

US EPA ARCHIVE DOCUMENT

## EPA Comments

**SUBJECT:** EPA Comments on “DRAFT REPORT – Coal Combustion Residue Impoundment Round 11 – Draft Assessment Report, John Sevier Fossil Plant, Ash Basin Dikes, Tennessee Valley Authority”

**DATE:** November 5, 2012

## COMMENTS:

1. On page ii, “Introduction, Summary Conclusions and Recommendations,” report states: “We found the supporting technical documentation incomplete (Section 1.1.3). As detailed in Section 1.2, there are 2 recommendations that would help to ensure a safe and trouble-free operation.” Need to elaborate here or word differently as this seems to conflict with the “Satisfactory” ratings.
2. Page 1-3, section 1.2.2: Dewberry needs to explain whether or not they will keep this recommendation in light of TVA’s response letter dated October 3, 2012.
3. Page 2-1, section 2.3: the report states that the Dry Fly Ash Impoundment Stack no longer impounds water and that Ash Disposal Area J has been closed. Need to clarify which units were assessed and why. For example, why is the Dry Fly Ash Impoundment Stack that does not impound water included in table 2.1, while Ash Disposal Area J is not? Does “closure” mean formal state closure, RCRA closure, or simply “retired”? If Ash Disposal Area J can impound water it should be assessed, if not, then it can be excluded.
4. On page 2-5, section 2.3 “SIZE AND HAZARD CLASSIFICATION,” second paragraph, replace “USACOE” with “USACE.”
5. On page 2-5, section 2.3 “SIZE AND HAZARD CLASSIFICATION” should elaborate on the justification for the designated ratings for the Bottom Ash Disposal Area 2 and the Dry Ash Stack impoundment embankments, i.e. provide more specific rationale for why each of these units is rated at this level.
6. Page 2-7, section 2.6, third bullet, close parenthetical.
7. On page 4-1, section 4.1.2, second paragraph, add “made” after “been” and remove the extra period at the end of the sentence.
8. Page 4-2, section 4.2.2: clarify when conversion from wet to dry fly ash handling occurred. Also clarify where bottom ash was disposed of when sluicing of ash to Bottom Ash Disposal Area 2 was suspended from 1987 to the early 1990s.
9. Page 5-1 and 1-1, date of site assessments needs to be consistent.
10. Page 5-2, section 5.2.3: report states that a horizontal discontinuity was observed but not deemed an indicator of slope instability, please elaborate/explain why.
11. Page 8-1, section 8.1: the report says that treated process and storm water is discharged through an unregulated outfall, this seems to conflict with the NPDES permit provided in Appendix A, please confirm and explain.
12. Appendix A, Document 2: Geotechnical report by Stantec covers Ash Disposal Area J; Stantec identifies scouring near the toe of the north dike and potential slumping that could occur. Is there sufficient concern to include Area J in Dewberry report? See Comment #2 on justification for exclusion. Stability concerns also highlighted for Ash Disposal Area J in Stantec February 2010 Geotechnical Report sections 13.3.2 and 13.4.2.

13. Appendix A, Document 2, the appendices to this document are listed, but the data is not provided. Was this intentionally omitted due to size or some other reason? If not, please include.
14. Appendix A, Document 5: Appendix D, Emergency Action Plan not included.
15. Appendix A, Document 12, please remove the data pages associated with other TVA facilities.
16. Please include the Dewberry Memorandum dated April 2, 2012 regarding the Findings of Review -- as an appendix document in Appendix A.
17. In version 3 of the draft, section 4.1.2 includes the statement that “bottom ash was sluiced to the bathtub area in the eastern portion of the Dry Fly Ash Stack in 1990 as the BADA2 was temporarily off line.” This contradicts the statement in the current version, section 4.2.2, indicating that “all sluicing to the Dry Fly Ash Stack impoundment was halted in 1979.” Please ensure the accuracy of this statement.

## review of TVA John Sevier Fossil Plant

Craig Dufficy to  
: Jana Englander

From: Craig Dufficy/DC/USEPA/US

To: Jana Englander/DC/USEPA/US@EPA

NOTE:

Jana,

I have reviewed the TVA Sevier Plant and I only two comments.

1) Dry Fly Ash Stack East Sediment Pond- The pond cannot pass the PMP event, however, Dewberry says because of the small size (only 5 acres) and remote location, dewberry did not think that this should affect TVA's conditional rating.

2) No liquefaction documentation was provided to Dewberry, however Dewberry was able to evaluate the boring logs to indicate the soil was not susceptible to liquefaction.

These are the only two issues that I thought you should be aware of. The conditional rating is satisfactory for both ponds and the technical documentation is adequate.

