Tennessee Department of Environment and Conservation
Commissioner's Order, Case No. OGC09-0001

Interim Drainage Plan and Controls - Ash Release Area

Kingston Fossil Plant

Tennessee Valley Authority

April 2, 2009

Revision 1

1.0 Construction Site Description

General Information

On Monday, December 22, 2008, a dike failed at the Tennessee Valley Authority's Kingston Fossil Plant releasing approximately 5.4 million cubic yards of coal ash.

Immediately following the failure of the ash dike, the construction of two temporary dikes was initiated to control the further movement of ash. Weir 1 was installed downstream of the plant in the Emory River and is meant to control underwater creep of ash downstream. Dike 2 is currently under construction in the main embayment and is meant to resist further movement of ash into the main channel. In addition, TVA is working to move ash from the east of Dike 2 to the west behind the dike to prevent mobilization.

Contact Information

The following positions are named as having responsibilities in the plan below:

- **Ash Release Program Administrator (Environmental), (ARPA(E))**: Ron Harned or Malcolm Nelson (865) 755 - 4772
- **Ash Release Liaison**: Rob Crawford 865-771-1569
- **Construction Manager**: Robert A. Summers
- **Environmental Permitting and Compliance**: Lindy Johnson (423) 751-3361 or Cynthia Anderson (423) 871-1666
- **Site Program Administrator (Environmental) (PA(E))**: Cynthia McCowan (865) 717-2531

Interim Drainage Area

Storm water is to be controlled by separating the ash release area into two distinct locations and flows: (1) Run-off from ash-contained areas is denoted as Phase A, and (2) Run-on from surrounding basins is denoted as Phase B. Phase A is to be installed first, and will be immediately followed by Phase B. The total disturbed area is 175 acres. Disturbance in native soil for the Interim Drainage Area is approximately 12.5 acres including settling areas and the water elevations were 737' and 745' msl.

Storm Water Management Phase A - Ash Area

Phase A will be designed and constructed to minimize the release of fly ash due to runoff from the ash-containing area. The ash release area is approximately 175 acres. A curve number (CN) = 55 was used for fly ash.

After the initial incident, channels were excavated in the fly ash to alleviate flooding. These same channels will be used to convey storm water to the settling area(s) and are anticipated to change shape on a daily basis, due to low cohesion and high moisture content of the fly ash.

Major features of this drainage area are two settling area basins. Phase A Settling Area 1 has approximately 8000 cubic yards of storage capacity and will be discharged via two 60-inch corrugated metal stand pipes and 42-inch corrugated metal outfalls. A skimmer device is attached to each standpipe to allow for dewatering of the basins. Phase A Settling Area 2 has a capacity of approximately 16,500 cubic yards with similar stand pipe/outfall structures. Baffles will be implemented to maximize settling.

A recommendation is being made that these channels should be initially inspected by the

Construction Manager's personnel every four hours and after rainfall events of ½" or greater to determine if they need reshaping. After working experience is developed, they should be inspected and maintained on an as-needed basis.

The settling areas are to be formally inspected and documented on a daily basis using the documentation format contained in this plan.

The channels are sized and shaped to minimize material transfer and scour.

Storm Water Management Phase B - Upland Drainage Areas

Phase B will be constructed so that water from upstream watersheds that presently flows onto the fly ash area will be intercepted and rerouted to the Emory River, minimizing its contact with ash. The upstream watershed areas comprise approximately 1500 acres, 1093 acres, and 417 acres, respectively, in the Western Area, Northern Area and Eastern Area. The weighted curve number of CN=67 was calculated from wooded, pasture, and residential curve numbers.

Diversion barriers will be located in the North and East embayments upstream of the ash deposits to collect and prevent run-on of "clean" water into the ash. These barriers may be constructed using clean rock or by using a material called Fabriform that sets up; either will be applied to the leading edge of the deposited ash. A separation curtain is an option that is being assessed in the East embayment. Ash has been removed from the Western; therefore a diversion barrier is not required. Channels conveying water to Emory River/Watts Bar Reservoir will be lined as needed with a suitable material to prevent scouring of ash or exposed trench soils. In addition, where lining the channels is not feasible, TVA will widen these channels in order to reduce the velocity and scour in the channels.

At several locations, these channels will cross Phase A channels. These crossings will be achieved by either piping across the channels to prevent the co-mingling waters from the fly ash and upland run-on.

Clean water channels will converge and eventually cross Dike 2 through properly sized culverts that will accommodate a 5-year 24-hour storm event. Any overflow from this clean water channel will flow into Phase A ash area and will be settled to remove ash and decanted in the Phase A settling areas before discharge to the Emory River.

