



Tennessee Valley Authority, 400 W. Summit Hill Drive, Knoxville, Tennessee 37902

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October 2, 2009

Mr. Leo Francendese
U.S. Environmental Protection Agency
Region 4
61 Forsyth Street Southwest
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Dear Mr. Francendese:

Please find enclosed the revised Draft Community Involvement Plan which fulfills the requirements of Section XXXVII paragraph 96 of the Administrative Order and Agreement on Consent.

Please contact me if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Anda A. Ray".

Anda A. Ray

Enclosures

**Tennessee Valley Authority
Regulatory Submittal for Kingston Ash Recovery Project**

**Documents submitted:
Revised Draft Community Involvement Plan**

**Date submitted
10/02/2009**

**Submitted to whom
Leo Francendese**

Concurrence

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DRAFT
COMMUNITY INVOLVEMENT PLAN FOR THE
TVA KINGSTON FOSSIL PLANT ASH
RECOVERY PROGRAM

Prepared for:



Tennessee Valley Authority

October 2, 2009

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ACRONYMS AND ABBREVIATIONS

AOC	Administrative Order and Agreement on Consent
CAG	Community Advisory Group
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CIP	Community Involvement Plan
EE/CA	Environmental Evaluation/Cost Analysis
EPA	U.S. Environmental Protection Agency
ERRB	Emergency Response and Removal Branch
FGD	fuel gas desulphurization
JIC	Joint Information Center
LFA	Lead Federal Agency
MOC	Memorandum of Concurrence
NAAQS	National Ambient Air Quality Standards
RSWP	Remedial Site Work Plan
SAP	Sampling and Analysis Plan
SO ₂	sulfur dioxide
START	Superfund Technical Assessment and Response Team
TAP	Technical Assistance Plan
TCASN	Tennessee Coal Ash Survivors Network
TDEC	Tennessee Department of Environmental Conservation
TVA	Tennessee Valley Authority
USC	United States Code

1.0 INTRODUCTION

Tennessee Valley Authority (TVA) developed this Community Involvement Plan (CIP) to facilitate two-way communication between the community surrounding the Kingston Fossil Plant and TVA and encourage community involvement in site activities. TVA will utilize the community involvement activities outlined in this plan to ensure that residents are continuously informed and provided opportunities to be involved.

This CIP addresses the TVA Kingston Fossil Plant's relationship to the community (Section 2.0), provides a background of the community (Section 3.0), presents TVA's community involvement Program (Section 4.0), and provides a listing of resources available (Appendices). TVA drew upon several information sources to develop this plan, including community interviews and site files. TVA Site Public Interface Group will oversee the implementation of the community involvement activities outlined in this plan.

1.1 REGULATORY OVERVIEW

On January 12, 2009, the Tennessee Department of Environment and Conservation (TDEC) issued a Commissioner's Order requiring action be taken as necessary to respond to the emergency. On March 2, 2009, TVA submitted to TDEC a Corrective Action Plan, providing a plan for assessment and monitoring of the site, protection of water supplies, management of the coal ash, and protection of site workers and the public.

On May 11, 2009, the U.S. Environmental Protection Agency (EPA) and TVA signed an Administrative Order and Agreement on Consent (AOC) that continued the collaborative work between EPA, TDEC, and TVA, using the EPA's expertise under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Under the AOC, TVA retains its status as lead federal agency, for the Kingston Fossil Plant Ash Recovery Program. The following regulatory agencies provide oversight:

- EPA, Region IV is the lead regulatory agency and provides federal oversight for the Kingston Fossil Plant Ash Recovery Program.
- TDEC provides state oversight for the Kingston Fossil Plant Ash Recovery Program.

Application of CERCLA at the site ensures that response actions necessary to protect public health and the environment are carried out at the Kingston Fossil Plant Ash Recovery site and provides a structured approach to community involvement in the cleanup, including this CIP. Applicable regulations are presented in Appendix L.

2.0 CAPSULE SITE DESCRIPTION

The Kingston Fossil Plant, located on 800 acres in Harriman, Roane County, Tennessee, produces electricity through nine coal-fired units by burning coal in a boiler to heat water, producing steam. Under extremely high pressure, the steam flows into a turbine that spins a generator to make electricity.

The plant draws cold water from the Emory River in through the plant intake, into condensers to cool the steam after it has passed through the turbine. The condenser transforms steam back into purified water and it is used again. The cooling water from the Emory River, now warm from the exchange of heat in the condensers, is released back into the Clinch River through the plant outtake.

The plant generates 10 billion kilowatt-hours of electric power each year, enough to supply the needs of more than 700,000 homes in the Tennessee Valley. The plant consumes approximately 14,000 tons of coal per day when operating at full capability with all nine boiler units being utilized.

2.1 SITE HISTORY

TVA created Watts Bar Reservoir in 1942 as part of its mission to conduct flood control, provide for navigation and harness the river for energy production. The Kingston Fossil Plant is located on the Emory River portion of Watts Bar Reservoir close to the confluence of the Clinch and Tennessee Rivers near Kingston, Tennessee.

The Kingston Fossil Plant is one of TVA's larger fossil plants. The facility was conceived and built to supply nearby Oak Ridge atomic energy installations with a steady supply of electricity. Plant construction began in 1951 and was completed in 1955. At the time of its completion, it was the largest coal-fired power plant in the world, and it remained so for over a decade.

The Kingston Fossil Plant constructed two 1,000-foot stacks in the 1970s to replace the original nine towers, which are still standing but are no longer in use at the plant. TVA has installed selective catalytic reduction controls on all nine boiler units at the Kingston Fossil Plant to reduce nitrogen oxide emissions. TVA is also installing two sulfur dioxide scrubbers at the Kingston Fossil Plant along with a new stack. The first scrubber will become operational in the fall of 2009, and the second by summer 2010. Scrubbers, or flue gas desulphurization (FGD) equipment, use a wet limestone slurry that reacts with the sulfur dioxide (SO₂) and removes it from plant gases. Installation of FGD equipment across TVA will reduce system-wide SO₂ emissions by 85% to meet requirements under the 1990 Clean Air Act amendments.

Ash is a product of burning pulverized coal in electric generation plants. The Kingston Fossil Plant produces about 1,000 tons of fly ash per day when operating at full power. Fly ash is a fine powdery material that is removed from the plant's exhaust gases by electrostatic precipitators. Bottom ash, collected from the bottom of the boiler, is heavier and has a coarser residue than fly ash. The collected bottom ash and fly ash (see Appendix M for Material Data Safety Sheets) is then sluiced in a water-based slurry to a wet ash pond for settling. The ash is then dredged from the settling pond and stacked in the dredge cells next to the pond. The three Kingston Fossil Plant dredge cells covered about 84 acres and stored about 9.4 million cubic yards of both fly and bottom ash in mid-December 2008.

The initial 85-acre ash disposal area was completed in 1954, and a larger 275-acre final storage area was completed in 1958. TVA made modifications and additions to increase the original storage capacity of the ash ponds throughout the 1970s. In 1985, Dike C (Figure 2-1), which contained the ash pond, was raised for the third and final time. In 1995, TVA designed and began construction of a vertical dredge cell expansion program that was permitted by TDEC in 2000. This allowed the dredge cells to hold more ash.

On December 22, 2008, there was an ash spill at Kingston Fossil Plant that released roughly 5.4 million cubic yards of fly ash and bottom ash from 60 acres of the 84-acre dredge cell complex (Figure 2-2). The spilled material covered about 300 acres (http://www.epaossc.org/site/polrep_profile.aspx?site_id=4642&counter=9750) of adjacent parts of the Emory River portion of the Watts Bar Reservoir, including most of Swan Pond, West, North, and East Embayments, and reservoir shorelands. Most of this property is owned by the United States and managed by the TVA. No injuries occurred, but about 40 residences and waterfront properties were directly affected by ash deposits or water surge.

2.2 SITE LOCATION

The Kingston Fossil Plant is located in the eastern portion of the county, on a peninsula between the Clinch and Emory Rivers. The plant lies between the cities of Harriman and Kingston, near the unincorporated community of Midtown. While it bears Kingston's name, it actually lies in the city of Harriman (Figure 2-3).

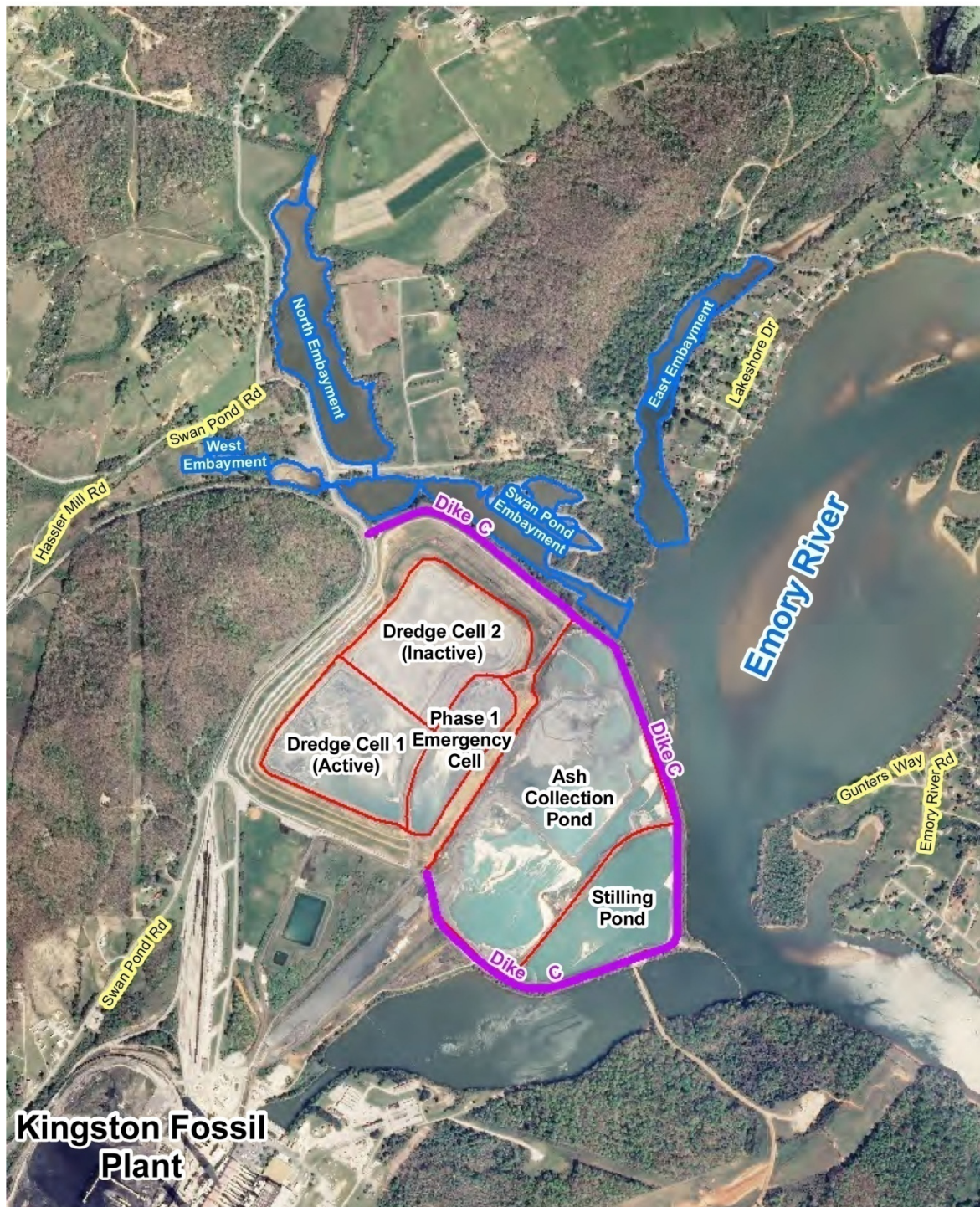
Roane County, Tennessee covers a land area of 360 square miles according to the US Census Bureau. It includes the incorporated cities of Kingston, Harriman, Rockwood, Oak Ridge, and Oliver Springs. There are five high schools in Roane County. The closest, Harriman High School, is 1.96 miles away from the Kingston Fossil Plant. Further, there are four middle schools in the county. The closest, Harriman Middle School, is 1.3 miles away. There are eight elementary schools in Roane County. The closest, Bowers Elementary School, located in Harriman, is 1.2 miles away. Walnut Ridge Elementary School, also located in Harriman, is 2.1 miles away. Many of these schools have associated playgrounds. There are also numerous daycare facilities in Roane County. The closest, Kiddie Corner, located in Kingston, is 4.4 miles away. Roane County is also home to Roane State Community College, a member college in the Tennessee Board of Regents System. Located in Harriman, it is 5.7 miles away from the plant.

