

CATEGORY 1

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ACCESSION NBR:9705290085 DOC.DATE: 97/05/19 NOTARIZED: YES DOCKET #
 FACIL:50-305 Kewaunee Nuclear Power Plant, Wisconsin Public Service 05000305
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 Document Control Branch (Document Control Desk)

SUBJECT: Submits response to 970515 RAI re proposed amend 147 re mod to basis for TS 3.4 for reduction in min required auxiliary feedwater flow & clarification to basis requirement for auxiliary feedwater cross-connect valves.

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May 19, 1997

10 CFR 50.90

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Ladies/Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
Proposed Amendment 147 to the Kewaunee Nuclear Power Plant License -
Request for Additional Information

- References:
- 1) Letter from C.R. Steinhardt (WPSC) to Document Control Desk dated April 28, 1997 (Proposed Amendment 147)
 - 2) Telecon between R. Laufer, C. Liang, and W. LeFave of NRC; and R. Pulec and D. Lohman of WPSC on May 15, 1997

Reference 1 transmitted proposed amendment (PA) 147 to the Kewaunee Nuclear Power Plant License to modify the Basis for Technical Specification (TS) 3.4, "Steam and Power Conversion System." The proposed changes were: a reduction in the minimum required auxiliary feedwater flow, and a clarification to the basis requirements for the auxiliary feedwater cross-connect valves.

On May 15, 1997, the NRC requested additional information on the proposed amendment in three areas:

- 1) Impact of the proposed change on the primary system pressure during the Loss of Load Transient,
- 2) WPSC's plans for revising the Updated Safety Analysis Report to reflect the proposed change, and
- 3) A description of the surveillance procedure changes to periodically verify the pump performance meets the required flow.

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WPSC provides the following responses to your request:

- 1) WPSC has reviewed the limiting Condition II accidents for the proposed change in AFW flow. The limiting Condition II transients are the Loss of Load (limiting with respect to reactor coolant system pressure and secondary side pressure) and the Uncontrolled Rod Withdrawal (limiting with respect to MDNBR). Changing the AFW flow rate to 176 gpm (one AFW pump) will not impact these transients, since in the time frame of interest for the safety analysis, the AFW system is not operating and therefore is not contributing to the mitigation of these accidents' consequences. After these critical time frames the transient behaves like a normal reactor trip

However, as detailed in Reference 1, the Loss of Feedwater (LOFW) event is affected by the change in AFW flow rate. The LOFW accident was re-analyzed at the 176 gpm AFW flow rate. All event acceptance criteria were shown to be satisfied. A USAR update has been prepared to document the safety analysis (Refer to question 3 response).

- 2) USAR Chapter 6, "Engineered Safety Features," and Chapter 14, "Safety Analysis," have numerous references to auxiliary feedwater flow. AFW pumps flow capability is described with and without recirculation flow. Flow values are given as pump capacity and assumptions for accident analyses. Following approval of this proposed amendment, WPSC will revise the USAR to clarify references to auxiliary feedwater flow and reflect a pump capability of 216 gpm (176 gpm + 40 gpm recirculation flow) and accident analysis assumptions of 176 gpm flow to the steam generators. This will eliminate previous references to flow values of 80 gpm, 160 gpm, 200 gpm, and 240 gpm.
- 3) Kewaunee Technical Specification 4.2.a.2 requires the performance of inservice testing of pumps be in accordance with the requirements of the ASME Boiler and Pressure Vessel Code Section XI as required by 10CFR50.55a(f). The auxiliary feedwater pumps are within the scope of the Section XI program and full flow tested at a cold shutdown frequency.

The 176 gpm flow identified in the proposed amendment is a design requirement assuming the steam generator is operating at the lowest safety valve setpoint plus 3% accumulation (1106 psig) with a minimum condensate storage tank level. In accordance with the ASME Code, periodic testing is performed to verify the pumps' development of required head. These tests are not performed at the design basis accident conditions. The 176 gpm flow requirement is translated into a pump required developed head using a system curve that represents accident conditions. This required developed head is then also adjusted to reflect measurement instrument accuracy in establishing the test acceptance criterion. The test acceptance criterion

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May 19, 1997

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becomes the more limiting of this design basis performance requirement or 10% from the pumps' reference value (established in accordance with the Code). This basis for the acceptance criterion will be included in the IST Licensing Basis Document.

Sincerely,



Clark R. Steinhardt
Senior Vice President - Nuclear Power

RPP

cc - US NRC - Region III
US NRC Senior Resident Inspector
Mr. Lanny Smith, PSCW

Subscribed and Sworn to
Before Me, This 19th Day
of May, 1997


Notary Public, State of Wisconsin

My Commission Expires:
June 13, 1999