Construction of channels for Phase B will necessitate clearing of riparian vegetation. An aerial showing the possible areas for tree/vegetation removal is included in the Attachments as Figure 1.

Construction Schedule and Sequence

Phase A and B construction will be completed as expeditiously as possible to minimize transport of ash.

1. Construct settling areas and other features for Phase A.
2. Install Best Management Practices (BMPs) prior to disturbing native soils in Phase B.
3. Construct other required drainage features including ditches, channels, rock check dams and settling areas.

2.0 Estimates of the area on site that is expected to be disturbed by excavation, grading, or other activities.

The size of the ash-containing area is approximately 175 acres. Actual earth disturbing activities will be considerably less.

3.0 Any data describing the material and how it will dictate control measures.

The majority of the soil in the project area is ash fill with an estimated runoff coefficient of 0.55. The smallest particle size expected to be settled out in the stilling pond is approximately 9 microns.

4.0 Erosion & Sediment Control Plan

General Erosion & Sediment Control Measures

- Material tracking onto public roads will be minimized. If KIF material escapes the construction site, it must be removed prior to posing a safety or environmental concern. Daily checks of the road surrounding the project and plant access roads will be conducted and immediate corrective action pursued if material migrates to road surfaces. Material tracked onto public roads will be removed by the end of that workday.

- Materials that leave the site but do not reach the receiving stream must be removed so that they are not washed into streets or any receiving streams. Contact Environmental Permitting and Compliance if material reaches receiving stream.

- A water truck will be present during construction or other measures utilized to provide dust suppression, if required. Dust suppression methods will be used for all disturbed areas that are being worked or are causing dusting. The water truck should run at least once a day during dry periods as needed, but may be required to run several times a day if necessary to control dusting.

- Litter, debris, and/or chemicals will be picked up promptly and disposed of properly.

- Portable sanitary units will be provided for use by all workers as needed throughout the life of the project. All sanitary waste will be regularly collected from the portable units by a licensed sanitary waste management contractor.

- Storm water discharges will not have visible floating scum, oil, or other matter or cause an objectionable color contrast in the receiving stream. If such conditions are observed, controls will be inspected and repaired or reinforced as necessary and the Construction Manager should be notified immediately

- Any situation that arises and has not specifically been mentioned above will be addressed by the Construction Manger in consultation with the on-site Project PA(E) and Environmental Permitting and Compliance. If a change in project scope occurs or if the plan is found to be deficient or if it interferes with dredging operations, this plan will be modified accordingly.

Inspections

- Initially, operational inspections of the settling area basins in Phase A will be made multiple times per day to determine maintenance needs by personnel within the Construction Manager's purview. (i.e., how much maintenance is needed to prevent the ash refilling channels and settling areas.) One formal inspection per day will be documented for each Phase A settling area using the inspection documentation provided in the attachments. If possible, the inspection frequency of the ponds will be reduced to daily if it is determined a reduced frequency is sufficient.

- All controls (silt fence, settling areas) will be formally inspected, inspections documented and repaired as necessary, a minimum of two days per calendar week, 72 hours apart. Non-structural material control devices (geotextiles, silt fencing, etc.) will be cleaned as indicated on the construction drawings.

- A certified construction inspector(s) to be appointed by TVA will be responsible for the formal, documented inspections. Inspectors must have successfully completed and be current on (within 3 years) the "Fundamentals of Erosion Prevention and Sediment Control" training.

- The results of these formal inspections and necessary repairs will be logged on inspection sheets. Copies of the inspection reports will be provided to the Construction Manager and the Ash Release Liaison on a weekly basis, when the sheet has been filled out, and/or when construction is complete. Repairs to any controls will be made as soon as practicable before the next rain event, but no later than 7 days after any deficiency is noted. The Ash Release Liaison will provide all inspection forms to the site PA(E) upon completion of the project.

- If the control appears to be inadequate for the job, notify the Construction Manager, who may in turn consult with Environmental Permitting and Compliance.

- Inspection sheets are located in the Attachments, including a sample filled out form. Areas in Phase to be inspected include outfalls, silt fences and other controls, vehicular entrance points, documentation that weekly litter pick up occurred, stock piled soil or material storage area containment, etc. Note instruction that the scope of inspection must be documented so it is expected that multiple inspection forms will be in use for the project.

- Erosion control measures will be inspected and maintained until vegetation in the disturbed areas has returned to the pre-construction conditions or the site is stable.

- All debris and temporary erosion control devices will be removed when stabilization measures are complete and persistent vegetative cover or surface stabilization is achieved.

5.0 Spill Prevention, Controls, Response, and Recordkeeping

- Stored materials that cannot contaminate storm water may be stored in the open. However, the lay down area for these items must be prepared so that no material leaves the site.

