred.

Groundwater samples were taken again on September 15, 2009. The laboratory analysis indicated detectable concentrations of total barium (in all eight wells), acetone (one background and four monitoring wells), carbon disulfide (one monitoring well), and 2-hexanone (one background well). These results are reported in the October 8, 2009, *Report of Groundwater Quality Results and Statistical Analysis,* submitted by Hodges, Harbin, Newberry & Tribble, Inc., Consulting Engineers. No concentrations were above ADEM's MCLs. Moreover, the statistical analysis performed did not indicate SSI's for these constituents. Therefore, in an internal memo dated November 24, 2009, ADEM recommended that the facility continue regular detection monitoring.

Nine separate groundwater sampling events have been recorded at the Landfill. On each occasion, eight monitoring wells were sampled (except on those occasions when a well was dry). The first four sampling events were conducted in June and July 2007 as baseline sampling events to provide groundwater quality data prior to the opening and operation of the Landfill. Groundwater monitoring reports on each of the nine groundwater sampling events are among the many documents posted on the ADEM efile website. The first four events were reported in a single baseline monitoring report. Each of the remaining five sampling events were reported in five semi-annual groundwater analysis reports. Documents are available for viewing or downloading at http://edocs.adem.alabama.gov/eFile. The Landfill continues to perform groundwater monitoring in accordance with their permit.

Question 5. How can the Perry County Landfill be found in compliance of "all applicable State requirements" and "does not currently have any relevant violations..." when it is discharging leachate without a required state permit to the Marion Wastewater Treatment Plant without a required state permit and when that plant that has been in violation of its NPDES Permit No AL0023809 since August 2003?

Answer: With respect to the requirement for the Landfill to have a permit for its discharge of leachate to a publically owned treatment works (POTW), ADEM does not typically require and/or issue State Indirect Discharge (SID) permits to landfills for discharges of leachate to a POTW. However, ADEM's regulations specifically require SID permits for all "significant industrial users," as defined in Alabama's Administrative Code R. 335-6-5-.04(2). "Significant industrial users" include those users that discharge an average of 25,000 gallons per day (gpd) or more of process wastewater to a POTW. "Significant industrial users" also include those users that are determined by ADEM to have a reasonable potential to adversely affect the operation of a POTW.

The Landfill's monthly average leachate volume has been historically below the significant industrial user gpd threshold. However, the monthly average volumes transported during recent wetter months have occasionally exceeded the threshold, specifically in September 2009 (28,339

gpd, monthly average) and November 2009 (55,963 gpd, monthly average). These volumes indicate that the monthly averages may be increasing to an extent that a permit would be required for the Landfill to routinely discharge all of their leachate to one POTW. Consequently, ADEM sent the Landfill a request for a SID permit application on November 17, 2009. ADEM has since received permit applications from the Landfill to dispose its leachate at one or more wastewater treatment plants (WWTPs). (Note that as of December 4, 2009, the Landfill ceased sending its leachate to the City of Marion WWTP.) Among the information provided in the permit applications was a comprehensive analysis of the leachate's constituents, including all NPDES priority pollutants, heavy metals and organic chemicals. If ADEM deems necessary, ADEM will also request additional leachate monitoring data as part of its review of these applications.

For any SID permit to be issued to the Landfill, the process would include ADEM's provision of a draft permit to the Landfill, followed by a period of thirty (30) days for the Landfill and wastewater treatment facility to submit comments to ADEM for consideration before a final SID permit is issued or the permit request is denied. Copies of any draft permits that have been issued, as well as supporting information, can be obtained by the public directly from ADEM.

ADEM is approved to implement the RCRA Subtitle D program and has included conditions in the Solid Waste Disposal Facility Permit issued to Perry County Associates, LLC, for the Perry County Associates Landfill on July 6, 2006, regarding leachate management requirements. The permit requires the permittee (Perry County Associates, LLC) to collect and dispose of any leachate that is generated at the facility, and the leachate must be managed at a facility permitted to treat leachate. The permit also grants permission for leachate recirculation. ADEM, as part of its responsibilities in managing the RCRA Subtitle D program, has sent a letter dated February 8, 2010, to Perry County Associates, LLC, requesting a description of the leachate management procedures at the Landfill, including the leachate recirculation process currently utilized, all current leachate disposal locations, and any proposed management options currently being evaluated. ADEM has also requested that any information on actual or anticipated quantities of leachate managed by multiple processes or disposal locations be included in the response due to ADEM by February 12, 2009. EPA intends on reviewing the information obtained by ADEM.

EPA has recently received information from a citizen alleging direct off-site discharges of untreated leachate from the Landfill. EPA is coordinating with ADEM to investigate these allegations and to ensure that there have been no violations of the Landfill's stormwater general permit.

Question 6. Why has the hydrological characterization of the landfill site not received careful scrutiny before millions of tons of hazardous substances were allowed to be added to the landfill, particularly in view of evidence that monitoring wells contained elevated levels of pollutants?

Answer: The hydrological characteristics of the Landfill have been evaluated by ADEM. Alabama is approved to implement the State's solid waste permit program and the Landfill was permitted by ADEM to operate as a solid municipal waste landfill on July 6, 2006, more than two years prior to the TVA coal ash release. As part of that permitting process, ADEM reviewed the hydrogeologic conditions and required a detailed geologic analysis of the Landfill site.

EPA also engaged in a review of the Landfill during its evaluation of TVA's Off-Site Options Analysis which was required to be submitted pursuant to the May 11, 2009 AOC. Additionally, EPA required that landfills considered for off-site disposal of the coal ash include the use of a synthetic landfill liner, a leachate collection system, groundwater monitoring, financial assurance, and closure and and post-closure care.

Question 7. Why do operating permit's post-closure requirements fail to require at least 30 years of post-closure monitoring to protect the residents when Perry County Associates are long gone?

Answer: ADEM's permit conditions for the Landfill do include a minimum 30-year post-closure monitoring requirement, as required under Alabama Administrative Code R. 335-13-4-20(3), which also provides the director of ADEM with the authority to decrease or increase this requirement. This is consistent with federal requirements. ADEM, to date, has not reduced this requirement.

Question 8. Are Solid Waste Disposal Act regulations being enforced and is the coal ash waste being "stored separately from the other material there" as reported in Mr. Tom Kilgore's written statement on July 28, 2009 before this committee?

Answer: The Solid Waste Disposal Act regulations are enforced by ADEM. ADEM regularly inspects the Landfill and, to date, ADEM has not identified any enforcement violations at the facility.

Regarding the disposal of the coal ash, the Landfill places the ash in a designated area segregated by a soil barrier from other waste materials and identifies and documents these locations using global positioning system coordinates and elevations. All rail car lining systems are considered waste and are disposed of along with the coal ash at the Landfill. Coal ash is currently being applied as a daily cover over the ash cell. The Landfill's operating permit also allows for the use of coal ash as an alternative daily cover in lieu of soil cover over municipal waste, although the Landfill is not currently using an ash cover over municipal waste. The permit requires that a coal ash cover be applied in a six-inch thick blanket in a manner similar to soil and consistent with ADEM rules. Coal ash, as required in the permit, is not to be used during rainfall events or on exterior slopes where run-off from the coal ash could leave the cell. All rainwater run-off from the coal ash is required to be contained within the lined cell.

Question 9. Are all Clean Air Act regulations being enforced and monitored to protect public health from exposure?

Answer: Although the Landfill is not required by ADEM's operating permit or EPA regulations to monitor for particulate matter, it is conducting particulate matter air monitoring for informational purposes. The monitoring at the Landfill is for airborne particulate matter less or equal to 10 microns (PM_{10}). This is an inhalable particle smaller than, or equal to, 10 micrometers in diameter (approximately 1/4 the size of a single grain of table salt). EPA Region

4 has requested the air monitoring data from the Landfill to review, and once received will be made available to the public upon request.

Question 10. Why has this not been identified as an Environmental Justice issue with extra agency support to local communities? When waste is being collected in a mostly affluent, white Roane County and being disposed in a mostly poor, African- American Perry County, this action should be labeled the injustice that it is.

Answer: See response to Question 11.

Question 11. Have EPA, ADEM, TVA, and Perry County & Associates attempted to alleviate all concerns and questions to Perry County citizens who continue to suffer through the worst environmental disaster in US history?

(Questions 10 and 11 are answered below).

Answer: Prior to selecting the Landfill as the disposal site for the coal ash being removed during the time-critical removal action, TVA performed an Off-Site Options Analysis to evaluate potential disposal options. Both EPA and TVA considered environmental justice issues in making a decision under the Options Analysis (which is discussed more in our answer to Question 3) and EPA consulted with its Office of Environmental Justice regarding these issues. Prior to approving the Landfill as the disposal site for the ash being removed from the Emory River, EPA conducted a thorough review of TVA's Options Analysis to ensure that the selected facility is operating in compliance with solid waste regulations and that potential risks to the community, especially vulnerable populations, were addressed.

EPA conducted outreach, and continues to conduct outreach, in the Perry County community to engage residents and local leaders to ensure that they are aware of the disposal plan and any possible risks associated with the material being disposed. EPA management worked closely with elected officials in Perry County and Uniontown, who support the decision to use the Landfill as a disposal site for coal ash being removed from the Emory River. To date, EPA has held two public meetings in Uniontown (June 24, 2009, and September 16, 2009) to both inform the community of the disposal plan, and to hear and respond to community questions and concerns. The September 16, 2009, event was also attended by representatives from ADEM, the Landfill, and local community leaders. A third public meeting is currently being planned.

Though time-critical removal actions were necessary to begin immediately, the public has been, and continues to be, invited to comment as work proceeds. For longer-term response actions, including the removal and disposal of the remaining 2.4 million cubic yards of ash from other tributaries and surface areas from the Site, EPA will engage in public consultation and will provide an opportunity for community feedback on proposed actions before decisions are made. EPA is currently providing such opportunity for community feedback during the Engineering Evaluation/Cost Analysis (EE/CA) process which was released for public comment on January 19, 2010.

Question from Congressman Hare

Question: Is coal ash being used as cover material for only the coal ash cell or is it used to cover any cell at the Landfill?

Answer: The Solid Waste Disposal Facility Permit for the Landfill issued by ADEM includes cover requirements. Coal ash is currently being applied as a daily cover over the ash cell. The Landfill's operating permit also allows for the use of coal ash as an alternative daily cover in lieu of soil cover over municipal waste, although the Landfill is not currently using an ash cover over municipal waste. The Permit requires that coal ash be used in a six-inch thick blanket in a manner similar to soil and consistent with ADEM rules. Coal ash, as required in the permit, should not be used during rainfall events or on exterior slopes where run-off from the coal ash could leave the cell. All rainwater run-off from coal ash shall be contained within the lined cell.

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
December 9, 2009

Chairwoman Johnson, Ranking Member Boozman, and members of the Committee, I appreciate this opportunity to provide an update to you on the progress we are making following last year's coal ash spill at the Tennessee Valley Authority's (TVA) Kingston Fossil Plant. As your hearing title notes, we are approaching the one year mark since the spill occurred on December 22, 2008.

Since my first appearance before this committee on March 31, 2009, I am pleased to report on our continued progress in the recovery at Kingston and to provide an update on our efforts with the Roane County community. In addition, I want to give you a progress report on our work at TVA's other coal ash impoundments. As I mentioned at this committee's second Kingston hearing on July 28, we are incorporating numerous lessons learned from Kingston in our work at our other fossil facilities.

Since the spill occurred, our commitment has not wavered – to clean up the spill, protect the public health and safety, and to restore the area. We have also continued to look for opportunities, working closely with the leaders and residents of Roane County, to make the area better than it was before the spill. We are deeply grateful to the community for their patience and support, and regaining the public's trust is important to all of us at TVA.

Now, at this one year mark, our focus is on the future – cleaning up the land and water, working with the community, providing health assessments, supporting independent scientific research, and setting TVA on a course to be an industry leader in ash management. In addition, we have placed a high priority on strengthening our internal accountabilities and organizational effectiveness. First, I would like to begin with an update on our progress at Kingston.

This Year's Recovery Progress and Plans

Since December 22, 2008, TVA crews and contractors have worked diligently at the site on recovery operations. The oversight of the U.S. Environmental Protection Agency (EPA), along with the Tennessee Department of Environment and Conservation (TDEC), has been crucial to this effort, and we are grateful for their involvement.

EPA and TVA deemed as 'time critical' the removal of three million cubic yards of ash from the main channel of the Emory River. Dredging operations, a plan approved by EPA and TDEC, began on March 19, 2009. We are on an aggressive schedule, and currently averaging the removal of around 15,000 cubic yards a day. At times this year, rain has impeded our progress, although after a three-year drought in the Tennessee Valley, the abundance of rain we've had over the last few months has been a welcome sight.

To date, about two-thirds of the time-critical ash – just over two million cubic yards – has been removed by dredging and excavation. This is a good milestone for us, and we are on track to have the ash removed from the river by the spring of 2010.

The ash recovered from the river is then loaded on trains for transport to the Arrowhead Landfill in Perry County, Alabama. The Arrowhead Landfill is a state-of-the-art, fully permitted, state-regulated, Subtitle D municipal solid waste landfill, operating since 2007. The Arrowhead Landfill meets and exceeds EPA's requirements for municipal landfills, as adopted by the Alabama Department of Environmental Management (ADEM). Both TVA's use of the Arrowhead Landfill and our rail transportation plan were approved by EPA.

As of November 30, 106 trains had left the site carrying over 970,000 tons of ash. Careful loading, handling, and transportation procedures, special rail-car liners, along with the right ash-moisture content, help to make sure that the ash dust does not leave the train cars along the rail route.

Once the ash is unloaded from the train at Arrowhead, the cars are thoroughly cleaned before leaving the property. TVA has two quality-control contractors at the landfill to provide oversight.

We have also come to know Perry County and the city of Uniontown in particular. TVA management visits Perry County on a regular basis, both to make sure the landfill operator is in compliance and to hear any concerns from the local community. We value a good working relationship with local officials and the county's residents, and meet often with local officials. EPA and ADEM officials are also in frequent contact with the Arrowhead Landfill, conducting their own inspections and staying in touch with local officials. About 57 Perry County residents have been hired by Arrowhead to assist in the management of fly ash disposal at full production.

As ash continues to be removed from the Emory River, we are planning the next important step, removing the non-time critical ash that remains in the northern slough and on land. The preparation of the Engineering Evaluation/Cost Analysis (EE/CA) work plan is underway, and will serve as the basis for our work going forward. The public comment period on the EE/CA closes later this month.

Our plan is to complete the EE/CA process by spring 2010 so there is no gap between completing the time critical ash removal and subsequently moving to non-time critical ash removal. In other words, our goal is keep a seamless process in place as we move from one aspect of the recovery operation to another.

All of the options currently being evaluated in the EE/CA include the removal of all ash from the river, northern slough and the land, in keeping with our commitment to restore the area to its natural state as it was before the spill. TVA currently estimates the removal of non-time critical ash will be complete in 2013.

In addition to the recovery operation, there is a great deal of other activity at the Kingston site as our new scrubber is set to come on-line in the near future. This state-of-the-art air emission control is part of TVA's on-going commitment to clean air improvements, and will lower sulfur-dioxide emissions at Kingston by more than 95 percent. We are also in the process of planning for conversion to dry fly-ash storage at the site.

Commitment to Our Neighbors in Roane County

TVA has been part of the Kingston community for over 50 years, and we value our neighbors. We have worked hard to rebuild public trust in the wake of the spill and hope that our actions throughout this past year have demonstrated a genuine commitment to Roane County.

