

Tennessee Valley Authority  
Regulatory Submittal for Kingston Fossil Plant

Documents submitted:  
Technical Memorandum Concerning Accuracy of Dredge Control Data Surface

Date Submitted:  
03/04/2010

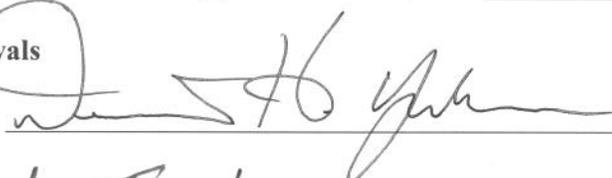
Submitted to whom  
Leo Francendese

Concurrence

Received	Not Applicable	TVA
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mike Scott
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Steve McCracken
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Kathryn Nash
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Dennis Yankee
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Michelle Cagley
<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/>	<input type="checkbox"/>	_____

Received	Not Applicable	Jacobs
<input checked="" type="checkbox"/>	<input type="checkbox"/>	John Trimble
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Paul Clay
<input type="checkbox"/>	<input type="checkbox"/>	_____
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<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/>	<input type="checkbox"/>	_____

Approvals

TVA 

Date 3/4/10

EPA 

Date 3/4/10

cc:

- Anda Ray, TVA
- Barbara Scott, TDEC
- Leo Francendese, EPA
- Mike Scott, TVA
- 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



# Kingston Ash Recovery Project



Date: March 2, 2010

To: Dennis Yankee

From: John Trimble and Paul Clay

CC: Mike Anderson, Bob Lewis, Steve Arington, Julie Pfeffer, File

Re: Accuracy of Dredge Control Data Surface

The primary control datum for the pre-spill sediment surface is the US ACE navigational channel survey of the Emory River performed in 2007. The data provided to the site is tightly spaced river sediment elevations along cross-channel lines spaced 300' to 500' along the river channel. A review of articles on river channel surveys indicates that this spacing is within the recommend spacing and that extrapolations between sections should predict the channel surface within + or - 0.5 feet of accuracy depending on the stream reaches geomorphology. The predicted pre-spill surface datum has been checked by VibeCore sampling at multiple points and has shown correlation within 1 foot.

The Vibecore data at various spacing has also been used to develop pre-spill sediment surfaces in areas without the US ACE bathymetric data. A river bar check elevation, a sounded depth and a handheld GPS with regional correction system were used to locate the cores taken. The accuracy of this system is comparable to the Corp system with sub foot accuracy in the vertical plane and sub-meter accuracy in the horizontal.

It should be noted that any projection is an average surface and that the accuracy of the projection will degrade as the distance from the measured point increases. For this reason, the post-spill bathymetry is being spaced at 25' centers and performed both on cross and along stream lines.

#### References:

Uncertainty in Bathymetric Surveys, Shelley Johnson, 2003

<http://chl.erdc.usace.army.mil/library/publications/chetn/pdf/chetn-iv-59.pdf>

White Paper #3 Fox River Bathymetric Survey Analysis, 2002

<http://dnr.wi.gov/org/water/wm/foxriver/documents/whitepapers/RS%20White%20Paper%20No%203.pdf>

Optimal Survey Configuration Analysis for Fraser River Bathymetric Mapping, May 2001

<http://www.geog.ubc.ca/fraserriver/reports/bathymetricmapping.pdf>

Analysis of Recent Upper St Clair River Bathymetric Changes, 2006, US ACE

<http://www.lre.usace.army.mil/hh/UpperStClairbathymetrycomparison/UpperStClairbathymetrycomparison-hires.pdf>