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SUBJECT: Submits schedule for resolution of TMI Action Plan Item II.K.3.5, "Automatic Trip of Reactor Coolant Pumps," in response to Generic Ltr 83-10D. Pump trip setpoint procedures will be implemented by end of 1985 refuel outage.

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P.O. Box 1200, Green Bay, Wisconsin 54305

50-305

June 15, 1983

Director, Office of Nuclear Reactor Regulation
 Attention: Mr. D. G. Eisenhut, Director
 Division of Licensing
 Office of Nuclear Reactor Regulation
 U. S. Nuclear Regulatory Commission
 Washington, D.C. 20555

Gentlemen:

Docket 50-305
 Operating License DPR-43
 Kewaunee Nuclear Power Plant
 Resolution of TMI Action Plan Item II.K.3.5,
"Automatic Trip of Reactor Coolant Pumps"

- References:
1. Letter from D. G. Eisenhut to All Licensees with Westinghouse Designed Nuclear Steam Supply Systems, dated February 8, 1983 (Generic Letter 83-10d)
 2. Letter from C. W. Giesler to D. G. Eisenhut dated March 18, 1983
 3. Letter from C. W. Giesler to D. G. Eisenhut dated April 15, 1983
 4. Letter from E. R. Mathews to J. G. Keppler dated June 20, 1979

This letter provides our schedule for resolution of TMI Action Plan Item II.K.3.5, "Automatic Trip of Reactor Coolant Pumps," as requested by Generic Letter 83-10d (reference 1). The organization of the following discussion parallels the attachment to reference 1.

I. Pump Operation Criteria Which Can Result in RCP Trip during Transients and Accidents

1. Setpoints for RCP Trip

The Westinghouse Owners Group response to this section of requirements will be contained in Revision 1 to the Emergency Response Guidelines scheduled for July 31, 1983. As indicated in reference 3, plant specific procedures based on these guidelines are scheduled to be implemented by the end of the 1985 refueling outage.

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- a) As stated above, Westinghouse and the Westinghouse Owners Group are developing revised RCP trip criteria which will assure that the need to trip the RCPs will be indicated to the operator for LOCAs where RCP trip is considered necessary. The criteria will also be developed to improve the likelihood that there will be continued forced RCS flow for:
- 1) steam generator tube rupture (up to the design bases double-ended tube rupture)
 - 2) the other more likely non-LOCA transients where forced circulation is desirable (e.g., steam line breaks equal to or smaller than 1 stuck open PORV)

NOTE: Event diagnosis will not be used. The criteria developed will be symptom based.

The criteria being considered for RCP trip are:

- 1) RCS wide range pressure < constant
- 2) RCS subcooling < constant
- 3) Wide range RCS pressure < function of secondary pressure

Instrument uncertainties will be accounted for. Environmental uncertainty will be included if appropriate.

No partial or staggered RCP trip schemes will be considered. Such schemes are unnecessary and increase the requirements for training, procedures and decision making by the operator during transients and accidents.

- b) The RCP trip criteria selected will be such that the operator will be instructed to trip the RCPs before voiding occurs at the RCP.
- c) The criteria developed in Item 1a above is not expected to lead to RCP trip for the more likely non-LOCA and SGTR transients. However, since continued RCP operation cannot be guaranteed, the emergency response guidelines provide guidance for the use of alternate methods for depressurization.
- d) The Emergency Response Guidelines contain specific guidance for detecting, managing and removing coolant voids that result from flashing. The symptoms of such a situation are described in these guidelines and in detail in the background document for the guidelines. Additionally, explicit guidance for operating the plant with a vaporous void in the reactor vessel head is provided in certain cases where such operation is needed. The procedure implementation program discussed in reference 3 includes training

on the plant specific procedures. This training will include training on system voiding where applicable to the procedures.

- e) As noted in our response to Bulletin 79-06A, Revision 1 (reference 4), the services essential for RCP operation and RCP seal integrity do not isolate on a containment isolation signal. Therefore, the RCP's are available for operation, if necessary.
- f) The parameters used to determine when the RCP's should be tripped were discussed in items 1a and 1c.

2. Guidance for Justification of Manual RCP Trip

The Westinghouse Owners Group Response to this section will be reported separately at the end of 1983. WPSC will review this response and provide plant specific justification within 90 days of receipt of the Westinghouse Owners Group report.

- a) A significant number of analyses have been performed by Westinghouse for the Westinghouse Owners Group using the currently approved Westinghouse Appendix K Evaluation Model for small break LOCA. This Evaluation Model uses the WFLASH Code. These analyses demonstrate for small break LOCAs of concern, if the RCPs are tripped 2 minutes following the onset of reactor conditions corresponding to the RCP trip setpoint, the predicted transient is nearly identical to those presented in the Safety Analysis Reports for all Westinghouse plants. Thus, the Safety Analysis Reports for all plants demonstrate compliance with requirement 2a. The analyses performed for the Westinghouse Owners Group will be used to demonstrate the validity of this approach.
- b) Better estimate analyses will be performed for a limiting Westinghouse designed plant using the WFLASH computer code with better estimate assumptions. These analyses will be used to determine the minimum time available for operator action for a range of break sizes such that the ECCS acceptance criteria of 10CFR50.46 are not exceeded. It is expected that the minimum time available for manual RCP trip will exceed the guidance contained in N660. This will justify manual RCP trip for all plants.

3. Other Considerations

- a) The instrumentation used for determination of reactor coolant pump trip will be reviewed to assure that there is an acceptable level of qualification, reliability and redundancy, consistent with NRC regulations.
- b) The emergency response guidelines contain guidance for timely restart of the reactor coolant pumps when conditions which will support safe pump start-up and operation are established.

- c) The operators will be instructed in their responsibility for RCP trip in accordance with the procedures training program described in reference 3.

II. Pump Operation Criteria Which Will Not Result in RCP Trip During Transient and Accidents

The preferred and safest method of operation following a small break LOCA is to manually trip the RCPs. Therefore, there is no need to address the criteria contained in this section.

Very truly yours,



C. W. Giesler
Vice President - Nuclear Power

js

cc - Mr. S. A. Varga, US NRC
Mr. Robert Nelson, US NRC

Subscribed and Sworn to
Before Me, This 15th Day
of June 1983


Susan A. Fok
Notary Public, State of Wisconsin

My Commission Expires:
March 24, 1985