

**Tennessee Valley Authority  
Regulatory Submittal for Kingston Fossil Plant**

**Documents submitted:  
Rim Ditch Hydraulic Improvements Work Plan**

**Date submitted  
7/13/2009**

**Submitted to whom  
Leo Francendese, EPA**

**Concurrence**

Received      Not Applicable      TVA

Anda Ray  
Mike Scott  
Kathryn Copeland  
Cynthia Anderson  
Dennis Yankee  
David Stephenson  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Received      Not Applicable      Jacobs

John Moebes  
Julie Pfeffer  
Jack Howard  
Donna Cueroni  
Paul Clay  
\_\_\_\_\_

**Approvals**

TVA

Michael T. Scott

Date

7/14/09

EPA

Leo Francendese

Date

7/14/09

*Consulted w/ TDEC*

cc:

- Anda Ray, TVA
- Barbara Scott, TDEC
- Leo Francendese, EPA
- Mike Scott, TVA
- Dennis Yankee, TVA
- Kathryn Copeland, TVA
- Cynthia Anderson, TVA
- John Moebes, Jacobs
- EDM
- Julie Pfeffer, Jacobs
- David Stephenson, TVA
- Michelle Cagley, TVA
- Greg Signer, TVA
- KIF Incident Document Control
- Katie Kline, TVA
- Gretchen Wahl, Jacobs
- Dannena Bowman, EPA
- Jeff Gary, Jacobs

## **Rim Ditch Hydraulic Improvements Work Plan**

### **1.0 Purpose**

A new dredge and processing contractor, Severson Environmental Services, has received a notice to proceed from TVA and has begun mobilization to the job site. They are proposing dredge flow rates (12,000 to 15,000 GPM typically) that often will be higher than the Rim Ditch was originally expected to receive. To improve the hydraulic characteristics of the Rim Ditch and facilitate ash removal, Severson has requested authorization to install weirs across the Rim Ditch at select locations, to improve settling and ash recovery.

This work plan describes the improvements proposed by Severson, means of construction, schedule and other relevant considerations. A separate work plan will be submitted to address the integrity of the sides of the Rim Ditch.

### **2.0 Design**

A plan for the improvements to the Rim Ditch is shown in the attached figure. The two weirs will be made of AZ-19 or AZ-26, interconnected steel sheet piles. The type of sheet pile was selected to afford appropriate resistance to bending given the flow rates expected in the Rim Ditch. The sheets will be ~30' - 40' long (vertical dimension when installed). Given the depth of water in the Rim Ditch when fully excavated (maximum of 15') and the minimum length of the sheet piles, it is expected they will penetrate at least 16' into the ash below the fully excavated Rim Ditch. Having water on both sides of the sheet piles will provide further stability to the piles. That being said, a geotechnical analysis will be performed to ensure the weirs will be stable considering the various forces such as flowing water and scour that will be present in the Rim Ditch.

In general, the sheet pile weirs will be constructed in two locations inside the Rim Ditch at 45 degree angles as shown in the attached figure. The weirs will extend the entire way across the Ditch at each location.

EPA approval for the engineering design will be required prior to execution.

### **3.0 Construction**

The equipment that will be used to install the sheet piles for the weirs are an APE 200-6 vibratory hammer attached to a 100 ton crane and/or a Movax attached to a PC220 excavator (The likely methods of installation have been discussed with Geosyntec and they have indicated it is acceptable provided forthcoming installation guidelines are followed). The sheet piles will be welded in pairs for a driving width of approximately 3.6 feet. The use of the pairs assists in maintaining the intended weir alignment during installation.

Installation of the sheet pile weirs will be on the inside of the Rim Ditch, in two separate locations, positioned at 45 degree angles. The sheet piles will be set at a depth to optimize the rate of flow of water discharged and the detention time of the ash in the trench, as shown on the attached figure. It is expected that typically approximately 1' of water will flow over the weirs during dredge operation.