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**Stantec**

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October 3, 2012

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Mr. John Kammeyer  
Vice President  
Tennessee Valley Authority  
1101 Market Street, LP 5G  
Chattanooga, Tennessee 37402

Re: Response to Recommendations  
USEPA CCR Impoundment Assessment DRAFT Report  
John Sevier Fossil Plant (JSF)  
Rogersville, Tennessee

Dear Mr. Kammeyer:

As requested, Stantec has reviewed the DRAFT report *Coal Combustion Residue Impoundment Dam Assessment Report, John Sevier Fossil Plant, Tennessee Valley Authority, Rogersville, Tennessee*, dated August 2012 prepared by Dewberry and Davis, LLC (Dewberry) for the United States Environmental Protection Agency (USEPA). Dewberry's recommendations and Stantec's corresponding response is listed below.

***Dewberry Report Section 1.2.1 – Bottom Ash Disposal Area 2: It is recommended that the Bottom Ash Disposal Area 2 static and seismic slope stability analyses be revisited to calibrate the different shear strength values used in the static and seismic models.***

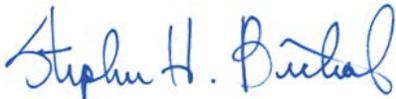
**Stantec Response:** For this facility, the resulting factors of safety against slope stability are greater than the target values of 1.5 and 1.0 for static (long-term) and seismic (pseudostatic) loading conditions, respectively. Stantec reviewed the slope stability analyses and determined that appropriate shear strengths were used. Stantec used drained shear strength parameters for static analysis (long-term) and undrained shear strength parameters for seismic analysis (pseudostatic). This approach to shear strength selection is appropriate for clay materials and is consistent with Stantec's static vs. pseudostatic analysis at TVA's other plants and facilities. No further stability analysis or shear strength evaluation is judged to be necessary.

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October 3, 2012  
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We appreciate the opportunity to provide this response. If you have any questions or need additional information, please call.

Sincerely,

STANTEC CONSULTING SERVICES INC.



Stephen H. Bickel, PE  
Senior Principal



Randy L. Roberts, PE  
Principal

/db/cmw

c: Roberto L. Sanchez, PE  
Michael S. Turnbow

US EPA ARCHIVE DOCUMENT



Tennessee Valley Authority, 1101 Market Street, BR4A, Chattanooga, Tennessee 37402

October 19, 2012

Mr. Stephen Hoffman  
US Environmental Protection Agency (EPA) (5304P)  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

TENNESSEE VALLEY AUTHORITY (TVA) – COMMENTS ON COAL ASH SITE ASSESSMENT ROUND 11 DRAFT REPORTS FOR ALLEN (ALF), BULL RUN, (BRF) COLBERT (COF), CUMBERLAND (CUF), GALLATIN (GAF), JOHN SEVIER (JSF), JOHNSONVILLE, (JOF) KINGSTON (KIF), PARADISE (PAF), SHAWNEE (SHF), WATTS BAR (WBF), AND WIDOWS CREEK (WOF) FOSSIL PLANTS

Dear Mr. Hoffman:

Tennessee Valley Authority (TVA) appreciates the opportunity to provide responses to the recommendations outlined in the Draft Coal Ash Site Assessment Round 11 Draft Reports for TVA's fossil plants. The Draft Reports were attached to EPA's September 5, 2012 email from Jana Englander to TVA's Susan Kelly. This EPA review process has provided TVA a public forum to confirm that our coal ash facilities meet current state requirements.

TVA has contracted with Stantec Consulting Services Inc., to assist in the technical review and responses to the EPA draft reports. The draft report responses are attached for your consideration in finalizing the Coal Ash Site Assessment Round 11 Reports. The following is a summary of our responses;

Allen: A seismic stability analysis and liquefaction analysis have been completed indicating acceptable performance under seismic loading. TVA recommends the Allen East Ash Pond be upgraded from Poor to Satisfactory.

Bull Run: TVA has no additional comments to EPA's analysis.

Colbert: TVA has no additional comments to EPA's analysis.

Cumberland: The operating pool level for the Ash Pond has been lowered 6.2 feet and the seepage analysis has been revised. Piping factors of safety are now satisfactory. TVA recommends the final rating for the Ash Pond be upgraded from Fair to Satisfactory.

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A liquefaction potential assessment was performed for the Gypsum Disposal Area and showed the saturated ash materials are anticipated to undergo liquefaction for the 2,500-year earthquake. Therefore, a higher level of slope stability analysis was completed demonstrating that the factor of safety is satisfactory. TVA recommends the final rating for the Gypsum Disposal Area be upgraded from Poor to Satisfactory.

Additional seismic analysis and field investigation is underway for the Dry Fly Ash Stack. The results are indicating the possibility of a favorable response. However, the analysis is not complete. We anticipate its completion during EPA's review of these comments.

Gallatin: A seismic stability analysis for Ponds A and E has been completed with acceptable results. TVA recommends the final rating be upgraded from Fair to Satisfactory.

An additional stability and seepage analysis for the saddle dikes on the stilling ponds has been completed and a project to increase the hydrologic/hydraulic capacity of the ponds is underway. Based on the analysis and improvement plans underway, TVA recommends the Gallatin Stilling Ponds rating be upgraded from Poor to Fair and from Fair to Satisfactory once the project is completed.