Most of all, we appreciate the community working with us over the past year. We've learned many valuable lessons from our neighbors, and we welcome their input and involvement. For those who live in the immediate vicinity of the site, we have worked to mitigate as many of the inconveniences as possible with a recovery operation of such a large scale and scope. The cooperation and support of our neighbors has meant a great deal to us.

Within the first month following the spill, 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, and based on property values as of December 21, 2008, prior to the spill. TVA's property purchases are nearing completion, with 150 pieces of property purchased, a total of about 601 acres.

Some area residents, and even some people well outside of Roane County, have decided that legal action is how they should deal with TVA and the ash spill. TVA will continue to defend itself against these lawsuits. We have an important balance to maintain here. We must, and will, continue to clean up the spill and ultimately restore the area. At the same time, we must be responsible to all TVA ratepayers in defending against lawsuits. With that balance, we can do the right thing for those impacted and defend against those who would take advantage of the situation.

We've held public meetings throughout the year to keep Roane County residents informed and to address their questions and concerns. Our most recent open house was held on October 1. A Community Advisory Group (CAG), formed in August, is active and meeting on a regular basis with EPA and TVA officials. At the suggestion of those who live in the vicinity of the site, we've added a joint monthly availability session for the public, which includes representatives from EPA, TDEC and TVA. The first joint availability session was held on November 10, and the second is scheduled for December 8.

TVA officials provide updates to the Roane County Long Term Recovery Committee along with county commission and city council meetings in Kingston and Harriman. The public may access the Administrative Record of the ash spill recovery documents at TVA's Outreach Center and the local libraries in Kingston and Harriman. The public has been invited and encouraged to comment on the draft Community Involvement Plan which outlines TVA's plan for working with local residents on recovery activities. TVA's website is continuously updated with Kingston information, and we are currently issuing our second "Report to the Community," which will be mailed to every household in Roane County.

There have been times when we have changed course as a result of the community's feedback. Most recently, we heard concern expressed about TVA's plans to build an overlook on Swan Pond Road where members of the public might safely view the Kingston site. Unfortunately, we caught nearby residents by surprise on these plans, and TVA listened hard to their concerns and objections. As a result, we have modified our plan for the overlook. It will have a locked gate and be used only for operational purposes and scheduled visits, minimizing traffic or other potential disruptions to the neighborhood. We have received positive feedback about this approach.

We have also received questions from our neighbors about other operational activity at the site. Local residents took note when TVA conducted a test burn of coal on September 18 at the Kingston Fossil Plant. The test, which was within our regulatory permits, involved using a different type of coal in preparation for the new scrubber coming on line at the plant. That day, residents saw large snow-like flakes in the air and were concerned about what was coming from the plant. While we worked quickly to respond and provide answers, coordination and communication from the plant would have eliminated alarm and confusion.

Another visible emission occurred a few weeks later when TVA tested the scrubber equipment. Although the scrubber was not operating, there were water-vapor emissions that day, which is not unusual in these operations. Once again, some residents were concerned by what they saw. The emissions were not harmful, but the incident underscored the need to keep both our neighbors and our regulators informed on both our recovery efforts and other operational activity at Kingston.

TVA's restoration effort in Roane County addresses not only the physical clean-up at the Kingston site, but also the economic development needs of the community. TVA's support for economic development priorities in the county and its communities is an important part of our commitment to the area's long-term development.

On September 14, TVA and Roane County's elected leaders announced the establishment of the Roane County Economic Development Foundation. As part of our response to the spill, TVA has committed just over $40 million to the foundation for locally identified projects. The Foundation's Board is comprised of four local elected officials along with four representatives from TVA.

To date, the Foundation has approved funding for infrastructure capital projects, with a significant commitment for school improvements to strengthen the county's public education system. Other improvements in water and sewer systems will enhance the quality of city services, and support for a capital project in downtown Harriman will help to revitalize the community's downtown.

On November 20, we hosted a day-long event for suppliers and vendors within a 50 mile range of Kingston. Co-hosted by TVA's Supply Chain and Economic Development organizations, the day's sessions brought together representatives from 29 different businesses and industry to learn more about opportunities to do business with TVA. This event was part of TVA's commitment to provide additional economic development opportunities to Roane County and the surrounding area. TVA has made every effort, where possible, to utilize the goods and services of local vendors during the recovery project. Roughly half of what we had spent on recovery efforts at the end of this past fiscal year had been paid to suppliers located in Tennessee.

Important Initiatives in Public Health and Safety

The health and safety of the people living near the Kingston site and for our employees working at the site are the highest priority to TVA. In March, I reported to the committee that TVA was contracting with Oak Ridge Associated Universities (ORAU) to provide community members and the local medical community with access to medical and toxicology experts.

Although state health authorities and the EPA have said that they have not seen evidence that the ash spill is posing health problems for nearby residents, TVA is providing independent, confidential medical evaluations as a precaution for Kingston-area residents who believe their health may have been affected in some way as a result of the ash spill.

ORAU, working with physicians from Vanderbilt University Medical Center, has received health screening requests from more than 260 area residents. A medical toxicologist from Vanderbilt has briefed Roane County physicians who are performing the initial data collection using X-rays, blood work and pulmonary function tests. A Vanderbilt toxicologist began examining residents and reviewing laboratory data in September.

ORAU has developed educational materials for the medical community and the public, which may be accessed at their website, www.orau.org/kingstonproject. Area healthcare providers have received a notebook, "Kingston Project: Background for Healthcare Providers," compiled by ORAU with input from the Tennessee Department of Health and Vanderbilt Medical Center. This document is also on the ORAU Kingston Project website.

In addition, TVA is providing ORAU $1 million a year over three years to encourage independent, peer-reviewed research that will help everyone better understand the properties of coal combustion by-products and develop technology for using them. This includes identifying alternative ways to contain, handle, and process by-products, characterizing their properties so that more by-products can be reused, and better understanding the effects of coal fly ash releases into the environment. Eligibility for this funding has been open to colleges and universities, research institutions, private companies and qualified individual researchers.

ORAU has managed the independent proposal review, and has completed the initial screening of proposals. 173 pre-proposals were received; 83 were selected to provide a full proposal which was due on November 30. ORAU tells us they hope to announce selections in mid-January. A second RFP will also be issued through ORAU in the coming weeks for demonstration technologies of ash utilization.

The safety of our employees is paramount for us. A partnership between TVA, the Tennessee Valley Trades, and TVA contractor partners has been formed at the Kingston site, known as the Tri-Lateral Safety Alliance. The alliance's goal is to create a work environment in which all employees take ownership of safety to eliminate at-risk behaviors and achieve zero-accident performance without fear of retribution.

Critical programs that support safe work practices are tiered from a Site-Wide Health and Safety Plan. For each task, a Job Safety Analysis is performed to identify potential hazards and the controls necessary to minimize them. Workers are trained to identify any unsafe working conditions or unsafe acts they might observe. Although our operations are large in size and scope, nothing is more important than a continuous emphasis on the need for safety as we approach each and every task on the Kingston recovery project.

Consistent Environmental Monitoring Results

TVA, in cooperation with EPA and TDEC, continues to monitor air and water in the Kingston area, and we're pleased to report that results remain good and consistent.

There are five fixed location monitoring stations around the perimeter of the plant and spill site, and one off-site monitor collects background levels. All of the air samples collected through

EPA-approved methods indicate that air quality is better than the National Ambient Air Quality Standards (NAAQS). Importantly, samples that have been sent for chemical analysis in order to detect potentially harmful and damaging materials known to be in coal ash, such as arsenic, have shown no harmful levels.

TVA began air monitoring within a few days of the spill last December with portable hand-held instruments, measuring particulates smaller than 10 microns. Up to 400 readings have been collected daily, and more than 140,000 measurements have been collected within five miles of the site. While there is no standard for comparison for these 'instantaneous' readings, TVA typically compares the results of these readings to NAAQS, which is a 24 hour average. All of the daily averages have also shown air quality better than NAAQS.

EPA, TDEC and TVA continue to collect and assess water samples from public drinking-water supplies, private wells, surface water, multiple locations downstream, and local springs. All sample results for four area water systems – Rockwood, Harriman, Cumberland, and Kingston – continue to meet drinking-water standards. The public water intake at Kingston is sampled and analyzed daily by the city and twice each week by TDEC. TDEC also samples the Rockwood treatment plant intake twice each week. Private drinking water wells within a four-mile radius of the spill have been tested by TDEC. Nearly 100 wells have been tested, and results to date have not indicated any exceedances of the primary drinking water standards for metals.

TVA is also conducting a variety of biological sampling in the vicinity of the spill. These studies are designed to measure potential exposures and effects of ash-related constituents, with both field surveys and laboratory bioassays. Animals that have been sampled include a variety of fish, frogs and toads, muskrats and raccoons, snapping turtles, and eggs of birds that consume fish, insects, and vegetation.

In order to review the initial results of various scientific studies underway as a result of the Kingston spill, TVA requested a poster session be added to the Society for Environmental Toxicology and Chemistry (SETAC) annual conference, held last month. 13 poster papers were presented at this session, including the work of recognized authorities from EPA, U.S. Geological Survey, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, Oak Ridge National Laboratory, Duke University and Appalachian State University, to name a few.

Consistently, the results reported from the studies thus far show no preliminary indications of any significant impacts on either water quality in the rivers, or on the fish, birds and other organism's living in the vicinity of the spill. Elevated levels of a few contaminants have been observed where standing water is in contact with the ash.

These results are promising, and TVA will continue to investigate ecological pathways for any possible effects of fly ash contaminants, including longer-term effects from possible bioaccumulation. Several of the studies reported at the SETAC conference will serve as key components of this ongoing work. In March 2010, TVA will host a research symposium at Roane State Community College to focus on research being conducted or planned at the Kingston site. The symposium will identify research priorities and gaps, facilitate exchanges between researchers, and inform the public about these studies on the area's aquatic and biological health.

Steady Progress on Impoundment Improvements

The events of last December forced TVA to take a long, hard look at ourselves. The TVA Board tasked us with important work at their July meeting, and their vision has been instrumental in charting our course for the future. I told our employees back in July, we have some tough medicine to take, but by taking it, we will make ourselves better. That's exactly what we're doing, starting with a commitment to be an industry leader in ash management.

In early January, we contracted with Stantec of Lexington, Kentucky to conduct a third party assessment of our facilities. The initial two phases of Stantec's work were designed to inspect, test and make recommendations on ash and gypsum disposal facilities at all of our fossil plants. Since that time, we have worked aggressively to implement Stantec's recommended maintenance and engineering changes.

We also created a new organization to heighten our management focus on storage facilities. Responsibility for all storage impoundments and the Kingston recovery project is now consolidated in a specific organization, Clean Strategies & Project Development, reporting directly to our Chief Operating Officer.

Stantec has completed intrusive investigations at our sites. The initial geotechnical drilling and instrumentation installation of 625 subsurface borings represents over 37,000 linear feet of total footage bored. We have installed 342 piezometers (to measure water levels) and slope inclinometers (to detect any slope movement) at 10 sites, with one remaining site to be complete by the end of February, 2010.

Forty-five work plans have been issued that remediate or improve stability of the impoundments. Of those, 31 have been implemented, and the remainder is in progress. In implementing these plans, 244,000 tons of rock have been applied to increase road and slope stability. Over 27,000 cubic yards of trees and vegetation have been removed to allow for better visual inspections of dike crest and slope conditions. Stability analysis is complete for nine impoundments, and the remaining analysis will be done by May 30, 2010.

TVA personnel who operate, inspect, and maintain the impoundments have completed a comprehensive training program designed to increase awareness of dam failure modes, provide an understanding of what to look for in their daily work, and to recognize structural distress. This training module for about 300 employees was completed in September. As public safety officers, the TVA Police also received this training.

From the committee's July hearing, you will recall that we reassessed the potential hazard classifications of our wet storage impoundments using National Dam Safety Guidelines. We then preliminarily reclassified impoundments at four of our plant sites as having "High" hazard potential, and an initial breach analysis has been completed at those four sites. (It is important to note that a "High" hazard classification is based on the possible consequences if an impoundment fails and is not an assessment of the structural integrity of an impoundment or the likelihood that the impoundment will fail).

Along with Stantec's ongoing work, TVA personnel inspect all of our active ash disposal areas on a daily, weekly, monthly and quarterly basis. Annual inspections for all impoundments will be performed by Stantec in 2010 and TVA's Dam Safety experts will conduct the annual inspections beginning in 2011.

Another step in our commitment to be an industry leader in the management of coal combustion by-products came in August, with TVA's proposal to convert our six coal-burning plants currently using wet fly-ash handling systems to dry systems. (The remaining five in our fleet of 11 coal-burning plants already have dry fly-ash handling systems). All 11 of TVA's coal-burning plants use wet bottom-ash systems, and those will also be converted to dry storage. This proposed program would build four gypsum dewatering facilities and close 18 existing ash and gypsum ponds. All of the plans are subject to completion of required environmental reviews and obtaining needed regulatory approvals. Importantly, this plan will enable us to eliminate the classification of any TVA impoundment as a high-hazard risk.

This capital program also resides under the supervision of the Clean Strategies & Project Development organization. The projected cost of the plan over 8 to 10 years is $1.5 billion to $2 billion. In Fiscal Year 2010, TVA has budgeted $181 million to begin work. At Kingston, dry fly-ash conversion work is underway. An underground survey of the site, along with soil borings, has been completed, and long lead-time procurement has been initiated. Construction is expected to begin in spring 2010, with dry fly-ash storage operational in late 2011.

Improving Our Performance across TVA

In addition to these initiatives related to ash management, the TVA Board tasked us with other important initiatives in their July Board resolution, and I would like to briefly update you on each of those, and highlight our Organizational Effectiveness Initiative (OEI).

The TVA Board specifically tasked us with the development of an Enterprise Risk Management (ERM) system that identifies top financial and non-financial risks. Our ERM system, already in place prior to the spill, has now been strengthened even further. Plans will be reviewed with ERM to cover environmental, health and safety compliance and to ensure design functions, operational procedures and maintenance practices help prevent undetected risks.

The Board also directed us to set up a Situation Alert Process to inform the TVA Board, executives and other management of incidents that could have a significant impact on TVA. This process is now in place to complement our existing public notification processes. We also have an internal initiative underway to integrate TVA's emergency response plans and make them NIMS compliant. Training modules are available to employees who would be responsible for various aspects of emergency responses.

A Corporate Governance & Compliance organization has been created, as a complement to the Office of the Inspector General's audit function, to ensure that TVA's programs, activities and functions use best practices or established standards.

And finally, we now have underway an agency-wide organizational effectiveness plan, focused on change management, performance, and compliance. I have told our employees that we must improve our performance at every level in TVA. This will continue to be a high priority for us as we rebuild and refocus our internal culture committed to systems, controls, standards and accountability, and begin an overall effort to address legacy culture challenges.

The Organizational Effectiveness Initiative is led by the Corporate Governance & Compliance organization, and we have engaged McKinsey & Company to provide additional industry expertise. As priorities, the OEI will specifically address seven organizational elements:

1/ Governance and accountability, 2/ Organizational structure, 3/ Operating policies and procedures, 4/ Skill sets and institutional capabilities, 5/ Rewards and recognition, 6/ Change-management effectiveness and 7/ Ongoing communications.

We anticipate that the design process will take about five months, and improvement initiatives will begin soon with pilot projects in both the Fossil and Nuclear organizations. While the OEI is likely to last 18 to 24 months, the real key for us will be to learn from this experience, and build a culture of accountability and high performance, ready to meet challenges head on and prepare for future business needs.

This initiative also gives us the opportunity to rebuild trust with the people we serve -- one step at a time. I want to challenge the culture at TVA, so that we will never again miss the warning signs that occurred over the years at Kingston. Simply put, our goal is to be recognized by our customers, employees and Valley stakeholders as a great company.