There are also numerous public parks scattered throughout the county. In Kingston, the City Park (located on Watts Bar Reservoir) is about 5 miles away from the Kingston Fossil Plant. In Harriman, Roane County park is located 5.9 miles away from the plant. Also, Caney Creek RV Resort & Marina is 6.4 miles away. In Rockwood, the Mike "Brillo" Miller Sports Complex is 10 miles away. Brickyard Springs Park is located 15 miles away from the plant. In Oliver Springs, Arrowhead Park is located 16.3 miles away. Mount Roosevelt State Park is 17 miles away.

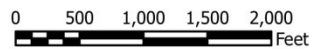
Roane County is served by one community hospital, Roane Medical Center (recently affiliated with Covenant Health). It is located in Harriman, 1.1 miles away from the Kingston Fossil Plant. Also, there is a rehabilitation center, The Bridge, located in Rockwood 10.1 miles away from the plant.

Figure 2-1 – Site Prior to Spill

Aerial Image of Kingston Pre-Ash Slide 2008



**Kingston Fossil
Plant**



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Figure 2-2 – Site Immediately After Spill

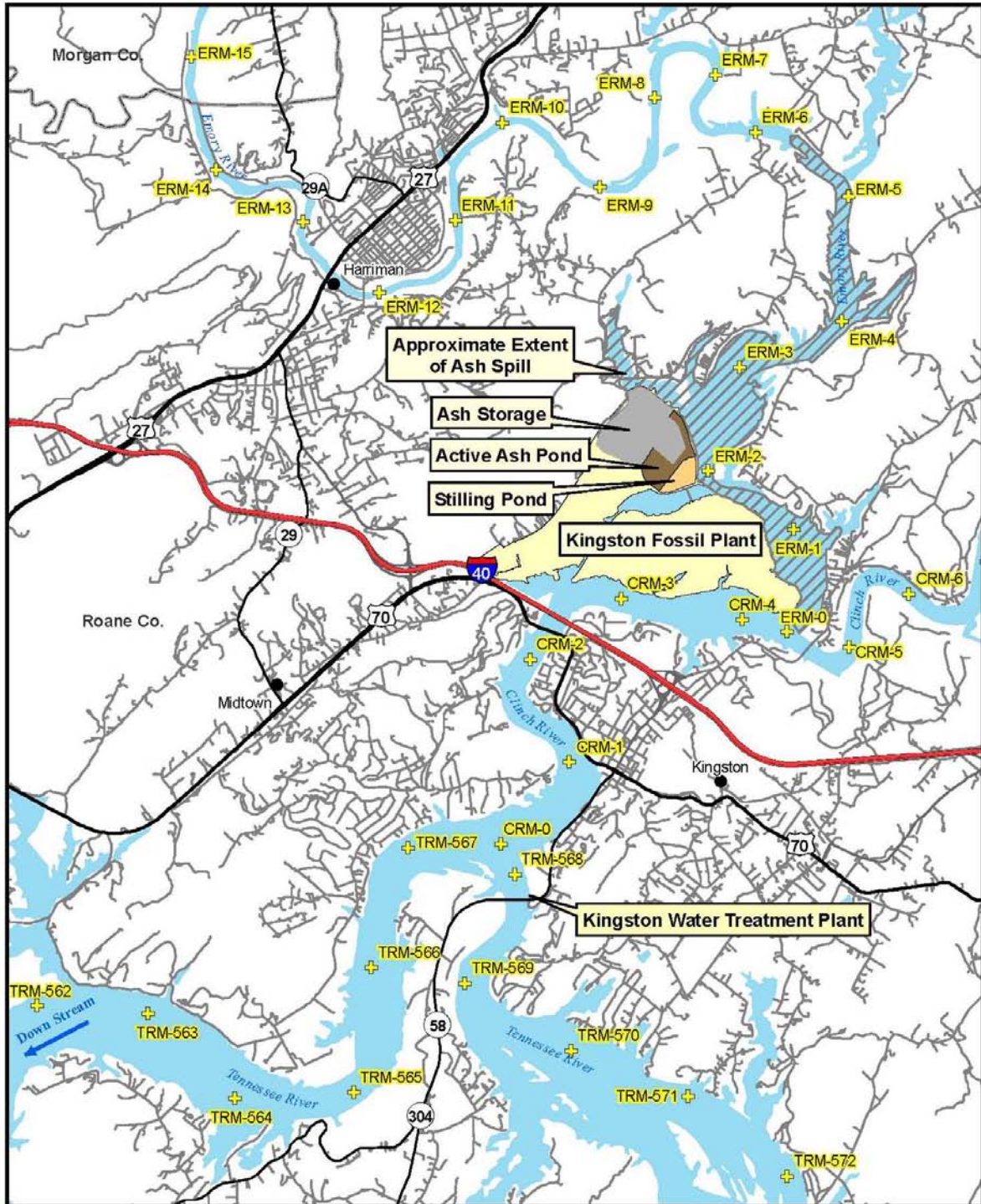
Aerial Image of Kingston Ash Slide December 23, 2008



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Figure 2-3 – Kingston Fossil Plant Vicinity Map



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There are also additional health care facilities located throughout the County. Renaissance Terrace Care & Rehabilitation Center is located in Harriman, 5.7 miles away from the plant. There is also Harriman Care & Rehabilitation Center, located 6.6 miles away from the plant and Foothills Care, Inc. in Kingston, located 5 miles away.

Additionally, the County is served by three assisted living centers for senior citizens. Wellington Place of Kingston, located in Kingston, is 4.1 miles away from the plant. Jamestown Assisted Living, also located in Kingston, is 8.8 miles away. A third assisted living facility, Victorian Square, is located 11.9 miles away in Rockwood.

There is a water treatment plant at Kingston, about 4.8 miles away, and another at Rockwood, about 14.2 miles away. The Cumberland County Utility District, located in Harriman, is 9.8 miles away from the plant.

2.3 SITE INSPECTIONS AND CLEANUP ACTIVITIES

2.3.1 EPA's Early Site Response

On December 22, 2008, in response to National Regulatory Commission report #893129, a Federal On-Scene Coordinator and EPA's Superfund Technical Assessment and Response Team (START) contractor responded to a catastrophic dike failure at the TVA Kingston Fossil Plant. The incident was reported to have occurred around 1:00 a.m. As a result of the dike failure, an estimated 5.4 million cubic yards of fly ash spilled from two of three onsite dewatering cells. The overland impact was estimated between 250 to 300 acres. The ash spill disrupted power, ruptured a natural gas line, rendered three homes uninhabitable, and caused the evacuation of a nearby residential area. Swan Pond Road, Swan Pond Circle, and portions of the rail line serving Kingston Fossil Plant were covered with ash.

TVA responded immediately, by providing housing, meals, transportation and other support to affected residents, beginning public outreach, and starting the process of purchasing homes. TVA began removing ash from affected roadways and railways, started dust control efforts, stabilized the ash cells, built structures to keep the ash from migrating, and began removing cenospheres (floating ash residue) from the river. TVA revamped the area at the Kingston Fossil Plant formerly used as recreational ball fields into a temporary storage facility for ash dredged from the Emory River.

EPA also responded immediately to the spill, mobilizing an On-Scene Coordinator to the site that same day to help coordinate the emergency response.

The following activities were conducted:

- TVA conducted water quality sampling on Monday, December 22 2008, and the report was reviewed by Unified Command.
- EPA initiated a sampling program on December 23, 2008 which included an area approximately one mile upstream of the release area on the Clinch River to the downstream area approximately five miles, ending at the City of Kingston main water intake. In addition to water sampling, fly ash samples were also collected at the point of release. Samples were submitted to an EPA-approved laboratory for total and dissolved metals and total suspended solids.

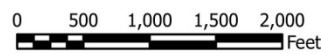
- From December 28th to 30th, EPA re-sampled the Clinch, Tennessee, and Emory Rivers. Two out of 16 samples taken on the water had measurements in excess of the Tennessee Water Quality Criteria for Domestic Supply.
- On December 31, 2008, a hotline for health effects information was established by the Tennessee Department of Health, in consultation with the Agency for Toxic Substances and Disease Registry at (800) 404-3006.
- On December 31, 2008 TVA operations continued and included clearing ash from the impacted roadway and railroad spur; construction of a weir system to control water flow into the plant's river water intake and help reduce the potential risk of fly ash migration into the Emory and Clinch Rivers during rain events; removal of general debris from fly ash-impacted areas; and replacement of damaged water lines.
- On January 2, 2009, sampling data from December 23, 2008 was posted online.
- As of January 4, 2009, the TDEC had collected approximately 40 residential well samples. Under an agreement between TDEC and TVA, TVA agreed to provide the funding of all analytical costs associated with sampling residential wells. TDEC also sampled the water intake and the finished water from the Kingston and Rockwood WTPs.
- On January 4, 2009, EPA, utilizing portable handheld particulate air monitoring equipment, provided real time air monitoring for particulates on and off site near the ash removal operations.
- On January 6, 2009, EPA, utilizing portable handheld particulate air monitoring equipment, provided real time air monitoring for particulates on and off site near the ash removal operations.
- On January 8, 2009, EPA began the demobilization of all non-essential Emergency Response and Removal Branch (ERRB) personnel and START contractors from the site.
- On January 10, 2009 EPA ERRB issued a Memorandum of Concurrence (MOC) to TVA in regard to TVA's Sampling and Analysis Plan (SAP) outline. The MOC recommended TVA proceed with development of the SAP in close collaboration with TDEC.
- EPA submitted a Transfer of Lead Federal Agency (LFA) Authority Memorandum to TVA, effective January 11, 2009, transitioning the LFA role from EPA to TVA.
- On January 11, 2009, all remaining EPA ERRB personnel, contractors, and equipment were demobilized from the site.
- On January 12, 2009, TDEC issued a Commissioner's Order requiring action be taken as necessary to respond to the emergency.

2.3.2 River Response

TVA built a temporary dike (Dike 2) at the mouth of the Swan Pond embayment and the Emory River to minimize the amount of ash migrating from the embayment into the Emory River (See Figure 2-4).

On March 19, 2009, TVA began dredging operations. The Phase 1 Dredging Plan provides the methods and objectives for dredging operations in the Emory River to remove ash and debris in the main channel and focus on getting the original Emory River channel reopened

Figure 2-4 – Kingston Site Cleanup as of August 14, 2009



Tennessee Valley Authority
OE&R - ER&S
Geographic Information & Engineering

for flow. Currently, part of the river channel is blocked by ash and the river is diverting around the blockage. The dredging of the Emory River will be accomplished in the following phases:

- Phase 1 dredging is to clear the Emory River channel to a design elevation of 710 feet mean sea level to restore flow to the channel, to minimize flooding, and to prevent further migration of the ash. This phase also will include dredging to assist in safe removal of debris associated with the collapse of the skimmer wall and to re-establish a flow pathway for cold water from the Clinch River to the Kingston Fossil Plant intake channel.
- Phase 2 dredging is to dredge the remaining ash within the river channel while minimizing disturbance of legacy, native sediments.
- Phase 3 dredging is to remove ash deposits that are outside of the Emory River channel.

The primary equipment used in the dredging process is hydraulic dredges. Mechanical clamshells are also being used to remove debris and ash from the water. Both types of equipment are being operated in a way that minimizes water turbidity, or cloudiness. Continuous water quality monitoring and routine water sampling and analyses will continue to be conducted throughout the dredging process.

Both dredged ash and the ash from daily plant operations are being dewatered and processed onsite, which will minimize the amount of ash entering the ash pond. The ash is dewatered in the ash recovery area and then moved to a temporary storage area onsite for further drying.

TVA is planning to implement various best management practices for the return water from the ash processing area. Return water flow from the dredged material is directed to the ash sluice channel that flows to the ash pond. This is similar to normal ash sluicing operations and it is expected that some ash will settle out in the channels in the ash processing area. A turbidity curtain is in place to keep solids from moving out of the ponds. The curtain was installed prior to commencing dredged material dewatering activities.

2.3.3 Continuing Site Response

On May 11, 2009, EPA and TVA signed an AOC that continued the collaborative work between EPA, TDEC, and TVA, using the EPA's expertise under CERCLA. On May 22, 2009, a plan was submitted to and approved by EPA to construct two additional rail spurs to facilitate loading of ash and transporting it offsite without interfering with normal plant operations. The two new spurs would also facilitate the loading of ash from the Ash Storage Area. On June 13, 2009, TVA began moving ash from the area between Dike 2 and the river to the ash recovery area for ultimate disposal. Dredging continued as TVA and EPA explored options for offsite disposal of all ash. On June 29, 2009, an offsite disposal plan was submitted to EPA and on July 2, 2009, it was approved by EPA. On July 2, 2009, TVA began transporting ash by rail to the Arrowhead Landfill in Perry County, Alabama, following EPA's formal approval of the disposal site. The selection of the Arrowhead Landfill as a permanent disposal location followed a rigorous Request for Proposal evaluation.

