

June 26, 1997

Mr. Oliver D. Kingsley, Jr.
President, TVA Nuclear and
Chief Nuclear Officer
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: BROWNS FERRY NUCLEAR PLANT UNITS 1, 2, AND 3 - REQUEST FOR
ADDITIONAL INFORMATION (TAC NOS. M97412, M97413, AND M97414)
(TS 386)

Dear Mr. Kingsley:

On December 11, 1996, the Tennessee Valley Authority (TVA) requested amendments to the operating licenses for the Browns Ferry Nuclear Plant (BFN) Units 1, 2, and 3. This request proposed changing technical specifications (TS) for the as-found setpoint tolerance for the main steam safety/relief valves from $\pm 1\%$ to $\pm 3\%$. The U.S. Nuclear Regulatory Commission (NRC) staff has determined that additional information will be required to complete its review of TVA's request. The additional information requested is described in the enclosure.

The NRC staff understands that TVA has not established a schedule for BFN Unit 1 restart. TVA stated that analyses required for the increased setpoint tolerance will be performed prior to BFN Unit 1 restart. TVA also noted that the increased setpoint tolerance had been incorporated into the proposed BFN improved technical specification (ITS) conversion submitted on September 6, 1996. Since the BFN Unit 1 proposed ITS include the change in tolerance, there is no need to track this change for the current BFN Unit 1 TS. Therefore, the staff intends to deny the amendment requested on December 11, 1996 for BFN Unit 1. This denial will be documented in separate correspondence.

Please contact me at (301)415-1470 if you have any questions on this topic.

Sincerely,

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Original signed by
Joseph F. Williams, Project Manager
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

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

Enclosure: Request For Additional
Information

cc w/Enclosure: See next page

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Mr. Oliver D. Kingsley, Jr.
Tennessee Valley Authority

BROWNS FERRY NUCLEAR PLANT

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REQUEST FOR ADDITIONAL INFORMATION

BROWNS FERRY NUCLEAR PLANT UNITS 2 AND 3

INCREASED MAIN STEAM SAFETY/RELIEF VALVE SETPOINT TOLERANCE

1. Enclosure 5, page 13 of the December 11, 1996 submittal states that the hydrodynamic main steam safety/relief valves (S/RVs) loads resulting from the 3% setpoint tolerance are less than 1% higher than the "loads used in design." However, it is the NRC staff's experience via review of other analyses, such as those supporting power uprate at several boiling water reactors that the loads vary almost linearly with respect to opening pressure of the S/RVs. Therefore, it is expected that an increase in the S/RV setpoints to 3% would result in a 3% increase in the S/RV hydrodynamic loads.
 - a. What S/RV setpoints and setpoint tolerances were assumed for developing the above "loads used in design"?
 - b. Describe the methodology for determining the S/RV hydrodynamic loads and the analysis results which indicate only a 1% load increase for the 3% setpoint tolerance.

It is also stated that the resulting 1% increase in the loads is negligible when combined with other combined loads; therefore, the effect of the load increases on the plant structures were not evaluated.

 - c. What is the available structural margin such that these load increases are negligible?
2. Enclosure 5, page 13 of the December 11, 1996 submittal states that the maximum differential pressure due to the increased S/RV setpoint tolerance was evaluated for valves in the Generic Letter 89-10 program. Please verify that the calculations which demonstrate the capability of these valves to function adequately have been revised for these differential pressures.
3. What is the basis for the high-pressure coolant injection (HPCI) and reactor core isolation cooling (RCIC) design requirement to provide design flow to the reactor vessel at pressures up to 1120 psig? In other words, how was the 1120 psig value originally determined?
4. The engineering analysis describes the calculations performed to determine the required additional flow, power, and rpm needed for HPCI and RCIC.
 - a. Do the HPCI and RCIC turbines have a maximum allowable pressure?
 - b. If so, what is the value and is the value exceeded due to increased S/RV tolerance?

Enclosure

5. TVA's submittal includes plant-specific analyses supporting the increase S/RV setpoint tolerance for Unit 2. The cover letter states that analyses supporting the increased S/RV setpoint tolerance is being performed for the next Unit 3 reload cycle.
 - a. Verify that the necessary plant-specific analyses have been completed for the current Unit 3 operating cycle.
 - b. Confirm that any differences between Units 2 and 3 that exist in approved alternative operating modes (e.g., increased core flow, extended load line limit, or final feedwater temperature reduction) have been addressed for Unit 3.
 - c. Describe how TVA will ensure that the increased setpoint tolerance will be reflected in future operating cycles for each unit.