Tennessee Valley Authority
Regulatory Submittal for Kingston Fossil Plant

Documents submitted:
Construction/Operation of Excavation/ Working Platform Extended Platform on Lateral Expansion Work Plan

Date Submitted:
02/25/2010

Submitted to whom
Leo Francendese

Concurrence

Received	Not Applicable	TVA
☒	☐	Mike Scott
☐	☒	Steve McCracken
☒	☐	Kathryn Nash KAN
☒	☐	Dennis Yankee DKY
☒	☐	Michelle Cagley MC
☒	☐	Tom Spurlock – via e-mail
☒	☐	Tim Russ

Received	Not Applicable	Jacobs
☒	☐	Steve Richardson
☐	☒	Julie Pfeffer
☒	☐	Jack Howard
☐	☐	_____
☐	☐	_____
☐	☐	_____

Approvals

TVA Michael T Scott Date 2/27/10

EPA Leo Francendese Date 2/25/10

consulted w/ TDEC

WORK PLAN

CONSTRUCTION/OPERATION OF EXCAVATION/WORKING PLATFORM/EXTENDED PLATFORM ON LATERAL EXPANSION

1.0 Purpose of Work

This plan is to describe the work required to construct an excavation/working platform and a processing area on the lateral expansion plus an access way from the road atop Dike D. The platform is to serve as a location from which a machine will excavate ash from a portion of the lateral expansion, place it on the platform for drying and then loading onto trucks for transporting. The storage area will be adjacent and parallel to Dike D. Note Sketch LE-2-16 for location and construction details.

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2.0 Design Components

The design of the access way and platform is based on experiences building roads, etc across and on the failed ash cell. They will be "field designed" in that the placement and spreading of rock, as well as the thickness will be determined by the reaction of the equipment as the material is being placed. A geogrid will be placed on the existing ash surface. Dozers will then place and push rip rap or other approved material in front of the dozer, creating a surface of sufficient stability to withstand the weight of the equipment plus the ash excavated. After the base rock is placed, #57 stone and crusher run stone will be placed to form a wearing surface plus a drainage area. This surface will be sloped to enhance drainage and ash dewatering. The sides of the platform will be staked to insure that the 3:1 (three horizontal to 1 vertical) slope is maintained during excavation of ash from the lateral expansion. Note Sketch LE-2-16. Incorporated into this plan are Stantec's recommended procedures for construction and operation plus their stability opinion.(attached)

3.0 Construction/Operation Management

The construction will be accomplished by conventional methods utilizing excavators, trucks, and other associated equipment. Rate of rock placement and ultimate thickness will be determined by TVA technical personnel with construction monitoring by Stantec.

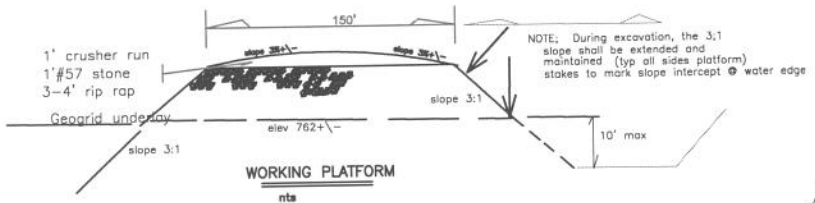
The 150'x250' platform will be constructed and put into operation as soon as practicable. Excavation around the perimeter of the platform from the later expansion will begin immediately and continue in this mode until the free water volume in the ash pond is increasing or until it is not productive. The dredge discharge into the lateral expansion will flow around the perimeter of the platform recharging the previously excavated area. Excavated material from the expansion will be deposited on the platform to drain. After sufficient drying time, the material will be loaded onto trucks for transporting and processing/disposal. The excavation of the lateral expansion will not exceed a depth of 10 feet below the existing ash level (763+\-) nor undercut the extended 3:1 slope of the platform. There will be visual markers to denote the limits of the out slope and will be monitored daily by Stantec and TVA technical personnel.

The sequence is to construct the 150x250 area, excavate around the perimeter of the area for a period of time in anticipation of increasing the free volume in ash pond. If unsuccessful, then the construction of the platform parallel to Dike D and subsequent excavation from the ponds would be pursued.

