June 7, 2007

Mr. William R. Campbell, Jr.
Chief Nuclear Officer and
Executive Vice President
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: WATTS BAR NUCLEAR PLANT, UNIT 1 - REQUEST FOR ADDITIONAL INFORMATION REGARDING TECHNICAL SPECIFICATION CHANGE REQUEST FOR ULTIMATE HEAT SINK TEMPERATURE (TAC NO. MD1460)

Dear Mr. Campbell:

By letter dated May 8, 2006, as supplemented by letters dated December 29, 2006, and February 16, 2007, the Tennessee Valley Authority (TVA, the licensee) submitted a proposed license amendment (WBN-TS-06-09) that would revise Technical Specification 3.7.9.1, "Ultimate Heat Sink Temperature," to increase the maximum essential raw cooling water temperature limit from 85 degrees Fahrenheit (°F) to 88°F.

In order for the staff to complete its review of the information provided by the licensee, we request that TVA provide responses to the enclosed request for additional information (RAI). Based on discussions with your staff, we understand that you plan to respond to the enclosed RAI by July 30, 2007. If you have any questions about this material, please contact me at (301) 415-3974.

Sincerely,

/RA/

Brendan T. Moroney, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-390

Enclosure: Request for Additional Information

cc: See next page

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WATTS BAR NUCLEAR PLANT

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REQUEST FOR ADDITIONAL INFORMATION

WATTS BAR NUCLEAR PLANT, UNIT 1 TECHNICAL SPECIFICATION CHANGE REQUEST

FOR ULTIMATE HEAT SINK TEMPERATURE

DOCKET NO. 50-390

1. Emergency Raw Cooling Water System (ERCWS) Flow Margins

In order to adequately justify the use of existing ERCWS flow margins as a basis for increasing the ultimate heat sink (UHS) temperature limit, there is a need to quantify how much ERCWS flow margin actually exists for the affected systems, structures and components (SSCs), and how much of these margins can actually be credited for cooling SSCs important to safety, given the various uncertainties that exist, operational considerations, and throttle valve changes that have been made. Please provide the additional information regarding available flows and flow margins.

2. Heat Load Margins

The submittal states that heat loads were determined based on data collected during plant walkdowns, which was then adjusted using scaling factors and adding 10 percent for conservatism. From the information provided, the NRC staff is unable to determine if the calculated values represent worst-case conditions. Also, the reductions in heat loads that were calculated are substantial (up to 75 percent) and much larger than the NRC staff would expect. In order to allow the reduced heat loads to be credited as a basis for justifying the higher UHS temperature limits, a more detailed explanation is required to establish how worst-case assumptions will continue to be satisfied consistent with the plant licensing basis. This explanation should identify how the revised analyses differ from the previous analyses that were performed and, in particular, what conservatisms from the previous analyses are being reduced or eliminated. Appropriate justification is also needed for changes that are being made in the analytical methods and assumptions. Please provide the additional information and clarification that is needed.

3. Emergency Diesel Generator Jacket Water Heat Exchangers

You have proposed a regulatory commitment to clean the heat exchangers each spring in order to ensure they will maintain their capability through the summer. Additional information is needed to explain how a conservative estimation of heat exchanger performance over time for the range of elevated temperature conditions that can be experienced was established, and how heat exchanger performance testing will be performed in order to demonstrate continued operability of the EDGs in this regard. The commitment may also need to be expanded to reflect the heat exchanger performance recommendations contained in Generic Letter (GL) 89-13, “Service Water System Problems Affecting Safety-Related Equipment.” Please provide the additional information and revise the commitment as appropriate.

4. Water Quality Considerations

The plant licensing basis includes postulated dam failures coincident with postulated accident conditions. Please explain how the cooling water quality is expected to change following postulated dam failures and how this was accounted for in the heat exchanger performance analyses that were performed to justify the proposed increase in the UHS temperature limit.

5. Piping and Supports

The proposed increase in the UHS temperature limit could impact the piping thermal overpressurization concerns that were identified and discussed in GL 96-06, "Assurance of Equipment Operability and Containment Integrity During Design-Basis Accident Conditions." Also, the water hammer and two-phase flow considerations that are discussed in GL 96-06 could also be adversely affected by an increase in the UHS temperature limit and must also be addressed. Please provide additional information to confirm that previous actions to address GL 96-06 will remain valid at the proposed higher UHS temperature limit.

6. Pump Testing

The American Society of Mechanical Engineers (ASME) Code requirements for inservice testing (IST) of pumps allows for some degradation of pump performance before corrective actions must be taken. It is possible that the ASME Code allowances could result in a decrease in ERCWS pump capability below that assumed in the analyses for justifying the higher UHS temperature limit. Please explain how the Watts Bar IST program acceptance criteria ensure that pump performance will continue to satisfy the analytical assumptions in this regard.