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March 30, 1984

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Ms. E. G. Adensam, Chief
Licensing Branch No. 4

Re: McGuire Nuclear Station
Docket Nos. 50-369 and 50-370
TMI Item II.K.3.5 "Automatic Trip of Reactor Coolant Pumps"
(Generic Letter 83-10d)

Dear Mr. Denton:

Mr. D. G. Eisenhut's (NRC/ONRR) February 8, 1983 letter (Generic Letter No. 83-10d) transmitted the NRC's criteria for resolution of TMI Action Item II.K.3.5, "Automatic Trip of Reactor Coolant Pumps". This letter requested that Duke Power Company provide its plans and schedules for resolution of this issue on McGuire Nuclear Station, along with indicating whether formal submittal of the analyses which support either RCP trip setpoints or the decision to leave the RCPs operational for all events would be made as opposed to having the NRC conduct inspections to examine the 10CFR50, Appendix K and RCP operation mode evaluations.

By my letter dated April 22, 1983. Duke stated that, as a member of the Westinghouse Owner's Group, we had authorized generic resolution of this issue. This letter provided detailed plans and schedules for completion of the necessary tasks, which was basically that operator training and implementation was scheduled for completion by June 30, 1984. The letter also indicated that Duke would submit a report (in lieu of inspections) providing the technical justification for treatment of RCPs during transients and accidents by March 31, 1984. The submittals which fulfill the established requirements have been transmitted to you by Westinghouse Owner's Group letters OG-110, dated December 1, 1983, and OG-117, dated March 12, 1984. Plant specific items not addressed by these submittals are addressed herein.

Section I of the attachment to NRC letter 83-10d discusses "Pump Operation Criteria Which Can Result in RCP Trip During Transients and Accidents". Subsection 1 of Section I presents guidelines for estabishing setpoints for RCP Trip. The Westinghouse Owners Group response to this section of NRC Letter 83-10d is contained in Revision 1 to the WOG Emergency Response Guidelines, which has been issued to member utilities. Operator training and implementation is currently scheduled for completion by November 1984. This revised date is consistent with the schedule for implementation of the Upgraded Emergency Procedures as provided in Revision 1 to the Duke Power Company Response to NUREG-0737 for McGuire Nuclear Station (Ref. My letter dated September 8, 1983). In the interim McGuire will continue to manually trip reactor coolant pumps based on the existing setpoint of 1500 psig Reactor Coolant System pressure.

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The RCP trip criterion being adopted in the McGuire plant specific emergency 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 Westinghouse Owners Group Report entitled, "Evaluation of Alternate RCP Trip Criteria", which has been submitted to the NRC for review in letter OG-110.

The Westinghouse Owners Group 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 83-10d.

Subsection 2 of Section I of the attachment to NRC Letter 83-10d provides guidance for justification of manual RCP trip. Subsection 2a requires that compliance with 10CFR50.46 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 setpoint. The Westinghouse Owners Group 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 the McGuire Nuclear Station demonstrates its compliance with the Subsection 2A guidelines.

The WOG has also performed most probable, best estimate, WFLASH analyses to demonstrate, generically, compliance with the guidelines presented in Subsection 2b of Section I of the attachment to NRC Generic Letter 83-10d. These analyses identify that the minimum time available for operator action for the complete range of LOCA break sizes exceeds the value contained in draft ANSI Standard 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 the applicability of this best estimate analyses to McGuire. Therefore, in combination with the Subsection 2a justification cited above, the best estimate analyses justify that manual RCP trip is acceptable for McGuire when RCP trip setpoints 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 single scenarios which may follow a missed RCP trip setpoint.

Subsection 3 of Section I of the attachment to NRC letter 83-10d requests additional plant specific information concerning RCP trip. Subsection 3a discusses the level of quality of the instrumentation that will be utilized to signal the need for RCP trip. The RCP trip criterion for McGuire will be a loss of Reactor Coolant System subcooling. A loss of subcooling is calculated by comparing wide range hot leg temperature, core exit thermocouple temperature, and wide range pressure, to an error-adjusted saturation curve. This calculation is provided by the Operator Aid Computer and is displayed on a CRT. The operator can also manually determine a loss of subcooling by comparing pressure and temperature to a subcooled margin curve. These instruments have been categorized by Duke as Type A variables as specified by Regulatory Guide 1.97, Revision 2. As such they are qualified to a level that is adequate for the intended function. Subsection 3b requires that timely restart of the reactor coolant pumps be included in the emergency procedure. The McGuire emergency procedures include such guidance where appropriate. Subsection 3c requires

that the training program provide instruction and emphasis on the responsibility of the operator to trip the reactor coolant pumps on a loss of subcooling. Such instruction and emphasis will be provided and is supported by the prominence of the reactor coolant pump trip guidance in the McGuire emergency procedures.

In summary, the generic information presented by the Westinghouse Owner's Group in the reports entitled "Evaluation of Alternate RCP Trip Criteria" and "Justification of Manual RCP Trip for Small Break LOCA Events", and the plant specific information included in this letter, provide the response to NRC Generic Letter 83-10d for the McGuire Nuclear Station. The implementation of the upgraded emergency procedures which include the reactor coolant pump trip on loss of subcooling resolves all issues associated with RCP trip for SBLOCA mitigation.

Very truly yours,

H. B. Tucker

Hal. B. Tucker

PBN:glb

cc: Mr. J. P. O'Reilly, Regional Administrator
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Mr. W. T. Orders
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McGuire Nuclear Station