Commitment to TVA's Mission and the Future of the Tennessee Valley

In the days following the Kingston spill, I said that TVA would fix Kingston and we would fix it right. I hope that our progress to date and our plans for the coming months demonstrate that commitment. Clearly, the Kingston spill and a tough economy combined have overshadowed other happenings at TVA this year. Much of our focus, and rightfully so, has been on recovery operations and community efforts surrounding the spill. But it's important to note that TVA has continued, even in this difficult year, to plan for the future as we strive to have fifty percent of our generation portfolio be clean energy, zero or near-zero carbon emission sources, by 2020.

We are currently looking at future power resource options with an Integrated Resource Plan underway entitled, "TVA's Environmental and Energy Future." The planning process includes an active stakeholder group and numerous opportunities for public input.

We have recently contracted for 450 megawatts of wind power from North and South Dakota, and we will continue to seek other cost-competitive renewable generation options. At our Watts Bar Nuclear Plant, a second nuclear unit is under construction – the only one in the country – and scheduled to be on-line in late 2012.

TVA continues its commitment to one of the nation's most aggressive clean-air programs, with an investment to date of over $6 billion to reduce emissions and improve the region's air. We have numerous initiatives underway with various partners that involve other technological innovation – from electric cars and solar charging stations to smart grid implementation.

Our energy efficiency and demand response programs, conducted with TVA's distributors, exceeded their goal this year. Summer peak power demand was reduced by 208 megawatts in 2009, surpassing the program's goal of 189 megawatts for the year. This is a significant step as TVA continues to work toward achieving its long-term goal of a peak demand reduction of 1,400 megawatts by 2012. We will continue to work closely with the distributors of TVA power to expand and develop programs that will help people in the Tennessee Valley save energy and money.

TVA is testing building techniques, technologies and household appliances at three experimental houses over the next three years to learn more about how cutting-edge residential construction impacts energy efficiency. The three houses, located in Knoxville, Tennessee, are

the equivalent of a test laboratory, and our partners in this project come from both the public and private sectors.

Like the rest of the country, the Tennessee Valley is not immune to the current tough economic conditions. Working with our partners in the seven states we serve, TVA's economic development efforts in 2008 helped to attract or retain 42,000 jobs with $5.5 billion in capital investment. *Site Selection* magazine named TVA one of the nation's top utilities for the fourth year in a row, and we are especially pleased that *Site Selection* noted that TVA has helped to attract 'high impact projects' for a 'low carbon economy.' In these difficult times, we will continue to work with local governments and industry to attract and retain jobs and grow economic opportunity in the Valley.

We appreciate the oversight of this committee and the opportunity to provide this report on our progress both at Kingston and across TVA. All of us at TVA deeply regret what occurred last December 22, but you have our continued commitment to clean up the spill, do it right, and take heed of the lessons learned as we move forward. We have made considerable progress this year on many fronts, and our focus is unwavering as we work to rebuild the public's trust and build a better TVA for the people of the Tennessee Valley.

Thank you, and I look forward to your questions.

TESTIMONY OF STAN MEIBURG
ACTING REGIONAL ADMINISTRATOR
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 4
BEFORE THE
SUBCOMMITTEE ON WATER RESOURCES AND THE ENVIRONMENT
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
U.S. HOUSE OF REPRESENTATIVES

December 9, 2009

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 (KIF or Site) in Harriman, Roane County, Tennessee. My testimony will provide background on the incident and immediate EPA actions, the status of the time-critical removal and proposed non-time critical removal clean up activities at the Site, and EPA's oversight of the selection process for the Arrowhead Landfill in Perry County, Alabama, as the disposal site for coal ash being managed under the time-critical removal action.

The Coal Ash Release and Response Actions

On Monday, December 22, 2008, at 1:00 a.m., a containment dike enclosing a portion of a Class II landfill impoundment at KIF failed, releasing an estimated 5.4 million cubic yards (CY) of coal ash, to the Emory and Clinch Rivers and surrounding areas. Ultimately, the ash flow extended northward approximately 3,200 feet beyond the limits of the ash pond over the Swan Pond Creek flood plain and into the Emory River, a part of the Watts Bar Reservoir. The released ash extended over approximately 300 acres of land outside the impoundment and generated a surge of water and ash that destroyed three homes, disrupted electrical power,

ruptured a natural gas line in a neighborhood located adjacent to KIF, covered railway tracks and roadways, and necessitated the evacuation of a nearby neighborhood. An estimated three million CY of the coal ash entered the Emory River and adjacent tributaries.

EPA deployed an On-Scene Coordinator (OSC) to the Site shortly after learning of the incident. EPA joined TVA, the Tennessee Department of Environment and Conservation (TDEC), and other state and local agencies in a coordinated response (i.e., Unified Command in the National Incident Management System). EPA served as the lead federal agency throughout the emergency phase of the response and provided oversight and technical advice to TVA. Lead federal agency designation transitioned to TVA as the emergency phase moved to the recovery phase of the response action. Subsequently, on May 11, 2009, EPA entered into an Administrative Order and Agreement on Consent (AOC) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), pursuant to which TVA is performing the response action with EPA oversight

Environmental Monitoring and Sampling

Since the release occurred, EPA (staff and contractors), TDEC, and TVA have been involved in extensive sampling and monitoring of the air, ash, surface water, and drinking water to evaluate possible public health and environmental threats. Results are posted at www.epakingstontva.com and also on the TDEC and TVA websites.

Sampling results for coal ash contaminated residential soil showed arsenic, cobalt, iron, and thallium levels above the residential Superfund soil screening values, as well as average

arsenic levels in the coal ash and coal ash contaminated residential soil above EPA's Residential Removal Action Levels (RAL). RALs are used to trigger time-critical removal actions while soil screening values are used as a point of departure for EPA to investigate and/or remediate a release. TVA has relocated residents and purchased properties that were either impacted by removal processes or that had ash directly deposited on them.

Coal ash sampling results also indicate that it contains small amounts of naturally-occurring radioactive material, notably the element radium. The concentrations of radioactive materials within the ash are below the CERCLA risk range and below state and federal Applicable or Relevant and Appropriate Requirements (ARARs). These levels do not require management of the ash as a low-level radioactive waste.

A summary of other sampling results appears below:

- Sampling of untreated river water from the main channel of the Emory River showed some elevated metals just after the release and again after a January storm event, including arsenic, cadmium, chromium, and lead. Plant effluent discharging to the Clinch River has consistently met state aquatic water quality criteria for metals;
- Some exceedances of drinking water and aquatic life water quality standards (primarily for arsenic and selenium) have been detected in areas such as the northern embayment, the stilling pond, and in the dredge plume. These are areas that are on-site or are otherwise heavily impacted by the release and are closed to the public. As noted in other portions of the testimony, there have been no exceedances of state aquatic water quality standards in the Emory, Clinch, or Tennessee rivers that are

open to the public, except for slightly elevated levels detected in the first few days following the release. The monitoring plan and analytical data can be found on the TDEC and EPA websites at http://tennessee.gov/environment/kingston and http://www.epakingstontva.com;

- Sampling of treated water at the municipal water treatment plants (WTPs) have consistently shown that the relevant standards, or Maximum Contaminant Levels (MCLs), for drinking water are not being exceeded. The monitoring plan and data is on the TDEC website at http://tennessee.gov/environment/kingston;
- Sampling of private residential wells near the Site detected no contaminants above MCLs; and
- Air sampling and monitoring at the Site (with more than 140,000 air samples and/or real-time readings collected) show that particulate levels are below National Ambient Air Quality Standards for all parameters tested. Air monitoring also is performed to assess air quality conditions for workers whose assigned tasks involve direct contact or close proximity to the coal ash. The sampling results (with more than 3,800 samples collected) show no exceedances of current, established occupational exposure limits. EPA has performed a detailed audit of TVA's air monitoring program twice since entering into the AOC. The purpose of the audits was to provide an independent assessment of performance to ensure data quality and adherence to performance objectives. During the first audit, EPA found that all monitoring sites were well-maintained and met applicable siting requirements, and all recommendations relative to improvement of the monitoring regime were implemented by TVA. The results of the first audit are online at

www.epakingstontva.com. The results of the second audit will be available online in December 2009.

Oversight of Clean Up Activities

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 (CAP) for addressing the clean up of the coal ash release and to conduct a root cause analysis to determine the cause of the dike failure. In addition, on February 4, 2009, EPA Region 4 and TDEC sent a letter to TVA notifying TVA that, pursuant to Executive Order 12088, EPA considers the coal ash release to be an unpermitted discharge of a pollutant under the Clean Water Act. The letter also directed TVA to provide copies of all plans, reports, work proposals and other submittals to EPA and TDEC simultaneously. EPA and TDEC coordinated reviews and approvals of the submittals within their respective authorities.

TDEC and EPA approved TVA's Phase One Dredging Plan on March 19, 2009. The Phase One Dredging Plan addressed removal of coal ash from the main channel of the Emory River. In conjunction with the pilot dredging operations, TDEC and EPA required TVA to develop an extensive monitoring and sampling plan to detect any releases that might occur during the dredging operation and prevent additional harm to human health or the environment.

On May 11, 2009, EPA and TVA entered into an AOC. Under the AOC, clean up, assessment, and restoration activities take place through time-critical and non-time critical removal actions which will be implemented by TVA and overseen by EPA. Components of

these actions take place in parallel. An EPA Region 4 OSC and a Remedial Project Manager (RPM) have been assigned to coordinate and oversee the time-critical and non-time critical actions, respectively. To the extent that additional clean up activity is needed beyond the anticipated removal work, the AOC commits TVA to perform all additional response activity.

EPA's objectives under this AOC are to make sure that the clean up is comprehensive, is based upon sound scientific and ecological principles, moves as quickly as possible, is fully transparent to the public, especially the local community, and meets all federal and state environmental standards.

The EPA/TVA AOC does not replace the TDEC Order, which remains in effect. We have an exceptional working relationship with the State of Tennessee, and are committed to continuing in that vein. As there are provisions of the TDEC Order and the AOC that overlap and which are unique to each agency's regulatory authority and responsibility, EPA and TDEC are working to prevent duplication of efforts and give clear direction to TVA in terms of state and federal authority and responsibility. The AOC memorializes the relationship between EPA and TVA, where EPA executes oversight through the use of its OSC and RPM in approving work plans, conducting audits, and generally participating in day-to-day site management activities. TDEC has assigned a staff member to coordinate directly with the OSC on a day-to-day basis. Numerous other reviews and consults occur between EPA, TDEC, the Bureau of Reclamation, the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and the U.S. Coast Guard.

Time-Critical Removal Action

EPA estimates that approximately three million of the 5.4 million cubic yards of coal ash released from the failed dredge cell entered the Emory River. A primary objective of the time-critical phase of the removal is to recover and manage the major portion of the coal ash in the Emory River to help minimize the potential for flooding and the downstream migration of the coal ash. The time-critical removal action is coordinated through and overseen by an EPA OSC who is present at the Site on a full time basis. Additionally, multiple EPA programs are involved in review of environmental data, work plans, and Site operations.

Since entering into the AOC, TVA has increased coal ash removal operations east of Dike 2 from an average of about 2,500 CY/day to the current rate of removal of approximately 15,000 CY/day. This dramatic increase in productivity was accomplished through the application of additional resources and improved dredging techniques, including the use of two mechanical dredging barges, three large capacity hydraulic dredges, and direct mechanical excavation where possible. To date, slightly less than 2 million CY of coal ash have been dredged or excavated from the area east of Dike 2. At the current pace, removal operations east of Dike 2 under the time-critical phase of the clean up are anticipated to be completed in May 2010. The non-time critical removal will evaluate the impacts of residual ash that remains in the river after time-critical operations are completed.

There are several challenges to sustaining the desired removal target of 15,000 CY/day pace of dredging operations at the Site, including: ash recovery efficiency; wet ash materials handling; limited on-site storage capacity, and the pace of loading and shipping. TVA has

committed to addressing these obstacles by implementing improvements that should help sustain efforts to remove the ash as quickly as possible from the Emory River.

Under the TDEC Order and the AOC, TVA was required to perform a detailed analysis of off-site disposal options for coal ash removed from the Emory River east of Dike 2; there is limited temporary storage capacity on-site. Off-site disposal is necessary to maintain the pace of dredging operations as there is currently no on-site facility for disposal which meets the requirements of the AOC.

A request for proposals was issued by TVA in February 2009 to identify potential off-site disposal facilities. Approximately 25 proposals were submitted for consideration. Analysis of the submittals included a review of experience, methodologies for waste handling, containment processes, quantities of ash that could be managed, qualifications of the facility relative to compliance with CERCLA Off-Site Rule, landfill technical standards, cost, and schedules. Consideration also was given to the companies' performance during a coal ash loading test in early May 2009. The Arrowhead Landfill, located near the community of Uniontown, in Perry County, Alabama, was identified by TVA as the best facility to receive the coal ash transported off-site during the time-critical removal action.

EPA conducted a thorough review of TVA's options analysis to ensure that potential risks to the community, especially any vulnerable populations, were addressed. EPA met with the Alabama Department of Environmental Management (ADEM) and local leaders to discuss operation and oversight of the landfill, visited the landfill, and attended a public meeting held on

June 24, 2009, to listen and respond to community questions and concerns. Elected community leaders actively supported the Arrowhead Landfill as a potential site for disposal of the coal ash. After Arrowhead Landfill began receiving the recovered coal ash from TVA Kingston, a second public meeting was held in Uniontown on September 16, 2009, to inform the community of the status of disposal operations and listen and respond to any further community questions and concerns. A third public meeting is planned for January 2010.

The Arrowhead facility is a Subtitle D landfill that fully meets or exceeds the requirements of the AOC and is permitted by ADEM. It has a composite liner system consisting of two feet of compacted clay and a high-density geomembrane liner, a leachate collection system, groundwater monitoring, and closure and post-closure care provisions. The landfill has more than 10 million CY of storage capacity to accommodate the estimated three million CY of ash to be taken off the Site. Additionally, and importantly, the Arrowhead Landfill is served directly by the Norfolk Southern rail line thereby allowing for rail transport of the coal ash as opposed to trucking. Rail transport helps reduce traffic congestion and the risk of accidents, reduces air impacts, is considered more fuel efficient than trucking, and decreases the need for road repair that would be necessary if trucks were used to transport the coal ash.

On July 2, 2009, EPA approved TVA's selection of the Arrowhead Landfill. Transport of coal ash from the Site to the facility began on July 2, 2009, and as of November 24, 2009, more than 744,000 CY of coal ash have been safely transported to the landfill for final disposal. All rail cars leaving the Site are lined and the coal ash is completely covered to ensure that it is not released to the air during transport to Perry County. Further, the coal ash in the rail cars is kept moist to prevent the release of fugitive dust when the material is transferred to trucks at the

landfill. Arrowhead Landfill conducts regular air monitoring at the rail spur where coal ash is unloaded and at the disposal cell in the landfill to ensure that coal ash handling methods and dust suppression are adequate. Oversight of landfill operations and permit compliance is performed by ADEM as part of the State's authorized Resource Conservation and Recovery Act (RCRA) program.

An additional component of the AOC required TVA to perform a stability analysis on Dikes D, C and 2 which were not associated with the ash release. The primary purpose of stabilizing existing dikes on-site was to ensure there were no further failures or releases from the remaining impoundments. As a result of this investigation, Dike C was found to have significant safety deficiencies when compared to Federal Dam Safety Guidelines. As part of the time-critical removal action a multimillion-dollar construction repair will take place over the next year which will address safety deficiencies when compared to these guidelines.