TVA has built clean water ditches that direct rainwater around the ash to the river. TVA has built drainage channels into the ash through the embayment to allow surface water to flow. Settling basins have been built to allow ash to settle out of the water before it discharges into the Emory River (see Figure 2-4).

In addition to removal and disposal of ash from the river, TVA has been managing cenosphere cleanup. Cenospheres are a sand-like material created in coal-fired boilers when molten silica solidifies around bubbles of flue gas to form spheres. The cenospheres are so lightweight that they float on water. Cenospheres are typically collected by skimming the surface of the water. The collected cenospheres are then transported by truck to a holding area in the vicinity of the Kingston Fossil Plant ash ponds. Cenospheres continue to appear as dredging continues.

TVA continues the proactive dust suppression activities that began in January. The first activity was the spreading of straw, mulch, and seeds of various grasses on the ash. Next, there was an application of Flexterra[®] — a liquid dust suppression agent composed primarily of wood fibers. A third activity was spraying the onsite haul roads, the portions of the public roads that are used by construction equipment, and the stone being unloaded from trucks with water. Also, wheel-wash stations were installed at the site, and trucking contractors were instructed to drive at acceptable speeds. TVA continues to monitor ash at the site and will add dust control measures as needed.

2.3.4 Sampling and Monitoring

TVA began testing air quality in proximity to the Kingston Fossil Plant shortly after the ash spill on December 28, 2008. Air testing will continue through the completion of the cleanup. The over 100,000 air samples taken by TVA confirm air quality meets National Ambient Air Quality Standards (NAAQS). TVA air monitoring results are available at <http://www.tva.gov/kingston/air/index.htm>. For additional information on NAAQS, see EPA's website <http://www.epa.gov/air/criteria.html>.

EPA and TDEC began water quality testing within hours of the event. Both municipal drinking water and the water sampled from private groundwater wells continue to meet the state standards for drinking water. Links to EPA and TDEC results can be found at <http://www.tva.gov/kingston/water/index.htm>. Visit <http://www.epa.gov/safewater/contaminants/index.html#mcls> for more information regarding national drinking water standards.

TVA has analyzed ash samples and made results available at <http://www.tva.gov/kingston/solids/index.htm>. Data shows that concentrations of metals in the ash are below the limits for classification as a hazardous waste. The coal ash released at the Kingston Fossil Plant is not currently regulated as a hazardous waste under Subtitle C of the Resource Conservation and Recovery Act Section 3001 (b)(3)(A)(i), 42 U.S.C. §6921(b)(3)(A)(i).

The average concentrations of metals in the ash are within the same range of concentrations normally found in natural soils in Tennessee. Only two of the 47 ash samples collected by TVA revealed any metal above the range typically found in Tennessee soils. Thallium was found to be slightly higher (by about 10 percent) in those two individual samples. The overall average concentration and all other samples of thallium were within the expected range.

TVA requested that an interagency group consisting of the U.S. Department of Energy, EPA, TDEC, and the U.S. Army Corps of Engineers evaluate if legacy contaminants would be disturbed by dredging or sampling activities. The group collected core samples of sediments

at eight locations in the Clinch River immediately downstream of the mouth of the Emory River and at two locations in the Emory River. Those samples were analyzed for 23 metals, polychlorinated biphenyls (PCBs), and chlordane. The interagency group concluded that there was no evidence that past contamination of sediments would have any impact on TVA's dredging of ash from the Emory River.

3.0 COMMUNITY BACKGROUND

The following subsections provide a general profile, history, and analysis of community concerns for the Kingston Fossil Plant Ash Recovery site.

3.1 COMMUNITY PROFILE

Roane County was formed by the state of Tennessee in 1801 from parts of Knox County and Indian lands. The county seat is Kingston. The Roane County Commission is the legislative body for the county. Roane County's executive officer is the County Executive.

The population of Roane County, according to the U.S. Census Bureau, was 53,430 in 2008. Among Tennessee's 95 counties, it ranks 26th in population size. The median household income for Roane County is \$41,897, which ranks 23rd in the state. Per capita personal income is \$29,074, which ranks 20th in Tennessee.

According to the U.S. Census Bureau, the ethnic break-down of Roane County's population is as follows:

Table 3-1 – Roane County Ethnic Breakdown

Ethnicity	Percent of Population
White	95.2
Black	2.8
American Indian and Alaska Native	0.2
Asian	0.5
Native Hawaiian and Other Pacific Islander	N/A
Hispanic or Latino origins	1.2
Persons reporting two or more races	0.9

Note: Data current as of 2008.

The Census Bureau reports that 51.4 percent of Roane County residents are female; 17.5 percent of Roane County residents are 65 years or older; 20.4 percent are 18 years of age or younger; 5.0 percent are 5 years of age or younger.

The incorporated cities of Harriman, Kingston, and Rockwood are each governed by a Mayor, Vice Mayor, and City Council. Midtown is an unincorporated municipality. The cities of Oak Ridge and Oliver Springs are partially located in Roane County and partially located in other counties. Kingston's population (2008) is 5,607. Harriman's population (2008) is 6,658. Harriman has more than 100 structures listed on the National Historic Register.

Watts Bar Reservoir is one of the major attractions in the Roane County area. The reservoir is the basin for waters flowing from the Clinch, Emory, and Tennessee Rivers, as well as from countless smaller creeks. The reservoir is located west of Knoxville in the valley between the Great Smoky Mountains and the Cumberland Plateau. Many retirees relocate to Roane County to live year-round and still others own second homes in this community.

3.2 COMMUNITY INVOLVEMENT DECEMBER 2008 - SEPTEMBER 2009

3.2.1 Outreach

TVA's community involvement effort began within hours of the ash spill, as TVA community outreach personnel assisted the evacuation response. The initial focus was to ensure the safety and housing of affected residents for the immediate future and to meet their other needs as a result of the spill. TVA set up a hotline, purchased meal cards and bottled water, and reserved 30 hotel rooms for residents the first day of the spill; in days following, TVA moved 24 families to interim housing.

TVA established an Outreach Team of TVA employees and retirees within three days of the spill. Their dedicated purpose was to relay pertinent information to the community and relay the community's concerns back to TVA, so that TVA could work to address those concerns. They also delivered bottled water to residents from December 26, 2008, through January 2009, and air filters to concerned residents from January through March 2009.

On January 6, 2009, TVA opened the TVA Community Outreach Center, located at 509 North Kentucky Street in downtown Kingston. There, community members can file claims, ask questions, or share issues. Altogether, TVA has assisted more than 750 families who have been in contact with Outreach personnel with questions or concerns, and TVA has recorded more than 500 individual claims. The Community Outreach Center is currently staffed by Outreach Team Members and opened from 2:00-6:00 p.m. on weekdays. TVA also introduced an information line for community members to call to get the latest information (this line has been discontinued), as well as a toll-free phone number for residents to file their claims with Crawford & Company, the insurance firm handling such claims for TVA (see Appendix N for contact information).

Some early TVA Outreach functions included issuing resident passes to those with homes on Swan Pond Road and Lakeshore Drive for accessibility purposes as TVA Police monitored and patrolled the areas; removing marine vehicles from damaged docks in the impacted Emory River area and renting slips for recreational storage in unaffected nearby areas; installing new mailboxes for some residents south of the Kingston Fossil Plant so they would not have to cross the street to obtain their mail as a safety precaution due to an increase in truck traffic; and delivering Tennessee Department of Health information to marinas and campgrounds on the reservoirs near the affected area.

The Outreach Team has delivered doorknob tags and set up electronic message boards to warn residents about temporary road closings, new rail crossings, and new rail signs. These were put in place to relay safety messages and instructions to residents and will continue to be used as a means of communication.

TVA's Realty Services continues to work with the Outreach team to coordinate the potential purchase of approximately 180 properties in the affected area. TVA's guidelines for property purchase were based on whether the property was impacted from the spill or the recovery efforts. TVA is maintaining and TVA Police is patrolling these properties. In order to help maintain these properties, limit the number of empty houses near the site and decrease travel spending, TVA and contractor management and professional staff who are on temporary assignment to the ash spill response are residing in some of the purchased homes.

TVA has contracted with Oak Ridge Associated Universities, a consortium of over 100 universities, to independently address health concerns of Roane County residents (see Appendix N for contact information). Individual confidential health assessments are being conducted by physicians from Vanderbilt University Medical Center. TVA has also contracted with Ridgeview Resources for Living to provide mental health services to residents (see Appendix N for contact information).

3.2.2 Public Meetings/Open Houses

TVA has held several different types of meetings in an effort to keep the local community informed about the recovery efforts. Numerous meetings with homeowner and business groups were held in the impacted area and these will continue as needed or requested. TVA has held two open house events and one public meeting to answer any questions the community might have about environmental concerns and project progress. More public meetings will be scheduled in the future to relay new information about the recovery process as the project moves forward.

Roane County formed the Long-Term Recovery Committee with members that include local elected officials and residents. TVA officials attend meetings to present project updates and respond to questions and concerns from committee members and the community.

3.2.3 Public Officials

Since December 22, 2008, TVA officials have kept local, state, and federal officials informed of the spill's impacts on citizens, and provided updates on activities undertaken to recover the site and community. TVA regularly updates public officials on site progress. Many local, state, and federal officials have toured the site and been briefed on site activities. In addition, TVA officials have testified about the spill before the Tennessee General Assembly and the U.S. Congress (see Appendix O for links to transcripts).

TVA officials have also attended meetings of the city councils of Kingston and Harriman and the Roane County Commission to answer questions about the spill and the response. Contact information for elected officials can be found in Appendices B, C, and D.

On September 14, 2009, TVA and the elected leaders of Roane County and its communities announced the establishment of the Roane County Economic Development Foundation. Through the foundation, Roane County and its communities will receive over \$40 million in economic development funds for locally identified projects as part of TVA's response to the Kingston ash spill. The foundation's board consists of four representatives of TVA and four elected leaders. The first projects approved for funding by the board were the Princess Foundation for Arts Education and Conference Center in Harriman, sewer improvements in Kingston, and the paving of an industrial park road in Rockwood.

3.2.4 Communications

Communicating recovery project progress and information to the people of Roane County is critical to TVA's community involvement and recovery efforts. TVA has worked with local and national media in an effort to provide information to the public. TVA communications staff was on scene within hours of the spill to begin responding to media inquiries and developing information to share with the public. The Unified Command response staff set up a Joint Information Center (JIC) in Kingston to provide a location for press briefings and other

meetings between site leadership and the media. TVA, EPA, Roane County, and TDEC all coordinated media activities through the JIC. Some of the most notable communication efforts through the media included 13 news releases, numerous tours and five briefings to the media over the first 30 days after the ash spill, as well as daily fact sheets for the first two weeks. Updates were placed in the local newspaper, The Roane County News. Fact sheets on the recovery project continue to be released to the media about notable project benchmarks. Also, key TVA management has been made available for interviews with numerous media outlets. TVA continues to provide press briefings for major events, such as the beginning of dredging and the release of the Root Cause Analysis of the spill.

TVA has also mailed letters to communicate with local residents on numerous important topics including Tom Kilgore's testimony given to the Environment and Public Works Committee, flood survey information, and residents' property claim status. On June 15, 2009, TVA mailed a "Report to Our Roane County Neighbors," giving a comprehensive update on the recovery project to community members in Roane County.

The home page of TVA's website (www.tva.com) was devoted to the spill for weeks after the spill and provided constant updates, frequently asked questions, and links to other important sites, like EPA and TDEC. There is a dedicated portion of TVA's website to the Kingston Fossil Plant Ash Recovery located at <http://www.tva.com/kingston>. The site is updated regularly with environmental information, sampling results, and the latest news regarding the recovery operation. All information about the Kingston Fossil Plant Ash Recovery site includes the webpage address, so that readers will know where to go for additional and updated information.

3.3 KEY COMMUNITY CONCERNS

TVA conducted over 50 personal interviews May through June 2009. TVA communications and outreach personnel selected and invited nearby residents and activists, civic leaders, and elected officials who are active in the area to participate. Most interviews were conducted one-on-one or in family groups, and most were conducted in person. Some elected officials were interviewed by phone.

The interview process, including the questions asked in the interviews, was based on EPA's guidance in the Superfund Community Involvement Toolkit. The interviews were dynamic, and focused on listening to the concerns that residents brought to the interviews rather than on gathering static answers to lists of questions. Interviewees were assured of the anonymity of their participation and their responses. A list of the interview questions is found in Appendix J.

The interviews allowed TVA to gather information on residents' concerns with the site. Through the interview process, TVA was able to determine the types of information residents want to receive and how TVA can best provide that information. Following the interviews, TVA analyzed the information provided by the interviewees, as well as information gathered during other interactions with the public since December 22, 2008, and designed this CIP for the Kingston Fossil Plant Ash Recovery Program.

The following sections list the site-related community concerns and issues as expressed in the community interviews.

