Mr. J. A. Scalice
President, TVA Nuclear and
Chief Nuclear Officer
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

November 18, 1999

SUBJECT: WATTS BAR NUCLEAR PLANT, UNIT 1 - REQUEST FOR ADDITIONAL INFORMATION ON CLARIFICATION OF ICE CONDENSER FLOW CHANNEL INSPECTION REQUIREMENTS (TAC NO. MA4295)

Dear Mr. Scalice:

On July 19, 1999, Tennessee Valley Authority submitted an application for amendment to the Watts Bar Nuclear Plant, Unit 1, Technical Specifications (TS) regarding inspection of the ice condenser flow channel area. The changes were identified as being consistent with a companion revision to the Improved Standard Technical Specifications (ISTS), as submitted by the Nuclear Energy Institute (NEI) Technical Specification Task Force (TSTF) to the U.S. Nuclear Regulatory Commission staff on June 23, 1999. The staff's review of the application has resulted in the enclosed request for additional information (RAI). Due to the simultaneous nature of the review of the Watts Bar and NEI submittals, the enclosed RAI also includes requests related to the proposed changes to the ISTS (TSTF-336).

As discussed with your staff on November 15, 1999, we understand that you plan to respond to the enclosed RAI by January 17, 2000.

Sincerely,

Original signed by:

Robert E. Martin, Senior Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-390

Enclosure: Request for Additional Information
cc w/enclosure: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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REQUEST FOR ADDITIONAL INFORMATION

CONCERNING ICE CONDENSER FLOW CHANNEL SURVEILLANCE

WATTS BAR NUCLEAR PLANT

DOCKET NO. 50-390

The following items need to be addressed in order for the U.S. Nuclear Regulatory Commission staff to complete its review of proposed changes to Westinghouse Standard Technical Specifications, as described in Technical Specification Task Force traveler number 336 (TSTF-336) regarding ice condenser flow channel blockage surveillance; and for the review of the lead plant submittal dated July 19, 1999.

1. Technical Specification (TS) Bases SR 3.6.15.4 state that to provide a 95 percent confidence that flow blockage does not exceed the allowed 15 percent, the visual inspection must be made for at least 54 (33 percent) of the 162 flow channels per ice condenser bay. Explain how a 95 percent confidence level can be obtained by a visual inspection of 33 percent of flow channels.

2. TS Bases SR 3.6.15.4 states that the allowable 15 percent buildup of ice is based on the analysis of the sub-compartment response to a design basis loss-of-coolant accident (LOCA) with partial blockage of the ice condenser flow channels. The analysis did not perform detailed flow area modeling, but lumped the ice condenser bays into six sections. Individual bays are acceptable with greater than 15 percent blockage, as long as 15 percent blockage is not exceeded for any analysis section.

   a. Provide a sketch to illustrate the above flow model showing the flow channels, bays, and sections, explain why "the individual bays are acceptable with greater than 15 percent blockage," and justify the conservatism of the model without using the most restrictive flow area for all the bays in a section to determine the flow area for the model.

   b. The safety analysis was performed assuming 15 percent blockage for any section. However, the surveillance requirements will be performed in terms of 15 percent of "total flow area," not "for any section." Justify the differences.

   c. Given the potential for human error in judging the amount of a blockage and perhaps some frost hardening to ice during a cycle, justify allowing an acceptance criterion with no margin to the analysis assumption of 15 percent blockage.

3. Describe the method to determine quantitatively the flow blockage by a visual inspection of flow channels.

4. Since the accuracy of the flow area examination will depend, in part, on the visual acuity of the examiner and the quality of the light source, please discuss any plans to include requirements relating to these factors in the examination process.

ENCLOSURE

5. Describe the criteria used by the flow area examiner to distinguish between frost and ice during the inspection. Also discuss how built-in blockages, such as junction boxes and other blockages, including bags or debris, will be accounted for in determining the blockage percentage.

6. It is stated in the submittal that during the operating cycle a certain amount of ice sublimates and reforms as frost on the colder surfaces in the ice condenser. Why can't an additional ice blockage be formed from the frost during the 18-month period? Provide bases or operating data to show that no ice can be added to the flow channels during the 18-month operation to assure that the results of the flow channel blockage inspection at the end of a refueling outage will remain valid for the duration of the 18-month surveillance period.

Mr. J. A. Scalice
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WATTS BAR NUCLEAR PLANT

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