REQUEST FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST REGARDING

LARGE BREAK LOSS-OF-COOLANT ACCIDENT ANALYSIS METHODOLOGY

DONALD C. COOK NUCLEAR PLANT, UNIT 2

DOCKET NO. 50-316

TAC NO. ME1017

The Reactor Systems Branch staff in the Office of Nuclear Reactor Regulation has reviewed the Donald C. Cook Nuclear Plant, Unit 2 (CNP-2) license amendment request (LAR) regarding large break loss-of-coolant accident (LBLOCA) analysis methodology and identified areas to be clarified by the Indiana Michigan Power Company (I&M).

1. With respect to proposed change to Technical Specification (TS) 3.4.1, the current value for minimum reactor coolant system (RCS) total flow specified in the TS 3.4.1 Limiting Condition for Operations (LCO) and Surveillance Requirements is 366,400 gpm. The proposed LAR stated that the value of 366,400 gpm is a minimum measured flow value which includes allowances for flow measurement uncertainty. Therefore, based on NRC approved method WCAP-16009-P, the proposed TS change to 3.4.1 will use so-called current practice of the thermal design flow value of 354,000 gpm. It further states that the proposed change will not affect the 354,000 gpm value used in the current and the new LBLOCA analyses.

   Please provide the following:

   (1) A description to explain that the proposed term of the thermal design flow value is a common industrial practice and identifying applicable examples currently used in U.S. nuclear power plants;

   (2) Clarification that the proposed change will not affect the 354,000 gpm value used in the current and the new LBLOCA analyses;

   (3) A detailed assessment that a 3.4% reduction of the RCS total flow from current value of 366,400 gpm to proposed value of 354,000 gpm will not reduce plant operation safety margin during a LOCA, even considering an accurate flow measurement uncertainty, an uncertainty always exists; and

   (4) The real minimum RCS flow used in the LBLOCA analysis.

2. In the submittal, it states that the current TS 3.5.2 Actions include a Condition D that allows the unit to be in Mode 1, 2, or 3 for an unlimited amount of time if a Safety Injection (SI) system cross-tie valve is closed, provided that thermal power is reduced to less than or equal to a specified value. It further states that this allowance is justified by the current LBLOCA and SBLOCA analyses. However, the proposed new LBLOCA analysis does not include a condition in which an SI subsystem cross-tie valve is closed.

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Therefore, I&M is proposing that Condition D be deleted from the TS 3.5.2 Actions, and reference to Condition D be deleted from Condition A and Condition C.

Please provide the following:

(1) The rationale to delete Condition D which directly provides an action against a situation that an SI system cross-tie valve is closed;

(2) The action(s) to be taken if an SI system cross-tie valve is closed; and

(3) A description of which allowance is justified by the current LBLOCA and SBLOCA analyses, and its relationship with the proposed deletion of Condition D.

3. Please provide a description and the results of the evaluation completed against the conditions and limitations stated in the staff's SER on the ASTRUM methodology in WCAP-16009-P-A with respect to the CNP-2 plant-specific adaptation of the ASTRUM methodology. Also, identify any deviations and their safety impact on the plant operations.

4. Please describe the reason why higher peak centerline temperatures (PCT) shown in Figure 1 fall in the range of CD * Abreak/ACL between 1 and 2.5.

5. Please describe the physical meaning and cause with respect to a negative vapor flow rate as shown in Figures 7 and 8 between 20 and 40 seconds after break.

6. Please provide a date of approval for the proposed TS 5.6.5.b.4, and identify which parameter listed in TS 5.6.5.a is supported by TS 5.6.5.b.4.

   Also, provide similar information for the rest of the methodologies listed in TS 5.6.5.b, such as its approval date and cycle-specific parameter it supports.

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