

**DRAFT REQUEST FOR ADDITIONAL INFORMATION**

**MILLSTONE POWER STATION, UNIT 2**  
**(TAC No. MD4837)**

**SMALL BREAK LOSS-OF-COOLANT-ACCIDENT QUESTIONS**

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**A. OVERALL APPLICABILITY TO MILLSTONE, UNIT 2**

**QUESTION #1.**

To show that the referenced generically approved SBLOCA analysis methodology applies specifically to the Millstone-2 plant, provide a statement that Dominion Nuclear Connecticut and its vendor have ongoing processes which assure that the ranges and values of the input parameters for the Millstone-2 SBLOCA analysis bound the ranges and values of the as-operated plant parameters. Furthermore, if the Millstone-2 plant-specific analyses are based on the model and or analyses of any other plant, then justify that the model or analyses apply to Millstone-2. (e.g. if the other design has a different vessel internals design the model wouldn't apply to Millstone-2.)

**B. APPLICATION OF THE SBLOCA MODEL AND ANALYSES RESULTS**

Because the February 20, 2007, "Millstone Power Station Unit 2 "Proposed Revision to Technical Specification 3/4.5.2...", and figures and tables presenting Millstone-2 small break LOCA analyses results presented in the Millstone 2 FSAR do not discuss a mixed core, the NRC staff assumes that the small break analyses results referred to in the February 20, 2007, submittal are for one fuel type rather than a mixed core of different types.

In reviewing the latest SBLOCA analysis for Millstone 2, it appears that the most limiting break size may not have been evaluated. A break size of 0.08 ft<sup>2</sup> CLB is identified as the worst case. However, at 2000 sec, the SIT's inject a very small amount of liquid to turn over the PCT near 2000F. It is possible that a break size between 0.06 and 0.08 ft<sup>2</sup> exists that does not actuate the SITs. Note that the break sizes and PCTs near the 0.08 ft<sup>2</sup> break are:

break size, ft <sup>2</sup>	PCT, F
0.06	1782
0.08	1941
0.10	1808

There may also be a peak between 0.08 and 0.1 ft<sup>2</sup> as well as between 0.06 and 0.08 ft<sup>2</sup> for the case when the SITs do not inject.

The Millstone Unit SBLOCA analysis identifies the worst small break as the 0.08 ft<sup>2</sup> cold leg break at the reactor coolant discharge. Since the SITs do not actuate for the 0.06 ft<sup>2</sup> break, but momentarily actuate to terminate the clad temperature rise for the 0.08 ft<sup>2</sup> break, the limiting break may not have been identified and, as such, the limiting nature of the 0.08 ft<sup>2</sup> may not have been established. The limiting break for this class of CE plants is typically the largest break size that does not actuate SITs.

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**QUESTION #2.**

Millstone 2 FSAR Table 14.6.5.2-6 provides the results of small break LOCA analyses results for break sizes 0.05 ft<sup>2</sup>, 0.06 ft<sup>2</sup>, 0.08 ft<sup>2</sup>, 0.10 ft<sup>2</sup>, 0.12 ft<sup>2</sup>, and 0.15 ft<sup>2</sup>. A plot of these points (PCT vs. break size) strongly indicates that the limiting PCT occurs between 0.06 ft<sup>2</sup> and 0.08 ft<sup>2</sup>. Additional analyses are required to support identification of the limiting break.

The NRC staff has a similar concern that there may be a more limiting break size between 0.08 ft<sup>2</sup> and 0.10 ft<sup>2</sup>. To address this concern, provide a SBLOCA analysis for a 0.09 ft<sup>2</sup> break.

(Note: In a letter to NEI dated November 8, 1999, Gary M. Holahan, reiterated the NRC position that "total oxidation" encompasses accident and pre-accident oxidation. This position continues to apply. Therefore, in response to QUESTION 2, provide total oxidation for the "other" (non-FTI) fuel, including pre-accident oxidation, plus LOCA cladding outside oxidation, plus cladding inside oxidation.)

**QUESTION #3.**

Please confirm and also explain why the charging pumps are no longer needed to maintain PCTs below 2200 F for small breaks for Millstone Unit 2, since previous analyses at 2700 Mwt have required the additional injection from these pumps.

**QUESTION #4.**

Please also provide the axial power shape used in the analyses.