#### **4.0 Schedule**

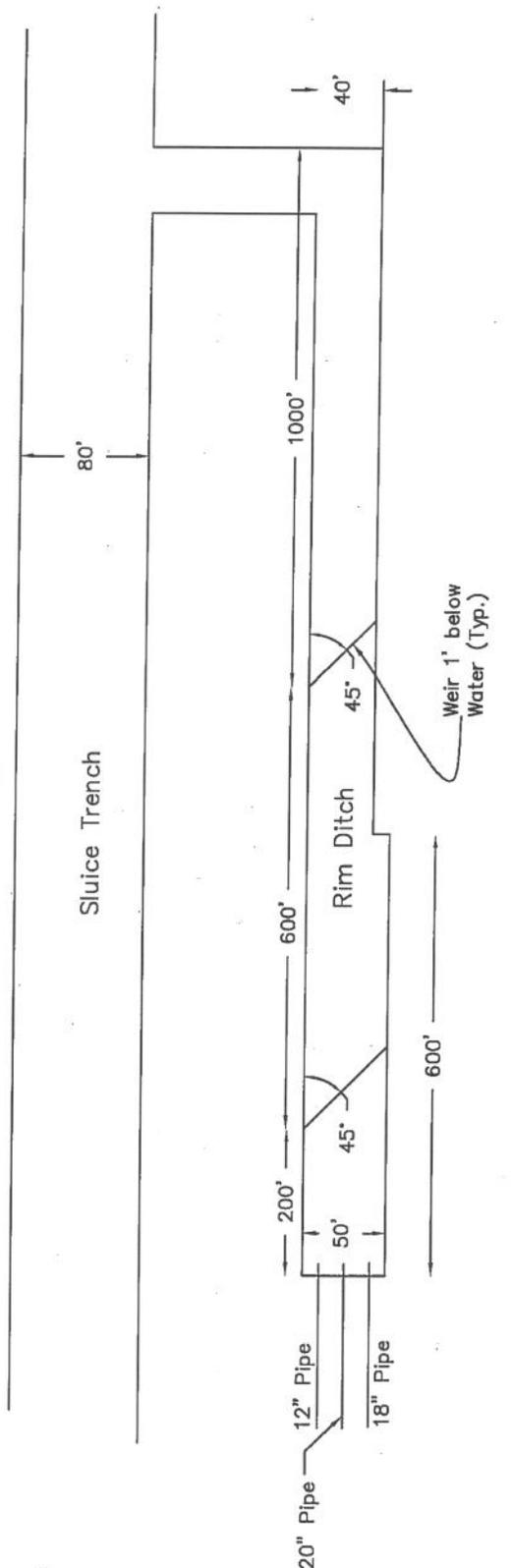
Sevenson intends to begin receiving sheet piles on site between 7/15 and 7/17. Installation of the piles will begin on 7/19 or 7/20 and will be completed by 7/23. This schedule is consistent with Sevenson's overall objective of completing system shakedown for their smaller dredge by 7/23 to allow them to begin dredging in the River on 7/24.

#### **5.0 Waste Management**

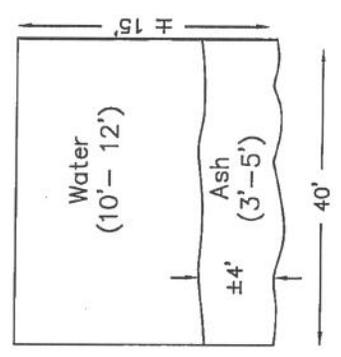
Not applicable to this activity.

#### **6.0 Health and Safety**

The activities in this work plan will follow the site-wide health and safety plan. Of primary concern will be: 1. Careful installation of sheet piles in a manner that will not cause geotechnical instability (see section 3.0); 2. Use of heavy equipment and movement of heavy materials; 3. Working on or adjacent to the water in the Rim Ditch and Sluice Trench; and 4. Awareness of heat-induced conditions for employees given typical, seasonal weather. Personal hygiene efforts will be used also to control exposure to ash.



Plan  
Not To Scale



Rim Ditch Section  
Not To Scale

Actual Locations of Weirs May Vary.

Rim Ditch	DATE: 6/29/09
TVA Kingston Fossil Plant	DRAWN BY: C. Bigelow
Emory River	CHECKED BY: M. Ella
Phase 1 Dredging	CAD FILE: sluice Trench
SCALE: none	
DRAWING 1	
SEVENSON ENVIRONMENTAL SERVICES, INC.	