

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

Documents submitted:

Central Area Re-Contouring Work Plan, Revision 5

Stantec White Paper – Dry Ash Stack Subgrade Contouring – July 2010

Date Submitted:

08/04/2010

Submitted to whom

Craig Zeller, EPA

Concurrence

Received

Not Applicable

TVA

Steve McCracken
Dennis Yankee *DNY*
Kathryn Nash
Steve Cherry *sc*
Michelle Cagley *mc*

Received

Not Applicable

Jacobs

Steve Richardson
Jack Howard
Butch Parton

Approvals

TVA

Kathryn Nash

Date

8/4/10

EPA

Craig Zeller

Date

8/06/10

cc:

- Anda Ray, TVA
- Barbara Scott, TDEC
- Brenda Brickhouse, TVA
- John Dizer, TVA
- Craig Zeller, EPA
- Dennis Yankee, TVA
- Kathryn Nash, TVA
- Cynthia Anderson, TVA
- Steve McCracken, TVA
- EDM
- Julie Pfeffer, Jacobs
- Steve Richardson, Jacobs
- Michelle Cagley, TVA
- Greg Signer, TVA
- KIF Incident Document Control
- Katie Kline, TVA
- Dannena Bowman, EPA
- Jeff Gary, Jacobs
- Robert Pullen, Jacobs



EPA-A0-032

**Kingston Ash Recovery Project
Central Area Re-Contouring Work Plan, Revision 5**

**Prepared by:
Jacobs**

for the Tennessee Valley Authority

Revision	Description	Date
5	Central Area Re-Contouring Work Plan	07/28/10

Central Area Re-Contouring Work Plan, Revision 5

1.0 Purpose of Work

This work plan is to re-contour the central area of the old dredge cell to build a subgrade in anticipation of constructing the capillary break, to improve drainage and to stabilize the dredge cell against erosion (see attached sketch for details). This work is to support Time Critical ash storage activities.

2.0 Design Components

The re-contouring of the central area will be accomplished by hauling unsaturated material from the ballfield area, Pap's Hill Area, the Relic or the Test Embankment (+ 2% to - 4% of optimum moisture content) to begin ash restacking within this area. The material will be placed in nominal 1' lifts and tracked in by compaction equipment.

The re-contouring will raise the elevation of the ditch at the East West Haul Road to approximately 752.0 and will be sloped to the south at an approximate 0.6% slope. This will place approximately 50000 CY of material.

The re-contouring will tie into the Test Embankment at elevation 758.0.

The surface drainage from this area would still flow from south to north and be discharged through the East West Haul Road by means of a 48" pipe and then be carried to the existing Settling Areas prior to discharge to the Emory River.

3.0 Construction Management

The construction will be accomplished with amphibious track hoes, dozers and trucks.

4.0 Schedule

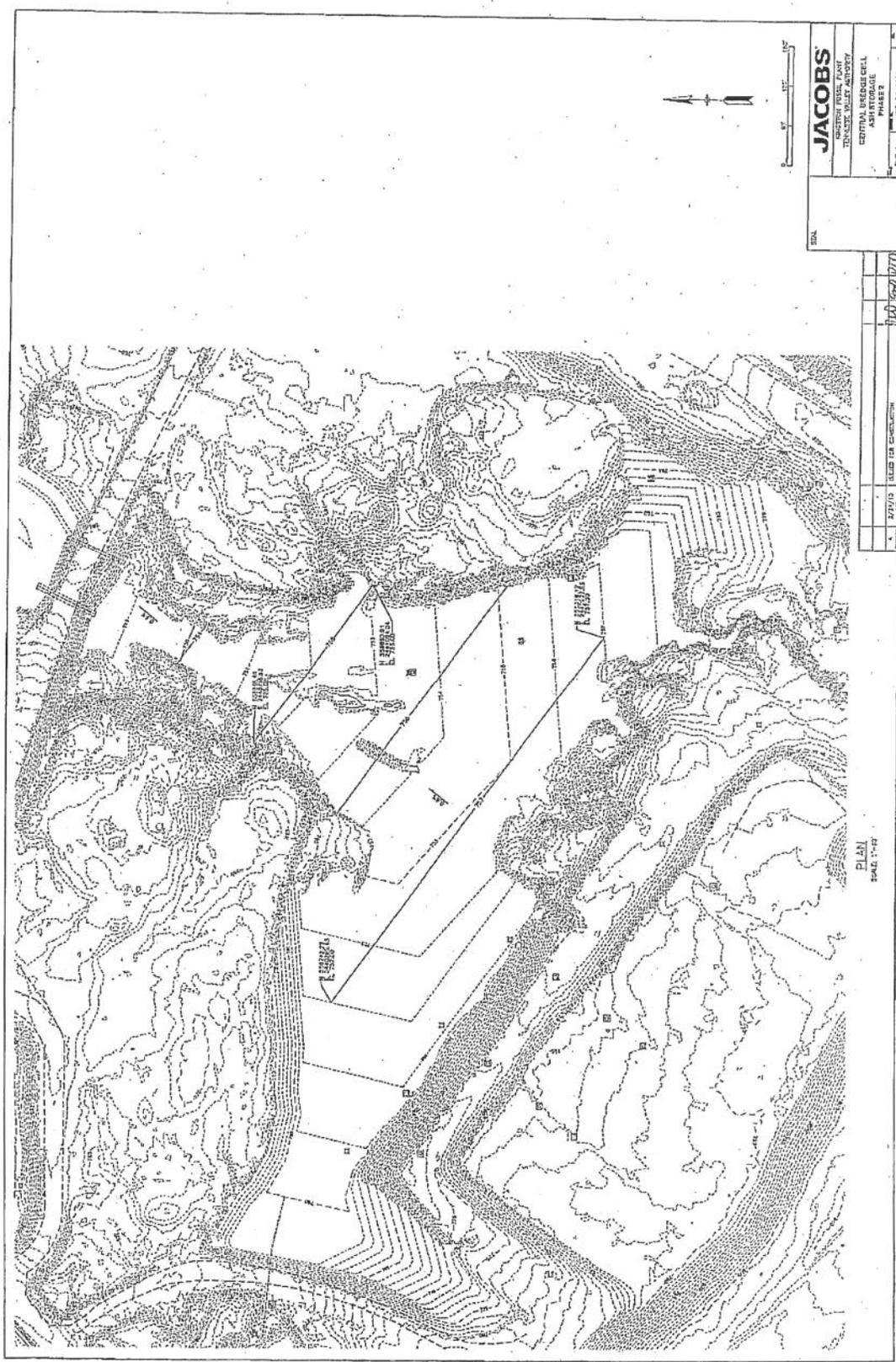
The activity would begin after this work plan has been approved and continue until the area has been re-contoured.

