

From: Guzman, Richard
Sent: Friday, September 16, 2016 7:25 AM
To: 'wanda.d.craft@dom.com'
Subject: Millstone Unit 2 - Request for Additional Information - License Amendment Request Realistic Large Break Loss of Coolant Accident Analysis (MF7761)

Wanda,

The NRC staff has reviewed the information provided in the subject license amendment request dated May 25, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16153A026), as supplemented by letter dated June 15, 2016 (ADAMS Accession No. ML16175A608), and has determined that additional information is needed to complete its review. Shown below are the NRC staff's request for additional information (RAI) questions. The information was discussed with your staff on September 14, 2016. As agreed, please provide your formal response by October 21, 2016. Please contact me if you have any questions.

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REQUEST FOR ADDITIONAL INFORMATION  
OFFICE OF NUCLEAR REACTOR REGULATION  
LICENSE AMENDMENT REQUEST RE:  
REALISTIC LARGE BREAK LOSS OF COOLANT ACCIDENT ANALYSIS  
MILLSTONE POWER STATION UNIT NO. 2  
DOCKET NO. 50-336  
CAC NO. MF7761

The NRC staff has reviewed the information provided in Dominion Nuclear Connecticut, Inc.'s (DNC, the licensee) license amendment request (LAR) for Millstone Power Station, Unit No. 2 (MPS2) dated May 25, 2016, as supplemented by letter dated June 15, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16153A026 and ML16175A608, respectively), and has determined that additional information as requested below is needed to complete its review.

RAI-1:

At the time of submittal of the LAR, the realistic large break loss of coolant accident (RLBLOCA) methodology limitations and conditions were not fully established. Since the application is seeking approval with the final approved version of the methodology, please address in Table 4

of the LAR the limitations and conditions that are now fully established and finalized and approved in the RLBLOCA methodology final safety evaluation.

RAI-2:

a) A strong trend was observed when reviewing the plot of the peak linear heat generation rate (PLHGR) versus the axial shape index (ASI). Please discuss how the PLHGR is used in the development of the axial power shape, why this strong trend exists, and how does this reflect physical plant operation.

b) There are several points that do not fall into the trend observed in Part a (e.g., point with sampled ASI of -0.0071). Please discuss if the plant can physically achieve these points or similar points that do not fall into the observed trend. If such points can physically exist during plant operation, please provide the maximum PLHGR the plant can achieve as a function of ASI over the range used in the analysis and please justify that the analysis results remain conservative.

RAI-3

Figure 7 of Attachment 4 of the LAR shows the break flow for the demonstration case. At approximately 60 seconds, there is an increase in break flow on the vessel side that appears to be coincident with the end of safety injection tank (SIT) injection and a decrease in the lower plenum collapsed liquid level in Figure 14. Please explain why the increase in vessel side break flow is observed during this time in order for the staff to confirm that this physical behavior is expected rather than a code numerical abstraction to ensure the analysis results are conservative.

RAI-4

As discussed in the LAR, this analysis does not credit charging flow. It is generally presumed that the reduction of injected flow will provide conservative results. However, there is a competing effect that the additional spilled flow could influence the containment back pressure and potentially impact late reflood peak cladding temperatures (PCTs). Although no credit is given to the injection in the analysis, will the charging system still physically receive an emergency injection signal and provide additional emergency core cooling system (ECCS) flow (both injected and spilled)? If so, please justify that the results (particularly the late reflood case with the highest PCT, Run 181) are still conservative.

RAI-5

Table 2 of Attachment 4 of the LAR notes that the Measurement Uncertainty Distribution is not applicable (N/A) for some parameters. To ensure that the analysis is conservative, please confirm that although measurement uncertainty distribution is N/A for these parameters, the measurement uncertainty is still included in the analyzed range.

RAI-6

Table 1, Item K and I in Attachment 4 of the LAR provides the Low Pressure Safety Injection (LPSI) flow and High Pressure Safety Injection (HPSI) flow, respectively, used in the RLBLOCA analysis. Table 14.6.5.1-3 of the MPS2 Final Safety Analysis Report contains the HPSI and LPSI flow used in the analysis of record (AOR). The RLBLOCA values and the AOR values in

these tables appear to differ from one another. Please explain why there is this difference between the AOR and the RLBLOCA analysis and please confirm that the flows used in both analyses remain conservative relative to plant operation.

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