October 25, 2005

MEMORANDUM TO: Darrell J. Roberts, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

FROM: Victor Nerses, Senior Project Manager ***/RA/***
Project Directorate I, Section 2
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

SUBJECT: MILLSTONE POWER STATION, UNIT NO. 2 - FACSIMILE TRANSMISSION, DRAFT REQUEST FOR ADDITIONAL INFORMATION TO BE DISCUSSED IN AN UPCOMING CONFERENCE CALL (TAC NO. MC7593)

The attached draft request for additional information (RAI) was transmitted by facsimile on October 25, 2005, to Mr. Paul Willoughby, at Dominion Nuclear Connecticut, Inc. (DNC). This draft RAI was transmitted to facilitate the technical review being conducted by the Nuclear Regulatory Commission (NRC) staff and to support a conference call with DNC in order to clarify certain items in the licensee's submittal. The draft RAI is related to DNC's submittal dated July 14, 2005, regarding changes intended to replace the current pressure-temperature (P-T) limits of 20 effective full-power years (EFPYs) with the proposed P-T limits of 54 EFPYs. Review of the draft RAI would allow DNC to determine and agree upon a schedule to respond to the RAI. This memorandum and the attachment do not convey a formal request for information or represent an NRC staff position.

Docket No. 50-336

Attachment: As stated

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DRAFT

REQUEST FOR ADDITIONAL INFORMATION

MILLSTONE POWER STATION, UNIT NO. 2

(TAC NO. MC7593)

By letter dated July 14, 2005, Dominion Nuclear Connecticut, Inc. (DNC or the licensee) submitted a license amendment request for a change to the Millstone Power Station, Unit No. 2 (MPS2) Technical Specifications (TSs) regarding pressure-temperature (P-T) limits. The TS change is to replace the current P-T limits of 20 effective full-power years (EFPYs) with the proposed P-T limits of 54 EFPYs. The Nuclear Regulatory Commission (NRC) staff requests the following additional information to complete its review.

1. The submittal contains very little information in the proposed Bases for TS Section 3/4.4.9, "Pressure/temperatures." However, the NRC staff is able to reproduce the adjusted reference temperature (ART) of 175 EF at one-quarter of the reactor pressure vessel (RPV) wall thickness (1/4T) for the limiting beltline material, Plate C-506-1, using the materials and fluence information from the license renewal application (LRA) for MPS2. The results from the NRC staff's independent calculation indicate that the licensee did not consider the NRC staff's position established in the safety evaluation (SE) dated August 1, 2005, for the LRA for MPS2 regarding the licensee's calculated fluence values. In that SE, the NRC staff applied a factor of 1.4 to the licensee's reported fluence values because the licensee's fluence calculation methodology is not in accordance with Regulatory Guide 1.190, "Calculational and Dosimetry Methods for Determining Pressure Vessel Neutron Fluence." Please revise the applicable EFPYs for the proposed P-T limits, or revise the proposed P-T limits for 54 EFPYs to reflect the NRC staff's position on the calculated fluence values.

2. (a) Please identify the limiting beltline material for the heatup curves and provide its ART value at the three-quarters of the RPV wall thickness (3/4T) location. Confirm that the limiting beltline material for the cooldown curves, which has an ART of 175 EF at 1/4T, is Plate C-506-1, and the materials information that DNC used in the ART calculation is from the LRA for MPS2.

   (b) The submittal stated that "[t]he development of the beltline P-T limits was established using ASME [American Society of Mechanical Engineers Boiler and Presure Vessel Code] Section XI, Appendix G, 2002 Addenda." Confirm that DNC used the Appendix G (2002 Addenda) formulas based on the heatup or cooldown rate to calculate the applied stress intensity factor due to the thermal gradient. If an alternative approach of using a thermal stress distribution resulting from a thermal modeling (closed-form, finite element, or finite difference) method was used to calculate the applied thermal stress intensity factor, please provide an appropriate description and discussion of the thermal modeling method. Also, address the sensitivity of the assumed heat transfer coefficient for convection (h) between the coolant and the vessel on the licensee's P-T limits if the

licensee's heat transfer coefficient is different from 1000 btu/hr-ft.ft-E F commonly used in P-T limit applications.

(c) Provide step-by-step calculations leading to the "indicated cold leg temperatures" at approximately 500 psia and 2000 psia of the heatup and cooldown limits for the limiting beltline material. The response for these four examples (i.e. at 500 and 2000 psia for the heat-up curve and at 500 and 2000 psia for the cooldown curve) should include (1) the pressure and temperature adjustments that were considered to account for instrument errors and conditions caused by different numbers of reactor coolant pumps in operation, and (2) the temperature differences between the reactor vessel coolant and the vessel beltline metal at 1/4T for the cooldown limits and the temperature differences between the reactor vessel coolant and the vessel beltline metal at 3/4T for the heat-up limits.

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