Non-Time Critical Removal Activities

Non-time critical removal actions are a means under CERCLA to address situations involving the release or threatened release of hazardous substances or contaminants into the environment when there is planning time of at least six months prior to the initiation of site activities. Aspects of the coal ash release and clean up being addressed under the non time-critical removal include residual coal ash remaining in the Emory River after completion of time-critical removal, coal ash released to embayments west of an on-site structure known as Dike 2, restoration activities, and investigation of human health and ecologic risks and impacts. An EPA Region 4 RPM has been assigned to coordinate and oversee the planning and implementation of non-time critical removal activities. Alternatives for achieving the objectives of the non-time

critical removal are identified and evaluated through an Engineering Evaluation/Cost Analysis (EE/CA). Under the terms of the AOC, TVA submitted a draft work plan on August 10, 2009, which provides an outline to address the following non-time critical removal action objectives:

- Implement a comprehensive environmental sampling and analysis program;
- Conduct quantitative human health/ecological risk assessments;
- Develop and evaluate a range of clean up alternatives to address any unacceptable risks posed by the Site;
- Implement selected removal action via an action memorandum after public comment period; and
- Conduct a Jurisdictional Assessment in compliance with §404(b) of the Clean Water Act.

This draft work plan was issued for public comment on October 21, 2009. The initial 30 day public comment period was extended for an additional 30 days, ending on December 20, 2009. Following the work plan, TVA is scheduled to issue a draft EE/CA report presenting a range of response alternatives for the removal of coal ash west of Dike 2. EPA expects the final EE/CA to be issued for public comment in January 2010, along with the accompanying Administrative Record, in accordance with provisions in the National Oil and Hazardous Substances Pollution Contingency Plan, more commonly called the National Contingency Plan (NCP). Once public comments have been addressed, TVA will submit to EPA by April 2010 an action memorandum that responds to public comments and describes the selected response actions under the non-time critical removal. Following EPA's approval of the action memorandum, TVA will submit a work plan for implementation of the selected response actions.

An EE/CA Technical Work Group (Work Group) has been formed and has held three meetings to begin preparations for the non-time critical activities. The Work Group consists of representatives from EPA, TVA, TDEC, the U.S. Fish and Wildlife Service and Department of Interior, the Tennessee Department of Health, and the Tennessee Wildlife and Resources Agency. It is the aim of the Work Group to have the EE/CA ready for implementation when the time-critical removal nears completion in order to continue work without a break in operations.

Community Involvement Activities at the Site

EPA made a commitment to the Kingston-Roane County community assuring them that they would be kept well informed and fully aware of all activities related to Site clean up. EPA has kept that commitment by providing a full time Community Involvement Coordinator (CIC) at a local Outreach Center at the Site. The OSC and CIC have been instrumental in assisting the community in understanding the CERCLA/Superfund process through educational presentations, providing briefings to key community members, assisting in public meetings and availability sessions, and providing Site tours. A real-time website is available to provide information about the time critical removal action, fact sheets, advisories, progress photos and other information.

The CIC also assisted TVA in the development of its Technical Assistance Plan (TAP) program. The TAP is required by the AOC and provides the Community Advisory Group (CAG) with $50,000 to procure the services of an independent technical advisor. A CAG is made up of representatives of diverse community interests. Its purpose is to provide a public forum for community members to present and discuss their needs and concerns related to the

Superfund decision-making process. It offers EPA a unique opportunity to hear and consider community preferences for Site clean up and remediation.

On November 23, 2009, TVA and the Roane County CAG entered into an agreement which allowed for the transfer of the TAP funds from TVA to the CAG. The technical advisor (TA) will be available to the community to interpret technical information and assist the community with commenting on future work plans. Until the CAG can procure a TA, EPA Region 4 has provided the CAG with an interim TA through EPA's Technical Assistance Services to Communities (TASC) program. The interim TA has worked with the CAG since November 2009.

The Roane County CAG, officially formed on July 23, 2009, will serve as a public forum for community members to present and discuss their needs and concerns to EPA, TVA, TDEC and other stakeholders about the coal ash clean up process. The CIC has attended all CAG meetings to provide information and address any community concerns. Additionally, EPA holds monthly public availability sessions and quarterly public meetings. Three public meetings and one availability session have been held in the Kingston community. Region 4 has committed to having the CIC at the Site full time for the duration of the project in order to ensure that the community concerns and needs are met throughout the clean up process.

Our community involvement activities have not been confined to the Kingston area. As I indicated previously, during evaluation of TVA's off-site disposal analysis, EPA met with community leaders in Perry County and attended a public meeting on June 24, 2009 to listen and

respond to community questions and concerns. A second public meeting was held on September 16, 2009 to inform the community of the status of disposal operations and hear and respond to community questions and concerns. The September 16, 2009 event also was attended by representatives from ADEM, the Arrowhead Landfill, and local community leaders. A third public meeting is planned for January 2010.

Conclusion

EPA recognizes that the coal ash release in Kingston was a devastating event for the community. EPA will continue to use its authorities and expertise to provide oversight and technical assistance efforts to protect human health and the environment during the clean up of this catastrophic release and promote the restoration of the surrounding ecosystem.

U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT HEARING – "THE ONE YEAR ANNIVERSARY OF THE TENNESSEE VALLEY AUTHORITY'S KINGSTON ASH SLIDE: EVALUATING CURRENT CLEANUP PROGRESS AND ASSESSING FUTURE ENVIRONMENTAL GOALS"

TESTIMONY OF JOHN S. MONTGOMERY, PE, SENIOR PRINCIPAL
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Following the December 22, 2008 breach of the ash dredge cell at the Tennessee Valley Authority's (TVA) Kingston Fossil Plant, TVA requested Stantec to assess the condition of the active coal combustion product (CCP) disposal impoundments at its 11 fossil plants. Stantec proposed a four-phase approach for the assessment program.

Phase 1 consisted of an initial review of documentation and field reconnaissance to identify conditions that may affect the stability and functionality of the facilities reviewed; determine the need for short term or immediate corrective actions and engineering evaluations; and prioritize and schedule facilities for future engineering evaluations. Phase 1 was non-invasive and limited to field observations and reviews of historical documents. Phase 1 involved:

- Reviewing documents and records pertinent to the characterization, design, construction, operation, and maintenance of TVA's CCP disposal facilities and other ponds. These documents and records were provided by TVA and included reports, drawings, data, and memoranda.
- Site reconnaissance of disposal facilities and ponds including measurements of embankment slopes and crest widths, freeboard, observed seepage, and slope instabilities. Plant personnel were interviewed to gain additional information. Observations and measurements were recorded using dam safety inspection checklists customized for the types of CCP management units encountered. Additional follow-up visits were also made to some plants, as conditions warranted.
- Compiling exhibits to present the findings.

Phase 2 consists of engineering evaluations based on findings and issues determined during Phase 1. These engineering evaluations include geotechnical explorations, hydraulic and hydrologic evaluations, conceptual designs for renovations, and general engineering support. Tasks that have been or are to be performed include:

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(Continued)

- Drilling, sampling and instrumentation of existing embankment and foundation materials to characterize subsurface conditions, and field and laboratory testing to determine engineering properties of these materials.
- Slope stability and seepage calculations.
- Hydrologic and hydraulic analyses of impoundments and spillway systems.
- Inventories and observations of spillways and drainage features.
- Additional field reconnaissance and observations.
- Compiling data and assembling exhibits to present results and findings.
- Developing conceptual designs to address identified issues.

Phase 3 consists of a variety of engineering tasks including planning assistance for short- and long-term CCP management, final design of conceptual renovations identified in Phase 2, preparing construction plans/specifications and cost opinions, providing construction observation, documentation, and quality assurance testing, developing applicable record drawings, and assisting TVA with environmental permitting.

Phase 4 involves assisting TVA with improving its dam safety program within the fossil power group, dam safety training for appropriate TVA CCP staff, preparing operation and maintenance manuals for selected facilities, and performing annual facility inspections.

CURRENT STATUS

Since January 2009, Stantec and TVA have assessed the stability of TVA's CCP disposal facilities and implemented opportunities to improve conditions as deficiencies have been identified. During this process, Stantec and TVA personnel have worked together to develop and adjust priorities and schedules based on the most current findings and observations. In certain instances, TVA has directed Stantec to proceed with engineering evaluations and mitigation designs for improvement of its facilities as deficiencies have been identified rather than wait until the completion of program phases and delivery of final reports.

Based on observations during Phase 1 and Phase 2, Stantec has developed recommendations and designs for renovations at various facilities. Stantec has recommended: installing seepage filters and collection systems; regrading slopes; abandoning conduits/spillways; installing stability buttresses and berms; lowering pool levels; improving surface drainage, adding instrumentation, installing revetment; eliminating animal burrows; and removing vegetation. At the time of this testimony, forty-five work plans that improve conditions of the impoundments have been issued. Thirty-one of these work plans have been implemented in the field and fourteen are in progress. Over 240,000 tons of rock have been installed to increase stability at several facilities, and a new spillway system has been installed at the Johnsonville Ash Pond.

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(Continued)

PHASE 1

Phase 1 is complete and the final report was submitted to TVA on June 24, 2009. To date, no formal comments have been received by Stantec from any agency or reviewer regarding any aspect of the scope, content, findings, or recommendations provided during Phase 1 of the program.

PHASES 2, 3 AND 4

Phase 2, Phase 3, and Phase 4 are on-going. Phase 2 activities were initiated in early 2009 and it is anticipated that these engineering evaluations will be complete during the third quarter of 2010. However, the schedule may change depending on future findings or conditions not yet determined. Results of the Phase 2 evaluations will be presented in various engineering reports. At this time, it is anticipated that separate reports will be developed for each facility, and issued under the subject heading (geotechnical report, hydrologic/hydraulic report, etc.). The final format and organization of the Phase 2 reports have not been determined.

The schedule for completing Phase 3 activities can not be determined until Phase 2 is complete. The initial dam safety staff training for Phase 4 has been completed. Any additional Phase 4 work items will be as requested by TVA to support on-going programmatic efforts.

FINDINGS TO DATE

The remaining discussions of this testimony address the scope, findings and recommendations of Phase 1, including the status and findings of Phase 2, Phase 3, and Phase 4 activities that have been completed to date.

Over 8,000 documents were provided by TVA during Phase 1. These documents included: annual inspection reports; quarterly inspection reports; geotechnical and geological related reports, data and analyses; design and construction drawings; design, feasibility, and CCP management reports; permit documents; design calculations; project or internal correspondence; and aerial photography.

Stantec assembled six assessment teams to perform field reconnaissance and observe site conditions. Teams consisted of at least two engineers, one of which was a licensed professional engineer with experience in dam design, dam safety, and geotechnical engineering. Items of primary concern included: active seepage areas, evidence of slope instability, sinkholes, depressions, insufficient freeboard, steepness and height of slopes, and condition of spillways through embankments. During January and February 2009, Stantec reviewed and photographed conditions of TVA's CCP impoundments. As needed, follow-up visits occurred to further review and assess conditions.

Based on this review and assessment, Stantec identified the following system-wide concerns:

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(Continued)

1) **Limited Record Drawings and Construction Testing/Observation Records.** Stantec found relatively few as-built construction records or construction testing records for the disposal facilities. These records are important to illustrate how facilities were actually constructed, compliance with project plans and specifications, and any design or construction adjustments made to deal with changes or unexpected conditions encountered during construction.

2) **Construction of Stacks over Ash Ponds and the Operation of Fly Ash Dredge Cells.** Hydraulically-placed fly ash in ponds and dredge cells is generally very loose in terms of relative density, and high in porosity and void ratio. These conditions can sometimes result in significant and sudden loss of shear strength within the sluiced ash at low strains due to embankment loading. TVA has several active facilities that have been constructed over ash ponds. Operating CCP disposal facilities on top of ash that has been sluiced into ponds is not an uncommon practice in the industry. While this practice can pose greater risk than constructing over natural earth materials, the risk is typically managed by performing appropriate geotechnical analyses to support design and operation, and by installing instrumentation to monitor pore pressures, settlement, and slope movement. Load rates must also be controlled to manage the build-up of excess pore pressures.

3) **Tall, Unsupported Weir Structures.** A number of the facilities have weir structures that are tall and unsupported. System-wide, weir structures are typically vertical, push-together, reinforced concrete pipe or manhole sections. This type of weir system is prone to developing leaking joints and leaning. In addition, outlet pipes from the weir structures are constructed of reinforced concrete culvert pipe. This type of pipe does not employ a restrained joint system and is also susceptible to developing leaking joints. Some past TVA inspection reports have documented such problems.

4) **Conduit and Weir Abandonment Procedures.** As various disposal facilities have been raised in the past to increase CCP storage capacity, process water conduits and weirs have been abandoned in place. The abandonment procedures have varied from site to site over the years and are not well documented. Improper abandonment can lead to internal piping and loss of embankment and/or foundation materials through joint separation in the conduits.

5) **Maintenance.** Annual dike inspection reports appear to be adequate in identifying items for maintenance. However, there is a trend of not executing all of the maintenance recommendations provided in these reports. In many instances, the same maintenance recommendations were made repeatedly in the annual reports from year to year. Tree and other vegetation removal from dikes and surface drainage ditches is an example of one of the typical recurring items.

6) **Limited Operation and Maintenance Manuals (OM) and Emergency Action Plans (EAP).** During the historical research/document review phase, Stantec found a general lack of Emergency Action Plans (EAP) for the disposal facilities. These plans are important for the safe operation of a dam/impoundment, and for the protection of downstream communities, as well as plant personnel.

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(Continued)

7) **Limited Geotechnical Instrumentation.** Dam safety management of significant impoundments should include an instrumentation program to monitor performance and condition changes during operation of the facility. In general, instrumentation may consist of piezometers to monitor pore pressures within embankments and foundations, slope inclinometers and surface monuments to monitor movement, and plates for monitoring settlement. Only limited geotechnical instrumentation and related monitoring programs were observed at a majority of the facilities during Phase 1 reviews.

RECOMMENDATIONS AND ACTIONS TO ADDRESS OBSERVED SYSTEM WIDE CONCERNS

A. LIMITED RECORD DRAWINGS AND CONSTRUCTION TESTING/OBSERVATION RECORDS; CONSTRUCTION OF STACKS OVER ASH PONDS AND THE OPERATION OF FLY ASH DREDGE CELLS; AND LIMITED GEOTECHNICAL INSTRUMENTATION

Due to limited availability of record drawings, construction QA/QC documentation, and geotechnical instrumentation, Stantec recommended Phase 2 geotechnical explorations be performed on all significant CCP impoundments. Because of concerns with operating CCP facilities on top of sluiced ash, Stantec extended this recommendation to include stacks and landfills operating on top of identified sluiced ash ponds. The recommendations included installing instrumentation to assist with characterizing and monitoring subsurface conditions.

As of the date of this testimony, initial geotechnical drilling has been completed for impoundments at 10 of the 11 plants. Exploration of the remaining site (Shawnee Fossil Plant) is to be completed by February 28, 2010. Over 625 test borings have been completed and represent over 37,000 linear feet (over 7 miles) of drilling and sampling. Installed instrumentation includes 342 piezometers and 56 inclinometers. Over 15,000 soil samples have been retrieved and over 12,000 laboratory tests have been performed.

Slope stability analyses have been completed for nine impoundments: (1) Paradise Ash Pond; (2) Widows Creek Gypsum Stack; (3) Johnsonville Ash Pond; (4) Paradise Gypsum Stack; (5) Cumberland Gypsum Stack; (6) Kingston Ash Pond; (7) John Sevier Dry Ash Stack; (8) Widows Creek Ash Pond; and (9) Colbert Ash Pond. Analyses of the remaining impoundments are due to be completed by May 30, 2010.