EXCAVATION/WORKING PLATFORM/EXTENDED PLATFORM
FOR
EXCAVATION OF LATERAL EXPANSION

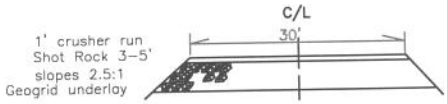
SKETCH LE-2-16

2-16-2010



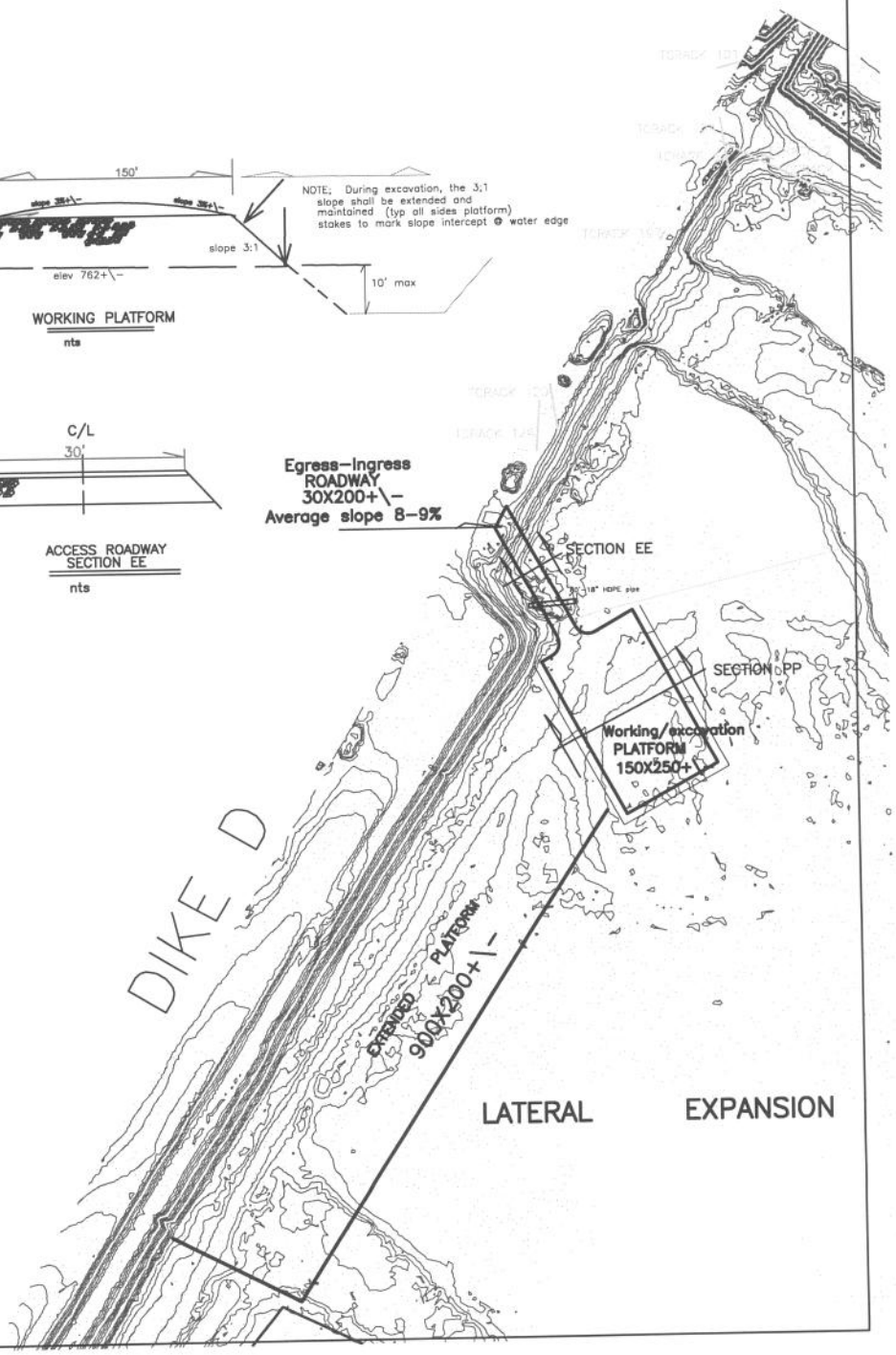
WORKING PLATFORM

nts



ACCESS ROADWAY
SECTION EE

nts



4.0 Schedule

The work outlined above will be started by 3-3-10 and completed by 3-12-2010.

4.0 Waste Management

No waste other than miscellaneous construction debris will be created.

6.0 Health and Safety

All construction activities will be done in accordance with site wide Health and Safety Plan. Work in close proximity and on the Pond areas will be specifically addressed in the Job Safety Plan.

RLD/2-22-10

Stantec

Stantec Consulting Services Inc
1409 North Forbes Road
Lexington KY 40511-2050
Tel: (859) 422-3000
Fax: (859) 422-3100

February 24, 2010

171468117_let_007

Mr. Michael T. Scott, PE
General Manager
TVA Kingston Fossil Ash Recovery Operations
1134 Swan Pond Road, KFP 1T-KST
Harriman, Tennessee 37748

Re: Geotechnical Evaluation
Construction of Working Platform and
Ash Excavation Lateral Expansion
Kingston Fossil Plant
Harriman, Roane County, Tennessee

Dear Mr. Scott:

Stantec Consulting Services Inc. (Stantec) has performed an evaluation of the proposed lateral expansion ash recovery operation. Outlined below is the scope of work, results, and recommendations related to development of this operation in direct support of on-going ash recovery operations. Please note that the use of the term "engineer" in this document is in reference to Stantec's planned continued oversight of this operation.

