

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

July 9, 1998

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ON RESPONSE TO GENERIC LETTER 96-06 FOR WATTS BAR NUCLEAR PLANT UNIT 1 (TAC NO. M96884)

Dear Mr. Scalice:

The U.S. Nuclear Regulatory Commission staff has reviewed the submittal by Tennessee Valley Authority (TVA) dated January 28, 1997 regarding Generic Letter 96-06, "Assurance of Equipment Operability and Containment Integrity During Design Basis Accident Conditions." TVA's submittal addresses the issues of water hammer, two-phase flow and thermally-induced pressurization of piping runs penetrating the containment. Our letter to you of May 27, 1998 addressed the thermally induced pressurization of piping runs penetrating the containment. The enclosure to this letter identifies additional information that we are requesting in order to continue our review of the water hammer and two phase flow issues for the Watts Bar Nuclear Plant, Unit 1. We are requesting that TVA provide this information by August 30, 1998 in order to support the staff's review schedule.

Sincerely,
 Original signed by
 Robert E. Martin, Senior Project Manager
 Project Directorate II-3
 Division of Reactor Projects - I/II
 Office of Nuclear Reactor Regulation

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Docket No. 50-390

Enclosure: Request for Additional Information

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Mr. J. A. Scalice
Tennessee Valley Authority

WATTS BAR NUCLEAR PLANT

cc:

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**REQUEST FOR ADDITIONAL INFORMATION FOR RESOLUTION OF
GL 96-06 ISSUES AT WATTS BAR UNIT 1
(TAC NO. M96884)**

Generic Letter (GL) 96-06, "Assurance of Equipment Operability and Containment Integrity During Design-Basis Accident Conditions," dated September 30, 1996, included a request for licensees to evaluate cooling water systems that serve containment air coolers to assure that they are not vulnerable to waterhammer and two-phase flow conditions. Tennessee Valley Authority (the licensee) provided its assessment of the waterhammer and two-phase flow issues for Watts Bar Unit 1 in a letter dated January 28, 1997. The licensee indicated that the essential raw cooling water (ERCW) system, which provides cooling water to the lower compartment coolers (LCCs) and upper compartment coolers (UCCs), is isolated from containment during an accident and is not required to mitigate accident conditions. The following additional information is requested:

Note: The following questions are applicable to ERCW cooling associated with the LCCs and UCCs.

1. Describe controls that exist and positive measures that have been taken (or will be taken) to assure that the ERCW system will be isolated from the containment and will not be restored by plant operators as an option following a loss-of-coolant accident or a main steam line break inside containment.
2. Implementing measures to assure that waterhammer will not occur, such as restricting post-accident operation of the affected system, is an acceptable approach for addressing the waterhammer and two-phase flow concerns. However, all scenarios must be considered, including situations where the system is not automatically isolated from containment (if this is a possibility), to assure that the vulnerability to waterhammer and two-phase flow has been adequately addressed. Confirm that all scenarios have been considered such that the measures that exist are adequate to address all situations.
3. Confirm that a complete failure modes and effects analysis (FMEA) was completed for all components (including electrical and pneumatic failures) that could impact performance of the cooling water system and confirm that the FMEA is documented and available for review, or explain why a complete and fully documented FMEA was not performed.
4. Explain and justify all uses of "engineering judgement."
5. Provide a simplified diagram of the affected systems, showing major components, active components, relative elevations, lengths of piping runs, and the location of any orifices and flow restrictions.
6. Describe in detail any plant modifications or procedure changes that have been made or are planned to be made to resolve the waterhammer and two-phase flow issues, including schedules for completing these actions.

ENCLOSURE