3.3.1 Health

A majority of residents interviewed expressed concern about health issues. Their main concern was the possibility of future medical conditions and other long-term effects on themselves and their children. Some community members interviewed expressed concern that children might be more susceptible to health effects than adults. For example, one resident questioned, "Is there any hazard to our health? Is it a good place for our children to grow up?" One interviewee stated, "People are worried about cancer and lung disease." Typically this concern was voiced in a general fashion by interviewees, but fears of cancer and lung disease as a result of the ash spill were referred to by a few. Some whose property had been purchased by TVA expressed concern that their settlements included a general waiver that would extend to any future medical claims.

There were interviewees who stated they had no worries regarding health effects caused by the ash. One local resident stated, "I've been raised around coal and ash. It has given us work. I've never had no health problems." Some interviewees mentioned pre-existing medical conditions and the negative impact the ash spill has had on those. Some also made comments about health issues that now exist, but they had not experienced prior to the ash spill. One parent stated, "We are worried for our child's sake. She has asthma; didn't have that before." Asthma, respiratory issues, the taste of metal, bloody noses, and sore throats were symptoms that were specifically mentioned.

Residents expressed an interest in the possible health effects on pets and other animals in the area. A specific concern is pets playing in the ash then tracking it into residents' homes.

Concern regarding environmental issues such as drinking water contamination, air quality, arsenic levels, and river water contamination were stated as health concerns. When asked about issues or concerns they might have, one resident responded, "Dust from the ash, health, arsenic, mercury, and recreational use of the river. Can we be in the water? Can we use the [river] channel?" Often resident interviewees stated a desire to know if the river water would be safe for swimming and recreational use.

3.3.2 Property/Real Estate

Interviewees expressed community concerns with TVA's property purchasing program. Issues mentioned were with inconsistencies in purchasing decisions, the purchase offer amounts, problems with the appraisal process, the purchase property area determined by TVA, and the amount of time it took to buy some individuals' properties. One resident/activist said, "It's perceived by the public that 'if you are lucky TVA will choose to buy your property.'" Another resident said, "TVA does appraisals, two concurrently, but only lets you see the one they say is the highest. TVA ordered a third appraisal on our property due to a discrepancy." Some public officials and residents have asked that a property policy be made public. "Why was one house bought and not the one next door?" asked one resident/activist. "Was it because they worked for TVA? People want to know the reasoning."

Residents also expressed concerns regarding the temporary housing policy. Interim housing residents were concerned about having to return home amid fears it may not yet be safe.

A few interviewees expressed concern about how TVA would manage and maintain the properties they have purchased. A typical question was, "Will TVA maintain the purchased

properties?” Another individual stated that TVA has performed well in this regard through “patrolling the neighborhood. Keeping yards and homes purchased kept up.”

Interviewees expressed concerns, both personal and civic, regarding diminished value or lowered property value due to the ash spill. One local individual spoke to their interaction with TVA regarding diminished value, “I do not have any personal physical damage to my property. I do have diminished value, however. I do not want to sell. I received a letter from TVA stating that my diminished value claim was denied.” Another stated, “I think there is a general concern in my neighborhood about property values...” This is tied to concerns regarding potential economic effects on the community and the fear that tourists and prospective buyers might be less willing to move to the area. “Tourism is the heartbeat of Roane County and we’re seeing some effects,” said a concerned community member regarding Roane County’s ability to draw visitors. Another concerned interviewee reiterated that concern, “...this is a beautiful place. Will this affect the integrity of our town? Will it affect tourism and people coming in to visit our community?” Interviewees were also concerned that property tax revenue would fall short as a result of lower property values.

Interviewees expressed interest in how TVA will re-sell properties it has purchased. Residents and property owners asked that TVA not auction purchased properties off all at once when it is ready to sell them. Some residents and real estate agents alike expressed the desire that the properties’ reintroduction to the market to be spread out to avoid over-saturation.

3.3.3 Environmental

The community has expressed concerns about air quality and water quality in both the short- and long-term. Some interviewees stated that thoughts of ash dust and particulates becoming airborne have community members wondering if it is safe to spend time outside without incurring respiratory damage. The fear of river water contamination has led to questions about the safety of swimming and boating in the river. Several interviewees asked, “Is the water safe for recreation use and swimming?” Some residents expressed worries about drinking contaminated water and fear that heavy metals from ash could leach into well water or migrate downstream into water treatment plants. “People want to know their drinking water is safe,” stated one health professional. The community is interested in TVA’s plans to control the potential effects of flooding and ash migration if another heavy rain event were to occur.

3.3.4 Communications

There was some difference in opinion among interviewees regarding TVA’s communication efforts. Some interviewees stated that TVA was lying, providing misinformation, providing inconsistent information, or not communicating enough. Many interviewed felt that they were not getting enough information as frequently as they would like. Often concerns were related to communication efforts made early in the recovery project or the property purchase policy. One local couple feels TVA’s information was “different day to day. Not consistent. People seem to be satisfied TVA is doing their job as far as cleanup. There is fault with the communication system.” Another stated, “TVA needs to be more straightforward, truthful, and have more accurate information.” Some suggestions from the interviews included having one point of contact for the community and routine informational email or letters.

Other interviewees were content with the communication activities from TVA. “The initial attempt to get information out was great. You really, really tried hard to be up front and you took a lot of heat for it,” said one resident. Some made statements expressing the opinion that all the information of importance has been made available, that TVA should continue to execute its current communication activities, and that TVA has been very responsive. Some comments received were “I think I am getting all the information I want to know,” and “The information being published is adequate.” The disclosure of environmental sampling results is an example of communicated information that satisfied some interviewees, and some felt positively about the open houses held by TVA. “Continue to publish results. I feel it is wise to continue to do that,” recommended one local health professional.

3.3.5 Removal and Disposal of Ash in the Emory River

Interviewees expressed concerns regarding the disposal of ash located in the main Emory River channel. A number of those interviewed are interested in knowing where the ash will be transported, by what means, how long it will take to complete the cleanup, and how much will it cost.

3.3.6 Ash Disposal and Land Use

Several interviewees stated an interest in future plans for the area located west of the Emory River and Dike 2, including the coves near Lakeshore Drive and Berkshire Lane. As information becomes available, interviewees requested to be made aware. “I want to be informed and would like to know the future plans for the coves and other parts of the recovery,” stated one resident. Some suggestions made in interviews were to return the area to its pre-spill state, cap the ash and build a community park, or create a softball complex.

3.3.7 Kingston Fossil Plant’s Future Ash Disposal

One resident posed the question, “What is going to happen with future storage of ash from burning coal?” Some community members have questions about how TVA will handle ash produced at the Kingston Fossil Plant in the future. Some interviewees expressed concern about how it will be stored, and if it is not stored onsite, where will it be stored and how will it be transported.

3.3.8 Economic Effects/Tourism

There is significant concern regarding the ash spill’s effects on the local economy. Much of Roane County’s economy is based on tourism and drawing potential new residents to the area to enjoy its unique landscape and the recreational use of the waterways. “I was one of the first to say this would kill our tourism development. We need to make sure we are not making this sound worse than it really is,” stated one business leader. Some residents and officials expressed fears that the negative national exposure from the ash spill could cause visitors and new home seekers to assume the worst and not visit the area. The impact on the tourism sector could result in compounded effects on the remainder of the county’s economy.

Others noted a positive effect on the economy because of the influx of workers for the recovery project and the involvement of many local contractors. One local business owner

stated, "I'm looking for ways to do as much business as possible with TVA, contractors, etc. With the proximity of my business and my ability to handle the work, I have benefited, and I would like to do more." Several interviewees emphasized the importance of using local contractors and workers in the remedial efforts.

3.3.9 Impact of Response

The recovery project means an increase in truck traffic and number of incoming and outgoing trains. Community members are concerned about road safety and potential increases in gravel dust from the work site. "People wonder if they are going to be run over by dump trucks," stated one resident. Residents and public officials expressed the concern that the new rail spur and hauling of ash by railroad will mean an increase in traffic delays and will present potential safety issues if some residents attempt crossing the tracks as a train approaches. Residents have also expressed a concern that ash might be leaving the site on workers' clothing and vehicles whose wheels and undercarriage have not been washed properly.

3.3.10 Cenospheres

The Kingston Fossil Plant ash spill released a type of fly ash called cenospheres into the Emory, Clinch and Tennessee rivers. Cenospheres are very small, hard-shelled, hollow, glass spheres that are created in coal-fired boilers when molten silica solidifies around bubbles of flue gas. The gas bubbles cause the cenospheres to be so lightweight that they float and may appear as a brown froth on the water that collects in bays and around obstructions. While cenosphere activity is now significantly less than during initial months of the recovery project, concern remains. Heavy rains in early May served as a reminder to community members and TVA that this is an ongoing battle. Interviewees were concerned about their safety while using waterways, and about the visual effect cenospheres have on the area. One civic leader stated, "Do we let our grandchildren swim in the water now? Is it safe? When the wind is blowing from the north, we see white material (cenospheres) on the water."

3.3.11 Cleanup Cost

Interviewees expressed concern about the ultimate cost for the project recovery and whether those costs would be passed down to the TVA end-use consumer. "Many people feel, 'Why should we cover the cost of the cleanup?'" stated one civic leader.

3.4 SUMMARY OF COMMUNICATION NEEDS

TVA questioned community members about the most effective way to disseminate information. Interviewees most often preferred to be communicated with through email or a mailing from TVA. Public meetings, one-on-one conversation with a TVA representative, and the TVA website were the other primary means of receiving information community members were interested in. The most popular media outlets for receiving information are the *Knoxville News-Sentinel*, the *Roane County News*, and the local news programs of the major broadcast networks, especially WBIR, the Knoxville NBC affiliate. Interviewed residents want the opportunity to communicate with TVA representatives and also offer comments and opinions on the project and its impact on the community. Many felt the frequency and detail of communication by TVA was inadequate and could be improved. Several recommendations for weekly, bi-weekly, or monthly updates were given by community

members. Residents stated in the interviews that they are most interested in being kept abreast of information on general project progress, the long-term plans of the cove areas where ash is located west of Dike 2, the root cause of the dredge cell failure, the time frame for completion of the response project, and environmental, health, and recreational information.

4.0 TVA'S COMMUNITY INVOLVEMENT PROGRAM

The goal of TVA's community involvement program is to promote open communication among citizens, TVA, EPA and other agencies, and to provide opportunities to the community for meaningful and active involvement in the cleanup process. TVA will implement the community involvement activities below. This Plan is based on the results of the community interviews described previously in the CIP.

The following is a roadmap to the community involvement activities planned for the site. Some of these activities are tied to milestones in the cleanup process; some will happen throughout the process. As TVA works more closely with the community, more activities may be added on an as-needed basis.

4.1 COMMUNICATIONS TOOLS

Interviews with the community showed that Roane County residents receive their information in a wide variety of ways. No one method of communicating is guaranteed to reach everyone who is interested in the site, so TVA must use everything from the internet to conventional media to person-to-person meetings to interact with the public. The following tools have been and will be used to gather information from the community, send information to the community, and to build understanding about the site. Some tools are a required part of the CERCLA information and decision-making process; others have been chosen by TVA to improve communications regarding the Kingston Fossil Plant Ash Recovery site.

4.1.1 Required Activities

Administrative Record and Information Repository

- **Objective:** Give the public access to all reports, documents and resources that will be used by the site team in making decisions and recommendations regarding the site cleanup.
- **Description:** A set of documents which form the basis for selection of a response action under Section 113(j) of CERCLA, as amended by the Superfund Amendments and Reauthorization Act of 1986. TVA has established and maintains Administrative Records at the TVA Community Outreach and Learning Center and at the Kingston Public Library. The Administrative Record is available on disk at the Harriman Public Library and online at www.tva.com/kingston. See Appendix I for addresses and hours.
- **Timing:** The Administrative Record and Information Repository were established in May 2009, and will remain open until the cleanup is completed and the final Decision Documents are signed. TVA will add new documents as they become available.

Public Comment Periods

- **Objective:** Give community members the chance to review and comment on TVA documents, especially work plans and the Environmental Evaluation/Cost Analysis (EE/CA). This provides the community with meaningful involvement in the process and gives TVA valuable information for use in making decisions.
- **Method:** Announcements of public comment periods will appear in local newspapers and in TVA fact sheets and will be emailed to those on the email list. The announcements will include details on duration, how to make comments, where to

submit comments, etc. TVA will solicit comments on the following draft documents: this CIP, the Action Memorandum for the time-critical removal, work plans for time-critical removal, any amendments to the time-critical removal Action Memorandum or work plans, and the EE/CA.

- **Timing:** Comment periods will be announced as documents and plans are released. Comment periods will last a minimum of 30 days.

