November 21, 2003

Mr. David A. Christian
Sr. Vice President and Chief Nuclear Officer
Dominion Nuclear Connecticut, Inc.
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

SUBJECT: RELAXATION OF THE REQUIREMENTS OF ORDER EA-03-009 REGARDING REACTOR PRESSURE VESSEL HEAD INSPECTIONS, RELAXATION REQUEST NO. RR-89-48, MILLSTONE POWER STATION, UNIT NO. 2 (TAC NO. MC0942)

Dear Mr. Christian:

On February 11, 2003, the U.S. Nuclear Regulatory Commission (NRC) issued Order EA-03-009 requiring specific inspections of the reactor pressure vessel (RPV) head and associated penetration nozzles at pressurized water reactors. The NRC issued an errata to the Order on March 14, 2003, to correct an administrative part of the Order related to requests for relaxation of the Order requirements. Section IV.F of the Order states that requests for relaxation associated with specific penetration nozzles will be evaluated by the NRC staff using its procedure for evaluating proposed alternatives to the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) in accordance with Section 50.55a(a)(3) of Title 10 of the *Code of Federal Regulations* (10 CFR).

Sections IV.A and IV.B of the Order provide criteria to categorize each plant's RPV head with respect to its susceptibility to primary water stress corrosion cracking (PWSCC). For plants such as Millstone Power Station, Unit No. 2 (MP2), with RPV heads that are categorized as being highly susceptible to PWSCC, Section IV.C(1)(b) of the Order requires that the RPV head penetration nozzles be inspected each refueling outage using either of the following techniques: (1) ultrasonic testing (UT) from two inches above the J-groove weld to the bottom of the nozzle and an assessment to determine if leakage has occurred in the interference fit zone, or (2) eddy current testing or dye penetrant testing (PT) of the wetted surface of each J-groove weld and nozzle base material to at least two inches above the J-groove weld.

By letter dated October 3, 2003, as supplemented on October 10 and 28, and November 5, 20, and 21, 2003, Dominion Nuclear Connecticut, Inc. (DNC or the licensee), requested relaxation from the requirements in Section IV.C(1)(b) of the Order for MP2. The relaxation request was made pursuant to the procedure specified in Section IV.F of the Order. Specifically, for inspection of the RPV control element drive mechanism (CEDM) penetration nozzles, DNC requested authorization to use a combination of UT and PT on the nozzle base material, and reduced examination coverage below the weld in the non-pressure boundary portion of the nozzle.

The NRC staff has completed its review of the information provided in support of your request for relaxation. The staff concludes that the proposed alternative examination of the CEDM penetration nozzles provides reasonable assurance of the structural integrity of the nozzles. The combined use of UT and PT as proposed demonstrates the integrity of the inspectable portion of the penetration below the J-groove weld, and the results of the crack growth analysis demonstrates that potential cracks emanating from the uninspectable portion of the penetration will not grow into the J-groove weld within one operating cycle. Further inspection of the CEDM nozzles in accordance with Section IV.C(1)(b) of the Order would result in hardship without a compensating increase in the level of quality and safety. Thus, DNC has demonstrated good cause for the requested relaxation. Therefore, pursuant to Section IV.F of the Order, and 10 CFR 50.55a(a)(3), the NRC staff authorizes the proposed relaxation and alternative inspection of the CEDM penetration nozzles at MP2 during the period while NRC Order EA-03-009 remains in effect. As agreed to in your submittal dated October 28, 2003, the NRC's authorization is contingent on the following condition:

> If the NRC staff finds that the crack-growth formula in industry report MRP-55 is unacceptable, the licensee shall revise its analysis that justifies relaxation of the Order within 30 days after the NRC informs the licensee of an NRC-approved crack growth formula. If the licensee's revised analysis shows that the crack growth acceptance criteria are exceeded prior to the end of the current operating cycle, this relaxation is rescinded and the licensee shall, within 72 hours, submit to the NRC written justification for continued operation. If the revised analysis shows that the crack growth acceptance criteria are exceeded during the subsequent operating cycle, the licensee shall, within 30 days, submit the revised analysis for NRC review. If the revised analysis shows that the crack growth acceptance criteria are not exceeded during either the current operating cycle or the subsequent operating cycle, the licensee shall, within 30 days, submit a letter to the NRC confirming that its analysis has been revised. Any future crack-growth analyses performed for this and future cycles for RPV head penetrations must be based on an acceptable crack growth rate formula.

Be aware that when vessel head inspections are performed using ASME Code requirements, acceptance criteria, or qualified personnel, those activities and all related activities fall within the jurisdiction of the ASME Code. Therefore, Order-related inspection activities may be subject to third party review, including those by the Authorized Nuclear Inservice Inspector.

Sincerely,

/RA by ELeeds for/

Cornelius F. Holden, Director
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-336

cc: See next page

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Office of Nuclear Reactor Regulation

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