

# Ash Loading Test Plan

## 1.1 Test Objective

The objective of the Ash Loading Test is to evaluate loading, material containment, transportation and unloading methodologies for processed ash at the Kingston Fossil (KIF) Plant in Harriman, TN. Based on these evaluations, a process will be implemented for processed ash disposal from the site by Jacobs and TVA.

## 1.2 Schedule

The loading test is planned to commence on May 4, 2009 for the initial contractor and last an estimated 2 to 4 days. The second loading contractor will commence activities after the initial contractor has exited the site. Each loading contractor will be given a 5-day work week to complete their loading activities. If inclement weather is incurred during testing, the schedule may be modified to accommodate the loading contractor.

## 1.3 Participating Contractors

The following contractors have been pre-qualified to participate in the activities listed in this plan. Each contractor will perform its operations during the test according to the procedures outlined in this plan. The participating list of contractors includes the following:

Name	Contact No.	Role
Phillips & Jordan, Inc.	(813) 991.8130	Loading & Disposal
MACTEC	(865) 384.6789	Loading
Veolia Environmental Services	(478) 391.9493	Disposal
Waste Connections	(865) 202.8841	Disposal
Hazleton*	(570) 499-2762	Disposal
Norfolk Southern	(540) 588.4185	Railcar Provision & Transport

\* Disposal facility has yet to qualify under CERCLA OSR and will not be used during test

## 1.4 Health and Safety

Operations performed on the property of TVA will adhere to the provisions of the TVA Site Wide Safety and Health Plan, dated April 6, 2009. Basic requirements include:

- Prior to being granted unescorted site access, all personnel must attend a site specific Health Safety and Environmental (HSE) orientation lasting approximately one hour.
- Designated vendor competent persons must be identified in writing. This includes, but is not limited to heavy equipment operation, crane

operations, rigging, fall protection and scaffolding as applicable. These activities will only occur under the oversight of the designated competent person.

- Pre task plans such as activity hazard analysis, job safety analysis or a safe plan of action must be prepared for each discrete task occurring on site.
- Reasonable methods of dust control must be established to ensure dust levels are kept to levels below recognized permissible exposure limits prior to ash handling activities.
- One individual per shift must be identified as responsible for safety on the site. This individual must be readily available any time work is occurring on site. Jacobs will provide the necessary safety personnel for this activity.

Copies of the Site Wide Safety and Health Plan will be provided upon request.

## 2.0 Pre-testing Requirements

### 2.1 Dewatered Processed Ash

The material to be transferred to the selected disposal sites is fly ash from coal used in coal fired boilers dispersed from the closed dredge cell on Dec. 22, 2008. The ash will undergo a processing procedure to ensure its proper moisture content for off-site disposal. The ash processing contractor (Trans-Ash) will transport the processed ash to a stockpile where the loading contractor's activities will begin.

The stockpiled ash will consistently be between 20 and 30 percent moisture and will meet requirements for loading and transporting of a DOT solid. All ash waste must meet designated moisture performance requirements before leaving the site. Moisture requirements are discussed in section 2.2.

Sufficient ash product to be used during the test will be stockpiled in the Ash Processing Area by the existing ash processing contractor (Trans-Ash). It will be the responsibility of the loading contractor to load the ash and transport the material to the load testing area near Track 16 in the rail yard (see Figure 1).

### 2.2 Sampling and Analysis

A Sampling and Analysis plan will be established for each of the respective disposal sites used. Waste Acceptance Criteria were determined for each facility and the required tests will be performed on the stockpiled material that is destined for off-site disposal including TCLP, Total Metals and Paint Filter.

Restoration Services, Inc. will provide the testing for this operation. They will utilize a scattered test pattern to ensure representative results and that the testing media is homogenous in nature. Results from the analysis will be made available to the disposal locations before ash is transported.

### 2.3 Disposal Facilities and Acceptance Criteria

Prior to testing, all applicable waste acceptance criteria shall be established for all disposal sites. All sampling and analysis shall be performed in accordance with these criteria. No ash will be removed from the testing area until the requirements of these criteria are met. The following waste disposal facilities have contracts in place and will receive ash waste from the loading test:

Veolia Environmental Services  
208 Southern States Road  
Mauk, GA 31058  
(478) 391.9493

Phillips & Jordan  
Uniontown, AL  
(770) 335.3652

Waste Connections (Meadow Branch)  
Athens, TN  
(865) 202.8841

Waste Connections (Volunteer Regional)\*  
Oneida, TN  
(865) 202.8841

Hazleton Reclamation Project\*  
Hazleton, PA  
(570) 499-2762

\*These sites are yet to receive EPA approval and will not be used for this test

### 2.4 Notifications

For each of the receiving disposal sites (not the transporter), TVA submitted the EPA Identification Number as well as the necessary contact information to ascertain EPA Region 4, Off-site CERCLA disposal clearance.