Responsiveness Summaries

- **Objective:** To summarize comments received during the public comment periods, to document how TVA has considered those comments during the decision-making process, and to provide responses to major comments.
- **Method:** TVA will prepare a responsiveness summary for each public comment period. The responsiveness summary will include an overview of the document(s) being reviewed and a summary of comments received and TVA's responses.
- **Timing:** For the time-critical removal actions, the responsiveness summary for all public comment periods will be made available before the completion of the removal actions. For non-time-critical removal actions, the responsiveness summaries will be made available within 30 days of the close of the public comment periods. For any remedial actions, responsiveness summaries will be made available within 30 days of the close of the public comment periods.

Technical Assistance Plan (TAP) Funding and Support

- **Objective:** To provide funding for a community group to hire technical advisors who can help them interpret technical information about the site.
- **Method:** Within 30 days of receipt of a request from EPA, TVA shall provide EPA with a TAP for providing and administering \$50,000 of TVA funds to be used by a qualified community group to hire independent technical advisors to provide technical assistance during the non-time-critical removal stage and any subsequent stage. Additional information may be obtained from Stephanie Yvette Brown, EPA Region 4, Community Involvement Coordinator, by email at brown.stephaniey@epa.gov, or from TVA's TAP Coordinator, Katie Kline, by email at kpbell@tva.gov.
- **Timing:** Within 30 days of request from EPA.

Public Meetings

- **Objective:** To continue to update the community on site developments and to hear and address community questions, concerns, ideas, and comments.
- **Method:** In addition to open houses held in January and March 2009, TVA held a public meeting in June 2009 to brief the public on activities at the site and to allow members of the community to interact with TVA executives and staff regarding the ash spill. TVA will continue to host public meetings where TVA can present progress to date and plans for future work. The meetings will include opportunities for the public to address TVA and ask questions, preferably in a one-on-one or small group setting. Meetings held during public comment periods will include the opportunity to present formal comments to TVA.
- **Timing:** A public meeting is required during the EE/CA process. TVA will hold other public meetings at project milestones, and in response to public requests.

Public Notices

- **Objective:** Officially announce to the public the availability of site documents and the start of public comment periods.
- **Method:** TVA will place display advertisements in the front section of local newspapers (not in classified ads) announcing the availability of work plans, decision documents and other important site documents and the beginning of public comment periods. TVA will also email them to those on the email list. The ads generally run in the local newspaper and a weekly advertising paper published by the same company for three consecutive days.
- **Timing:** As important documents become available and at the beginning of public comment periods.

4.1.2 Additional Community Involvement Activities

TVA Community Outreach Center

- **Objective:** Continue to serve as a center for information, assistance and education about TVA and the Kingston Fossil Plant Ash Recovery site.
- **Method:** The TVA Community Outreach Center, located at 509 N. Kentucky Street, Kingston, Tennessee, opened two weeks after the spill occurred. It has been a center for information and help for people affected by the spill, particularly for those negotiating the sale of their property to TVA, making health or property claims, requesting help with cenosphere and debris removal, or wishing to consult the Administrative Record. As property purchases conclude, the Community Outreach Center's mission will transition to the TVA Community Learning Center, to keep people informed about site progress and other TVA initiatives. The TVA Community Learning Center will continue to provide a location for the Administrative Record, as well as a reading room for those documents; a place to ask questions and relay messages about the site; a place to get general information about TVA and the environment; displays about the Kingston Fossil Plant Ash Recovery site; and other environmental, energy, and economic development issues.
- **Timing:** The TVA Community Outreach Center opened on January 6, 2009. It is currently open from 2:00-6:00 p.m. Monday-Friday. The phone number is (865) 632-1700. The TVA Community Learning Center will open in fall 2009. Hours may be adjusted as needed. After it opens, the TVA Community Learning Center will remain open for an indefinite period of time.

Outreach Team

- **Objective:** Continue to help area residents deal with real estate matters relating to the spill. Continue to respond to area residents' needs, and to bring concerns and requests back to TVA.
- **Method:** TVA formed an outreach team composed of current employees and retirees who handle issues dealing with real estate transfers relating to the Kingston Fossil Plant ash spill, and other matters, such as debris removal, traffic impacts, other property and health claims, etc.
- **Timing:** The team's size has decreased as real estate transfers have been completed, but the team will continue to assist in communicating with the public and staffing the TVA Community Learning Center.

Community Advisory Group (CAG)

- **Objective:** Help community members learn about the Kingston Fossil Plant Ash Recovery site and fully participate in the decision-making process.
- **Method:** The CAG is made up of community members and is designed to serve as the focal point for the exchange of information among the local community and TVA, TDEC, EPA, and other pertinent agencies involved in the remediation. TVA, as requested, will provide support and advice to the group as they develop bylaws, invite members, develop their meeting schedule, and determine the activities of the group.
- **Timing:** The Roane County Community Advisory Group was formed in August 2009. EPA and TVA will advise members of this CAG throughout the response process.

Fact Sheets and Newsletters

- **Objective:** Continue to provide public with current, accurate, easy-to-understand information about the Kingston Fossil Plant Ash Recovery site.
- **Method:** Fact sheets or newsletters will be mailed (or emailed when desired) to all Roane County residents and other interested parties and made available at the TVA Community Learning Center, the Information Repository at the Kingston Public Library, and other locations.
- **Timing:** TVA will prepare and distribute newsletters on a quarterly basis throughout the cleanup process, or as needed.

Emails

- **Objective:** Make site information available to residents and other interested parties in a timely manner.
- **Method:** TVA will send email updates to people who live near the site and other interested parties. TVA will gather email addresses of local residents and interested parties from the TVA website, sign-in sheets from public meetings, etc. TVA will email newsletters, fact sheets, and public notices to the general email address. TVA will email alerts regarding local traffic impacts, etc. to residents.
- **Timing:** As newsletters, fact sheets and public notices are produced, and as response work causes traffic or other impacts.

Kingston Speakers' Bureau and Public Speaking Engagements

- **Objective:** Continue to inform community members about the Kingston Fossil Plant Ash Recovery site progress.
- **Method:** TVA will continue to identify opportunities for TVA staff, along with contractor Subject Matter Experts and staff from other regulatory agencies, to speak with area groups in both formal and informal settings. Groups will include local and county government bodies, schools, and civic/community organizations. Examples of forums for public speaking engagements are: Rotary Club (Roane and Knox counties), Kiwanis Club (Roane and Knox counties), Chambers of Commerce (Knox County, City of Oak Ridge), schools, Roane Alliance, Oak Ridge Economic Partnership, and Roane County Economic Development Authority. Speaking opportunities are identified by TVA Communications or Valley Relations staff, personal requests and suggestions from community members.
- **Timing:** Throughout the response process and beyond.

Open Houses

- **Objective:** Continue to provide the public with the opportunity to learn about the site and ask questions of TVA, EPA, TDEC, and other site personnel in a comfortable and informal setting.
- **Method:** TVA will continue to host informal sessions where recovery project personnel are available to speak to the public on a one-on-one basis. TVA may use visual aids such as maps, posters or charts, examples of site equipment, handouts, etc. to share information about the site.
- **Timing:** TVA has held two open houses at Roane State Community College. These sessions should be conducted as needed, based on community interest, and held at a location best suited for the purpose.

Door Hangers

- **Objective:** Continue to provide neighbors of the Kingston Fossil Plant with targeted safety and other information regarding traffic impacts, road closures, new railways, etc.
- **Method:** TVA will continue to print cards with information (including contact information) and hang them on the doorknobs of houses likely to be affected.
- **Timing:** As needed, whenever response work causes traffic or other impacts, at least 24 hours in advance, to the extent possible.

Road Signs

- **Objective:** Continue to alert residents, site workers, and visitors to new traffic impacts and other news, such as public meetings.
- **Method:** TVA will continue to use temporary road signs and electronic message boards to tell the public about changes to the site including traffic impacts. The electronic message boards can also be used to announce events such as public meetings.
- **Timing:** When response work causes traffic or other impacts and when there are special events to announce.

Media Relations

- **Objective:** Continue to educate the public about the site and to inform the public about activities at the site.
- **Method:** TVA will continue to work actively with the local, regional, and national news media to ensure that news outlets have access to accurate information about the Kingston Fossil Plant Ash Recovery site and the cleanup process. In addition to responding to requests for interviews and information, TVA will issue news releases, hold news conferences, and give media tours.
- **Timing:** TVA will respond to media requests as received, and plan press releases, conferences, and tours as site activities warrant.

Website and New Media

- **Objective:** Continue to provide timely and accurate information about the site to all interested parties, from local residents to regional activists to national regulators.

- **Method:** TVA’s Kingston Fossil Plant Ash Recovery Website is an example of TVA’s commitment to transparency on this project. The website is accessible from a large link near the top of TVA’s home page. It contains not only background information and news about the ash spill and cleanup, it also contains all water, air, solid, and biological testing results. It also provides a way for residents to send their questions and concerns to TVA.
- **Timing:** The webpage (www.tva.com/kingston) was established in the early days of the cleanup, and was recently redesigned to be more user-friendly. It will be maintained at least until the cleanup is completed and the last Decision Document is signed.

The following table summarizes the timing of the use of each of the communications tools above.

Table 4-1 – Timing or Use of Communications Tools

Tool	Time Frame
Establish Administrative Record and Information Repository	Completed
Public Comment Periods	As needed and required
Responsiveness Summaries	Following public comment periods
Technical Assistance Plan (TAP) Funding and Support	30 days after request from EPA
Public Meetings	Quarterly and as needed
Public Notices	As documents become available and as public comment periods are scheduled
TVA Community Outreach and Learning Center	Ongoing
TVA Outreach Team	Ongoing
Support the Roane County CAG	Ongoing
Fact Sheets & Newsletters	Quarterly and as needed
Speaker’s bureau for community speaking engagements	Ongoing
Open Houses	As needed
Doorhangers for local residents	Ongoing and as needed
Road signs in the affected area	Ongoing and as needed
Media Relations	Ongoing
Website and new media	Ongoing

4.2 SCHEDULE

On May 11, 2009, EPA and TVA signed an Administrative Order and Agreement on Consent (AOC) that divides cleanup work at the Kingston Fossil Plant Ash Recovery site into three parts: 1) time-critical removal actions, 2) non-time critical removal actions, and 3) remedial

actions. The time-critical removal actions focus on the safe containment and removal of most of the coal ash in the Emory River and the area east of Dike 2 (Figure 4-1). The non-time-critical removal actions will remove remaining ash from the Emory River, as practical, remove coal ash from the embayment and tributaries west of Dike 2, as practical, and remove coal ash material from surface soils, and dispose of all coal ash recovered. Remedial actions will include a comprehensive site assessment to determine if there are any further actions needed to cleanup any residual contamination or to ensure that ash has been properly disposed of. See below for a chart of the activities in each part of the site cleanup, as described in the AOC.

Time-critical removal actions:

1. Prevent the coal ash release from negatively impacting public health and the environment.
2. Contain and remove coal ash from the Emory River and the area east of Dike 2 as appropriate to restore flow and minimize further downstream migration of the ash material.
3. Ensure that coal ash recovered during these efforts is properly managed pending ultimate disposal decisions or, to the extent required by limited storage capacity, properly disposed.

