

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

June 25, 1984

Director of Nuclear Reactor Regulation
Attention: Ms. E. Adensam, Chief
Licensing Branch No. 4
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Ms. Adensam:

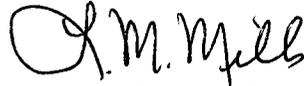
In the Matter of the Application of) Docket Nos. 50-390
Tennessee Valley Authority) 50-391

Enclosed is TVA's final response to Generic Letter 83-10c concerning Automatic Trip of Reactor Coolant Pumps at Watts Bar Nuclear Plant.

If you have any questions concerning this matter, please get in touch with D. P. Ormsby at FTS 858-2682.

Very truly yours,

TENNESSEE VALLEY AUTHORITY



L. M. Mills, Manager
Nuclear Licensing

Sworn to and subscribed before me
this 25th day of June 1984

Paulette H. White

Notary Public

My Commission Expires 9-5-84

Enclosure

cc: U.S. Nuclear Regulatory Commission (Enclosure)
Region II
Attn: Mr. James P. O'Reilly Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

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ENCLOSURE
WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
FINAL RESPONSE TO GENERIC LETTER 83-10c

- References: 1. L. M. Mills' letter to E. Adensam dated April 22, 1983.
2. L. M. Mills' letter to E. Adensam dated January 5, 1984.

The referenced letters presented the plan for demonstrating compliance with the criteria for resolution of TMI action plan requirements item II.K.3.5 which were established in letters from Darrel G. Eisenhut of the NRC to All Applicants with Westinghouse-designed nuclear steam supply systems (Generic Letter 83-10c) dated February 8, 1983. The submittals which fulfill the established requirements have been transmitted to you by Westinghouse Owners Group (WOG) letters OG-117, dated March 12, 1984, and OG-110, dated December 1, 1983.

Section 1 of the attachment to NRC Generic Letter 83-10c discusses "pump operation criteria which can result in reactor coolant pump (RCP) trip during transients and accidents." Subsection 1 of section 1 presents guidelines for establishing set points for RCP trip. The WOG response to this section of NRC Generic Letter 83-10c is contained in revision 1 to the WOG Emergency Response Guidelines, which has been issued to member utilities. The schedule for implementation of the emergency response guidelines into the Watts Bar Nuclear Plant (WBN) procedures was provided in L. M. Mills' letter to E. Adensam dated April 15, 1983, regarding supplement 1 to NUREG-0588, "Requirements for Emergency Response Capability."

The RCP trip criterion being adopted in the WBN-specific procedures not only assures RCP trip for all losses of primary coolant for which trip is considered necessary, but also permits RCP operation to continue during most non-LOCA accidents, including steam generator tube rupture events up to the design basis double-ended tube rupture. The generic applicability of the RCP trip criterion selected has been documented by the WOG report entitled, "Evaluation of Alternate RCP Trip Criteria," September 1983, which has been submitted to the NRC for review.

The WOG has also submitted to the NRC, via letter OG-117, the report entitled, "Justification of Manual RCP Trip for Small Break LOCA Events." As stated above, these submittals completed the WOG documentation comprising a generic reply to NRC Generic Letter 83-10c.

Subsection 2 of section 1 of the attachment to NRC Generic Letter 83-10c provides guidance for justification of manual RCP trip. Subsection 2a requires that compliance with 10 CFR 50.46 be demonstrated in an Appendix K small-break LOCA analysis given that the RCPs are tripped two minutes after the onset of reactor conditions corresponding to the RCP trip set point. The WOG has generically verified, in the OG-117 submittal, that predicted LOCA transients presuming the two-minute-delayed RCP trip are nearly identical to those presented in safety analysis reports utilizing the WFLASH evaluation model. Thus, the final safety analysis report for WBN demonstrates its compliance with the subsection 2a guidelines.

The WOG has also performed most probable, best estimate, WFLASH analyses to demonstrate, generally, compliance with the guidelines presented in subsection 2b of section 1 of the attachment to NRC Generic Letter 83-10c. These analyses identify that the minimum time available for operator action for the complete range of LOCA break sizes exceeds the value contained in ANSI N660; they show that reactor coolant pumps may be tripped at any time during a LOCA event without resulting in excessive clad temperatures. The applicability information presented in the generic report affirms that these best estimate analyses are appropriate for WBN. Therefore, in combination with subsection 2a justification cited above, the best estimate analyses justify that manual RCP trip is acceptable for WBN when RCP trip set points consistent with revision 1 to the emergency response guidelines are in use. Furthermore, the generic report demonstrates that no additional contingency emergency procedures are required to address the scenarios which may follow a missed RCP trip set point.

Information regarding RCP trip criteria instrumentation adequacy and operator training for RCP trip during a small break LOCA as requested by section I, subsections 3a and 3c of Generic Letter 83-10c was provided by reference 1.

In summary, the generic information presented by the WOG in the reports entitled, "Evaluation of Alternate RCP Trip Criteria" and "Justification of Manual RCP Trip for Small Break LOCA Events" provides the response to NRC Generic Letter 83-10c for WBN. The implementation of revision 1 to the emergency response guidelines in the plant-specific procedures with an appropriate RCP trip set point specified resolves all issues associated with automatic tripping of the reactor coolant pumps.

* Attached is a revision to page 6 of the reference submittal of April 22, 1983.

C. Other Considerations

- a) The following table indicated the design provisions which apply to the instrumentation to be used to assess the need for RCP trip.

	RCS Wide [*] <u>Range Press.</u>
Seismic qual.	Yes
Env. qual.	Note 1
Redundancy	3 channels
Power source	1E
QA applied	Yes
Recording provided	Yes
Testability during operation	Note 2

Note 1: "The environmental qualification of two of the wide range pressure transmitters has been established and reported to NRC in Watts Bar's Electrical Equipment Environmental Qualification Report (EEEQR). Qualification of the third transmitter is currently not required but will be established upon implementation of Regulatory Guide 1.97, Rev. 2 and reported as part of the Watts Bar EEEQR."

Note 2: Channel check - yes; transmitter test - No

* Used as a basis for existing EOIs