

US EPA ARCHIVE DOCUMENT



Tennessee Valley Authority, 1101 Market Street, BR 4A, Chattanooga, Tennessee 37402

Brenda Brickhouse
Vice President
Environmental Permits & Compliance

July 12, 2013

Mr. Stephen Hoffman
U.S. Environmental Protection Agency (EPA)
Two Potomac Yard
2733 S. Crystal Drive
5th Floor, N-5838
Arlington, Virginia 22202-2733

Dear Mr. Hoffman:

TENNESSEE VALLEY AUTHORITY (TVA) - COAL ASH SITE ASSESSMENT ROUND 11 ACTION PLANS 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 (WCF) FOSSIL PLANTS

TVA received the Request for Action Plan(s) for the above referenced sites on June 13, 2013 via e-mail following the United States Environmental Protection Agency final review of the TVA comments for each draft Coal Ash Site Assessment Round 11 Draft Report. We appreciate the opportunity to work with EPA through this process of review and recommendations for TVA's impoundments' structural stability. As you know, TVA performed its own internal review of our facilities in 2009 and has been working rigorously to document and enhance structural stability of our coal ash impoundments prior to the EPA review. Many of the EPA recommendations acknowledge this fact and are items that are already planned for the future.

Three coal facilities' impoundments were rated as *Satisfactory* with no recommendations warranted; therefore, no action is needed by TVA at the John Sevier, Johnsonville, or Shawnee fossil plants.

Attached are the individual Action Plans for each of the fossil sites. Below is a brief summary of the proposed actions.

Allen - (Field Observations) TVA has repaired all noted areas, advised mowing crews on the appropriate mowing conditions, addressed the seep area, and plans to paint corroded materials by October 2013.

Bull Run - (Structural Stability) TVA's Routine Handling, Operations, and Maintenance (RHO&M) will continue the ongoing inspection program to identify and repair any noted deficiencies.

- **(Continued Safe and Reliable Operation)** TVA plans to undertake a seismic risk assessment for operating conditions for the two impoundments with *Fair* ratings. This assessment will include evaluation of liquefaction potential, post-earthquake stability and deformation analysis, followed by a review of failure consequences if seismic analysis indicates failure. All field, laboratory, and analytical phases will be completed by December 31, 2014. TVA will use the results of the assessment to manage its mitigation strategies.

Colbert - (Support Technical Documentation/Continued Safe and Reliable Operation) TVA plans to undertake a seismic risk assessment for operating conditions for Ash Pond 4. This assessment will include the evaluation described for Bull Run. All field, laboratory, and analytical phases will be completed by December 31, 2014. TVA will use the results of the assessment to manage its mitigation strategies.

Cumberland - (Structural Stability)

1) Construction of the FML-Lined Gypsum Settling Channels project has been completed. Sluicing to the stack has been discontinued and has not occurred for over three years. Since sluicing has stopped, piezometer levels in the gypsum have lowered. The seepage analysis has been revised and current factors of safety are adequate. TVA will continue to collect instrumentation data, monitor and evaluate the structures to ensure that the appropriate measures are taken to protect against piping.

2) TVA will implement the recently developed *Instrumentation and Monitoring Plan* procedures and recommendations for all plants, including Cumberland Fossil Plant's facilities.

- **(Field Observations)** As previously reported, TVA has repaired the noted area and addressed the seep area. The RHO&M group will continue the ongoing inspection and maintenance program to maintain vegetation, and identify and repair any noted deficiencies

Gallatin - (Structural Stability) TVA is moving forward with implementing the improvements to the Pond A divider dike. The project is currently on schedule for construction completion in December, 2014.

- **(Hydrologic/Hydraulic Safety/Supporting Technical Documentation)** TVA is moving forward with implementing the improvements to the Pond A spillways and stilling pond complex. The project is currently on schedule for completion in December, 2013. Preliminary H & H analysis and design stage are underway to address needed improvements to increase the stilling pond capacity. The tentative date for completion of the stilling pond improvements is August, 2015. TVA will provide the final analysis upon completion of the improvement projects.

- **(Field Observations)** The RHO&M group will continue the ongoing maintenance program to repair eroded areas, improve vegetative cover, and address

other items. TVA will also continue its ongoing inspection program, which includes frequent observations to monitor known seeps, and to look for changed conditions or new features.

Kingston - (Continued Safe and Reliable Operation) TVA plans to undertake a seismic risk assessment for operating conditions for Pond C (*Fair* rating). This assessment will include the evaluation described for Bull Run. All field, laboratory, and analytical phases will be completed by December 31, 2014. TVA will use the results of the assessment to manage its mitigation strategies.

Paradise - (Scrubber Sludge Complex) Since the initial assessment, TVA has implemented some operational changes to the Lower Stilling Pond and intends to update the H&H analysis. TVA will then make decisions on improvements based on the results of the new analysis. If improvements are judged to be necessary, an appropriate design flood will be selected and improvement options will be identified in a future study. An updated H&H analysis is estimated to be completed by October 2013.

- **(Peabody Ash Pond)** TVA plans to establish an appropriate spillway design flood, design improvements as needed, and then construct improvements that will provide required freeboard and conveyance based on the selected design flood. This project will move into the planning phase in 2013. Engineering design is expected in 2014, with construction likely to begin in 2015, pending associated permit approvals by state and federal agencies. This project will also include clearing of tress and placing of armor on steep slopes.