Non-time-critical removal actions:

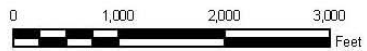
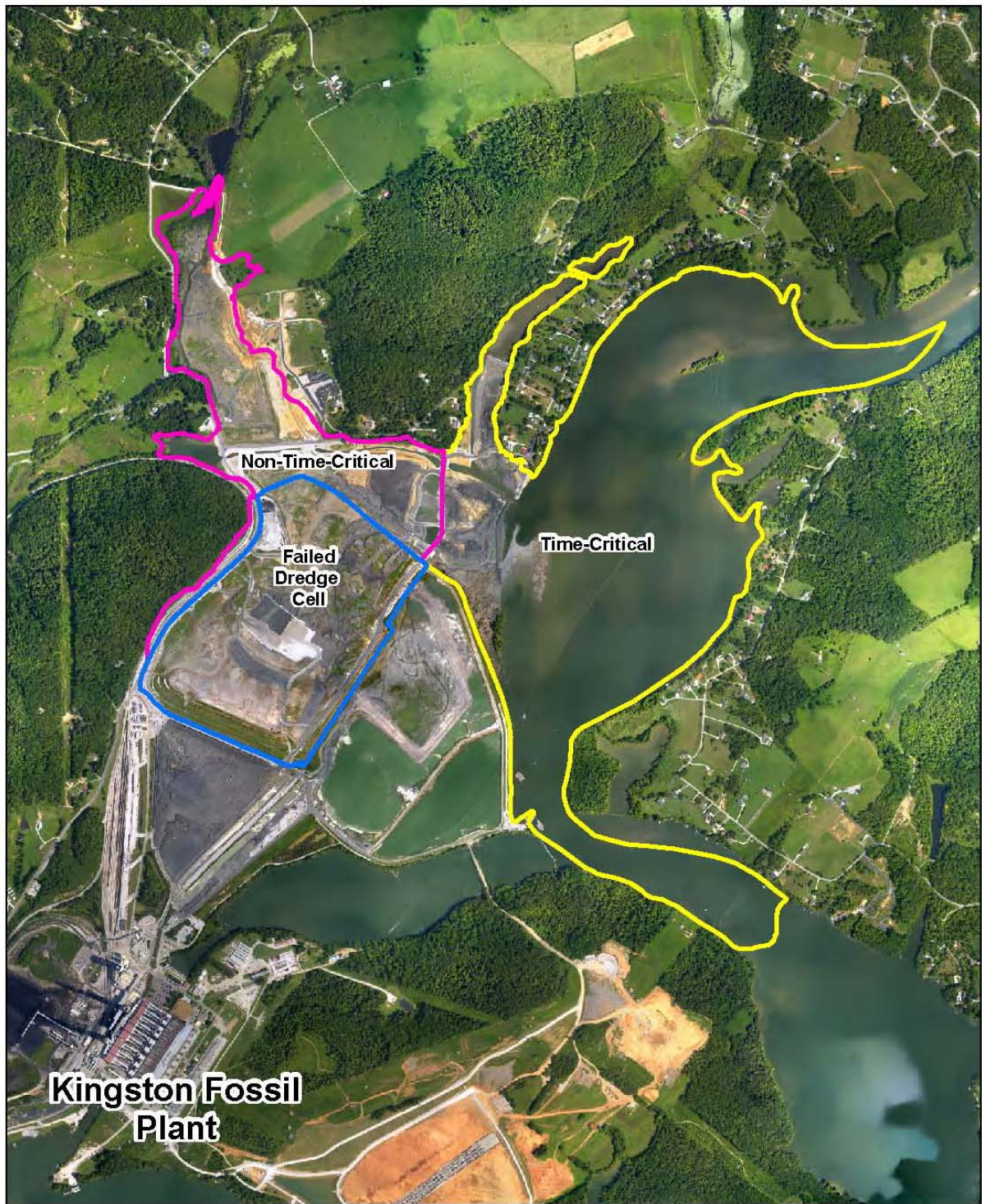
1. Remove any remaining coal ash from the Emory River and the area east of Dike 2, as well as the coal ash from embayment and tributaries west of Dike 2, to the maximum extent practicable, as determined by EPA in consultation with TDEC and TVA, pending further site assessment.
2. Remove the coal ash from impacted surface soils to the maximum extent practicable, as determined by EPA in consultation with TDEC and TVA, pending further site assessment.
3. Restore area waters impacted by the coal ash release in accordance with the required jurisdictional assessment.
4. Ensure proper disposal of all coal ash material recovered during these efforts.

Remedial actions:

1. Perform a comprehensive site assessment to determine what actions may be necessary to address any residual contamination remaining after previous cleanup activities.
2. Implement any such actions.
3. Ensure the proper disposal of all ash material recovered during these efforts.

Each of these three parts has different requirements for community involvement under CERCLA regulations and the AOC signed by EPA and TVA.

Figure 4-1 – Time-Critical and Non-Time-Critical Removal Actions



Tennessee Valley Authority
OE&R - ER&S
Geographic Information & Engineering

4.2.1 Time-Critical Removal Actions

A time-critical removal action is defined as a short-term cleanup in which, based on an evaluation of the site, it is determined that less than six months is available before site activities must be initiated. During time-critical actions, an action memorandum is produced which authorizes and outlines the cleanup.

TVA has established an Administrative Record and an Information Repository for the Kingston Fossil Plant Ash Recovery Program. Documents describing work to be done at the site, starting with the action memorandum, will be placed in the Administrative Record and Information Repository. Each time EPA approves a major work plan, or there is an amendment to the action memorandum or work plan, TVA will hold a public comment period of 30 days and will place display advertisements in the front section of the local newspaper announcing this public comment period. The ads generally run in the local newspaper and a weekly advertising paper published by the same company for three consecutive days.

However, work will begin before the completion of the public comment period. TVA will prepare a written summary of responses to all significant comments received during those public comment periods and submit them to EPA for review and comment. TVA's final responsiveness summary shall be included in the Administrative Record.

4.2.2 Non-Time Critical Removal Actions

Non-time-critical removal actions are performed at CERCLA sites when it is determined that, based on a site evaluation, a removal action is appropriate and a planning period of at least six months is available. Non-time-critical removal actions can address risks and move sites quickly through the CERCLA process.

TVA will conduct an EE/CA, which will:

- Characterize the site
- Identify the goals of the removal action
- Identify removal actions which might meet those goals
- Analyze them according to effectiveness, implementability, and cost
- Compare them
- Recommend a removal action

Upon EPA's approval of the EE/CA report, TVA will add it to the Administrative Record and Information Repository and publish notice of the availability of the EE/CA, along with a description of it, in local newspapers. There will be a public comment period of 30 days. Within 30 days of the close of the public comment period on the EE/CA, TVA will submit to EPA an Action Memorandum which responds to public comments and describes the selected removal actions.

On EPA's approval of the action memorandum, TVA will then prepare a work plan, and both the action memorandum and the work plan will be subject to a 30-day public comment period. This public comment period will not delay the start of work. Because quick removal of ash is important, the work must move quickly. However, public comment on the work plan

will be a key factor in achieving that plan. TVA will prepare a written response to significant comments received during the public comment period, and that will be included in the Administrative Record and Information Repository.

4.2.3 Remedial Actions

When non-time-critical work has been completed, TVA will submit to EPA a Remedial Site Work Plan (RSWP). The RSWP will address the longer-term strategic site objectives: determining if anything else needs to be done to address any residual contamination. TVA will then perform an assessment of the site and submit to EPA a report of that assessment. If that assessment indicates that further site cleanup is needed, TVA will revise the RSWP and include a plan and schedule for completing that work. At that time, this CIP will be revised to reflect the changing nature of the site and the changing needs of the community. Key components of the removal and remedial actions are discussed below.

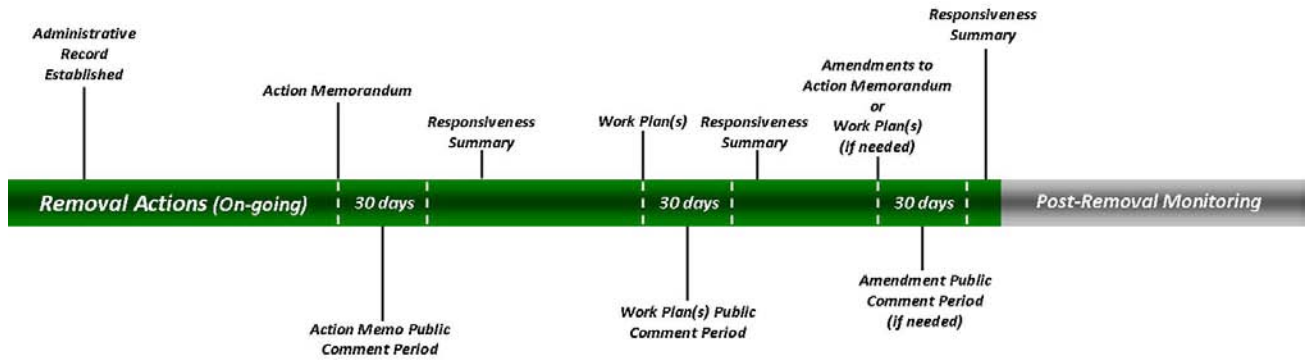
4.3 TIMELINES

Because the different kinds of work being done at the Kingston Fossil Plant Ash Recovery site will overlap, two timelines are presented below for site community involvement activities; one tied to time-critical removal actions, and one tied to non-time-critical removal actions. If remedial actions are called for in the RSWP, those actions will be laid out in a Revised CIP (Figure 4-2).

Figure 4-2 – Kingston Fossil Plant Ash Recovery Site Community Involvement Timelines

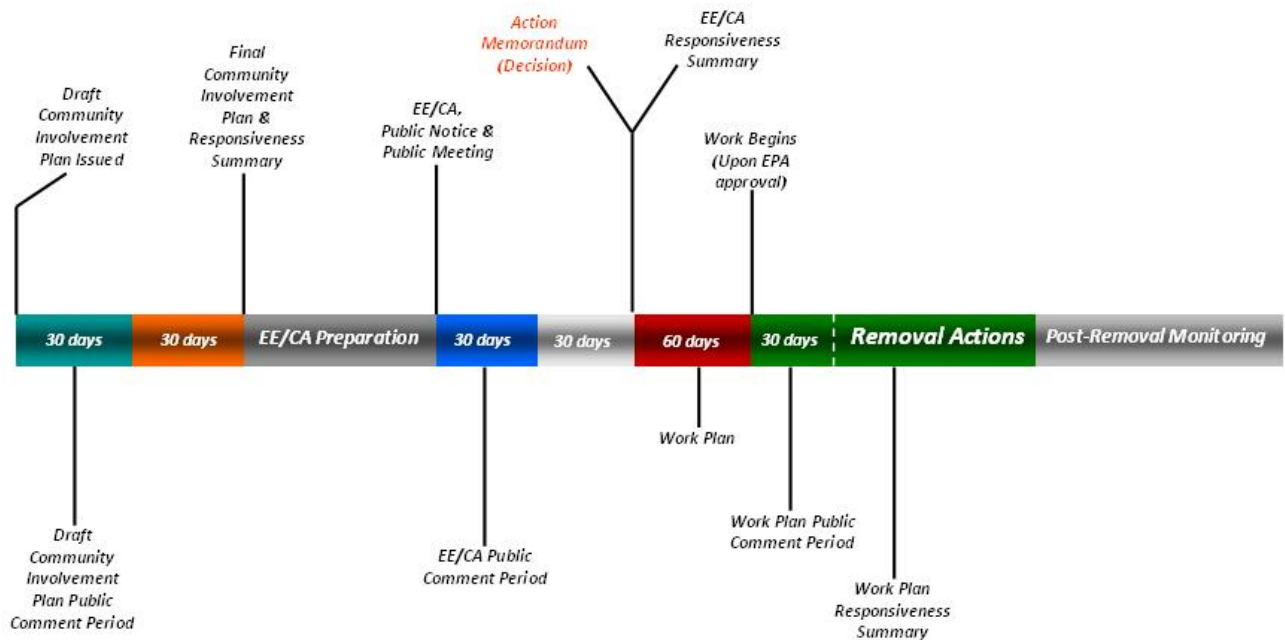
Timeline I

Time-Critical Action: Timeline of Formal Public Input in Decision-Making Process



Timeline II

Non-Time-Critical Action: Timeline of Formal Public Input in Decision-Making Process



**APPENDIX A
EPA REGIONAL CONTACTS**

**APPENDIX A
EPA REGIONAL CONTACTS**

Leo Francendese
On-Scene Coordinator
U.S. Environmental Protection Agency, Region IV
61 Forsyth St., SW
Atlanta, Georgia 30303
(404) 562-8772
francendese.leo@epa.gov

Craig Zeller
Remedial Project Manager
U.S. Environmental Protection Agency, Region IV
61 Forsyth St., SW
Atlanta, Georgia 30303
(404) 562-8827
zeller.craig@epa.gov

Stephanie Y. Brown
Community Involvement Coordinator
U.S. Environmental Protection Agency, Region IV
61 Forsyth St., SW
Atlanta, Georgia 30303
(404) 562-8450
brown.stephaniey@epa.gov

**APPENDIX B
LOCAL OFFICIALS**

**APPENDIX B
LOCAL OFFICIALS**

The Honorable Mike Farmer
Roane County Executive
P.O. Box 643
Kingston, Tennessee 37763
(865) 376-5578
roanecounty@roanegov.org

The Honorable Troy Beets
Mayor of Kingston
125 West Cumberland St.
Kingston, Tennessee 37763
(865) 376-5748
troybeets@bellsouth.net

The Honorable Chris Mason
Mayor of Harriman
300 Roane St.
P.O. Drawer 433
Harriman, Tennessee 37748
(865) 882-2123
mayormason@comcast.net

The Honorable James Watt
Mayor of Rockwood
110 N. Chamberlain Ave.
Rockwood, TN 37854
(865) 354-0175
mayor@rockwoodtn.org

**APPENDIX C
STATE OFFICIALS**

APPENDIX C STATE OFFICIALS

State Elected Officials

The Honorable Phil Bredesen
Governor of Tennessee
Tennessee State Capitol
400 Charlotte Avenue
Nashville, Tennessee 37243
(615) 741-2001
Phil.Bredesen@tn.gov

The Honorable Ken Yager
Tennessee State Senator
3 Legislative Plaza
Nashville, Tennessee 37243
(615) 741-1449
sen.ken.yager@capitol.tn.gov

The Honorable Dennis Ferguson
Tennessee State Representative
17 Legislative Plaza
Nashville, Tennessee 37243
(615) 741-7658
rep.dennis.ferguson@capitol.tn