- Stored petroleum and other liquid products must have secondary containment if the aggregate quantity in one spot is 55 gallons or greater.

- The TVA Construction Manager will ensure that equipment necessary for spill cleanup for their respective materials will be present on the site at all times. Equipment and materials will include but not be limited to brooms, shovels, rags, absorbent materials, and plastic or metal trash containers specifically designed for this purpose. The materials and equipment necessary for spill cleanup will be dependent upon the nature and quantity of the material stored on-site. A signed inventory sheet will be provided to the Ash Release Liaison.

- In the event of a spill of oil, hazardous substances, or other pollutants, the person discovering the spill must notify the Construction Manager and the Ash Release Liaison or Ash Release PA(E). These in turn are responsible for notifying the site PA(E) and the TVA Operations Duty Specialist. The ODS will ensure that the National Response Center, Tennessee Emergency Management Agency, and the Spill Prevention Control and Countermeasure (SPCC), Environmental Compliance are notified.

- The Ash Release Liaison after consultation with the site PA(E) must also contact the local Environmental Field Office (Division of Water Pollution Control) within 14 days of the release to storm water or the receiving stream.

- Records: The required records will be kept on file in the construction office and the final, complete set of records will be transferred to the Site PA(E) at the end of the project. TVA will maintain these records indefinitely.

ATTACHMENTS

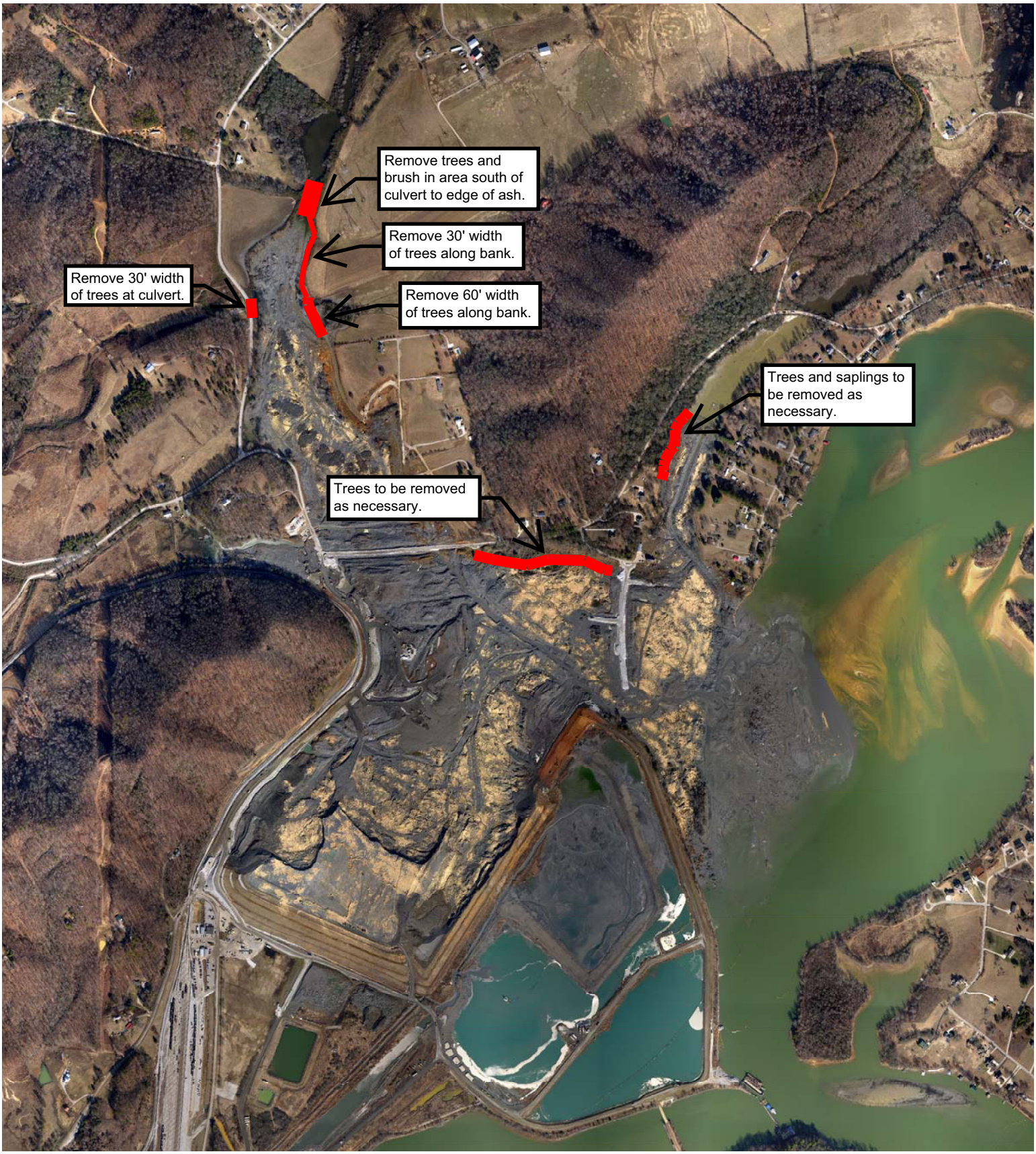
Locations of Riparian Vegetation for Possible Removal