5.0 Waste Management

No waste will be generated by this work.

6.0 Health and Safety

All construction activities will be done in accordance with the site-wide Health and Safety Plan. The material will be placed, as much as possible, by pushing the material in front of the equipment, thus minimizing equipment and personnel in the gullies.



JACOBS
 CONSULTING ENGINEERS
 TRUCKEE, WYOMING
 CENTRAL WYOMING CELL
 ASBESTOS
 SHEET 2
 DRAWN BY: [Signature]
 DATE: 10/16/01

NO.	DATE	BY	REVISION
1	10/16/01	[Signature]	ISSUED FOR CONSTRUCTION

PLAN
 SCALE 1"=100'

Parton, Franklin M Jr

From: Steele, Mike (Lexington) [Mike.Steele@stantec.com]
Sent: Friday, February 26, 2010 3:54 PM
To: Parton, Franklin M Jr
Cc: Howard, Jack L; Fuller, Don; Herron, Darrell; Lindquist, Kyle; Wu, Yong
Subject: RE: Central Area Re-contouring Work Plan

Yes.

Michael J. Steele, PE
Associate
Stantec Consulting Services Inc.
1409 North Forbes Road
Lexington KY 40511-2050
Ph: (859) 422-3091
F: (859) 422-3100
Cell: (859) 494-0889
Mike.Steele@stantec.com
stantec.com

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From: Parton, Franklin M Jr [mailto:frmparton@tva.gov]
Sent: Friday, February 26, 2010 3:22 PM
To: Steele, Mike (Lexington)
Cc: Howard, Jack L; Fuller, Don; Herron, Darrell; Lindquist, Kyle; Wu, Yong
Subject: RE: Central Area Re-contouring Work Plan

Mike,

Does this mean you concur with the Central Area Re-contouring Work Plan?

Butch

From: Steele, Mike (Lexington) [mailto:Mike.Steele@stantec.com]
Sent: Friday, February 26, 2010 1:34 PM
To: Parton, Franklin M Jr
Cc: Howard, Jack L; Fuller, Don; Herron, Darrell; Lindquist, Kyle; Wu, Yong
Subject: RE: Central Area Re-contouring Work Plan

Butch:

Stantec compared the attached work plan with the current version of our DRAFT subgrade design and it appears that the proposed grading is generally below target working platform elevations. It is noted that the FINAL subgrade design will likely require some degree of cut across proposed fill areas to achieve the desired template. It is recommended that TVA safety professionals evaluate both working conditions at the site and the proposed construction methodology in order to develop appropriate protocols to meet stated objectives outlined in Section 6 of the work plan.

Michael J. Steele, PE
Associate
Stantec Consulting Services Inc.
1409 North Forbes Road
Lexington KY 40511-2050

Ph: (859) 422-3091
Fr: (559) 422-3100
Cell: (859) 494-0888
Mike.Steele@stantec.com
stantec.com

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From: Parton, Franklin M Jr [mailto:fmuparton@tva.gov]
Sent: Wednesday, February 24, 2010 11:11 AM
To: Steele, Mike (Lexington)
Cc: Howard, Jack L
Subject: Central Area Re-contouring Work Plan

Mike,

Please review the attached work plan and provide your concurrence.