State Agencies

Tennessee Department of Environment and Conservation

Commissioner Jim Fyke
401 Church Street, L&C Annex, 1st Floor
Nashville, Tennessee 37243
(888) 891-8332
ask.TDEC@tn.gov

TDEC Representative on Site:

Barbara Scott
(865) 696-9614
barbara.scott@tn.gov

Tennessee Wildlife Resources Agency

Ed Carter, Executive Director
Ellington Agricultural Center
P.O. Box 41489
Nashville, TN 37204
(800) 624-7406
Ed.Carter@state.tn.gov

Tennessee Department of Health

Commissioner Susan R. Cooper, MSN, RN

425 5th Ave. North

Nashville, TN

(800) 404-3006

TN.Health@tn.gov

**APPENDIX D
FEDERAL ELECTED OFFICIALS**

**APPENDIX D
FEDERAL ELECTED OFFICIALS**

The Honorable Lamar Alexander

United States Senate
455 Dirksen Senate Office Building
Washington, DC 20510
(202) 224-4944
<http://alexander.senate.gov/public>

Knoxville Office
Howard H. Baker, Jr. U.S. Courthouse
800 Market St., Suite 112
Knoxville, Tennessee 37902
(865) 545-4253

The Honorable Bob Corker

United State Senate
185 Dirksen Senate Office Building
Washington, DC 20510
(202) 224-3344
<http://corker.senate.gov/public>

Knoxville Office
800 Market St., Suite 121
Knoxville, Tennessee 37902
(865) 637-4180

The Honorable Lincoln Davis

Tennessee Fourth District
U.S. House of Representatives
410 Cannon House Office Building
Washington, DC 20515
(202) 225-6831
www.house.gov/lincolndavis

Rockwood Office
1064 North Gateway Ave.
Rockwood, Tennessee 37854
(865) 354-3323

APPENDIX E
ENVIRONMENTAL AND ACTIVE CITIZENS' GROUPS

**APPENDIX E
ENVIRONMENTAL AND ACTIVE CITIZENS' GROUPS**

Emory River Community Action Commission
(formerly Swan Pond Community Action Commission)
www.swanpondcommunity.com

Long Term Recovery Committee
Contact: Roane County Executive Mike Farmer
Roane County Courthouse
200 E. Race St.
Kingston, Tennessee 37763
(865) 376-5578
www.roanecag.org

Roane County Community Advisory Group
Brenda Timm, Chair
P.O. Box 67
Kingston, Tennessee 37763
(865) 576-7501

Tennessee Clean Water Network
Renee Hoyos, Executive Director
123A S. Gay St.
Knoxville, Tennessee 37902
(865) 522-7007
www.tcwn.org

Tennessee Coal Ash Survivors Network (TCASN)
www.tennesseecoalashsurvivorsnetwork.com

United Mountain Defense
P.O. Box 20363
Knoxville, Tennessee 37920
(865) 689-2778 or (865) 257-4029
www.unitedmountaindefense.org

APPENDIX F
POTENTIALLY RESPONSIBLE PARTY

**APPENDIX F
POTENTIALLY RESPONSIBLE PARTY**

Tennessee Valley Authority
Tom Kilgore
President and CEO
400 W. Summit Hill Drive
WT 7B-K
Knoxville, Tennessee 37902-1499
(865) 632-2366
tvainfo@tva.com

Anda Ray
Senior Vice President, Office of Environment and Research
400 W. Summit Hill Drive
WT 11
Knoxville, Tennessee 37902-1401
(865) 632-8511
aaray@tva.gov

Mike Scott
Kingston Fossil Plant Ash Recovery Project General Manager
1134 Swan Pond Road
Harriman, Tennessee 37748
(865) 717-6508
mtscott2@tva.gov

**APPENDIX G
MEDIA CONTACTS**

APPENDIX G MEDIA CONTACTS

Newspapers

Roane County News

Terri Likens
Editor
204 Franklin St.
Kingston, Tennessee 37763-2625
(865) 376-3481 x320
tlikens@roanecounty.com

Damon Lawrence
Reporter
(865) 376-3481
dlawrence@roanecounty.com

The Knoxville News-Sentinel

Ed Marcum
Business Reporter
2332 News Sentinel Dr.
Knoxville, Tennessee 37921-5766
(865) 342-6267
marcum@knoxvillebiz.com

Scott Barker
Staff Writer
(865) 342-6309
barkers@knews.com

Oak Ridger

Darrell Richardson
Editor/Publisher
785 Oak Ridge Turnpike
Oak Ridge, Tennessee 37830
(865) 482-1021
publisher@oakridger.com

Oak Ridge Observer

Stan Mitchell
Editor/Publisher
40 New York Ave.
Oak Ridge, Tennessee 37830
(865) 483-1866
smitchell@oakridgeobserver.com

Chattanooga Times Free Press

Rick Moore
News Editor
400 East 11th St.
Chattanooga, Tennessee 37403
(423) 757-6319
rmoore@timesfreepress.com

John Vass
Business Editor
(423) 757-6322
jvass@timesfreepress.com

The Associated Press in Tennessee

215 Centerview Dr., Suite 110
Brentwood, Tennessee 37027

Duncan Mansfield
(865) 522-3963
dmansfield@ap.org

Radio**WIVK (FM 107.7)**

Catherine Howell
News Director
P.O. Box 11167
4711 Old Kingston Pike
Knoxville, Tennessee 37939
(865) 588-6511

WKTS (FM 90.1)

'The Bridge'
331 Skyline View Dr.
Kingston, Tennessee 37763
(865) 717-3335

WOKI (FM 100.3)

News Talk 100
4711 Old Kingston Pike
Knoxville, Tennessee 37919
(800) 951-8255
wnox.news@citcomm.com

WWST (Star 102.1)

Star 102.1
1533 Amherst Rd.
Knoxville, Tennessee 37909
(865) 656-STAR (7827)

Television

WATE-TV (Channel 6)

Joey Creed
Assignment Editor
1306 North Broadway
Knoxville, Tennessee 37917-6501
(865) 637-6397
jcreed@wate.com

WBIR-TV (Channel 10)

Paul Brown
Assignment Manager
1513 Hutchison Ave.
Knoxville, Tennessee 37917-3851
(865) 637-1272
pbrown@wbir.gannett.com

WVLT-TV (Channel 8)

Brian Gregory
Executive Producer
6450 Papermill Dr.
Knoxville, Tennessee 37919-4812
(865) 766-8210
brian.gregory@wvlt-tv.com

**APPENDIX H
MEETING LOCATIONS**

**APPENDIX H
MEETING LOCATIONS**

Kingston Community Center

201 Patton Ferry Rd.
Kingston, Tennessee 37763
(865) 376-9476

Bethel Presbyterian Church

203 S. Kentucky St.
Kingston, Tennessee 37763
(865) 376-6340

First Baptist Church

215 N. Kentucky St.
Kingston, Tennessee 37763
(865) 376-6041

Roane State Community College

276 Patton Lane
Harriman, Tennessee 37748
(865) 354-3000

Roane County High School

540 W Cumberland St
Kingston, Tennessee 37763-2796
(865) 717-9577

APPENDIX I
ADMINISTRATIVE RECORD LOCATIONS

**APPENDIX I
ADMINISTRATIVE RECORD LOCATIONS**

TVA Community Outreach and Learning Center

509 North Kentucky St.
Kingston, Tennessee 37763
(865) 632-1700
Toll-free: 1-800-257-2675

Hours of Operation:
Monday-Friday – 2 p.m. to 6 p.m.

Kingston Public Library

1004 Bradford Way
Kingston, Tennessee 37763
(865) 376-9905

Hours of Operation:
Monday – 9 a.m. to 6 p.m.
Tuesday – 9 a.m. to 6 p.m.
Wednesday - 9 a.m. to 6 p.m.
Thursday – 9 a.m. to 8:30 p.m.
Friday – 9 a.m. to 6 p.m.
Saturday – 9 a.m. to 12 noon
Sunday – Closed

Harriman Public Library (on computer disk only)

601 Walden Ave.
Harriman, Tennessee 37748-2506
(865) 882-3195

Hours of Operation:
Monday- Thursday – 9 a.m. to 5 p.m.
Friday & Saturday – 9 a.m. to 1 p.m.

EPA Regional Records Center

Sam Nunn Atlanta Federal Center
61 Forsyth St. SW, 11th Floor
Atlanta, Georgia 30302
(404) 562-8862

Hours of Operation:
Monday-Friday – 8 a.m. to 5 p.m.

APPENDIX J
INTERVIEW QUESTIONNAIRE

**APPENDIX J
INTERVIEW QUESTIONNAIRE**

Interviewee:

Category:

TVA Interviewer:

Jacobs Interviewer:

Date:

I. General Knowledge about Site

- **A. What do you know about the Kingston Fossil Plant Ash Release?**
- **B. How do you know this information?**
- **C. What do you think about the site?**
- **D. What is the source of that opinion?**

II. Reputation of Information Sources

- **A. In general, how is TVA viewed in the community?**
- **B. How is TVA viewed in the community with respect to the ash release?**
- **C. What is TVA's reputation as a source of information?**
- **D. What about EPA? TDEC? US Fish and Wildlife? Tennessee Department of Natural Resources?**
- **E. How are local officials viewed in the community?**
- **F. Are there activists answering questions or providing information about the ash spill site? What's their reputation compared to TVA? To EPA? To TDEC?**

III. Your Information Needs

- **A. Do you want more information about the site and what TVA is doing?**
- **B. What do YOU want to know?**
- **C. How do you want to receive this information?**

- **D. What are your issues, concerns, maybe even fears regarding the ash release and clean up?**
- **E. Do you want to be involved in the recovery process beyond just receiving information?**
- **F. How much do you want to interact with TVA?**

IV. The Community

- **A. What are the issues, concerns and maybe even fears of the community?**
- **B. What do you think the community wants to know?**
- **C. How do you think the community wants to be involved?**
- **D. What is the history of the Kingston Fossil Plant's relationship to the community?**
- **E. Who else in the community should we be talking to?**

V. Information Sources

- **A. How do you usually get your information about important issues?**
- **B. What are the most popular newspaper, TV and radio stations in the area?**
- **C. Are there local radio or TV talk shows TVA should use?**
- **D. Is there a cable TV operation that people here watch?**
- **E. Are there local civic or service clubs that TVA should contact to provide information to or give speeches to?**
- **F. Should TVA find opportunities to reach children through schools or youth groups?**
- **G. TVA has provided information to the community in several ways. Have you used any of these sources or participated in these activities? How helpful were they to you?**
 1. Community Outreach and Learning Center –
 2. Visit from outreach team –
 3. Telephone update line number –
 4. TVA website –
 5. Homeowner meeting –
 6. Public meeting or open house –
 7. Letters from TVA –
 8. Advertisements from TVA in local papers –

VI. Feedback to TVA

- **A. What is TVA doing well?**
- **B. What can TVA do more of?**

APPENDIX K
CATEGORIES OF INTERVIEWEES

**APPENDIX K
CATEGORIES OF INTERVIEWEES**

Type of Interviewee	Number
Residents	19
Civic Leaders	18
Government Officials	7
Environmental Stakeholders	6
Total	50

APPENDIX L
FEDERAL STATUTES GOVERNING ENVIRONMENTAL REGULATIONS

APPENDIX L
FEDERAL STATUTES GOVERNING ENVIRONMENTAL REGULATIONS

The following federal environmental statutes and amendments require that community involvement be conducted for certain hazardous substance sites:

- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (42 United States Code 9601, and following sections), also known as Superfund
- Superfund Amendments and Reauthorization Act of 1986 (SARA), which amended CERCLA
- Community Environmental Response Facilitation Act of 1992, which also amended CERCLA

The guidelines for conducting community involvement activities, including preparing a CIP, are set forth in the following:

- “Superfund Community Involvement Handbook” (EPA 2003a)
- “Superfund Community Involvement Toolkit” (EPA 2003b)

APPENDIX M
MATERIAL DATA SAFETY SHEETS FOR FLY ASH AND BOTTOM ASH



CLASS "F" FLY ASH

MATERIAL SAFETY DATA SHEET
MSDS No. BP - 001

PRODUCT: Class "F" Fly ash, coal fly ash

SECTION I - Manufacturer

Manager, Coal Combustion By-Products
Tennessee Valley Authority
1101 Market Street, LP 5G
Chattanooga, Tennessee 37402-2801
Telephone (423) 751-2422