1) **Paradise Ash Pond:** Stantec evaluated the "as-found" conditions and determined the Paradise Ash Pond meets generally accepted slope stability factors of safety ($FS \geq 1.5$).

   The remaining eight facilities, briefly discussed in items 2 through 9 below did not meet this criteria. This is generally a result of steep slopes and/or inadequate seepage controls.

2) **Widows Creek Gypsum Stack:** Stantec designed slope renovations and monitored construction of these renovations at the Widows Creek Gypsum Stack. These renovations involved regrading and buttressing the slope using rock, re-directing

process waters, and improving drainage. Photographs of pre- and post-conditions are included as Exhibit A. The current conditions at Widows Creek Gypsum Stack meet the acceptable slope stability criteria.

3) **Johnsonville Ash Pond:** New spillways have been constructed to lower the water surface at the Johnsonville Ash Pond. A siphon system has also been installed to enable further dewatering if necessary. Photographs of the spillway and siphon systems are included as Exhibit B. A seepage collection system has been installed along the south east toe of the pond. In addition, Stantec has designed a buttress for the most critical slopes. TVA is working to obtain proper environmental permits for the construction of this buttress. Pending issuance of the required permits, construction of the buttress is anticipated to begin in December, 2009 or early in 2010. Once the buttress is constructed, these slopes will meet the required factor of safety. Finally, Stantec has recommended closure of the Johnsonville Ash Pond and is currently developing a phased closure plan that will result in the entire facility meeting acceptable slope stability criteria.

4) **Paradise Gypsum Stack:** Rock armoring and buttressing of slopes is currently being constructed to improve slope stability at the Paradise Gypsum Stack. Once the armoring and buttressing are completed, it is anticipated slope stability will meet the accepted factor of safety criteria. Photographs of the armoring and buttress construction are included as Exhibit C. In addition, Stantec has prepared construction drawings to reduce the size of the operating pool to further improve stability. It is anticipated this construction will begin in December 2009 or early 2010. Finally, Stantec has recommended the gypsum stack be closed and is designing a phased closure plan.

5) **Cumberland Gypsum Stack:** The pool has been significantly reduced. Lining the operating pool, regrading the surface of the stack, and installing a buttress are being considered to further improve stability of the stack. TVA plans to close the Cumberland Gypsum Stack.

6) **Kingston Ash Pond:** Stantec is designing the downstream slope buttressing for the Kingston Ash Pond. Design of the initial stage is complete and construction is scheduled to begin December 2009. Stantec anticipates completing design of the remaining stages by June 2010. When buttress construction is complete, the facility should meet the accepted criteria for slope stability.

7) **John Sevier Dry Stack:** Stantec is designing plans to install a trench drain and regrade the slope along the toe of the John Sevier Dry Stack to improve slope stability. It is anticipated these plans will be completed by February 2010.

8 & 9) **Widows Creek Ash Pond and Colbert Ash Pond:** Buttressing and slope regrading are being considered to improve stability of the Widows Creek Ash Pond. Renovations have not yet been formulated for improvement of the Colbert Ash Pond.

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STANTEC CONSULTING SERVICES INC.
(Continued)

Further, as part of Phase 2 geotechnical activities, Stantec continues to monitor the geotechnical instrumentation installed at all sites during the initial drilling. Readings are taken on a regular basis at all sites. Slope inclinometers installed at the Bull Run Gypsum Stack were useful in assessing recent movement at the toe of the south slope. The instrumentation allowed Stantec to determine that the movement is confined to a shallow slough and Stantec is designing mitigation of the slough. No other significant changes in subsurface conditions have been observed in the instrumentation data.

Stantec has prepared draft geotechnical reports for four impoundments: Johnsonville Ash Pond, Widows Creek Gypsum Stack, Paradise Gypsum Stack, and Kingston Ash Pond. As part of these geotechnical explorations, Stantec has also been tasked with determining the presence or absence of the four conditions which led to the failure of the Kingston Dredge Cell as identified by AECOM in its Root Cause Analysis report. It is Stantec's understanding of AECOM's conclusions presented in its report that all four must be present for conditions to be considered similar to the Kingston Dredge Cell facility. Based on findings presented in these draft reports, all four conditions are NOT present at the Johnsonville Ash Pond, Widows Creek Gypsum Stack, Paradise Gypsum Stack, or Kingston Ash Pond.

The Kingston Ash Pond geotechnical report has been reviewed by the Inspector General's Office, comments have been received by Stantec, and those comments have been addressed. Geotechnical reports for the Johnsonville Ash Pond, Widows Creek Gypsum Stack, and Paradise Gypsum Stack will be submitted to TVA by mid-March 2010. Geotechnical reports for all sites will be issued by June 30, 2010.

Stantec also recommended hydrologic and hydraulic analyses be performed on all active CCP impoundments to evaluate freeboard. Stantec has completed calculations for the Johnsonville Ash Pond. A new spillway system has been installed and the facility meets generally accepted freeboard requirements for dam safety. It is anticipated the hydrologic and hydraulic calculations for the remaining facilities will be complete by June, 2010.

Finally, Stantec recommended that TVA develop a program to ensure record drawings and construction documents are maintained. TVA is currently developing programmatic documents to address this issue. This work is being performed by another consultant and not Stantec.

B. TALL, UNSUPPORTED WEIR STRUCTURES

Stantec recommended that outlet weir structures and outlet pipes be prioritized, inspected, retrofitted or replaced as necessary. A new replacement spillway and siphon system has been designed and constructed at the Johnsonville Ash Pond. Photographs showing the new spillway are provided as Exhibit B. Stantec is currently designing spillway improvements at the Cumberland Ash Pond, Widows Creek Ash Pond, and Shawnee Ash Pond. Based on the current schedule, these designs will be complete by May 2010. Stantec is working with TVA to prioritize the inspection and evaluation of the remaining spillways. Scheduling for this task is being developed.

TESTIMONY OF JOHN S. MONTGOMERY, PE, SENIOR PRINCIPAL
STANTEC CONSULTING SERVICES INC.
(Continued)

C. CONDUIT AND WEIR ABANDONMENT PROCEDURES

Stantec recommended developing an inventory of existing and abandoned conduits at each CCP impoundment including an assessment of abandonment procedures. Inventories are complete for 3 of the 11 sites with the remaining sites scheduled to be completed by January 31, 2010. Assessment of abandonment procedures has been completed at the Widows Creek Gypsum stack and conduits have been closed by grouting full or by removing.

D. MAINTENANCE

Stantec recommended that TVA develop a program to ensure annual inspection recommendations are tracked and addressed, and also recommended TVA review its dam safety program and include appropriate elements within its CCP facility management program. This recommendation also addressed on-going training.

TVA is currently developing programmatic documents to address these issues. This work is being performed by another consultant and not Stantec.

Stantec has provided dam safety inspection training to TVA staff including managers of its CCP program and staff at the plants who are involved in daily CCP management activities. Training has also been provided to TVA police staff. At the time of this testimony, training has been provided to over 300 people within TVA.

E. LIMITED OPERATION AND MAINTENANCE MANUALS (OM) AND EMERGENCY ACTION PLANS (EAP)

Stantec recommended that TVA review the dam safety hazard classification assigned to each CCP impoundment and reassign classifications as appropriate in accordance with state and federal dam safety guidelines. In addition, Stantec recommended that TVA develop Emergency Action Plans for all impoundments determined to be high hazard from a dam safety perspective.

TVA completed an initial reassessment of hazard classifications and determined four sites to have high hazard impoundments from a dam safety perspective (five impoundments). Those sites are Cumberland Fossil Plant, Widows Creek Fossil Plant, Bull Run Fossil Plant, and Colbert Fossil Plant. TVA has developed Emergency Action Plans for each of these sites and the initial breach analysis and inundation mapping have been prepared. Refinement of the breach analysis by Stantec is underway for the Bull Run and Widows Creek Fossil Plants and will be complete March 3, 2010.

Finally, Stantec recommended review and updates of its operation and maintenance manuals for each CCP impoundment. This work has not started.

END OF TESTIMONY

EXHIBIT A

WIDOWS CREEK GYPSUM STACK

SLOPE RENOVATIONS

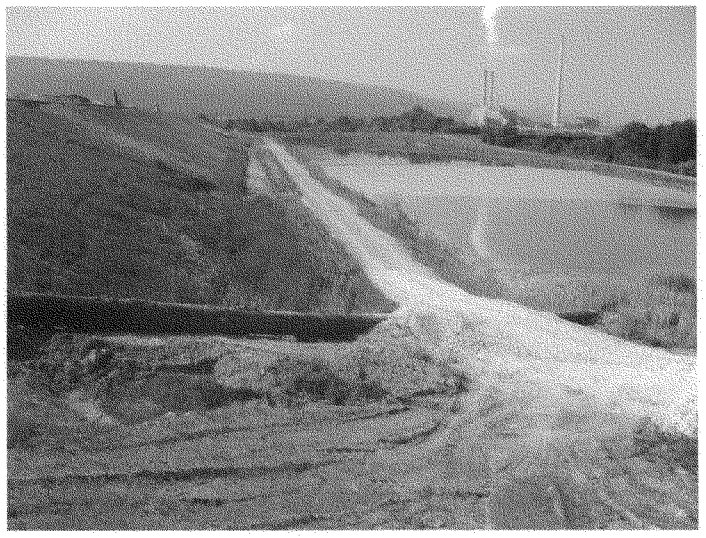

Photo A-1: As Found Site Conditions of the West Slope of Gypsum Stack; Process Water Redirected Through Temporary Spillway Discharge Pipe (foreground)

Photo A-2: Construction of Rock Toe Buttress and Spillway Renovations Along West Slope of Gypsum Stack

Photo A-3: Completion of Rock Toe Buttress and Preparation of Vegetative Cover Along the West Slope of Gypsum Stack

EXHIBIT B

JOHNSONVILLE ASH POND

SPILLWAY REPLACEMENT AND SIPHON SYSTEM

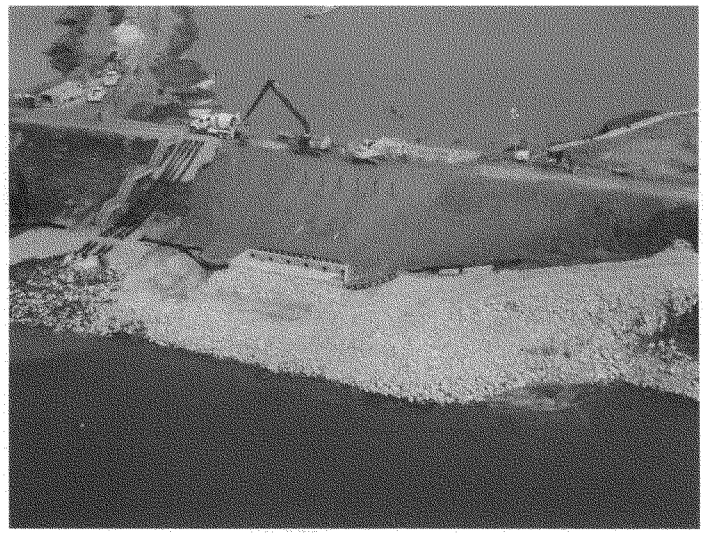

Photo B-1: New Spillway and Siphon Systems
(viewed from downstream)

Photo B-2: New Spillway and Siphon Systems
(viewed from upstream)

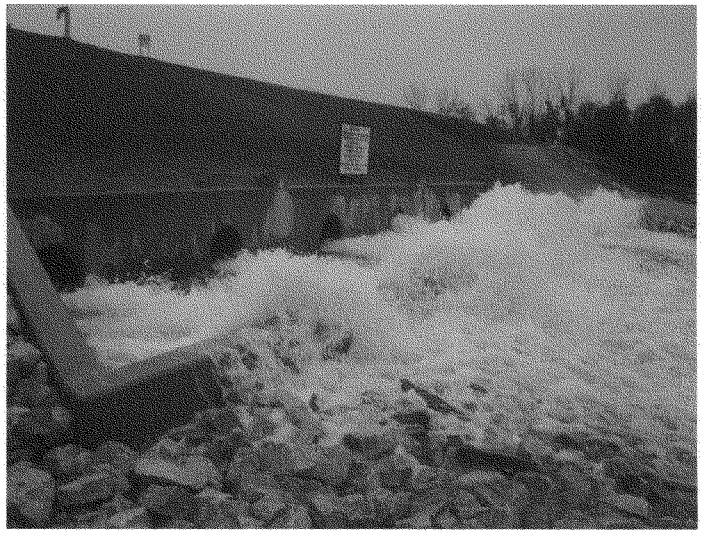

Photo B-3: New Spillway System Outlet

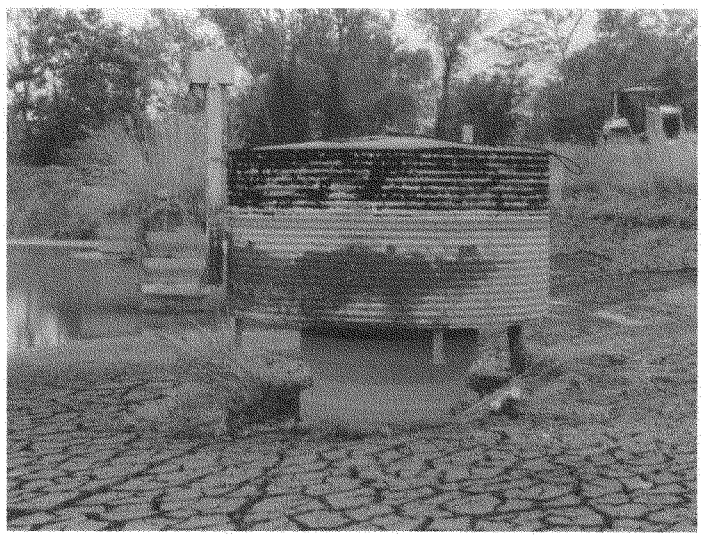

Photo B-4: Old Spillway Weir
(to be abandoned)

EXHIBIT C

PARADISE GYPSUM STACK

SLOPE RENOVATIONS

Photo C-1: As Found Conditions of the Paradise Gypsum Stack South Slope

Photo C-2: March 2009 – Beginning Construction of Rock Buttress to Stabilize Slope

Photo C-3: April 2009 – West End of Rock Buttress Completed

Photo C-4: As Found Conditions of Paradise
Gypsum Stack South Slope

Photo C-5: May 2009 – Renovations Completed to Control Seepage and Surface Runoff

Statement of Richard W. Moore
Inspector General, Tennessee Valley Authority
before the
Subcommittee on Water Resources and Environment
of the
Committee on Transportation and Infrastructure
United States House of Representatives

Madam Chairwoman Johnson, Ranking Member Boozman, and members of the Subcommittee, I appreciate the opportunity to testify before you regarding the one year anniversary of the Tennessee Valley Authority Kingston Ash Slide. Specifically, my testimony will cover the assessment of the degree to which TVA has responded to the findings and recommendations in the recent Office of the Inspector General (OIG) reports concerning the coal ash spill, clean-up operations, and TVA's overall environmental management. In summary, we believe TVA is marching in the right direction based on the actions implemented and/or initiated to-date. However, it is too early to determine whether these will be sufficient to overcome a legacy culture resistant to change.

