

Wisconsin Public Service Corporation
 (a subsidiary of WPS Resources Corporation)
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 1-920-433-5544 fax

June 30, 1998

10 CFR 50.54(f)

U.S. Nuclear Regulatory Commission
 Attention: Document Control Desk
 Washington, D.C. 20555-0001

Ladies/Gentlemen:

Docket 50-305
 Operating License DPR-43
 Kewaunee Nuclear Power Plant
Wisconsin Public Service Corporation's (WPSC's) 30-Day Response to Request for Additional Information Regarding Resolution of Generic Letter 97-04 (TAC NO. MA0001)

- References:
- 1) Generic Letter 97-04: "Assurance of Sufficient Net Positive Suction Head for Emergency Core Cooling and Containment Heat Removal Pumps," dated October 7, 1997.
 - 2) WPSC's 30-Day Response to Generic Letter 97-04, dated November 4, 1997.
 - 3) WPSC's 90-Day Response to Generic Letter 97-04, dated January 5, 1998.
 - 4) "Kewaunee Nuclear Power Plant - Request for Additional Information Regarding Resolution of Generic Letter 97-04 (TAC NO. MA0001)," dated June 1, 1998.

In Reference 1, the Nuclear Regulatory Commission (NRC) identified several examples of emergency core cooling and containment heat removal pumps that may not have adequate net positive suction head (NPSH) available under all design basis operating conditions. The Generic Letter requested licensees review their post-LOCA recirculation cooling NPSH analyses and provide the NRC with plant design basis information within 90 days. References 2 and 3 were submitted to provide the information requested, in Reference 1, by the NRC.

Upon review of WPSC's submittal, Reference 3, the NRC issued a request for additional information (RAI), Reference 4. This letter provides WPSC's 30-day response to the RAI as requested by the NRC. The attachment to this letter provides a summary of WPSC's assessment of the issues outlined in the RAI.

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Document Control Desk

June 30, 1998

Page 2

This response is being submitted under oath and affirmation.

Sincerely,



Clark R. Steinhardt

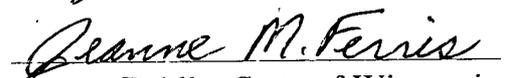
Senior Vice President-Nuclear Power

WKB

Attach.

cc - US NRC, Region III
US NRC Senior Resident Inspector

Subscribed and Sworn to
Before Me This 30th Day
of June, 1998


Notary Public, State of Wisconsin

My Commission Expires:

June 13, 1999

ATTACHMENT 1

Letter from C.R. Steinhardt (WPSC)

To

Document Control Desk (NRC)

Dated

June 30, 1998

Re:

Request for Additional Information Regarding
Resolution of Generic Letter 97-04
(TAC NO. MA0001)

Item 1: What is the maximum snmp temperatnre assumed in the NPSH analyses?

WPSC Response:

The Kewaunee plant's Architect/Engineer (A/E) NPSH calculation does not specifically identify an assumed maximum sump liquid temperature.

As stated in Reference 3, Item 4, the A/E calculation conservatively assumed the containment pressure equaled the vapor pressure of the sump liquid. Thus, the available NPSH to the RHR pumps is conservatively based on the static liquid elevation above the pump centerline and the friction losses in the RHR suction piping. These assumptions are consistent with the definition and discussion of containment over pressure discussed in GL 97-04.

The A/E calculation based the RHR suction line friction losses on the information and tables shown in Crane Technical Paper 410. The Crane piping friction losses are based on a fluid temperature of 60°F. The A/E calculation's use of a 60°F fluid temperature to calculate piping friction losses is conservative. Piping friction losses will be greater at 60°F versus the range of post-LOCA sump fluid temperatures shown in Kewaunee's USAR, Figure 14.3-42. Calculating piping friction losses at 60°F results in higher friction losses than those calculated at temperatures above 60°F. When considering the constraints used in this NPSH analysis and the use of a 60°F fluid temperature, the calculation of available NPSH to the RHR pumps is conservative.

Item 2: In response to question 2 of GL 97-04, it is stated that the A/E NPSH available (NPSHA) calculation for RHR concluded that the NPSHA was 18.6 feet at 2000 gpm while Table 6.2-6 of the USAR identified a different set of NPSHA values, i.e., 31 feet at 2000 gpm. However, WPSC was uuable to establish the basis for the USAR values. Which set of valucs, the A/E calculation or the USAR, is considered to be the licensing basis for the plant?

WPSC Response:

The Kewaunee plant's design basis is to ensure sufficient available NPSH is provided to the RHR pumps for the recirculation mode of operation. The RHR pump manufacturer's data shows the pumps require 8 feet (absolute) at 2000 gpm, design flow. The available NPSH provided to the pumps must be greater than 8 feet (absolute) to ensure cavitation does not occur. The plant's licensing basis is to provide the RHR pumps with a minimum NPSHA of 8 feet (absolute).

Item 3: Page 7 of the response states that discrepancies exist in the information concerning the available NPSH to the RHR pumps during the post-LOCA containment sump recirculation and that WPSC will initiate action to reconcile the discrepancies. Has work begun on this action and what is the expected completion date? Will the docket be updated with the reconciled information?

WPSC Response:

Since the submittal of Kewaunee's response to GL 97-04 in January 1998, a search for the basis of the NPSHA values listed in the Kewaunee Updated Safety Analysis Report (USAR), Table 6.2-6, has been conducted. No supporting information for the NPSHA values listed in the Kewaunee USAR was located.

Further evaluation of the available NPSH to the RHR pumps in the recirculation mode is being performed. An updated analysis is in progress to verify sufficient available NPSH exists to the RHR pumps in the post-LOCA recirculation mode. The analysis is projected to be completed by September 30, 1998. If the analysis shows that changes to the Kewaunee USAR are warranted the changes will be submitted to the NRC as required by 10 CFR 50.59(b)(2) and 50.71.