



August 10, 2001

C0801-07

Docket Nos: 50-315
50-316

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop O-P1-17
Washington, DC 20555-0001

Donald C. Cook Nuclear Plant Units 1 and 2
LOSS OF RCP SEAL INJECTION
ADDITIONAL INFORMATION
(TAC NOS. MB0154 AND MB0155)

- References
- 1) Letter from R. P. Powers, Indiana Michigan Power Company (I&M) to Nuclear Regulatory Commission (NRC) Document Control Desk, "License Amendment Request – Reactor Coolant Pump Seal Leak-Off Two-Phase Flow: Revised Analysis and Related Changes," C0900-20, dated September 26, 2000.
 - 2) Letter from J. F. Stang (NRC) to R. P. Powers (I&M), "Donald C. Cook Nuclear Plant, Units 1 and 2 – Request for Additional Information (RAI) Regarding License Amendment Request (TAC Nos. MB0154 and MB0155)," dated March 29, 2001.
 - 3) Letter from M. W. Rencheck (I&M) to NRC Document Control Desk, "Response to Nuclear Regulatory Commission Request for Additional Information Regarding License Amendment Request, 'Reactor Coolant Pump Seal Leak-Off Two-Phase Flow,' (TAC Nos MB0154 and MB0155)," C0601-09, dated June 29, 2001.

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- 4) Letter from M. W. Rencheck (I&M) to NRC Document Control Desk, "Response to Nuclear Regulatory Commission (NRC) Acceptance Review Regarding License Amendment Request, 'Reactor Coolant Pump Seal Leak-Off Two-Phase Flow' (TAC Nos. MB0154 and MB0155)," C0201-07, dated February 1, 2001.

In Reference 1, Indiana Michigan Power Company (I&M) requested license amendments for Donald C. Cook Nuclear Plant (CNP) Units 1 and 2. I&M requested changes to the CNP Updated Final Safety Analysis Report noting that operator action was required following a postulated loss of seal injection (LOSI) cooling to the reactor coolant pumps (RCPs). The Nuclear Regulatory Commission (NRC) requested additional information regarding the license amendments in Reference 2. I&M provided the requested information in Reference 3.

In a July 26, 2001, telephone conference, members of the NRC staff requested that I&M clarify its position on steps that were being taken to assure that CNP Units 1 and 2 operated within the bounds of the LOSI analysis. Specifically, the NRC requested clarification of the required RCP seal exit pressure and the required component cooling water (CCW) flow to the RCP's thermal barrier heat exchanger (TBHX). This request was made because the information that had been provided in Reference 4 discussed an acceptable exit pressure based on a nominal seal water exit temperature (270°F) rather than the calculated value (271.33°F). Additionally, no controls on CCW flow to the RCP TBHX had been discussed in previous correspondence. The requested clarification is provided below.

The postulated loss of RCP seal injection results in elevated water temperatures at the seal exit. Because the seal water system is not designed for two-phase flow, the pressure at the seal exit, which is controlled by adjusting the charging system volume control tank (VCT) pressure, is required to be equal to or greater than the saturation pressure for the calculated seal exit temperature. The calculated seal exit temperature is a function of the seal flow, the CCW flow to the RCP TBHX, and the CCW inlet temperature. A seal water exit temperature of 271.33°F was calculated for a bounding condition of 0.9-gpm seal water flow, 30-gpm CCW flow, and 105°F CCW inlet temperature. During normal operation, procedures require that CCW flow to the TBHX be equal to or greater than 35 gpm, procedures limit the CCW inlet temperature to 95°F and, following a LOSI, procedures direct the operators to set the VCT pressure to 33 psig. This provides assurance that the seal exit pressure is equal to or greater than the saturation pressure corresponding to 271.33°F.

Additionally, I&M has completed a calculation to verify that the pressure losses between the seal exit and the VCT due to elevation and dynamic losses do not exceed the 3 psi value previously assumed when responding to Reference 2. The calculated loss is 1.58 psi.

This letter contains no new commitments. Should you have any questions, please contact Mr. Ronald W. Gaston, Manager of Regulatory Affairs, at (616) 697-5020.

Sincerely,

A handwritten signature in black ink, appearing to read "M.W. Rencheck", with a stylized flourish at the end.

M.W. Rencheck
Vice President Nuclear Engineering

/bjb

c: J. E. Dyer
MDEQ – DW & RPD
NRC Resident Inspector
R. Whale