Background

The objective of this operation is to facilitate periodic mechanical dredging from the lateral expansion area of the Dredge Cell. The mechanical dredging will assist in maintaining settling capacity as wet-dredged ash is conveyed to the lateral expansion.

The concept is to develop a working platform within the lateral expansion area directly adjacent to Dike D which facilitates placing excavated ash on the platform above the operating pool to aid initial dewatering. Following initial dewatering, recovered ash will be loaded onto trucks for transport to moisture reduction processing areas.

Engineering Analysis

Stantec initially reviewed available information regarding site specific conditions and performed site reconnaissance of the proposed operation area. Conceptual working platform geometry, proposed operational machinery, and excavation geometry were developed and reviewed with TVA Civil Projects group and Jacobs engineering and operations management personnel. Stantec evaluated the structural integrity of the platform and resulting ash excavation to determine appropriate engineering metrics for use in work plan development and operations.

Stability analysis of the operation indicates that the required short term factors of safety are maintained with a working platform thickness ranging from three to six feet, depending on the conditions realized during construction within the existing hydraulically placed ash foundation materials. Recommended platform metrics are provided below:

- Maximum outslope: 3:1 (Horizontal:Vertical);
- Materials: Zoned durable aggregates overlying geogrid base reinforcement;
- Initial Minimum Platform Thickness: Six (6) feet (subject to field-adjustment by the engineer).

Following engineer's approval of the working platform, ash removal will be accomplished through mechanical dredging with amphibious track-hoes. The excavation will be oriented along the northern and eastern limits of the platform following the metrics below:

- Excavation side slopes: 3:1 or flatter;
- Maximum depth: 10 feet;
- Maximum differential of one (1) foot between water level maintained in excavation and surrounding grade.

General Recommendations

1. The engineer will be notified 24-hours in advance of initial platform development and prior to initiating subsequent periodic excavation or stockpiling of materials on the working platform.

2. Geogrid base reinforcement panel overlaps should be provided in accordance with manufacturers recommendations.

3. Maximum height of wet ash stockpiled on the platform is 10-feet. Wet stockpiles should be maintained with outslopes of 6:1 (Horizontal:Vertical) or flatter.

4. The working platform aggregate material zones are to be selected to maintain free-draining conditions within this structure. This will require the use of open graded aggregate such as rip-rap or TDOT No. 2 stone overlain with a graded filter material that is conducive to trapping the ash material at the surface. It is anticipated that a one-foot cap of crusher run stone, underlain by one-foot of TDOT No. 57 stone, placed over the platform base formed with open graded stone will meet the design intent.

5. It is understood that the lateral expansion mechanical dredging operation will initially be developed via a working platform with rough dimensions of 150 feet x 250 feet. This initial platform may be extended parallel to Dike D in subsequent phases.

6. It is understood that the proposed construction and ash recovery operations will be performed by TVA Civil Projects group supervisors and operators who have direct experience in development and operation of heavy equipment over hydraulically placed ash.

7. It is recommended that TVA consider providing approximate 30-inch tall "unmountable berms" along the lateral expansion side of the working platform to reduce the risk of vehicles encroaching off of the platform.

8. In order to maintain structural integrity, it is critical that the excavation outslope not encroach beyond the recommended 3:1 cut slope. It is recommended that TVA maintain an appropriate visual marker (i.e. snow fencing or physical barrier) roughly 10 feet beyond the toe of the working platform for operator reference to prevent excavation operations from undercutting the platform toe. In addition, TVA should include performing periodic sounding of the excavation geometry.

9. It is recommended that the proposed operations will be reviewed by TVA safety personnel and appropriate safety protocols maintained throughout the work by TVA safety professionals.

Closure

Stantec appreciates the opportunity to provide these engineering support services. If you have any questions or need additional information, please call.

Sincerely,

STANTEC CONSULTING SERVICES INC.

Don W. Fuller II

Don W. Fuller II, PE
Principal

/sj

McDermott, Mary F

From: Denton, Randy
Sent: Monday, February 22, 2010 5:05 PM
To: McDermott, Mary F
Cc: Howard, Jack L.
Subject: FW: Lateral Expansion Platform

From: Fuller, Don [mailto:Don.Fuller@stantec.com]
Sent: Monday, February 22, 2010 5:03 PM
To: Denton, Randy
Subject: RE: Lateral Expansion Platform

Stantec concurs.
Please advise once work plan is approved.
You and I will then network with civil projects regarding the details of the work related to Stantec's evaluation.

Thanks.

Don Fuller II, PE
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From: Denton, Randy [mailto:rdenton@tva.gov]
Sent: Monday, February 22, 2010 4:48 PM
To: Fuller, Don
Subject: RE: Lateral Expansion Platform

Please reply with concurrence on work plan

From: Fuller, Don [mailto:Don.Fuller@stantec.com]
Sent: Monday, February 22, 2010 4:33 PM
To: Denton, Randy
Subject: Lateral Expansion Platform

Please forward digital version of 2/22 workplan revisions.

Don Fuller II, PE
Principal
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