OFFICE OF THE INSPECTOR GENERAL REPORTS

The Kingston Fossil Plant coal ash spill of December 22, 2008, in which 5.4 million cubic yards of ash poured onto adjacent land and into the Emory River, is one of the largest environmental disasters in TVA history. The TVA OIG released two reports--one in June 2009 critiquing TVA's response to the ash spill and another in July 2009 evaluating TVA's root cause analysis of the spill and TVA's ash management practices. The first report issued on June 12, 2009, focused on (1) TVA's initial emergency response, including implementation and utilization of the National Incident Management System (NIMS); (2) TVA's actions to quickly respond to the media; and (3) reparations to the victims and restoration of the affected Roane County community. Our review found that:

- TVA had not implemented NIMS in accordance with Homeland Security Presidential Directive 5 which hampered communications and delayed certain emergency response actions following the spill.

- TVA's actions for responding quickly to media and public inquiry resulted in releases of inaccurate and inconsistent information and subsequent public criticism which caused reputational harm.

- TVA had responded effectively to victims in the affected area; however, failure to communicate the claims policy and decisions in a timely manner increased settlement expectations for some.

The second report issued by the OIG on July 23, 2009, focused on (1) providing an independent peer review of TVA's commissioned root cause analysis and (2) reviewing TVA's ash management for weaknesses. TVA hired AECOM Technology Corporation (AECOM) to complete the initial root cause analysis. The TVA OIG hired Marshall Miller & Associates (Marshall Miller), a nationally-recognized engineering consulting firm, to assist with the technical aspects of the root cause peer review. Our review concluded that:

- TVA management handled the root cause analysis in a manner that avoided transparency and accountability in favor of preserving a litigation strategy. TVA elected not to publicly disclose management practices that may have contributed to the Kingston spill.

- TVA could have possibly prevented the Kingston spill if it had taken recommended corrective actions. TVA was aware of "red flags" that were raised over a long period of time signaling the need for safety modifications to TVA ash ponds.

- AECOM overemphasized the "slimes" layer as a trigger for the Kingston spill. Marshall Miller concluded that factors other than the "slimes" layer may have been of equal or greater significance.

- Despite internal knowledge of risks associated with ash ponds, TVA's formal Enterprise Risk Management process, which began in 1999, had not identified ash management as a risk. While over the years there was internal discussion about placing the ash ponds under the TVA's Dam Safety Program, ultimately, TVA did not place the ash ponds under its Dam Safety Program. Treating the ash ponds like dams would have required more rigorous inspections and engineering.

- Attitudes and conditions at TVA's fossil fuel plants that emanate from a legacy culture impacted the way TVA handled coal ash. Ash was relegated to the status of garbage at a landfill rather that treating it as a potential hazard to the public and environment.

In addition, a draft of this OIG report was presented to the TVA Board on July 14, 2009. After the OIG briefed the TVA Board on its findings, a specially-called Board meeting was held on July 21, 2009. A report prepared by McKenna Long and Aldridge (McKenna) that was commissioned by the Audit, Governance, and Ethics Committee of the TVA Board in February of 2009 was released. McKenna looked back at the spill to provide a basis for improving TVA's governance, systems, and controls to reduce the likelihood of other harmful incidents. In its report to the TVA Board of Directors, McKenna concluded that TVA did not have adequate systems, controls, and procedures in place prior to the spill and, therefore, employee performance could not be measured against acceptable performance standards.[1] McKenna noted that a myriad of issues, cultural and procedural, needed to be addressed. The McKenna report further noted that "history has shown that TVA can be resistant to the implementation of new directives and that progress in one area can be eroded by the legacy culture still existing in other parts of the enterprise. To be sustainable, the current remediation activities in the Fossil Power Group will need to be part of a comprehensive TVA remediation program owned by senior management under Board oversight." For more information regarding the McKenna findings, see the Appendix.

[1] "A Report to the Board of Directors of the Tennessee Valley Authority Regarding Kingston Factual Findings," submitted by R William Ide III and Joseph O. Blanco, McKenna Long & Aldridge LLP, July 21, 2009. See http://www.tva.gov/kingston/board_report/mla_kingston_report.pdf.

TVA management acknowledged at the meeting on July 21, 2009, many of the management failures cited by the OIG and McKenna. These admissions reflect the type of transparency and accountability for TVA that the OIG has pressed for. We applaud the TVA Board's leadership in this matter and TVA management's acknowledgement of TVA's role in the Kingston spill.

TVA Actions in Response to OIG Findings

In response to the reports issued by the OIG, TVA has taken actions to not only address the aspects of the Kingston spill and reparations to victims and the community, but also in regards to (1) assessing the stability and safety of other TVA facility impoundments and (2) assessing and implementing institutional change related to emergency response, communications, and management culture. Specifically, among other actions, TVA management:

- Plans to fully implement NIMS in conjunction with improving its emergency preparedness program.
- Has reviewed its communications process and procedures and has made changes to improve communications in an emergency event.
- Continues to work with the communities and local residents to improve the communications related to TVA's efforts with property acquisition and claims process. Furthermore, significant progress has been made regarding reparations to victims and the community as well as conducting public health assessments.
- Has made significant management and philosophical changes which are driving the development and implementation of (a) more detailed and rigorous policies and procedures for storing, handling, and maintaining ash and ash disposal facilities and (b) a comprehensive program for future Coal Combustion Product remediation and conversion. In addition, TVA management is using the detailed, technical explanation of what and how the Kingston dike failure occurred to guide the safe closure of the failed cell and implement enterprise risk management improvements to better achieve the goals of the Clean Strategies and Project Development organization.
- Has implemented a cultural-focusing initiative across the agency, incorporating lessons learned from the Kingston spill.

Kingston Fossil Plant Ash Slide Interim Report Recommendations and TVA Management Actions

Discussed below are TVA management's key planned, completed, and/or ongoing actions to address OIG recommendations from the *Kingston Fossil Plant Ash Slide Interim Report.*

NIMS

Recommendation: TVA management should (1) as previously committed, consider taking all necessary actions needed for full implementation of NIMS, including but not limited to, modifying all emergency response plans to include NIMS principles and language; (2) ensure employees complete all emergency response training as required by TVA and NIMS; and (3) consider implementing the best practices identified by the Roane County Emergency Director.

In response to the Kingston Ash Spill and the concerns raised regarding the emergency action plan and the implementation of NIMS, TVA management committed to fully implementing NIMS and reviewing all emergency response plans to ensure appropriate NIMS principles and language are included. Also, management agreed that training will be required for appropriate employees and the need to implement noted best practices would be evaluated. To specifically address the issues, TVA recently began an initiative to improve TVA's non-nuclear emergency program. On November 10, 2009, TVA's Chief Operating Officer (COO) launched the *Non-Nuclear Emergency Planning Improvement Initiative*. TVA's COO noted in his November 10, 2009, memorandum to TVA's Business Council that:

> *A prompt, thorough and rigorous response to events like the Kingston spill is important to public safety and to maintaining our credibility and trust with the public and regulators. Unlike our nuclear emergency preparedness program, which is continuously assessed against industry best practices, our non-nuclear emergency response program has not been routinely assessed.*

As part of the initiative, a small development team with representation from all appropriate TVA groups is scoping, benchmarking, and redesigning the emergency preparedness program based on best industry practices. The initiative will also address the utilization and training of NIMS. The development team has a three-month timeframe for completion. A larger team will then be assembled to implement the program according to a change management plan.

Communications Process and Media Releases

Recommendation: To avoid accusations against TVA of engaging in defensive "spin," TVA should consider establishing a clearly defined protocol that requires verification from more than one source before releasing statements to the media. TVA should scrutinize press releases to determine if enough information is available to issue a reliable statement. The test for TVA press releases should be, "Is this the transparent truth?" We also recommend that documentation be maintained to verify that this process was followed and the media statement was approved by an appropriate TVA official.

In order to strengthen TVA's communications and relationships with public officials and other stakeholders, TVA's communications and government relations functions – previously one organization – were separated into two organizations, each reporting to the Chief Executive Officer. The TVA Board approved the hiring of a senior vice president of Communications. David Mould, formerly assistant administrator for Public Affairs with the National Aeronautics and Space Administration (NASA), joined TVA in this position. Before employment at NASA, Mr. Mould served as assistant to the U.S. Secretary of Energy and a vice president of Communications for PG&E National Energy Group. Upon his hiring, TVA's Chief Executive Officer stated that Mr. Mould, "Brings an outstanding combination of communications and business qualifications to his role, including Department of Energy and electric-utility experience."

In addition to organizational structure changes, TVA's Communications group has revised its policies and procedures to ensure that information released to the public is (a) accurate and (b) based on fact and not opinion (i.e., free of any "spin" or embellishments). Required actions include having the "source" person, as well as someone else in the responsible organization, certify the accuracy of the information. Furthermore, any errors in TVA communications must be corrected immediately in all venues in which it was released; citing the error and the corrected information. Management has also informed the OIG that the Communications staff

has been provided with TVA subject matter contact information and instructed in updated emergency communication processes. Emergency communication plans are being developed for specific scenarios which could occur at TVA facilities. These plans are to incorporate best practices, including those identified from benchmarking other power producers.

Reparations to Victims

Recommendation: TVA should continue to work with the committees and local residents to improve the communications related to TVA's property acquisition and claims process.

TVA states that it remains committed to restoring the community around the Kingston ash spill site and that commitment involves communicating with TVA's neighbors in the area and supporting them throughout the recovery process. Since the spill, ongoing communication efforts have included neighborhood meetings, open houses, public briefings, individual consultations, and work with public officials. TVA management informed us they have directly worked with impacted individuals and businesses to clarify the claims process and we will verify this in an upcoming follow-up review pertaining to reparations to victims. We acknowledge that specific aspects of the claims negotiation and settlement process involve sensitive and confidential information which cannot be disclosed publicly. Sensitive/confidential claim settlements coupled with pending litigation limits the communications improvement opportunities related to TVA's property acquisition and claims process. TVA has purchased 148 properties and may purchase additional properties that are directly affected by the remediation efforts moving forward.

Through OIG observations and fulfillment of our oversight responsibility, we have noted that TVA has implemented diverse communication mechanisms to address inquiries and provide information to the residents and media. Information communication sources include:

- Public Meetings – Public meetings are being held to address various questions and subjects. For example:
  - An informational public meeting hosted by TVA, the Tennessee Department of Environment and Conservation (TDEC), and the Environmental Protection Agency (EPA) was held on October 1st in Kingston. Presentations made by TVA, TDEC, and EPA are posted on the TVA Kingston Recovery Web site.
  - A Joint Availability Session hosted by TVA, TDEC, and EPA is scheduled for December 8, 2009, in Kingston. TVA subject matter experts and agency representatives from the Kingston Ash Recovery Site are to be on hand to answer questions and concerns about the cleanup.
- Opportunities for Public Comment – TVA is working with the EPA to recover the Kingston Fossil Plant ash spill site. As part of this process, two important documents have been released for public comment: (1) the Engineering Evaluation/Cost Analysis (EE/CA) Work Plan, and (2) the Draft Community Involvement Plan. These documents may be viewed at the TVA Outreach Center, Kingston Public Library, the Harriman Public Library, or online at www.tva.gov/Kingston. TVA is accepting comments by mail and e-mail.
  - The Engineering Evaluation/Cost Analysis Work Plan describes the process TVA will use to evaluate removal action alternatives at the site.

- The Draft Community Involvement Plan specifies outreach activities TVA will use to address community concerns and expectations. It also explains the opportunities for public involvement in the decision-making process at the site.

- The TVA Outreach Center – TVA's Outreach Center opened in Kingston on January 6, 2009, to address residents' questions and concerns and process damage claims. The Outreach Center remains open from 2 to 6 p.m., Monday through Friday. In 2010, the Outreach Center will transition to a learning library to keep people informed about site progress and other TVA initiatives.

- Oak Ridge Associated Universities (ORAU) Web site – TVA has contracted with Oak Ridge Associated Universities to provide services to the Kingston community and individuals with health concerns related to the Kingston ash spill. Oak Ridge Associated Universities is a consortium of 100 doctoral-granting academic universities that collaborate to advance scientific research and education in areas, including health issues. Oak Ridge Associated Universities, in conjunction with Vanderbilt University Medical Center, has been conducting free medical screenings. The purpose of the medical screenings is to provide concerned residents of Roane County with targeted medical testing to screen for adverse health effects potentially related to the fly ash spill. More than 260 residents have signed up.

  While TVA's Kingston Recovery Web site posts information on the health program initiative, Oak Ridge Associated Universities created a Web site to give those residents affected by the fly ash spill a place to: (1) sign-up to be contacted for medical screening; (2) ask Oak Ridge Associated Universities any questions regarding health concerns or the medical screening process itself; and (3) learn about the medical screening protocol as well as view related forms.

- News Releases and TVA's Kingston Recovery Web site – TVA has made many news releases available to the public, many of which are linked to TVA's Kingston Recovery Web site. For example, TVA released that it has provided a $43 million grant to the newly established Roane County Economic Development Foundation to help offset the potentially negative impact of the spill and the site-recovery operations. The information provided by TVA includes that the foundation's board will consist of four representatives from TVA and four elected leaders from the local partners -- Roane County, Kingston, Harriman, and Rockwood. The board will set criteria for considering requests and any project must be approved by the board before it is funded.

  In addition to fact sheets, reports, and other documents (e.g., TDEC, EPA, and congressional hearing information), the TVA Kingston Recovery Web site includes:

  - Environmental test results pertaining to air and water quality monitoring.

  - Kingston Ash Recovery Project Weekly Reports – Examples of information topics discussed in the weekly reports include: (1) recovery highlights; (2) infrastructure and ash management; (3) ash dredging and processing; (4) ash disposition; (5) Cenosphere recovery; (6) routine air, water, and sediment sampling; (7) dike reinforcement; and (8) communications.

- Area Resident Information Updates – TVA is posting updates which include information on plant activities as well as the cleanup for area residents. For example, the November 10, 2009, update included information on:
  - Why the plume from the stack will be different based on maintenance and testing activities.
  - Why TVA will add layers of sand, stone, and riprap along Dike C.
  - Scrubber start-up and the resulting white plume.
  - The lowering of water levels in the reservoirs to winter fill levels and precautions to take to avoid direct contact with ash when performing dock maintenance.

- Message Boards – TVA continues to use electronic message boards positioned along Swan Pond Road to alert residents in the surrounding area to meetings, train crossings, road closings, etc.

Additional Information

Following a September 18, 2009, test burn release incident, the recovery site manager and the communications team agreed to take the lead for the entire site. This includes not just the clean-up area, but also the plant. TVA has recognized that the culture at the plant must be changed to consider the visibility issues associated with plant operations and spill recovery. A site-wide communications and notification plan that includes both the Recovery Site and the plant is being developed.

In addition, to improve communications at Kingston, a Recovery Site employee attends the Plan of the Day meeting at the plant each morning and a plant employee attends the Recovery Operations meeting at the end of each day. TVA also continues to deliver information door-to-door about plant-related activities to residents who live along Swan Pond Road and who do not have the ability to receive e-mail.

Review of the Kingston Fossil Plant Ash Spill Root Cause Study and Observations about Ash Management

With regard to the OIG's second report, Review of the *Kingston Fossil Plant Ash Spill Root Cause Study and Observations about Ash Management*, the OIG recommendations focus on needed culture change, process improvement, and accountability. Management's key planned, completed, and/or ongoing actions taken to address our findings and recommendations are cited below.

Culture that Affected Ash Management and Other TVA Programs

Recommendation: Commission a dedicated cadre of professionals skilled in change management focused solely on driving compliance throughout TVA and measuring positive changes in the culture that affect ash management and other TVA programs.

As noted in our report, attitudes and conditions at TVA's fossil plants that emanate from a legacy culture impacted the way TVA handled coal ash. Cultural issues have also been identified as contributing to findings in other OIG reviews. Over TVA's more than 75-year history, cultural traits have developed that if not identified and addressed can undermine the best policies and procedures. The importance of recognizing cultural limitations cannot be overemphasized.