TVA Environmental will ensure the proper notifications are made to the appropriate personnel at the Environmental Protection Agency (EPA), the

Tennessee Department of Environment and Conservation (TDEC) and the appropriate state regulators before the removal of processed ash from TVA property.

TVA Public Affairs will develop media notification plans and implement, including coordination with receiving disposal sites and their public officials. The Jacobs Community Outreach Team will also assist TVA with the notification of public officials for Roane County as well as the general public.

## 2.5 National Environmental Policy Act (NEPA) Requirements

TVA has a policy to document all decisions under the National Environmental Policy Act (NEPA). The provisions set forth by NEPA are outlined in the Categorical Exclusion Checklist (CEC) (See Attachment 1). All operations, including loading, transportation, unloading and disposal must adhere to the commitments made by TVA and Jacobs in the CEC.

## 3.0 Loading Process

Loading operations will be established to protect the logistical operations of TVA Kingston, to prevent the spread of contamination from ash to plant property and most importantly to provide a safe working environment for all.

The loading contractor will provide all personnel associated with the ash loading process. This includes excavation activities at the Ash Processing Area (Ball Field) and at the railcar loading area, hauling operations between the Ash Processing Area and the railcar loading area; and personnel for flagging and environmental maintenance. At a minimum, there must be three flagmen operating at all times to maintain traffic for the hauling routes. This includes one flagman each at the entrance/exit at the Ash Processing Area and at the railcar loading area. The third flagman will be required to “spot” the truck operators as they back into the dumping position at the railcar loading area (see Figure 1).

Equipment can be provided to the loading contractors by the TVA Civil Projects Group or the loading contractor can mobilize some or all of its own equipment to perform the test. If the contractor wishes to use TVA equipment, it must submit a list of equipment to TVA procurement in advance.

### 3.1 Railcar Loading Plan

The general approach for this testing plan will be to excavate processed/stockpiled ash from the Ash Processing Area (or Ball Field) and haul the ash via truck to the railcar test loading area. The travel route is approximately ½-mile from the Ash Processing Area to the centerline of Track 16 at the rail yard location (refer to Figure 1).

Fifteen railcars for the test will be provided and positioned on Track 16 for each loading contractor in the rail yard location designated by Jacobs. Each of the fifteen railcars must be carefully loaded to prevent the spread of ash to non impacted areas. A liner or other containment system shall be provided and used by the vendor to protect the working area from ash spillage. The containment system must be provided and maintained by the loading contractor.

Trucks will operate between the Ash Processing Area and the railcar loading area via the North Plant Access Road. During loading, care will be taken not to overload the railcars (railcar load limits are 100 tons). During loading, care will be taken to ensure the ash is spread uniformly in the railcar. A Norfolk Southern representative will be on site observing loading procedures and to ensure these guidelines are being met.

At the completion of each day's activities and at the conclusion of the test, the loading contractor shall perform general housecleaning duties to minimize the chance for ash spreading to clean areas.

#### 3.1.1 Railcar Preparation – Before Loading

The following is a TVA provided list of instructions for preparing railcars for handling ash. The ash loading contractor is responsible for following these instructions prior to installing the liner system and loading ash by-product.

- Inspect cars for holes, cracks or gaps in sides and floors, and mark with visible white or yellow crayon marker. If holes are larger than 1-inch in diameter or cracks greater than 1-inch in width, reject car for loading
- Cars should be free of debris for initial loading and “broom” cleaned.
- Apply Dow “Great Stuff” Insulating Foam Sealant or equivalent as approved by Norfolk Southern Research and Test in all cracks, gaps and holes until complete seal is achieved.
- Ensure drain holes (4) in each corner are free of debris and filled with prescribed insulating foam.

#### 3.1.2 Railcar Lining Systems

There will be three primary lining systems utilized for the railcars during the test: flap-type liners (also referred to as “burrito” liners), zipper-type lining systems and a spray cover material known as Soiltac© or equivalent.

