UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 14, 2012

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

SUBJECT: MILLSTONE POWER STATION, UNIT NO. 3 – ISSUANCE OF RELIEF REQUEST IR-3-16 REGARDING THE TEMPORARY NON-CODE COMPLIANT CONDITION OF THE REACTOR PLANT COMPONENT COOLING WATER SYSTEM PUMPS (TAC NO. ME7587)

Dear Mr. Heacock:

By letter dated November 10, 2011,[1] Dominion Nuclear Connecticut, Inc. (DNC or the licensee), requested temporary relief from certain Section XI requirements of the American Society of Mechanical Engineers (ASME) *Boiler and Pressure Vessel Code* (Code). Specifically, the licensee requested temporary relief from performing the required ASME Code repair/replacement activities for the Millstone Power Station, Unit No. 3 (MPS3) Reactor Plant Component Cooling Water System (RPCCW) Pumps M33CCP*P1A, M33CCP*P1B, and M33CCP*P1C mechanical seal plates. The licensee requested relief for a period of time not to extend beyond December 15, 2012.

The Nuclear Regulatory Commission (NRC) staff has reviewed the subject request and concludes, as set forth in the enclosed Safety Evaluation, that requiring an ASME Code repair/replacement of the RPCCW pumps mechanical seal plates, would cause a hardship without a compensating increase in the level of quality and safety. The NRC staff's review also concludes that the proposed alternative in Relief Request IR-3-16 is acceptable because it provides reasonable assurance of structural integrity and leak tightness of the RPCCW pumps.

Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii), the NRC staff authorizes the use of non-Quality Assurance (QA) compliant mechanical seal plates for RPCCW pumps M33CCP*P1A, M33CCP*P1B, and M33CCP*P1C at MPS3 for a period of time not to extend beyond December 15, 2012.

All other ASME Code, Section XI requirements for which relief was not specifically requested and approved remain applicable, including the third party review by the Authorized Nuclear In-service Inspector.

[1] Agencywide Document Access and Management System (ADAMS) Accession No. ML11325A193

If you have any questions, please contact the Project Manager, Carleen Sanders, at 301-415-1603.

Sincerely,

Meena Khanna, Chief
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-423

Enclosure:
As stated

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELIEF REQUEST IR-3-16, TEMPORARY NON-CODE REPAIR

CLASS 3 REACTOR PLANT COMPONENT COOLING WATER SYSTEM PUMPS

M33CCP*P1A, M33CCP*P1B, AND M33CCP*P1C

MILLSTONE POWER STATION, UNIT NO. 3

DOMINION NUCLEAR CONNECTICUT, INC.

DOCKET NUMBER 50-423

1.0 INTRODUCTION

By letter dated November 10, 2011,[1] Dominion Nuclear Connecticut, Inc. (DNC or the licensee), requested temporary relief from certain Section XI requirements of the American Society of Mechanical Engineers (ASME) *Boiler and Pressure Vessel Code* (Code). Specifically, the licensee requested temporary relief from performing the required ASME Code repair/replacement activities for the Millstone Power Station, Unit No. 3 (MPS3) Reactor Plant Component Cooling Water System (RBCCW) Pumps M33CCP*P1A, M33CCP*P1B, and M33CCP*P1C mechanical seal plates. The licensee requested relief for a period of time not to extend beyond December 15, 2012.

2.0 REGULATORY EVALUATION

Repair/replacement activities are performed in accordance with ASME Code, Section XI, Article IWA-4000 as required by Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.55a(g)(4), except where specific relief has been granted by the Nuclear Regulatory Commission (NRC) pursuant to 50.55a(g)(6)(i). The NRC, in accordance with 50.55a(g)(6)(i), may evaluate determinations under paragraph 50.55a(g)(5) that ASME Code requirements are impractical and grant relief and impose alternative requirements. In addition, 10 CFR 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if the licensee demonstrates that: (i) the proposed alternatives would provide an acceptable level of quality and safety; or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

[1] Agencywide Document Access and Management System (ADAMS) Accession No. ML 11325A193

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the pre-service examination requirements, set forth in the ASME Code, Section XI, to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The ASME Code of Record for MPS3 third 10-year interval inservice inspection program, which began on April 23, 2009, is the 2004 Edition, with no Addenda.

The licensee has requested that the NRC grant relief, due to impracticality, from the repair/replacement requirements contained in Section XI, Article IWA 4000 of the ASME Code. The NRC's Office of Nuclear Reactor Regulation Office Instruction LIC-102, "Relief Request Reviews",[2] contains guidance concerning 'impracticality.' Examples of impracticality contained in this document include: requiring major plant or hardware modification; having high potential to cause a reactor trip; causing system or component damage; replacing equipment or in-line components; or existing technology will not give meaningful results. The licensee states in their request that impracticality exists for replacing the mechanical seal plates due to the long lead time to procure replacement parts. The NRC staff finds little similarity between the examples provided in LIC-102 and the rationale presented by the licensee, i.e., long lead-time. Therefore, the NRC staff finds that the licensee's rationale for requesting relief does not constitute an impracticality, and therefore the NRC staff may not grant relief under 10 CFR 50.55a(g)(6)(i).