Inspection Forms for Phase A Settling Area Basins

Inspection Forms for Phase B controls

Example Phase B Inspection Form (filled out)

Tree Removal Map for the Interim Drainage Plan
Kingston Fossil Plant
Aerial Dated 02/25/2009



INSPECTION AND MAINTENANCE FORM – PHASE A SETTLING AREA BASIN #1

Inspections of the Phase A stilling pond must be performed and documented daily. Record the date of inspection, include the inspector's name and the condition of the stilling pond and if it needs to be cleaned out or repaired. Document when the corrective actions were taken or repairs made in the Date Done column.

Present to TVA Construction Manager once per month, when sheet has been filled and/or construction is complete. TVA Construction Manager will need to provide a copy to the Ash Release Liaison when full and/or monthly. All records will be turned over to the Site PA(E) by the Ash Release Liaison when the project is complete.

Area being inspected:	**Phase A Settling Area Basin #1**

Date of Inspection	Time of Inspection	Describe Condition	Repairs or cleaning?	Date Done*	Inspector's Signature/Title

*Repairs must be completed as soon as possible

INSPECTION AND MAINTENANCE FORM – PHASE A SETTLING AREA BASIN #2

Inspections of the Phase B stilling pond must be performed and documented daily. Record the date of inspection, include the inspector's name and the condition of the stilling pond and if it needs to be cleaned out or repaired. Document when the corrective actions were taken or repairs made in the Date Done column.

Present to TVA Construction Manager once per month, when sheet has been filled and/or construction is complete. TVA Construction Manager will need to provide a copy to the Ash Release Liaison when full and/or monthly. All records will be turned over to the Site PA(E) by the Ash Release Liaison when the project is complete.

Area being inspected:	**Phase A Settling Area Basin #2**

Date of Inspection	Time of Inspection	Describe Condition	Repairs or cleaning?	Date Done*	Inspector's Signature/Title

*Repairs must be completed as soon as possible

INSPECTION AND MAINTENANCE FORM – Phase B Erosion and Sediment Controls

Inspections of the Phase B erosion controls must be performed twice per week, 72 hours apart. Record the date and time of inspection, include the inspector's name and the condition of the control and if it needs to be repaired cleaned out. Document when the corrective actions were taken or repairs made in the Date Done column. (See Sample Form below.)

VERY IMPORTANT: You need to document the scope of what you are inspecting. Set up separate sheets according to the area being inspected; for example, separate sheets for the Eastern retention berm, Phase B Basin #2, Phase B channel, etc.

Give to TVA Construction Manager once per month, when sheet has been filled and/or construction is complete. TVA Construction Manager will need to provide a copy to the Ash Release Liaison when full and/or monthly. All records will be turned over to the Site PA(E) by the Ash Release Liaison when the project is complete.

Area being inspected:	

Date of Inspection	Time of Inspection	Describe Condition	Repairs or cleaning?	Date Done*	Inspector's Signature/Title

*Repairs must be completed as soon as possible

SAMPLE FORM

INSPECTION AND MAINTENANCE FORM – Phase B Erosion and Sediment Controls

Inspections of the Phase B erosion controls must be performed twice per week, 72 hours apart. Record the date and time of inspection, include the inspector's name and the condition of the control and if it needs to be repaired cleaned out. Document when the corrective actions were taken or repairs made in the Date Done column.

VERY IMPORTANT: You need to document the scope of what you are inspecting. Set up separate sheets according to the area being inspected; for example, separate sheets for the Western embayment retention berm, Phase B Northern embayment silt fence, etc.

Give to TVA Construction Manager once per month, when sheet has been filled and/or construction is complete. TVA Construction Manager will need to provide a copy to the Ash Release Liaison when full and/or monthly. All records will be turned over to the Site PA(E) by the Ash Release Liaison when the project is complete.

Area being inspected:	***Phase B Northern embayment silt fence***

Date of Inspection	Time of Inspection	Describe Condition	Repairs or cleaning?	Date Done*	Inspector's Signature/Title
2/14/09	*08:17*	*1st 500 feet of silt fence 1/2 way full*	*Cleaned out*	*2/16/09*	*Bill Smith, Site erosion inspector*

*Repairs must be completed as soon as possible