- **(Slag Ponds 2A/2B)** TVA has cleared the referenced trees and vegetation and has repaired the erosion. TVA plans to seal the cracks in the spillway. TVA plans to establish an appropriate spillway design flood, design improvements as needed, and then construct improvements that will provide required freeboard and conveyance based on the selected design flood. This project will move into the planning phase in 2013. Engineering design is expected in 2014, with construction likely to begin in 2015, pending associated permit approvals by state and federal agencies.

- **(Monitoring and Future Inspections)** The RHO&M group will continue the ongoing inspection and maintenance program to identify, repair and monitor any noted deficiencies or seepage areas.

Widows Creek - (Support Technical Documentation) The TVA Dam Safety group has performed a Potential Failure Mode Analysis and is performing a risk screening on WCF ash facilities later this month. TVA has benchmarked U.S. Army Corps of Engineers and U.S. Bureau of Reclamation methods and developed a similar risk screening methodology to assess Dam Safety risk at river dams. A very similar approach will be used at WCF to characterize the probability of failure, the structural response of the impoundments at WCF, and the consequences that are expected to occur. In this way we will estimate the risk these structures pose to TVA. This same approach will be used at other fossil sites. Results will guide decisions about further mitigations and corrective actions.

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TVA also plans to undertake a seismic risk assessment for operating conditions for Main Ash Complex. This assessment will include the evaluation described for Bull Run. All field, laboratory, and analytical phases will be completed by December 31, 2014. TVA will use the results of the assessment to manage its mitigation strategies.

Watts Bar - (Structural Stability/Maintenance and Methods of Operation) TVA intends to undertake a future project to mitigate the erosion along the banks of the Tennessee River below/adjacent to the ash pond. Design will be completed in calendar year 2013 and construction is anticipated to take place in late 2013 and early 2014 while the river elevation is at winter pool. TVA's RHO&M group will continue the ongoing inspection and maintenance program to identify and repair any noted deficiencies.

- **(Hydrologic/Hydraulic Safety)** The project to modify the spillway and ash pond volume is in the construction phase with anticipated completion by the end of 2013. No further action is necessary.

TVA will continue to assess and improve the structural stability of our impoundments. As we move away from wet handling of coal combustion residues (CCR) we will address the appropriate closure of these impoundments, including future structural stability. EPA's evaluation of the quality of our impoundments has verified that TVA is pursuing the appropriate corrective actions at our fossil sites. If you have questions or need additional information, please contact Cynthia Anderson at (423) 751-4878 in Chattanooga or by email at cmanderson@tva.gov.

Sincerely,



Brenda E. Brickhouse

Enclosures

cc (Enclosures):

Mr. Patrick J. Flood, P.E.
Director, Division of Solid Waste Management
Tennessee Department of Environment
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L&C Tower, 5th Floor
401 Church Street
Nashville, Tennessee 37243

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CMA:LMB

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Stantec

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June 25, 2013

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

Re: Response to Recommendations
USEPA CCR Impoundment Assessment
Bull Run Fossil Plant (BRF)
Clinton, Tennessee

Dear Mr. Kammeyer:

As requested, Stantec has reviewed the Request for Action Plan letter from USEPA dated June 13, 2013, which contains recommendations by USEPA's consultant Dewberry and Davis, LLC relative to their CCR impoundment assessment conducted at TVA's Bull Run Fossil Plant.

The purpose of this letter is to address the Dewberry recommendations. Dewberry's recommendations followed by Stantec's corresponding responses and TVA's proposed action plan are provided below.

Recommendations Regarding the Structural Stability

Maintain frequent inspections of the management unit embankments for the Bottom Ash Disposal Area (Area 1), Fly Ash Pond Area (Area 2) and the Gypsum Disposal Area (Area 2A) to ensure the recently completed construction and repairs to ensure structural stability, as recommended by Stantec, are adequate.

An analysis of the impact of potential liquefaction of materials within and under all three management units is recommended to be performed now rather than upon closure of the units.

Response/Action Plan: TVA's Routine Handling, Operations and Maintenance (RHO&M) group will continue the ongoing inspection and maintenance program to identify and repair any noted deficiencies.

See below for response/action plan relative to liquefaction and seismic risk.

Recommendations Regarding Continued Safe and Reliable Operation

It is anticipated that all three management units would be considered Satisfactory for continued safe and reliable operation upon: A determination of liquefaction potential for soils and materials for the three management units, particularly Bottom Ash Disposal Area 1 and the Gypsum Disposal Area 2A under the design seismic event.

Response/Action Plan: TVA plans to undertake a seismic risk assessment for operating conditions for Bottom Ash Disposal Area 1 and Gypsum Disposal Area 2A (both of which received *Fair* ratings). This assessment will include evaluation of liquefaction potential, post-earthquake stability and deformation analysis, followed by a review of failure consequences if seismic analysis indicates failure. TVA intends to complete the field exploration, laboratory testing, and analyses phases by December 31, 2014. TVA will use the results of the assessment to make rational, risk-informed decisions regarding mitigation strategies, if deemed to be necessary.

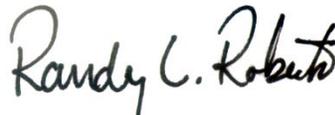
We appreciate the opportunity to provide these responses. If you have any questions or need additional information, please call.

Sincerely,

STANTEC CONSULTING SERVICES INC.



Stephen H. Bickel, PE
Senior Principal



Randy L. Roberts, PE
Principal

/cdm

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