The car must be in a sift-proof condition to satisfy DOT packaging requirements (refer to 49 CFR 173.240 and Attachment 2 of this plan). The following list identifies the type of lining systems to be used and their occurrence.

- (1) 6 mil thickness Flap Liner or “Burrito Liner”
- (2) 10 mil thickness Flap Liner
- (1) 20 mil thickness Flap Liner
- (2) 10 mil thickness zipper type liner
- (1) 13 mil thickness zipper type liner
- (8) spray liner system

### 3.1.3 Railcar Preparation – After Loading

The following is a TVA provided list of instructions for preparing railcars after receiving ash product:

- The outside of the car will be inspected to ensure ash material has not been spilled onto car sides, safety appliances, or couple assembly.
- Car must have a proper hazardous material waybill describing the commodity as: “RQ, Environmentally Hazardous Substances, Solid, N.O.S., 9, UN3077, PG III (contains arsenic compounds)”. See DOT Hazardous Materials Table 49 CFR 172.101.
- Car must be marked on all 4 sides with 3077 orange panels or white square-on-point markers (ID number 3077 can also be on the Class 9 placards if placards are used).
- Loads will move to each test destination in regular train service in a block.
- All cars will be unloaded, broom cleaned, and the drain holes will be opened up for the return trip to Emory Gap, TN.
- If necessary, cars may have to be rinsed at destination – TBD.
- When cars complete the cycle and arrive at origin, the process will be repeated.

## 3.2 Truck Loading Plan

Highway Dump Trucks will be utilized to handle a portion of the off-site disposal test and shall be procured by the loading contractor. Each loading contractor will load five trucks each for this test.

### 3.2.1 Truck Lining Systems

The lining systems will be configured according to the list below. All trucks, regardless of lining system must be covered with a tarp prior to leaving TVA Kingston Fossil.

- (1) 6 mil thickness flap type liner
- (1) 10 mil thickness flap type liner
- (3) No lining system, but with absorbent “sock” at gate and bed interfaces

#### 4.0 Transportation

Railcars and trucks in transit to the respective disposal facilities will undergo monitoring from the responsible party to ensure its safe and effective arrival. Lining systems will be evaluated during transit to ensure effective suppression of dust or “blow off” and retention of water due to precipitation. The retention of water that could potentially rise to the surface during transport will also be monitored.

##### 4.1 Rail Transportation

It is the responsibility of Norfolk Southern to ensure safe and effective transport of the processed ash from the KIF Plant in Harriman, TN to the respective disposal facility. Spills and cleanup, as well as emergency notifications are also the responsibility of Norfolk Southern.

##### 4.2 Truck Transportation

The loading contractors will be responsible for the processed ash waste during transport to the Waste Connections facilities. This includes spills, cleanup and emergency notifications.

#### 5.0 Unloading and Disposal

Prior to site disposal unloading operations, representatives from TVA and Jacobs will be present to inspect the quality and overall performance of the transported ash upon receipt. Ash deposited at each of the disposal facilities in Section 2.4 of this plan should be covered with a soil layer to isolate it from other intrusive waste products. The waste’s location should also be documented so its location can be ascertained with the use of a GPS. Each disposal facility has agreed to make this provision.

##### 5.1 Rail Disposal

All lining systems will be considered waste and will be deposited along with the processed ash into the landfill. Care should be taken during unloading so as not to damage any railcars.

## 5.2 Truck Disposal

Truck disposal locations will be inspected by TVA and Jacobs personnel prior to dumping. All lining systems from trucks will also be considered waste and be deposited along with the processed ash into the landfill.

