

From: Hon, Andrew
Sent: Friday, May 09, 2014 11:26 AM
To: 'Shea, Joseph W'; 'Schrull, Edward Dustin'
Cc: McMurtray, Anthony; Quichocho, Jessie; Poole, Justin; Lingam, Siva; Hoang, Dan
Subject: Watts Bar Nuclear Station, Unit 1 -RAI Related To LAR To Updated FSAR Changes Associated With Hydrologic Analysis From Mechanical And Civil Engineering Branch - Dam Stability Safety Factor (TAC NO. ME913)

Dear Mr. Shea:

By letter dated July 19, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML122360173), the Tennessee Valley Authority (TVA), submitted a license amendment request to revise the Watts Bar Nuclear Plant (WBN), Unit 1 Updated Final Safety Analysis Report (UFSAR) to reflect the results from new hydrologic analysis. The proposed changes in the updated hydrologic analysis include updated input information, and updates to methodology that include the use of the U.S. Army Corps of Engineers Hydrologic Modeling System and River Analysis System software. By a letter dated March 1, 2013 (ADAMS Accession No. ML13067A393), TVA supplemented the submittal with additional information. In order to complete its review of the above documents, the U.S. Nuclear Regulatory Commission staff requests the following additional information

TVA seeks approval to revise the WBN 1 Updated Safety Analysis Report (UFSAR) to adopt a revised hydrologic analysis for the WBN 1 site. In support of this revised analysis, TVA requested NRC approval of changes to several sections of the UFSAR. Under Enclosure 1, "Evaluation of Proposed Changes," Attachment 1, "Proposed WBN Unit 1 UFSAR Text Changes (Markups)," Section 2.4.3.4, "Probable Maximum Flood Flow," under the "Concrete Section Analysis," page 2.4-22, TVA proposed to change the UFSAR as follows: "For concrete dam sections, factors of safety in sliding were determined by comparison of the existing design headwater/tailwater levels to the headwater/tailwater levels that would occur in the PMF as described in Section 2.4.3. The structures were considered safe against failure if a factor of safety greater than 1.0 for sliding was demonstrated. The dams upstream of Watts Bar Nuclear Plant passed this test."

The current UFSAR, Section 2.4.3.4, "Probable Maximum Flood Flow," under the "Concrete Section Analysis," reads as follows: "For concrete dam sections, comparisons were made between the original design headwater and tailwater levels and those that would prevail in the PMF. If the overturning moment and horizontal forces were not increased by more than 20%, the structures were considered safe against failure. All upstream dams passed this test except Douglas, Fort Loudoun, and Watts Bar. Original designs showed the spillway sections of these dams to be most vulnerable. These spillway sections were examined in further detail and judged to be stable."

This change appeared to be a change to the current licensing bases. However, in information provided to the NRC for review and audit, TVA did not provide a technical basis to support the changes to Section 2.4.3.4, "Probable Maximum Flood Flow," under the "Concrete Section Analysis." Please provide information, including any analysis and calculations, or reference to industry standards (e.g. FERC, Army Corp of Engineers, and TVA River Operations), that supports the UFSAR change, that using a factor of safety greater than 1.0, for sliding, provides an adequate basis that dam structures are considered safe against failure. If the proposed factor of safety for the UFSAR change is less than the current criteria used for evaluating dam stability by TVA River Operations, please explain the rationale for the difference in criteria being used.

The proposed questions were discussed with your staff on May 9 2014. Your staff confirmed that these questions did not include proprietary or security-related information and agreed to provide a response by May 30, 2014. The NRC staff considers that timely responses to RAIs help ensure sufficient time is available for staff review and contribute toward the NRC's goal of efficient and effective use of staff resources. If circumstances result in the need to revise the requested response date, please contact me.

ADAMS Accession No. ML14129A316

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