John Sevier: The static and seismic slope stability analysis were reviewed and deemed to be appropriate for the soil materials present.

Johnsonville: A quantitative liquefaction analysis and a post-earthquake static slope stability analysis were performed. Results showed the slope to remain stable. As a result, TVA recommends that final rating for Ash Disposal Area 2 be upgraded from Fair to Satisfactory.

Kingston: TVA has no additional comments to EPA's analysis.

Paradise: A liquefaction analysis was performed and the hydrologic/hydraulic capacity was evaluated. The liquefaction analysis indicated that the materials would remain stable and not liquefy during a 2,500 year event. The H&H analysis confirmed that the ponds safely pass the 100-year 24-hour storm. However, they do not pass the Probable Maximum Flood. TVA has plans to design and construct features to correct this issue at the ponds. TVA recommends that the facilities at Paradise be upgraded from Fair to Satisfactory once the H&H issues have been addressed.

Shawnee: A liquefaction analysis and post-earthquake static stability analysis were performed with acceptable results. TVA recommends that the rating for Ash Pond No. 2 be upgraded from Poor to Satisfactory.

Watts Bar: A hydrologic/hydraulic analysis was performed for the design storm and the new spillway system currently under design and in construction. Based on the satisfactory outcome of the analysis; TVA recommends the final rating be upgraded from Fair to Satisfactory.

Widows Creek: TVA has no additional comments to EPA's analysis.

The following is a summary of the draft facility ratings and TVA's proposed final ratings.

<b>EPA Draft Report Results</b>				
<b>Plant</b>	<b>Facility</b>	<b>Draft Rating</b>	<b>Driver for Rating</b>	<b>Stantec Proposed Final Rating</b>
<b>ALF</b>	East Pond	<b>Poor</b>	Seismic	<b>Sat</b>
<b>BRF</b>	FA Pond	<b>Sat</b>		<b>Sat</b>
	BA Pond	<b>Fair</b>	Liquefaction	<b>Fair</b>
	Gyp Pond	<b>Fair</b>	Liquefaction	<b>Fair</b>
<b>COF</b>	Dry Stack	<b>Sat</b>		<b>Sat</b>
	BA Pond	<b>Fair</b>	Liquefaction	<b>Fair</b>
<b>CUF</b>	Ash Pond	<b>Fair</b>	Piping	<b>Sat</b>
	Dry Stack	<b>Poor</b>	Seismic	<b>Poor</b>
	Gyp	<b>Poor</b>	Seismic	<b>Sat</b>
<b>GAF</b>	Ash Ponds	<b>Fair</b>	Liquefaction	<b>Sat</b>
	Stilling Ponds	<b>Poor</b>	H&H and static	<b>Fair</b>
<b>JSF</b>	Dry Stack	<b>Sat</b>		<b>Sat</b>
	Ash pond	<b>Sat</b>		<b>Sat</b>
<b>JOF</b>	Island	<b>Fair</b>	Liquefaction	<b>Sat</b>
<b>KIF</b>	Ash/stilling	<b>Fair</b>	Liquefaction	<b>Fair</b>
	GDA	<b>Sat</b>		<b>Sat</b>
<b>PAF</b>	Scrubber sludge	<b>Fair</b>	H&H - overtopping	<b>Fair</b>
	Ash Pond	<b>Fair</b>	H&H - overtopping	<b>Fair</b>
	Slag Ponds	<b>Fair</b>	H&H - overtopping	<b>Fair</b>
<b>SHF</b>	Ash Pond	<b>Poor</b>	Seismic	<b>Sat</b>
<b>WBF</b>	Pond	<b>Fair</b>	H&H	<b>Sat</b>
<b>WCF</b>	Gyp stack	<b>Sat</b>		<b>Sat</b>
	Ash Pond	<b>Fair</b>	Liquefaction	<b>Fair</b>

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TVA takes its environmental responsibilities very seriously and appreciates EPA's efforts to verify the quality of our impoundments. We would like to arrange a conference call once your staff has received this letter and briefly reviewed the attached reports so we can answer any immediate questions or concerns. Please contact Susan Kelly at (423)-751-2058 or [sjkelly0@tva.gov](mailto:sjkelly0@tva.gov) to arrange this conference call.

Sincerely,



*for*  
Brenda E. Brickhouse  
Vice President  
Compliance Interface and Permits

Enclosures

Mr. Stephen Hoffman  
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October 19, 2012

SJK:LMB

Enclosures

cc (electronic distribution with enclosures):

- C. M. Anderson, BR 4A-C
- D. L. Bowling, Jr., WT 7D-K
- B. E. Brickhouse, BR 4A-C
- A. S. Cooper, OMA 1A-WDC
- D. M. Hastings, WT 6A-K
- J. C. Kammeyer, LP 5D-C
- G.A. Kelley, LP 3D-C
- S.J. Kelly, BR 4A-C
- A.A. Ray, LP3K-C
- M. S. Turnbow, LP 5G-C
- EDMS (Leslie Bailey), BR 4A-C