September 12, 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: 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. Singer:

By letter dated May 8, 2006, 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," that would increase the maximum essential raw cooling water temperature limit from 85 degrees Fahrenheit (EF) to 88 EF in accordance with Title 10 *Code of Federal Regulations* (10 CFR) 50.90.

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 within 60 days of receipt of this letter. If you have any questions about this material, please contact me at (301) 415-1364.

Sincerely,

/RA/

Douglas V. Pickett, Senior 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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Mr. K. W. Singer
Tennessee Valley Authority

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. In Page 5, Tennessee Valley Authority (TVA) states:

   "The conclusion of the review is that there is sufficient justification to increase the UHS [ultimate heat sink] upper temperature allowable limit from 85 EF to 88 EF. Operational procedure guidelines will be enhanced, as required, in order to implement this limit."

   Provide/describe the specific operational procedure guidelines, as required, in order to implement this proposed limit of 88 EF.

2. In Page 13, TVA states that the increased UHS temperature is justified, in part, by margins in the essential raw cooling water (ERCW) flow rates that were established for each of the affected components during the pre-operational testing program. Provide detailed discussion to explain how the existing flow margins have been demonstrated to still be valid; how much of the existing margin will be used in the revised UHS analysis and how much margin will remain; how much of the remaining margin is needed to account for tube plugging, system fouling, pump degradation, measurement uncertainty, etc.; and how technical specification surveillance requirements will ensure that the required flow margins are maintained over time for all of the affected components.

3. General Design Criteria (GDC) 44, "Cooling Water," requires that a system to transfer heat from structures, systems, and components important to safety, to an ultimate heat sink shall be provided. The system safety function shall be to transfer the combined heat load of these structures, systems, and components under normal, operating and accident conditions.

   Also, Standard Review Plan (SRP) 9.1.3, "Spent Fuel Pool Cooling And Cleanup System," specifies that continuous fuel cooling be provided during normal, abnormal, and accident conditions.

   With regard to TVA's evaluation of the effects on the spent fuel pool (SFP) cooling system resulting from the proposed increase in the UHS temperature, provide detailed/complete discussions of:

   - the SFP cooling licensing basis (e.g., maximum heat load, temperature, time to boil, etc.) along with how the existing licensing basis will continue to be satisfied at the increased UHS temperature limit; and

   - how the above cited GDC requirement and SRP criteria will continue to be satisfied at the increased UHS temperature limit. Of particular interest is the

proposed action to terminate SFP cooling for up to 5 hours, and to what extent is this consistent with the plant licensing basis.

4. TVA determined that the emergency diesel generator (EDG) jacket water heat exchangers were marginal at the higher UHS temperature and in order to resolve this problem, the heat exchanger cleaning frequency and timing will be changed to annually (instead of during each refueling outage) during the spring (prior to experiencing the hotter summer temperatures). Provide a detailed discussion to explain how the adequacy of this approach will be validated to assure acceptable EDG performance during those periods when the UHS temperature may be as high as 88 EF and heat exchanger fouling is at maximum.

5. The following notes in Table 2 of the submittal attachment (Page 26) credit higher "current" cooling water flow rates: 2, 3, 5, 6, 7, 9 and 11. Provide a detailed discussion to explain why the current flow rates constitute the most limiting condition consistent with licensing basis assumptions.

6. Note 7 in Table 2 of the submittal attachment (Page 26) indicates that actual heat loads were used as a basis to reduce the amount of heat that is required to be rejected. Provide a detailed discussion to explain why this is a valid approach consistent with the plant licensing basis with respect to the worst case conditions that must be assumed.

7. Note 9 in Table 2 of the the submittal attachment (Page 26 & 27) indicates that increased ERCW flow rates are credited, whereas the discussion on Page 21 indicates that increased flow rates were not credited for the EDG jacket water heat exchanger. Please provide clarification for the above discrepancy. Also, provide a detailed discussion to explain how the engineering judgement was validated.

8. TVA indicated that the Tennessee River system is capable of providing water beyond the 30 days (up to one year without any rainfall) as stated in the Updated Final Safety Analysis Report (Page 28). Provide a detailed discussion to explain why this capability is not able to maintain the UHS below the current 85 EF temperature limit.

9. TVA indicated that since ERCW flow margins above the existing flow requirements were utilized in validating acceptable performance at the higher ERCW temperature, specific evaluations will be performed prior to unit operation above 85 EF. The performance of these specific evaluations will validate any margin based inputs utilized in the original analyses that determined acceptable performance could be achieved at the higher ERCW temperature. As indicated in the above item 2, validation of the available flow margins that are being credited is requested in support of the staff's review of the proposed change. Furthermore, provide additional discussion detailing specifically how these evaluations will be performed to assure conservative results consistent with licensing basis assumptions.