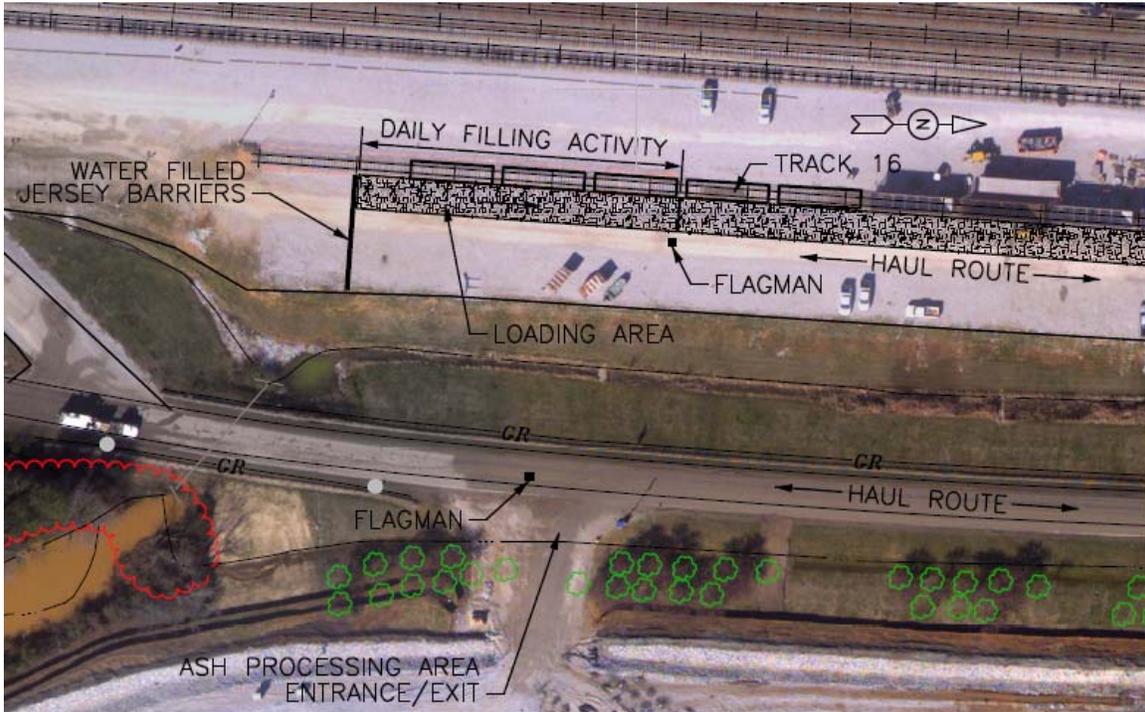
## 6.0 Test Evaluation

It is the intention of TVA and Jacobs to utilize this testing opportunity to evaluate loading methodology, containment practices, transport and unloading. The test will also serve as an indicator to the type of risks incurred during loading, transportation, unloading and disposal. Several key elements should be determined after the test including, but not limited to:

- Performance of equipment types used
- Ash spill containment procedures at the railcar loading area
- Performance and effectiveness of each liner type
- Performance of Soiltac (or equivalent) application and product effectiveness
- Effectiveness of dust suppression equipment and techniques
- Condition of ash during loading, transport and unloading operations
- Condition of liners and Soiltac (or equivalent) sealing solution at destination

Each of these items will be evaluated to help select the most effective process for contract loading, transportation and disposal.

**Figure 1**  
Ash Loading Test Area



**Attachment 1**  
**Major USDOT/State Class 9 (Hazardous Substance) Transportation and Packaging Regulatory Requirements and Responsibilities**

<b>FUNCTION RESPONSIBILITY</b>	<b>REQUIREMENT</b>	<b>Class 9 Shipments by Motor</b>	<b>Class 9 Shipments by Rail</b>	<b>Compliance</b>
Loading Contractor	Register with DOT <sup>1</sup>	X	X	
Loading Contractor	DOT training <sup>2</sup>	X	X	
Loading Contractor	Make vehicle closed sift proof <sup>3</sup>	X	X	
Loading Contractor	Prevent releases, contamination and properly close the vehicle <sup>4</sup>	X	X	
Loading Contractor	Develop a DOT hazmat security plan <sup>5</sup>	X	X	
Loading Contractor	Mark the transport vehicle <sup>6</sup>	X	X	
Loading Contractor	Prepare a DOT HAZMAT shipping paper/Emergency response guide <sup>7</sup>	X	X	
Loading /Unloading Contractor	Coordinate with Transporter for equipment placement, detention/demurrage documentation, truck or train dispatch	X	X	
Loading Contractor	Emergency Response Information <sup>8</sup>	X	X	
Transporter	Register with DOT as a transporter of HAZMAT <sup>1</sup>	X	X	
Transporter	DOT training <sup>2</sup>	X	X	
Transporter	Develop a DOT security plan <sup>5</sup>	X	X	
Transporter	Obtain increased levels of insurance <sup>9</sup>	X		
Transporter	Make vehicle closed sift proof <sup>3</sup>	X		
Transporter	Report certain HAZMAT incidents to DOT <sup>10</sup>	X	X	
Transporter	Report to DOT/EPA of releases of an RQ <sup>11</sup>	X	X	
Transporter	Spill incident clean up	X	X	
TVA	Spill incident media coordination			
Transporter	Compliance with USDOT/State RR/Motor Carrier Safety Requirements	X	X	
Transporter	Comply with Tennessee Identification of vehicles transporting loose material <sup>13</sup>	X		
Loading Contractor	Determine and assure material is DOT solid for Class 9 UN3077 <sup>12</sup>	X	X	
Loading/Unloading Contractor	Comply with Federal Railroad Administration/State RR walkway requirements		X	
Unloading Contractor	DOT training <sup>1</sup>	X	X	