For TVA's continued success, we believe the culture must be accurately assessed, compliance with new policies and procedures must be faithfully measured with appropriate metrics, and employees must be educated to think differently about TVA's business, operational, and safety practices. As a result of reports from both McKenna and the OIG, TVA has recently begun implementing actions to assess the culture and drive change management. Specifically, TVA:

- Selected the firm of McKinsey & Company (McKinsey) to complete a detailed review of TVA's systems, standards, controls, and culture. The McKinsey review will include how to transform the organization, including governance and accountability, organizational structure, operating policy and procedures, and institutional capabilities.

- Created a new organization, Corporate Governance and Compliance, to focus on three issues: (1) organizational effectiveness, (2) compliance, and (3) performance analysis.

- Launched its Organization Effectiveness Initiative, which aims to strengthen TVA's organizational capabilities to deliver on its mission and strategy, as well as to improve organizational effectiveness, cooperation, and engagement within TVA.

TVA is exhibiting a determined commitment to addressing the systemic cultural issues that have been identified. Both the methodology and the focus TVA is bringing to this problem indicate how seriously the issues raised are to TVA leadership. The OIG will track and report on the progress of this effort.

Sound Ash Management Policies and Procedures

Recommendation: Assess the culture of the Fossil Power Group to determine what changes need to be made, if any, to ensure the support for sound policies and procedures related to ash management.

In addition to the overall TVA organizational effectiveness initiatives, TVA has taken several actions management believes are necessary to ensure the support for sound policies and procedures related to ash management. In essence, these actions are deemed significant by TVA management in not only correcting failures and deficiencies but in addressing management improvement initiatives. In fiscal year 2009, the Clean Strategies and Project Development organization was established to help position TVA to meet the many challenges following the environmental event at Kingston. To strengthen the focus on TVA's coal combustion by-products and clearly establish accountability, two groups were created within Clean Strategies and Project Development:

- Coal Combustion Products and Engineering group – Responsibilities include evaluating the physical integrity of all TVA ash and gypsum disposal facilities, prioritizing projects across the system, and creating a rigorous routine inspection program.

- Coal Combustion Management group – Responsibilities include the development and implementation of a consistent fleet strategy to address handling of all TVA coal combustion products.

While it is too early to determine whether the reorganization will promote and drive culture change, it does dictate that all elements of ash management--environmental, engineering, and operations/maintenance--are now under the control of a single organization with its own standalone budget. This should provide a control mechanism to make certain that funding needed for ash management is not redirected to address other capital or operating and maintenance needs.

Ash Management Practices

Recommendation: Assess the management practices of TVA for ash management to determine whether those practices contributed to the failure of the dike at the Kingston Fossil Plant.

Management acknowledges that the studies of the TVA OIG, McKenna, AECOM, and Stantec Consulting Services, Inc. (Stantec), resulted in the identification of failures and deficiencies, which serve as the key drivers for remediation projects and the management improvement initiatives. TVA management prepared a gap analysis based on the findings and recommendations in the reports and recommendations from the Board. The gap analysis resulted in the identification of improvement initiatives, including the need to:

- Develop a programmatic document.
- Conduct industry benchmarking and best practices assessment.
- Develop a formal communication plan and procedures.
- Improve the environmental review process.
- Update the budget process.
- Develop standardized design, construction, and operating procedures.
- Develop a formal training program.
- Implement a new organizational structure.
- Integrate ash management into Enterprise Risk Management Program.
- Manage ash ponds in compliance with the Dam Safety Program.
- Develop a robust quality assurance/quality control program.
- Develop a robust inspection and reporting program.
- Develop an instrument monitoring program.
- Complete Stantec assessments.
- Develop a cultural change management program.
- Become an industry leader in coal combustion product management.

Projects and supporting plans have been developed or are in the process of development to address the initiatives. The progress of each improvement project/initiative is being tracked using the gap analysis. Improvement initiatives completed include budgeting and planning processes and performance measures and metrics. With regards to inspection training, which has been raised as a key issue, TVA coal combustion product plant personnel have been trained by Stantec. TVA Police are also being trained to be used as an additional source to identify any potential issues; however, training has not been completed.

All of this information is incorporated in the Coal Combustion Products Remediation Plan. The Coal Combustion Remediation Plan was developed as a result of the TVA Board resolution to provide a formal fossil impoundments remediation plan. The plan calls for the conversion of all wet coal combustion product facilities to dry operations by 2020. According to management, as a result of (1) independent assessments performed by the TVA OIG, McKenna, AECOM, and Stantec; (2) resolutions adopted by the TVA Board of Directors directly related to the development of a formal Fossil Remediation Plan; (3) testimony provided by Mr. Kilgore to the House Subcommittee; and (4) other improvements recommended by the new organization related to systems, processes, controls, and standards, plans have been developed to support (a) management improvements, (b) operating and maintenance actions related to the ongoing engineering assessments of coal combustion product facilities, and (c) capital projects required to address near-term and long-term remediation actions.

Management's current primary focus is on reducing high hazard potential at four sites and addressing areas of risk at all locations. High hazard dams include those where failure or mis-operation will probably cause loss of human life and does not reflect the likelihood of a failure occurring. The four sites identified as high hazard by TVA include Bull Run, Colbert, Cumberland, and Widows Creek Fossil plants. Other management actions are focused on the implementation of new or enhancement of existing management tools, processes, systems, policies, procedures, and standards.

Assessment of All TVA Ash Storage Facilities

Recommendation: Complete the assessments of TVA ash storage facilities and determine which ones are at risk of failure. The determination should be, as suggested by Marshall Miller, based on whether any of the four conditions contributing to the failure at the Kingston Fossil Plant exist sufficiently to pose a significant risk of failure. The determination should not be limited to just looking for the existence of the combination of all four contributing conditions found at the Kingston Fossil Plant.

Stantec, a third party engineering firm, was hired to conduct a four-phase approach to assessing TVA facilities. The first phase has been completed and included site walkdowns, review of inspection reports, records reviews, interviews, detailed site reconnaissance, freeboard analysis, providing recommendations for future analysis and study, and providing recommendations for short and long-term operations. Phase 2, Engineering Studies and Analysis, is ongoing and includes: (1) geotechnical explorations; (2) stability, hydrologic, and hydraulic analysis; (3) remediation engineering and workplan development; and (4) conceptual designs. Phase 3, Design and Permitting, and Phase 4, Training Program, are also ongoing. According to Marshall Miller, any overall statements on the safety of the impoundments or risk of another major failure are premature, until all exploration, testing, analyzing, modeling, checking, and peer reviews are completed.

Stantec's analysis is considering whether any of the four conditions contributing to the failure at the Kingston Fossil Plant exist, as well as other factors. Currently:

- Geotechnical drilling is complete for impoundments at 10 of 11 TVA fossil plant sites.
- Soils laboratory analysis is complete for 7 of the 11 sites.
- The Stability analysis is complete for 9 impoundments.

- Slope stability factors and factors of safety are being calculated and compared to accepted standards. Where factors of safety do not meet the desired allowable, recommendations are being made on how to remediate them. During this process, Stantec presents options of remediation for TVA comments and approval. After the strategy is approved, workplans are designed and the Factor of Safety is recalculated using the remediation design.

- Currently, draft geotechnical reports have been prepared for four impoundments and are being reviewed by TVA. The Kingston Dike C final geotechnical report has been issued and reviewed by the OIG's consultant, Marshall Miller. Marshall Miller has provided comments and questions to TVA for resolution.

The original plan was to use the data from Stantec's four-phase approach to complete a stability analysis report for each plant and then to develop corrective actions where problems or Factors of Safety of less than 1.5 were identified. This approach has changed. Currently, as critical issues are identified, workplans are being developed to address the problems and, in many cases, the actual work has or is being completed. For example:

- At Paradise Fossil Plant, because of the geotechnical and laboratory analysis, additional buttressing, armoring and flattening were initiated for the Gypsum Complex. Work has been done to stabilize the Gypsum Complex dikes due to seepage and work is ongoing.

- At Johnsonville Fossil Plant, the water level has been lowered and a seepage collection system and new spillways have been installed.

- At Shawnee Fossil Plant, the exterior dike of the intake dredge cell has been stabilized and reconstructed.

- At Widows Creek Fossil Plant, because of a very low factor of safety and seepage, slopes have been flattened and extensive stability actions have been completed.

TVA is using a combination of contractors to perform remediation activities at the TVA fossil plants. They are also being used to peer review each other's work. An extensive list of required remediation activities has been developed and is being added to as needed.

Ash Management Policies and Procedures

Recommendation: Develop policies and procedures for the storing, handling, and maintaining of ash and ash disposal facilities.

TVA management states that the vision is to modernize the fleet to become state of the art in coal combustion product management. The final development of policies and procedures for the storing, handling, and maintaining of ash and ash disposal facilities has been tasked to an independent contractor. The methodology includes incorporating information obtained from industry benchmarking and best practices assessments. Site visits have been made or are planned to dry ash handling facilities, including Reliant Energy-Seward Power Station, Duke Energy-Allen Station, and Luminant-Martin Lake Station. Site visits have been made or planned to dewatering facilities, including Synmat CUF (gypsum), British Energy-Gale Common, and Luminant-Martin Lake Station.

Organizational Enterprise Risk Management

Recommendation: Continue the efforts to drive the ERM program further down into the organization to increase the future likelihood that known risks will be identified and addressed.

TVA has made recent changes in its ERM process and further improvements are planned. An improvement plan was approved by the TVA's Enterprise Risk Council on January 26, 2009. Key improvement plan components included:

- Formalizing risk management policies;
- Embedding the enterprise risk management process within planning processes;
- Streamlining the TVA risk governance structure by combining the Financial, Operational, and Strategic Risk Committees into one group called the Risk Management Steering Committee;
- Overhauling enterprise risk management mapping methodologies and risk assessment methodologies;
- Engaging key risk management functions and personnel in the enterprise risk management process;
- Enhancing risk analytics; and
- Making enterprise risk management information actionable.

To drive the risk management culture down into and across the organization, TVA:

- Has established TVA-wide training, "Risk Management 101";
- Has drafted enterprise risk management guidelines to be used for risk identification, assessment, and development of risk management plans;
- Started the enterprise risk assessment process with the Strategic Business Units, driving risk management further into the organization;
- Is planning to integrate risk management with major planning processes; and
- E-mailed the first issue of Enterprise Risk Management's new Risk Intelligence Update. The document contains links to stories and resources that are relevant to TVA's risks and general operating environment.

The OIG has been receiving continuous updates on the changes to the ERM processes and procedures. We have noted that ERM management structure, maps, methodologies, and definitions have been overhauled and the improvement initiative is an ongoing effort. We reviewed the detailed information from recent organizational risk assessments and have noted a significant increase in the identification of risks from an organizational perspective. In fact, the risk information was considered in the development of the fiscal year 2010 OIG Audit/Inspection Plan. The TVA Board and management are working to improve risk management through the identification of previously unidentified risks and the development of mitigation activities.

KINGSTON CLEAN-UP OPERATIONS

At Kingston, the water and air quality continues to meet government standards, a Community Action Group has been established, and the dredging process continues. Certain hard spots do exist, however. For example, rain has slowed dredging and processing, onsite rail transportation has impacted the public by blocking Swan Pond Road numerous times throughout the day, timeliness of disseminating sample test results, and trust issues exist among members of the public.

TVA has taken action to address these hard spots by hiring Steve McCracken as the general manager of the Kingston Ash Recovery Project. McCracken, who most recently served as the Department of Energy assistant manager for environmental management in Oak Ridge, Tennessee, has managed three extensive environmental recovery and remediation projects for the Department of Energy.

Following are some key points identified through our attendance at Kingston Recovery Project review updates and review of TVA documents.

Site Remediation

- Cumulatively, as of November 22, 2009, just over 1,989,800 cubic yards of ash have been removed from the river and east of Dike 2.

- TVA continues to take actions to increase shipments to the Arrowhead Landfill in Perry County, Alabama. TVA's current goal is to ship at least 106 to 108 rail cars per day. Actions include testing ways to dewater the dredged ash faster, including aerating and using drying agents. TVA has loaded and transported 103 unit trains to-date for a total of approximately 930,500 tons.

- Ash shipments from the site have lagged ash production. The arrival of two large dredges accelerated the river cleanup. TVA had been removing ash from the river faster than it could transport it off site.

- Ash removal increased from 50,000 cubic yards per week in August to 95,000 cubic yards per week in September. The increase was due to (1) structural improvements to rim ditch, (2) addition of a dredge to the river, (3) addition of trucks for ash removal, (4) addition of wet storage areas, (5) addition of polymer to solids recovery system, (6) new liners, and (7) improvements to conveying systems.

- Launched Safety Improvement Program which includes safety coaching sessions and the establishment of a tri-lateral safety alliance (TVA, Contractors, and Labor Representatives).

- In addition to removing ash from the spill site, as of September 24, 2009, TVA has rescued about 2,000 fish that had been trapped due to the ash spill.

- Critical milestones have been established and are being tracked.

- Oak Ridge National Laboratory, the Tennessee Wildlife Resources Agency, and TVA performed fall fish collection as part of the overall ongoing fish health study.

WHAT THE OFFICE OF THE INSPECTOR GENERAL IS CURRENTLY DOING

Kingston Ash Spill Environmental Review

The OIG in conjunction with Marshall Miller is currently performing an environmental review pertaining to the Kingston ash spill. The objectives are as follows:

- Determine the adequacy of the current programs, processes, and procedures being used to fully characterize the impacts to the environment as a result of the Kingston failure.
- Assess TVA's communications regarding environmental impacts and analytical results for reasonableness.
- Determine if TVA's short- and long-term environmental recovery plans are reasonable and if appropriate mitigating actions have been taken to reduce the impacts of the release.
- Review the Transportation and Disposal Plans to determine if appropriate steps have been taken to minimize any environmental impact during transportation and disposal.
- Review groundwater monitoring results for ash basins at the other fossil plants to identify processes and ongoing monitoring activities.

Marshall Miller's interim progress report is summarized below.

Marshall Miller Interim Progress Report

At the request of the OIG, Marshall Miller prepared an interim progress report summarizing its review of the environmental response and ongoing environmental monitoring program by TVA at its Kingston Fossil Plant. Marshall Miller has not yet completed its review of all relevant data.

Background and Objective

Marshall Miller reviewed the adequacy and completeness of TVA's environmental recovery plans in response to the December 22, 2008, ash release. The intent of Marshall Miller's review is to evaluate whether TVA's ongoing response and planning are providing comprehensive and effective measures to mitigate the short- and long-term impacts from an estimated 5.4 million cubic yards of coal ash that spilled from the on-site dredge cell into the nearby Emory, Clinch, and Tennessee Rivers and their tributaries. Thus far, the evaluation has included a review of relevant documentation related to sampling of the various media, interviews with key team members from TVA and subcontractors overseeing the cleanup, and observations of sampling and data collection procedures during site visits conducted on November 18, 19, and 20, 2009. The evaluation focused on the following media:

- Air (fugitive dust originating from coal ash accumulations);
- Surface water and raw water intakes for nearby water treatment plants;
- Stormwater (effluent from ash impacted areas and from dewatering);
- Sediment;
- Groundwater (includes domestic water supply wells); and
- Biological (biota).

All of these media comprise important migration pathways, which have the potential to expose human and ecological populations in the vicinity of the spill. The inherent instability and mobility of coal ash contributes to its rapid dispersal throughout the environment, mandating the need for a rapid response program that originally included measures to: (1) evacuate nearby residents from the path of the spill; (2) protect downstream drinking water intakes; (3) alert the broader community regarding potential impacts to air and drinking water; (4) rescue wildlife; (5) restore roads, railroads, and other infrastructure; (6) protect the ability of the Kingston Fossil Plant to continue providing electrical power to the region; and (7) implement containment measures to contain and control as much of the spilled material as possible.

