TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401

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SEP 26 1989

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of the Application of	)	Docket Nos. 50-390
Tennessee Valley Authority	)	50-391

WATTS BAR NUCLEAR PLANT (WBN) UNITS 1 AND 2 - INCREASED ENVIRONMENTAL TEMPERATURE IN THE MAIN STEAM VALVE VAULT ROOMS

References: 1. Letter from NRC to TVA dated May 20, 1985, containing the draft license and final draft technical specifications for WBN Unit 1

2. Letter from TVA to NRC dated April 10, 1986, providing an analysis of the main steam line break in WBN vault rooms

The WBN draft license forwarded to TVA by reference 1 included a license condition to provide the temperature profiles for a main steam line break (MSLB) outside containment for staff review and approval. TVA has provided documentation (Reference 2) showing that all safety-related equipment required to operate following an MSLB in the valve vault would perform its safety function prior to its environmental qualification temperature being exceeded.

This approach assumed a failure of all class 1E equipment in the valve vaults when qualification temperatures were exceeded and showed that these failures would be acceptable. To show that these failures were acceptable, TVA provided information showing that the plant could be maintained cooled down after an MSLB using only one steam generator and that multiple steam generator blowdowns were acceptable. This represents a change in the design basis of the plant and may involve a substantial review effort by the staff. Because of the potential magnitude of the staff review, TVA is withdrawing the Reference 2 submittal from further review. TVA intends to resolve this issue by applying the staff-approved Sequoyah (SQN) methodology to WBN.

Using the SQN methodology will not alter the design basis of WBN. In addition, the SQN methodology has been reviewed in detail by the staff and by independent contractors retained by the staff. The staff documented approval of the SQN approach in a safety evaluation report (SER) issued in May 1988. The effects of an MSLB in the valve vault rooms at WBN is expected to be bounded by the SQN analysis. Therefore, the majority of the analysis performed for SQN will be applicable to WBN.

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SQN resolved the issue by performing a complete reanalysis of the effects of a superheated steam release following an MSLB in the valve vault rooms. This reanalysis used improved computer codes which modeled the buoyancy effects inside the valve vaults and reduced both the magnitude and duration of temperatures associated with the postulated MSLB with superheat. Thermal lag analyses were performed to show that the internal temperatures of critical components in required electrical equipment would not exceed their qualification temperatures prior to the completion of their safety functions. Structural adequacy of valve vault steel and concrete structures during the postulated event was demonstrated.

TVA expects to complete the necessary documentation and provide submittals demonstrating the applicability of the SQN MSLB analysis outside containment to WBN by April 1990.

New commitments made in this submittal, which will be identified in TVA's commitment tracking system, are summarized in the enclosure. Any questions should be directed to T. W. Horning at (615) 365-3381.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

W J Ray for

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Enclosure
cc (Enclosure):
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ENCLOSURE

List of Commitments

- TVA expects to complete the necessary documentation and provide submittals to the Office of Nuclear Regulatory Regulation (NRR) demonstrating the applicability of the SQN MSLB analysis outside containment to WBN by April 1990.