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SUBJECT: Submits response to RAI re GL 97-01, "Degradation of CR Drive Mechanism Nozzle & Other Vessel Closure Head Penetrations."

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NRC-98-132

Public Service Corporation
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December 23, 1998

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
Response to Request for Additional Information - Generic Letter 97-01, "Degradation of Control Rod Drive Mechanism Nozzle and Other Vessel Closure Head Penetrations"

References:
1) Letter from W.O. Long (NRC) to M.L. Marchi (WPSC) dated September 29, 1998
2) Letter from C.R. Steinhardt (WPSC) to Document Control Desk (NRC) dated July 30, 1997
3) Letter from C.R. Steinhardt (WPSC) to Document Control Desk (NRC) dated May 1, 1997
4) Letter from D.J. Modeen (NEI) to G.C. Lainas (NRC) dated December 11, 1998

U.S. Nuclear Regulatory Commission (NRC) Generic Letter 97-01, "Degradation of Control Rod Drive Mechanism Nozzle and Other Vessel Closure Head Penetrations," was issued to the industry on April 1, 1997. The Generic Letter required addressees to submit an initial response within 30 days of issuance informing the NRC staff of the intent to comply with the requested information and a follow-up response within 120 days of issuance containing the technical details to the staff's information requests. In the discussion section of the Generic Letter, the NRC staff stated that "individual licensees may wish to determine their inspection activities based on an integrated industry inspection program..." and indicated that the NRC staff did not object to individual PWR licensees basing their inspection activities on an integrated industry inspection program.

Wisconsin Public Service Corporation (WPSC) responded to the 30 day and 120 day information request by letters dated May 1, 1997, and July 30, 1997, respectively. These letters contained both Kewaunee Nuclear Power Plant (KNPP) specific information and generic data generated by the Westinghouse Owners Group (WOG). WPSC as a member of the WOG is a participant in the WOG integrated program that was developed to address the NRC staff's requests in Generic Letter 97-01. By letter dated September 29, 1998, the NRC requested additional information (RAI) to complete its review of WPSC's responses as they relate to the WOG's integrated program for assessing vessel head penetration nozzles at WOG member plants, and to the contents of Topical Report WCAP-14901, "Background and Methodology for Evaluation of Reactor Vessel Closure Head Penetration Integrity for the Westinghouse Owners Group." As requested by the RAI, this letter is WPSC's 90 day response.

A075

The EPRI Materials Reliability Project (MRP), in cooperation with the PWR Owners Groups, is coordinating a industry program for the Alloy 600 head penetrations. As part of that program, the MRP has developed a comprehensive industry response to the RAI's that were sent to WPSC and other utilities. On December 11, 1998, NEI submitted to the NRC the industry response to address the NRC staff's requests for additional information. WPSC has reviewed the industry response and determined that it addresses the questions raised in the September 29, 1998 RAI. As a guide for reviewing the generic industry response, the attachment provides a restatement of the NRC questions in the Kewaunee RAI, and the KNPP response indicates the appropriate location in the NEI letter that provides a detailed answer to the NRC question.

If you have any questions or require additional information, please contact a member of my staff.

Sincerely,

for Mark L. Marchi
Vice President-Nuclear

CAT

Attach.

cc: US NRC Region III
US NRC Senior Resident Inspector

Subscribed and Sworn to
Before Me This 23rd Day
of December, 1998

Jeanne M. Ferris
Notary Public, State of Wisconsin

My Commission Expires:
June 13, 1999

ATTACHMENT

Letter from Mark L. Marchi (WPSC)

To

Document Control Desk (NRC)

Dated

December 23, 1998

Response to Request for Additional Information

Generic Letter 97-01, "Degradation of CRDM Nozzle and Other Vessel Closure Head Penetrations"

Request 1

In WCAP-14901 WEC did not provide any conclusions as to what the probabilistic failure model would lead the WOG to conclude with respect to the assessment of PWSCC in WEC-designed vessel head penetrations. With respect to the probabilistic susceptibility model (e.g., probabilistic failure model) provided in WCAP-14901:

a. Provide the susceptibility rankings compiled for the WOG member plants for which WCAP-14901 is applicable. In regard to other WOG member plants to which WCAP-14901 is applicable, include the basis for establishing the ranking of your plant(s) relative to others.

b. Describe how the probabilistic failure model in WCAP-14901 for assessing postulated flaws in vessel head penetration nozzles was benchmarked, and provide a list and discussion of the standards the model was benchmarked against.

c. Provide additional information regarding how the probabilistic failure models in WCAP-14901 will be refined to allow the input of plant-specific inspection data into the model's analysis methodology.

d. Describe how the variability in product forms, material specifications, and heat treatments used to fabricate each CRDM penetration nozzle at the WOG member utilities are addressed in the probabilistic crack initiation and growth models described or referenced in Topical Report No. WCAP-14901.

WPSC Response

a. In Reference 4, see Enclosure 2, Response to Question 4.

b. In Reference 4, see Enclosure 2, Response to Question 2. (Westinghouse Model Applies.)

c. In Reference 4, see Enclosure 2, Response to Question 3. (Westinghouse Model Applies.)

d. In Reference 4, see Enclosure 2, Response to Question 1. (Westinghouse Model Applies.)

Request 2

Table 1-2 in WCAP-14901 provides a summary of the key tasks in WEC's vessel head penetration nozzle assessment program. The table indicates that the Tasks for (1) Evaluation of PWSCC Mitigation Methods, (2) Crack Growth Data and Testing, and (3) Crack Initiation Characteristic Studies have not been completed and are still in progress. In light of the fact that the probabilistic susceptibility models appear to be dependent in part on PWSCC crack initiation and growth estimates, provide your best estimate when these tasks will be completed by WEC, and describe how these activities relate to and will be used to update the probabilistic susceptibility assessment of VHP nozzles at your plant(s).

WPSC Response

In Reference 4, see Enclosure 2, Response to Question 5.

Request 3

In the NEI letters of January 29, 1998 (Ref. 1), and April 1, 1998 (Ref. 2), NEI indicated that inspection plans have been developed for the VHP nozzles at the Farley Unit 2 plant in the year 2002, and the Diablo Canyon Unit 2 plant in the year 2001, respectively. The staff has noted that although you have endorsed the probabilistic model described in WCAP-14901, Revision 0, other member licensees have endorsed a probabilistic susceptibility model developed by an alternate vendor choice. The WOG's proposal to inspect the VHP nozzles at the Farley Unit 2 and Diablo Canyon Unit 2 plants appears to be based on a composite assessment of the VHP nozzles at all WOG member plants. Verify that such a composite ranking assessment has been applied to the evaluation of VHP nozzles at your plant(s). If composite rankings of the VHP nozzles at WOG member plants have been obtained from the composite results of the two models, justify why application of the probabilistic susceptibility model described in WCAP-14901, Revision 0, would yield the same comparable relative rankings of the VHP nozzles for your plant(s) as would application of the alternate probabilistic susceptibility model used by WOG member plants not subscribing to WCAP-14901, Revision 0. Comment on the susceptibility rankings of the VHP nozzles at the Farley Unit 2 and Diablo Canyon Unit 2 plants.

WPSC Response

In Reference 4, see Enclosure 5, Response to Question 1.