As initial abatement measures were implemented, TVA, along with TDEC, EPA, and local government agencies jointly responded to the spill in part, by providing sampling and analyses of impacted media. While the common purpose of these efforts was to protect public health from the immediate impact of substances found in the coal ash, it was apparent that the longer term response would require a more comprehensive program to assess the size and scope of impacts resulting from the release. To this end, TVA is taking the lead in developing an integrated plan to address both short- and long-term impacts to human and ecological populations.

On May 11, 2009, TVA entered into an Administrative Order and Agreement on Consent (Order) with EPA Region IV, which directs all response activities under the Comprehensive Environment Response, Compensation, and Liability Act (CERCLA). The Order imposes requirements for TVA to develop short- and long-term plans for mitigating off-site spill impacts through a process of continued investigation, analysis, and evaluation to determine the extent of affected media and to assess potential impacts to human and ecological receptors. The Order also requires that TVA address the short- and long-term management of the coal ash including TVA's clean-up of ash from off-site areas and final containment within the original confines of the Kingston facility.

Conclusions

At this stage of its review, Marshall Miller finds no significant deficiencies in the plans or procedures used by TVA or its contractors in characterizing impacts resulting from the ash release or recovery efforts. Although the procedures used early in the recovery process could not, in some cases, pass the rigorous QA/QC checks now in place, there is no indication that decisions regarding clean-up were made using data of poor quality. Follow-up planning documents prepared by TVA and its recovery contractors appear to be well conceived and are substantially in compliance with applicable regulatory requirements including those stated in EPA's Order.

Peer Reviews of TVA/Stantec's Stability Analyses of All TVA Ash Impoundments

The OIG, along with Marshall Miller, is conducting a peer review of the stability evaluations pertaining to TVA ash storage facilities performed by Stantec. The OIG is working with TVA to review work as it is being completed.

- Stability analysis report for Kingston Dike C has been completed and our peer review is ongoing.

- Some stability evaluations for TVA sites are nearing completion, and we are in the process of scheduling briefings and starting the peer reviews. The stability evaluations include:

  - Johnsonville Fossil Plant
  - Paradise Fossil Plant
  - Widows Creek Fossil Plant

- We have obtained the stability analysis completion schedule and are allocating Inspections' resources accordingly.

- We are attending the Stantec/TVA biweekly update/working meeting pertaining to the stability analyses and corresponding corrective actions.

Reparations to Victims and Other Corrective Actions
The OIG has committed to performing a follow-up review with regards to reparations to victims. We also plan to assess TVA's actions, as they are completed, in relation to recommendations in prior OIG reports on the Kingston ash spill.

Conclusion

Based on TVA's actions identified in response to our findings and recommendations, it appears TVA is marching in the right direction. The OIG has perhaps been TVA's harshest critic in terms of how they handled coal ash storage and how they handled the crisis after the fact. Our impression now, however, is that TVA management is not just reacting to criticism to get out of a crisis, but they are committed to transforming TVA.

Despite having a legacy culture that is resistant to change, the OIG remains optimistic that the current efforts to effect meaningful changes at TVA will be successful for these reasons: (1) the kinds of reforms being implemented at TVA are system-wide process changes that have worked well in private sector companies that have not had the system failures TVA has experienced; (2) TVA management has demonstrated a willingness to get input from culture experts outside the Valley, and they seem to be taking all of this very seriously; (3) TVA management has recently gone through an extremely robust evaluation of risks that is unparalleled in TVA history; and (4) TVA management has made personnel changes that to OIG is credible evidence of a commitment to do whatever it takes to get this right.

The OIG will continue to provide an oversight role and measure the progress that TVA makes. We appreciate this Subcommittee's efforts to protect the citizens of the Tennessee Valley by focusing on these important issues. We will work with this Subcommittee to track TVA's progress in clean-up, remediation, and risk reduction efforts.

McKenna Long and Aldridge LLP Findings

After the December 22, 2008, ash spill at the Kingston Fossil Plant, the TVA Board of Directors hired the law firm of McKenna Long & Aldridge LLP (McKenna) to, among other things, investigate and report the facts surrounding the spill. As noted previously, in its July 21, 2009, report to the TVA Board of Directors, McKenna concluded that TVA did not have adequate systems, controls, and procedures in place prior to the spill and, therefore, employee performance could not be measured against acceptable performance standards. McKenna noted that a myriad of issues, cultural and procedural, needed to be addressed.

The McKenna report cited the following findings to support its conclusion that necessary systems, controls, standards, and culture were not in place:

Lack of Clarity and Accountability for Ultimate Responsibility. The number of groups sharing responsibility for managing the coal byproduct retention ponds, combined with frequent reorganizations, created a lack of accountability. For example, while the Fossil Engineering Division was tasked with ultimate responsibility for the safety of the ponds, the Coal Combustion Byproducts Division considered any order to stop dredging from Fossil Engineering as merely a recommendation.

Lack of Standardization, Training, and Metrics. TVA did not have in place standard procedures regarding operations and maintenance of its five wet ash ponds. Instead, the activities at each location were determined by local personnel. Moreover, TVA did not have standardized training for the engineers performing annual inspections of the retention ponds or for the individuals performing daily inspections. While manuals for ash handling were developed for each facility in 2006, they were never updated and were difficult for a non-engineer to comprehend and implement.

Siloed Responsibilities and Poor Communication. Four separate TVA divisions shared responsibilities related to ash retention facilities. Although the responsibilities overlapped and were interdependent, communication between the groups was poor. For example, the ash handlers at Kingston continued dredging in the fall and winter of 2008, despite having been stopped in mid-November of 2007 under engineers' orders because of danger from excessive water from rain in the winter.[1] The ash handlers at Kingston continued dredging in the fall of 2008 because the engineers had not instructed them to stop. The engineers, on the other hand, noted that no one had asked about continuing the dredging into the fall and winter of 2008.

[1] The 2009 Annual Inspection Report for Kingston, which was based on the physical inspection performed on October 20, 2008, contained the following: "Dredging to these cells was stopped in mid-November 2007 based on recommendations from EDS and Geosyntec Consultants, Inc. This preventative measure was taken to reduce water levels in the dredge cell through the winter months. Dredging restarted in March 2008 and was still in operation at the time of the inspection [October 2008]."

Lack of Checks and Balances. After completing the initial dikes for a new coal byproduct retention pond, TVA did not perform routine inspections to ensure that the pond was constructed in accordance with engineered specifications. Because TVA lacked a strong Quality Assurance/Quality Control plan, when a deviation was uncovered, there was significant disagreement over the appropriate response resulting in a failure to act on a proper corrective action. This created an environment where employees felt empowered to ignore engineers and "build it better" than the drawings.

Lack of Prevention Priority and Resources. The individual plants were responsible for the budget for routine maintenance of coal byproduct retention ponds, such as regular mowing and performing any "fixes" outlined in the annual inspection reports. The TVA budget process was an impediment to the upkeep of the ponds because it was not formalized and tended to prioritize regulated assets over unregulated assets and then generating assets over non-generating assets. The funds allocated by TVA's ad hoc approach were inadequate for routine maintenance, creating a situation in which adequate inspections were impossible because the sides of the dikes were overgrown and maintenance needs compounded over time. When byproducts was reorganized after the Kingston Spill, two retention ponds were identified where, under current operating conditions, the capacity to take additional byproduct could be exhausted within two years, but there were no plans in place for addressing those situations.

Reactive Instead of Proactive. In 2003 and 2006, seeps along the west side of the Kingston dredge cells were discovered. TVA's response was limited to patching the specific leaks. Investigating the cause of incidents such as the seeps is fundamental to a robust safety program. The system failings identified by McKenna were not detected in conjunction with these seeps, and no effort was made to leverage the lessons learned across TVA's Fossil Fleet. Moreover, in 2000, Widows Creek experienced an incident very similar to its highly publicized gypsum spill that occurred in January 2009. Plant personnel determined that the 2000 incident was caused by the failure of a sealed abandoned weir. The fix was to remove the failed weir without addressing the other abandoned weirs at Widows Creek (such as the abandoned weir that gave way in 2009), or any other TVA facility. Additionally, an August 2005 incident in Pennsylvania during which 100 million gallons of fly ash spilled into the Delaware River through a breached plug in an ash settling pond did not prompt any response or study within TVA of TVA's own potential ash pond risks.

Written Remarks of Commissioner Albert Turner, Jr. On Perry County's Coal Ash

The day has come when Perry County, Alabama, the birth home of Coretta Scott King, has finally pulled itself up by its own boot straps and has joined in on the American dream. A place where the unemployment rate is above 15%, but our high school graduation rate is above 95%. Perry County, Alabama is the place where in 1970s had more Ph. Ds per capital than any other county in Alabama. Perry County, Alabama is the place where the modern Voting Rights Movement started in 1965 with the night march and death of Jimmy Lee Jackson, who was shot at point blank range for seeking the right to vote in a demonstration march led by my father Albert Turner, Sr. Perry County, Alabama is the only county in the nation to hold an official county holiday celebrating the historic election of President Barack Obama. Perry County, Alabama now is the first place in the South to construct a "state of the art" landfill that will be an environmental safe disposal site for coal ash. The economic development opportunity, along with safe environmental management practices has put renewed hope back into a once proud county.

Perry County led the way during the 1960s in the field of civil and voting right; we are now poised to lead the way in environmental disposal of coal ash. The contract between TVA and Arrowhead Landfill has provided the county with an economic boost, unseen since the state of Texas struck oil. The windfall has allowed the county to put together a master plan of economic development and infrastructure advancements unseen in this rural Alabama County. A county that now will have a budget of eight million dollars a year to service eleven thousands citizens. In plan words, we have transformed one of the poorest counties per capital in Alabama to one of the more affluent counties in Alabama. Perry County now will have almost one million dollars per one thousand residents. The Perry County Commission is set to move our county in a direction that will see a much improved community starting with our infrastructure. Through President Obama's stimulus package and the monies that have been received from the coal ash

agreement, we have parlayed $300,000.00 into a $5,000,000.00 water expansion for the residents. Thanks to both the President and TVA decision to dispose of its coal ash in Perry County. Now, more than 96% of the residents of Perry County will have clean fresh drinking water. Thanks to Arrowhead and TVA the tonnage payments will provide our school system with more than $500,000.00 over the next year. These funds saved our system from massive layoff and the cutting of vital educational afterschool programs. These funds will keep our school system with a reserve and push ahead with plans to keep our system ranked in the top 15% of all school systems in Alabama. Tonnage fees have allowed both cities located in Perry County (Marion and Uniontown) to meet their obligations and allow room for economic growth. The monies have allowed us to seek grants, now that we have matching funds as required.

Now that Perry County is poised to join the ranks of the haves, those naysayers shout environmental racism. It would be economic racism if EPA or TVA stops the flow of cash for ash. It would be environmental racism if the way the industry prior to Arrowhead Landfill's "state of the art facility" be allowed to continue to dig a hole in the backyard of African American communities and fill it with water and coal ash. There are hundreds of unlined ash ponds around the country that have been in operation for decades. These ash ponds do not have the level of controls that are in place at the Perry County Arrowhead landfill facility, however, environmentalists have not said a word. Now, that Perry County stands to make millions of dollars per year on the spill in the river and even more from the remainder of ash on site at TVA, environmentalists are now concerned about the environment. I wonder if the concern is about a once poor economically depressed African American government run county joining the ranks of the affluent, educated, infrastructural sound and economically poised to move her to the American dream is their real concern and not the environment. Environmentalists groups have not called for a congressional hearing. Environmental groups have not called for an investigation into the disposal of coal ash. Environmentalists have not appeared on any 60 Minutes television documentaries to highlight their concerns. Environmentalists have not requested any EPA oversight. No protest by environmentalists or

any other group over the disposal of coal ash prior to Perry County receiving coal ash. . To this date, there have been no mentions of the effects of the legacy ponds that exist in Alabama and around the country. This lack of action by environmentalists leads me to believe that all the attention placed on Perry County and its agreement with TVA/Arrowhead is about economics not the environment.

Since the deployment of the ash to Perry County in June of 2009, 65 Perry County residents have been employed making more than average salaries, according to Arrowhead documents. The Perry County Commission has received more than $500,000.00. The county has expanded its water system. New home construction has increased. There have been zero foreclosures. Thirty-six miles of new roads have been paved, bond debt payments from our two cities have been caught up, and 15 grant applications have been approved ranging from housing to healthcare to education. Now, the Marion wastewater treatment facility is in line for necessary upgrades with money being received from tonnage payments. I come to Washington, DC to tell this committee that without the mishap in Tennessee, the blessings in Alabama would not be possible.

On behalf of the 11,735 citizens and the one citizen who has come to the Perry County Commission and voiced her complaint not about the coal ash itself, but about the amount of coal ash that we would be receiving, I say thank you and send us some more.

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Congress of the United States
House of Representatives

October 14, 2009

The Honorable Lisa Jackson, Administrator
U.S. Environmental Protection Agency
Ariel Rios Building, Mail Code: 1101A
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Administrator Jackson:

I write regarding the aftermath from a significant coal ash spill in December 2008, at the Tennessee Valley Authority's (TVA) Kingston Fossil Plant in eastern Tennessee. Approximately 3 million tons of coal ash from that spill has been transported for storage in Perry County, Alabama, a rural community located in my Congressional district.

As you know, there has been considerable public controversy regarding the transfer of the waste from what is believed to be the largest coal ash spill in American history. At least one state, Pennsylvania, refused to receive the shipment on the grounds that the ash did not meet the state's environmental standards for beneficial use. While Alabama's less rigorous environmental standards did not preclude the storage of the coal ash, persistent questions have been directed to my Congressional office and to local elected officials. These anxieties have been exacerbated by news reports about the uncertain impact such a massive distribution of coal ash will ultimately have on the health and drinking water sources of communities located near such storage sites. Other concerns involve the absence of clear and uniform federal standards as to whether coal ash itself constitutes a health hazard.

I have not viewed these questions as easy ones. My office has met with and communicated with local officials who approved the storage of the coal ash in Perry County, and with residents who are deeply worried and frustrated about the difference in safety standards between Alabama and other states. My office has communicated with federal environmental officials and has sought to maintain a dialogue with all parties who have a stake in this issue. Certainly, I am more than sympathetic that the storage of industrial waste is a job source in high unemployment counties like Perry and that the county will benefit from tax revenues generated by this storage. I am also mindful that the storage violates no current state or federal law, and that a reclassification of coal ash as hazardous could pose significant burdens on coal-reliant industries.

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However, it is increasingly apparent that the federal government has to date not conclusively analyzed or addressed the potential hazards of large scale coal ash storage. I believe that residents and elected officials in Perry County deserve a clearer answer than they have received about the health and environmental risks posed by coal ash. The time has come for the Environmental Protection Agency (EPA) to establish consistent standards at the federal level that would fully address these legitimate concerns about the content of coal ash waste. If coal ash poses an unacceptable level of risk, inconsistent state standards should be immediately replaced with national guidelines that would put the safety of the people in one community on the same level as families living in another. I do not presume to know what the national standard should be, or how it would impact the storage of coal ash in Alabama, but both the coal-fired power industry and communities weighing whether to store coal ash should have the benefit of predictability and consistency.

Therefore, I join my colleague Congressman John Lewis, who in his own letter, calls for the EPA to promulgate consistent and enforceable standards for regulating coal ash. I hope that the EPA's action in this matter will be prompt.

Sincerely,

Artur Davis
Member of Congress

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