Thanks,

Butch

<<Central Area Recontouring Work Plan.pdf>>



Stantec

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

July 30, 2010

let_015_kif_175669015

Ms. Kathryn Nash
General Manager
TVA Kingston Fossil Ash Recovery Operations
1134 Swan Pond Road, KFP 1T-KST
Harriman, Tennessee 37748

Re: Dry Ash Stack Subgrade Contouring
TVA Kingston Fossil Plant
Harriman, Roane County, Tennessee

Dear Ms. Nash:

Stantec Consulting Services, Inc. (Stantec) is currently evaluating the working platform design proposed as an element of the dry ash stacking to be conducted in association with the dredge cell closure project. Specifically, the design to be evaluated will switch the focus from aiding constructability and addressing schedule concerns to emphasizing establishment of a long term capillary break. Changes to the design may also affect the contouring of the dry ash stack subgrade. As requested, this letter presents general guidelines for the interim contouring of the subgrade that incorporates the design changes under consideration, and facilitates continuation of this work while the design is being finalized. More specific recommendations will be presented with the final design.

General

The proposed change in design basis will involve setting the capillary break at an elevation equal to or above the long term phreatic surface in the capped condition. Eliminating the previously proposed construction subgrade stabilization under drain piping and the working platform design may allow the subgrade to be contoured in a different configuration. The excavations for the trenches where the under drains were to be constructed may be eliminated. Instead, the subgrade in the dredge cell may be shaped as a gradual slope down from south to north.

The final configuration of the subgrade for the proposed Kingston dredge cell dry ash stack has not been determined at this time. Various configurations are under consideration; therefore Stantec has developed these recommendations in an attempt to allow interim contouring of the dredge cell subgrade in a general manner that will not result in extensive changes of the contour once the final configuration is selected.

Stantec Consulting Services Inc.
One Team. Infinite Solutions.

The previously proposed working platform included a layer of geogrid for stability during construction. This geogrid layer is not essential to long term stability, and may not be required as an element of the revised design. Also, the thickness of the sand and stone layers may be reduced to that needed strictly to maintain the capillary break under capped conditions. The strategy currently being explored is that the working platform in effect will be eliminated and replaced with a capillary break that does not provide a robust structural element for construction. Without the geogrid layer, compaction of the dry ash placed during subgrade contouring is critical to the drainage of the capillary break and to the stability of the proposed dry ash stack during construction.

Lines and Grades

Contouring of the dredge cell subgrade in the Central Area can continue at risk while the design for the dry ash embankment is finalized. In order to reduce the potential for regrading of areas within the dredge cell once the final design grades are established, ash fill material placed during the interim should be below a maximum elevation of 756 feet near the north boundary of the Test Embankment, falling to a maximum elevation of 752 feet at the east/west haul road. Positive drainage through minimum two percent cross slopes should be maintained on all surfaces. No interim slopes should be constructed at greater than 10:1 (10 Horizontal to 1 Vertical until sufficient instrumentation is in place). It is recommended that phased grading plans be developed based on these recommendations prior to initiating field work.

Placement and Compaction

Due to the possibility of eliminating the geogrid layer of the working platform from the final design, lift thickness shall be maintained at a maximum of one foot during ash placement for the interim contouring. The ash fill placed during interim contouring shall be compacted to a minimum of 90 percent of the maximum dry density for this material. The ash material shall be placed at a moisture content within minus four percent and plus two percent of the optimum moisture content of this material. Maximum dry density and optimum moisture content are determined from a standard Proctor test (ASTM D698). Daily limits of ash placement thickness shall be limited to two feet until sufficient instrumentation is in place to adequately monitor construction and establish acceptable rates of stacking. Ash placement shall be performed uniformly across the cell and result in interim slopes no steeper than 10:1 as discussed above.

Quality Control

The guidelines presented are based on the assumption that Stantec will provide monitoring of fill placement and compaction. Moisture content tests and field density tests will be conducted at regular intervals to determine the suitability and compaction of the ash fill material. The Quality Control Manager will continually assess the condition of the subgrade during cut and fill operations within the dredge cell. The assessment will include

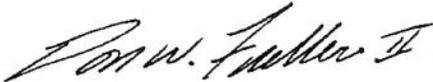
TVA Kingston Fossil Ash Recovery Operations
July 30, 2010
Page 3

geotechnical instrumentation monitoring wherever possible, as well as observation of subgrade stability under heavy equipment loading. Work will be suspended in any section of the dredge cell by the Quality Control Manager, or his designated representatives, when conditions indicate areas may not be suitable for continued fill placement.

These guidelines are provided to assist the ongoing efforts at the Kingston Ash Recovery Project. It should be understood that the feasibility of the new working platform concept is currently being evaluated and as such, any earthwork performed prior to completion of the design efforts includes some risk that the resulting grades may need to be adjusted. If you have any questions or need additional information, please contact Stantec.

Sincerely,

STANTEC CONSULTING SERVICES INC.



Don W. Fuller II, PE
Principal

/cmw