<sup>1</sup> 49 CFR 107.601 requires registration and a fee for a bulk quantity of solid hazardous materials in a packaging having a capacity equal to or greater than 468 cubic feet.

<sup>2</sup> 49 CFR 172.704 requires hazmat employees to receive documented training and be tested for general awareness/familiarization, function specific, safety and security. 49 CFR 171.8 defines a hazmat employee as a person full or part time or temporary who loads, unloads, prepares a shipment, marks a package, responsible for the safe transport or transports a hazardous material in commerce.

<sup>3</sup> DOT class 9 bulk solid materials as a minimum must be transported in a “sift proof closed vehicle” per 49 CFR 173.240 by truck. Open top sift proof rail cars are approved. Sift proof is defined in 49 CFR 171.8 as a packaging impermeable to dry contents, including fine solid material produced during transport. This is a very challenging requirement for truck and rail. It may require for truck a vehicle dump bed lining, gaskets on the tail gates and a laced tarpaulin over the bed. It is much more stringent than TN Department of Safety requirements for non hazardous bulk aggregate transportation by truck.

<sup>4</sup> 49 CFR 173.24 requires non identifiable (without the use of instruments) release of hazmat to the environment during transport. There must be no hazardous material residue adhering to the outside the package (transport vehicle) during transport. The closures (lining, gaskets, tarpaulins, etc) must be closed so that during conditions of normal transport, there is no identifiable release of the hazmat to the environment from the opening to which the closure is applied. The closure must also be leak proof and secured against loosening.

<sup>5</sup> 49 CFR 172.800 requires the offering and transport of a bulk quantity of solid hazardous materials in a packaging having a capacity equal to or greater than 468 cubic feet to develop, document and implement a security plan to address security risks. The plan must address personnel security, unauthorized access, enroute security.

<sup>6</sup> 49 CFR 172.302 requires the marking of a bulk package of less than 1,000 gallon on two opposite sides with the identification emergency response number corresponding to the material transported i.e. “3077” for an EPA reportable quantity of a hazardous substance. 49 CFR provides the emergency ID number may be displayed on an orange panel, placard or on a white square-on-point configuration. Bulk packaging must be marked on each side and end if the packaging has a capacity of 3,785 L (1,000 gallons) or more.

<sup>7</sup> 49 CFR 172 section requires preparation and retention of shipping papers for each individual shipment. The shipment papers must be certified by signature and emergency response guide references provided.

<sup>8</sup> 49 CFR 172 Subpart G requires a monitored telephone number for emergency response.

<sup>9</sup> 49 CFR 387.9 requires minimum levels of insurance increase from \$750,000.00 to \$ 1, 000,000.00.

<sup>10</sup> 49 CFR 171.15 & 16 requires immediate notification and detailed hazardous materials incident reports to DOT.

<sup>11</sup> EPA 40 CFR 302.6 requires notification of the release of a reportable quantity (RQ) of a hazardous substance.

<sup>12</sup> 49 CFR 172.102 Special Provision 335 clarifies that a mixture of non-hazardous solids and environmentally hazardous solids may be classified as UN3077 provided there is no free liquid visible at the time the substance is loaded or at the time the packaging or transport unit is closed.

<sup>13</sup> Tennessee Code Annotated 55-7-113 requires any vehicle hauling loose material to have affixed, stenciled or painted on the rear of the vehicle a sign or placard bearing the name of the owner of the vehicle in letters at least six inches (6”) in height, clearly visible to motorist following the vehicle, and an additional identifying number if the owner has more than one (1) such vehicle.