SECTION II – Product Composition, Constituents, and Ingredients

Constituent	OSHA PEL	ACGIH TLV
Silica – SiO ₂ (40 – 60 %) Crystalline (3-7%) Amorphous (33-57%)	Crystalline:	Crystalline:
	Quartz (Respirable) CAS 14808-60-7	Quartz (Respirable) 0.05 mg/m ³ CAS 14808-60-7
	Quartz (Total)	Cristobalite (Respirable) 0.05 mg/m ³ CAS 14464-46-1
	Amorphous	Tridymite (Respirable) 0.05 mg/m ³ CAS 15468-32-3
		Amorphous: Precipitated silica and silica gel 10 mg/m ³ CAS 112926-00-8
Aluminum oxide – Al ₂ O ₃ (18–31%) CAS 1344-28-1	Respirable Total 5 mg/m ³ 15 mg/m ³	Total 10 mg/m ³
Iron oxide – Fe ₂ O ₃ (5–25%) CAS 1309-37-1	Total 10 mg/m ³	Total 5 mg/m ³
Calcium oxide – CaO (1–6%) CAS 1305-78-8	Total 5 mg/m ³	Total 2 mg/m ³
Magnesium oxide – MgO (1–2%) CAS 1309-48-4	Total 15 mg/m ³	Total 10 mg/m ³
Titanium oxide – TiO ₂ (1-2%) CAS 13463-67-7	Total 15 mg/m ³	Total 10 mg/m ³
Inorganic arsenic (16-210 ppm) CAS 7440-38-4	Total 10 µg/m ³	Total 0.01 mg/m ³

CLASS "F" FLY ASH

SECTION III – Physical/Chemical Data	SECTION IV – Fire/Explosion Data
Boiling Point: No applicable information (N/A) Vapor Pressure: N/A Vapor Density: N/A Water Solubility: < 0.5% Melting Point: >2500°F Percent Volatile: N/A Evaporation Rate: N/A Appearance: gray-brown or tan to black powdery solid Odor: none	Flash Point: none Lower/Upper Flammable Limits: none/none Autoignition: none Fire/Explosion Hazard: none/none Firefighting: N/A Extinguishing Data: N/A

SECTION V – Reactivity/Incompatibility Data
Reactivity: Fly ash is stable under most conditions Incompatibilities: Fly ash: N/A Quartz: Test with small quantities of strong oxidizers before mixing. Hazardous decomposition: none Polymerization: none

SECTION VI – Health Hazard Data
Routes of entry: Inhalation? yes Skin? may cause irritation Ingestion? unlikely
Carcinogenicity: NTP? yes IARC? yes OSHA? yes
Inhalation Health Hazards: Acute: Respiratory tract irritation causing coughing, wheezing, and difficulty breathing Chronic: The primary routes of exposure are inhalation and contact with eyes and skin. Fly ash is composed of inert dust (possibly irritating to mucous membranes), crystalline silica (a pneumoconiosis producing dust and animal carcinogen), and low concentrations of calcium oxide (possibly irritating to mucous membranes and wet skin). Fly ash contains trace amount of inorganic arsenic (identified as a carcinogen). Skin and Eye Health Hazards: Acute: Eye contact can cause severe, mechanical irritation. Skin contact may cause irritation. Chronic: Skin contact may cause irritation.

SECTION VII – First Aid
Inhalation: Remove person from exposure area to fresh air. Keep person warm and calm. Call for medical help if person has breathing difficulty. Give artificial respiration if person is not breathing.
Eye Contact: Wash-out eyes with warm water for 15 minutes, occasionally lifting eye lids. Send person for medical attention.
Skin Contact: Remove contaminated clothing. Wash with soap and water. Launder clothing before reuse.

CLASS "F" FLY ASH

SECTION VIII – Exposure Controls and Personal Protective Equipment

General: Do not use compressed air to remove fly ash.

Ventilation: Use local exhaust ventilation to remove airborne fly ash from work areas when feasible.

Eye Protection: Employees should use dust-proof safety goggles in areas of high levels of airborne fly ash. Eye wash facilities should be available in case of eye exposure.

Skin Protection: Employees should wear protective clothing to prevent repeated or prolonged skin contact with fly ash.

Respiratory Protection: Respiratory protection is selected based on a hazard assessment of the work location, including the specific airborne agents, the concentration of the agents, and the permissible exposure levels (PEL). Selection must be done by a knowledgeable person following the requirements in OSHA's Respiratory Protection Standard, 29CFR1910.134(d) in order to obtain adequate protection from the respirators. Employees must be qualified to use a respirator, and all respirators must be certified by NIOSH. The following table gives guidance on selecting an appropriate respirator for inorganic arsenic protection. It also should protect against other airborne particulates associated with fly ash that are not regulated by substance, such as aluminum and iron oxides.

Concentration of Airborne Agent

Required Respirator

Not greater than 10X PEL

Half-mask air-purifying respirator equipped with P100 (high efficiency) cartridge(s) or any respirator listed below.

Not greater than 50X PEL

Full facepiece air-purifying respirator equipped with P100 (high efficiency) cartridge(s) or any respirator listed below.

Not greater than 1000X PEL

Powered air-purifying respirator in all inlet face coverings and equipped with P-100 (high efficiency) cartridge(s) or any respirator listed below.

Not greater than 2000X PEL

Supplied air respirator with full facepiece, hood or helmet or suit and operated in positive pressure mode or any respirator listed below.

Greater than 2000X PEL

Self-contained breathing apparatus with full facepiece and operated in positive pressure mode.

SECTION IX – Safe Handling and Use Precautions

Spill Cleanup: Wet material and shovel into container with cover or HEPA vacuum. Avoid generating airborne dust.

Use: Handle material in closed systems if feasible to control dust.

BOTTOM ASH



MATERIAL SAFETY DATA SHEET MSDS No. BP - 002

PRODUCT: Bottom ash, coal boiler bottom ash

SECTION I - Manufacturer

Manager, Coal Acquisition and Supply
Tennessee Valley Authority
1101 Market Street, LP 5G
Chattanooga, Tennessee 37402-2801
Telephone (423) 751-2064

SECTION II – Product Composition, Constituents, and Ingredients

Constituent	OSHA PEL	ACGIH TLV
Silica – SiO ₂ (50–60 %) Crystalline (2-4%) Amorphous (46-58%)	Crystalline:	Crystalline:
	Quartz (Respirable) CAS 14808-60-7	$\frac{10 \text{ mg/m}^3}{\% \text{ SiO}_2 + 2}$ Quartz (Respirable) 0.05 mg/m ³ CAS 14808-60-7
	Quartz (Total)	$\frac{30 \text{ mg/m}^3}{\% \text{ SiO}_2 + 2}$ Cristobalite (Respirable) 0.05 mg/m ³ CAS 14464-46-1
	Amorphous	$\frac{80 \text{ mg/m}^3}{\% \text{ SiO}_2}$ Tridymite (Respirable) 0.05 mg/m ³ CAS 15468-32-3
		Amorphous: Precipitated silica and silica gel 10 mg/m ³ CAS 112926-00-8
Aluminum oxide – Al ₂ O ₃ (18–28%) CAS 1344-28-1	Respirable Total	5 mg/m ³ 15 mg/m ³ Total 10 mg/m ³
Iron oxide – Fe ₂ O ₃ (9–29%) CAS 1309-37-1	Total	10 mg/m ³ Total 5 mg/m ³
Calcium oxide – CaO (1–5%) CAS 1305-78-8	Total	5 mg/m ³ Total 2 mg/m ³
Magnesium oxide – MgO (1–2%) CAS 1309-48-4	Total	15 mg/m ³ Total 10 mg/m ³
Titanium oxide – TiO ₂ (1-2%) CAS 13463-67-7	Total	15 mg/m ³ Total 10 mg/m ³

BOTTOM ASH

SECTION III – Physical/Chemical Data	SECTION IV – Fire/Explosion Data
Boiling Point: No applicable information (N/A) Vapor Pressure: N/A Vapor Density: N/A Water Solubility: N/A Melting Point: >2500°F Percent Volatile: N/A Evaporation Rate: N/A Appearance: gray-black coarse solid Odor: none	Flash Point: none Lower/Upper Flammable Limits: none/none Autoignition: none Fire/Explosion Hazard: none/none Firefighting: N/A Extinguishing Data: N/A

SECTION V – Reactivity/Incompatibility Data
Reactivity: Bottom ash is stable under most conditions Incompatibilities: Bottom ash: N/A Quartz: Test with small quantities of strong oxidizers before mixing. Hazardous decomposition: none Polymerization: none

SECTION VI – Health Hazard Data
Routes of entry: Inhalation? yes Skin? may cause irritation Ingestion? unlikely
Carcinogenicity: NTP? yes IARC? yes OSHA? no
Inhalation Health Hazards: Acute: Respiratory tract irritation causing coughing, wheezing, and difficulty breathing Chronic: The primary routes of exposure are inhalation and contact with eyes and skin. Bottom ash is composed of inert dust (possibly irritating to mucous membranes), crystalline silica (a pneumoconiosis producing dust and animal carcinogen), and low concentrations of calcium oxide (possibly irritating to mucous membranes and wet skin). Skin and Eye Health Hazards: Acute: Eye contact can cause severe, mechanical irritation. Skin contact may cause irritation. Chronic: Skin contact may cause irritation.

SECTION VII – First Aid
Inhalation: Remove person from exposure area to fresh air. Keep person warm and calm. Call for medical help if person has breathing difficulty. Give artificial respiration if person is not breathing.
Eye Contact: Wash-out eyes with warm water for 15 minutes, occasionally lifting eye lids. Send person for medical attention.
Skin Contact: Remove contaminated clothing. Wash with soap and water. Launder clothing before reuse.

BOTTOM ASH

SECTION VIII – Exposure Controls and Personal Protective Equipment

General: Prevent generation of airborne bottom ash dust. Do not use compressed air to remove bottom ash.

Ventilation: Use local exhaust ventilation to remove airborne bottom ash from work areas when feasible.

Eye Protection: Employees should use dust-proof safety goggles in areas of high levels of airborne bottom ash. Eye wash facilities should be available in case of eye exposure.

Skin Protection: Employees should wear protective clothing to prevent repeated or prolonged skin contact with bottom ash.

Respiratory Protection: Respiratory protection is selected based on a hazard assessment of the work location, including the specific airborne agents, the concentration of the agents, and the permissible exposure levels (PEL). Selection must be done by a knowledgeable person following the requirements in OSHA's Respiratory Protection Standard, 29CFR1910.134(d) in order to obtain adequate protection from the respirators. Employees must be qualified to use a respirator, and all respirators must be certified by NIOSH. The following table gives guidance on selecting an appropriate respirator for silica protection. It also should protect against other airborne particulates associated with bottom ash that are not regulated by substance, such as aluminum and iron oxides.

<u>Concentration of Airborne Agent</u>	<u>Required Respirator</u>
Not greater than 10X PEL	Half-mask air-purifying respirator equipped with P100 (high efficiency) cartridge(s) or any respirator listed below.
Not greater than 50X PEL	Full facepiece air-purifying respirator equipped with P100 (high efficiency) cartridge(s) or any respirator listed below.
Not greater than 100X PEL	Powered air-purifying respirator full-face covering and equipped with P-100 (high efficiency) cartridge(s) or any respirator listed below.
Not greater than 1000X PEL	Supplied air respirator with full facepiece, hood or helmet or suit and operated in positive pressure or pressure demand mode or any respirator listed below.
Greater than 1000X PEL	Supplied air respirator with full facepiece, hood or helmet or suit and operated in positive pressure or pressure demand mode with positive pressure self-contained escape apparatus, or self-contained breathing apparatus with full facepiece and operated in positive pressure or pressure demand mode.

SECTION IX – Safe Handling and Use Precautions

Spill Cleanup: Wet material and shovel into container with cover or HEPA vacuum. Avoid generating airborne dust.

Use: Handle material in closed systems if feasible to control dust.

APPENDIX N
ADDITIONAL RESOURCES

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ADDITIONAL RESOURCES**

Crawford & Company

7102 Commerce Way, Suite 102
Brentwood, Tennessee 37027
(800) 257-2675

**Oak Ridge Associated Universities
Health Studies**

MC-210-45
P.O. Box 117
Oak Ridge, Tennessee 37831-0117
(865) 576-3115
kingstonquestions@orau.org
www.orau.org

Ridgeview Resources for Living

221 Devonia Street
Harriman, Tennessee 37748
(865) 882-1164
www.ridgevw.com

APPENDIX O
LINKS TO CONGRESSIONAL TESTIMONY

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Tom Kilgore, President and Chief Executive Officer, Tennessee Valley Authority Testifying
before the U.S. Senate Environment and Public Works Committee
January 8, 2009
<http://www.tva.gov/kingston/pdf/testimony.pdf>

Tom Kilgore, President and Chief Executive Officer, Tennessee Valley Authority Testifying
before the U.S. House Committee on Transportation and Infrastructure, Subcommittee on
Water Resources and Environment
March 31, 2009
http://www.tva.gov/kingston/pdf/Testimony_03_31_09.pdf

Tom Kilgore, President and Chief Executive Officer, Tennessee Valley Authority Testifying
before the U.S. House Committee on Transportation and Infrastructure, Subcommittee on
Water Resources & Environment
July 28, 2009
<http://www.tva.gov/kingston/728hearing/TVATKTestimony.pdf>