

August 1, 2006

Mr. Karl W. Singer  
Chief Nuclear Officer and  
Executive Vice President  
Tennessee Valley Authority  
6A Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

SUBJECT: BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2, AND 3 — PRELIMINARY FINDINGS ON STEAM DRYER STRESS ANALYSIS ON EXTENDED POWER UPRATE AMENDMENT REQUESTS (TAC NOS. MC3812, MC3743, AND MC3744) (TS-431 AND TS-418)

Dear Mr. Singer:

This letter documents telephone discussions between the U.S. Nuclear Regulatory Commission (NRC) staff and the Tennessee Valley Authority (TVA, the licensee) on July 27, 2006. The discussions concerned the NRC staff's preliminary findings on TVA's response to the NRC staff requests for additional information related to potential adverse flow effects on the steam dryers in Browns Ferry Nuclear Plant (BFN) Units 1, 2, and 3, at uprated power conditions. In the calls, the NRC staff reiterated its continued concerns on the structural integrity of the steam dryers. These concerns should be expeditiously resolved to enable the NRC staff to complete its review consistent with TVA's schedule for extended power uprate (EPU) and restart of Unit 1.

In a letter dated June 23, 2006, TVA submitted a revised BFN steam dryer stress analysis report. This report supplemented the stress analysis provided in May 2006 and presented proposed modifications to the steam dryers. As the revised stress analysis results indicated that some locations on the steam dryer would exceed the fatigue endurance limit during EPU conditions, the NRC staff concluded that the submittal did not provide an adequate technical basis to enable the NRC staff to find the applications acceptable. On July 21, 2006, TVA submitted a revised BFN stress analysis report with plans for additional steam dryer modifications that were discussed during several conference calls with the NRC staff. During calls conducted on July 24 and July 26, TVA was notified that the uncertainties assumed in the revised stress reports remained nonconservative. In response to the NRC staff's observations, TVA indicated that the uncertainties were being increased.

Subsequently on July 26, 2006, TVA submitted a new stress analysis report, which included revised uncertainties, to replace the July 21 submittal. The NRC staff's initial review of the July 26 submittal identified concerns with the licensee's assumptions regarding specific aspects of the revised steam dryer stress analysis. For example, the licensee assumes a higher damping value than considered appropriate by the NRC staff for high frequency pressure loads. A lower damping value was used in the steam dryer stress analysis for another nuclear power plant in evaluating EPU flow effects. Further, the licensee calculated the maximum stress

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intensity for steam dryer components through a finite element analysis using the nominal load case and specific frequency shifts, but did not include the sensitivity of the BFN steam dryer stress analysis to smaller time steps. TVA was notified of these concerns on July 27, 2006.

During the July 27 call, TVA presented various reasons to support the damping value selected, including the guidance provided in Regulatory Guide (RG) 1.61, Damping Values for Seismic Design of Nuclear Power Plants. As discussed then, the Unit 1 scale model report indicates resonance peaks at frequencies (100-125 hertz), which are substantially higher than those considered in RG 1.61 (2-12 hertz) for seismic excitation of structures. Therefore, the NRC staff considers the use of the damping values from RG 1.61 to be inappropriate for this application.

In the interest of expeditious resolution of the steam dryer issues, the NRC staff is pro-actively communicating issues while the detailed review is in progress to provide TVA adequate time to address steam dryer issues.

If you have any questions, please contact me at (301) 415-1389.

Sincerely,

*/RA/*

L. Raghavan, Chief  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-259, 50-260, and 50-296

cc: See next page

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**BROWNS FERRY NUCLEAR PLANT**

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