However, 10 CFR 50.55a(a)(3) permits the NRC staff to authorize alternatives to ASME Code requirements. The NRC staff finds no regulatory basis that would preclude authorizing an alternative to Article IWA-4000, of Section XI, of the ASME Code as requested by the licensee.

3.0 TECHNICAL EVALUATION

3.1 Applicable Code Edition and Addenda

The ASME Code of Record for the third 10-year ISI interval at MPS3 is the 2004 Edition, with no Addenda. This interval began April 23, 2009.

3.2 Components for Which Relief is Requested

Component:	Component Cooling Water System Pumps M33CCP*P1A, M33CCP*P1B, and M33CCP*P1C mechanical seal plates
Code Class:	Class 3

[2] ADAMS Accession No. ML091380595

3.3 License's Reason for Request

The licensee stated that on September 13, 2011, plant personnel discovered that mechanical seal cartridges,[3] which had been ordered and installed on pump M33CCP*P1B did not meet the Quality Assurance (QA) requirements contained within the ASME Code, and therefore did not meet the licensee's QA Program. The licensee also stated that it was subsequently determined that the seal plates installed on pumps M33CCP*P1A and M33CCP*P1C could not be confirmed to meet QA program requirements. The licensee further stated that the lead time for obtaining mechanical seal cartridges which meet the requirements of the QA Program and, therefore, Article IWA 4000 of Section XI of the ASME Code, is 6 months. Article IWA 4000 contains no provisions for the temporary use of non-compliant material; therefore, the licensee would be forced to shut down MPS3 until such time as seal cartridges, meeting the QA Program requirements, could be obtained and installed.

3.4 Proposed Alternative

Due to the long lead time required to obtain the necessary mechanical seal cartridges (estimated to be 6 months), scheduling, and personnel availability, the licensee proposes to leave the non-QA mechanical seal plates in place as a temporary 'repair.' The existing non-QA compliant components will be replaced by QA compliant components no later than December 15, 2012.

3.5 Licensee's Technical Basis

In its request, the licensee stated that the seal plates under consideration:

a. form part of the pressure boundary of the pump;

b. are approximately 9 inches in diameter and 2 inches thick;

c. are exposed to pump suction pressure of approximately 32 psig;

d. could be exposed to a design pressure of 250 psig and a design temperature of 160° F;

e. are designed to be type 304 stainless steel;

f. are actually constructed from stainless steel meeting the requirements for type 304 or type 316 stainless steel (depending on the specific plate tested) as determined by an x-ray fluorescence analyzer;

g. are exposed to deionized water which is an environment in which the corrosion rate of types 304 and 316 stainless steels are extremely low;

h. possess significant design margin relative to structural strength requirements based on the dimensions of the part and the relatively low pressures involved.

[3] The seal plates are part of the mechanical seal cartridges and are replaced as a unit.

3.6 NRC Staff Evaluation

ASME Code Section XI, Article IWA-4000 governs repair/replacement activities. Instead of replacing the non-QA compliant mechanical seal cartridge, in accordance with IWA-4000, the licensee has proposed to leave the seal cartridges in place until such a time when replacement is possible.

DNC requested relief in accordance with 50.55a(g)(6)(i), stating that ASME Code repair/replacement requirements for the RPCCW pumps mechanical seal plates are impractical due to the long lead time needed to procure replacement parts. The NRC staff's review finds that the licensee's rationale for requesting relief does not constitute an impracticality, and therefore the NRC staff may not grant relief under 10 CFR 50.55a(g)(6)(i). However, the licensee's submittal provided enough information to support an NRC review under 10 CFR 50.55a(a)(3)(ii).

In considering the requirements of 10 CFR 50.55a(a)(3)(ii), two conditions must be met. First, compliance with the code requirement, as stated, must constitute a hardship; and second, compliance with the code requirement, as stated, would not provide a compensating increase in the level of quality or safety when compared to the proposed alternative.

ASME Code, Section XI, Article IWA 4000 contains no provisions for the temporary use of material that is not ASME Code compliant. Given that the lead time for procuring mechanical seal cartridges which meet the ASME Code material traceability requirements is 6 months, unless an alternative to this code requirement is authorized, the licensee would have to suspend plant operations until a code-compliant repair was made. Therefore, the ASME Code repair/replacement would require MPS3 to shutdown, which is a hardship.

The NRC staff notes that the critical aspects of the mechanical seal plates are their ability to withstand the pressures to which they will be exposed and to not undergo corrosion which would affect their intended function. The NRC staff also notes that the seal plates are designed to be constructed from type 304 stainless steel and are actually constructed, as determined by x-ray fluorescence, from either type 304 or type 316 stainless steel. The NRC staff further notes that given the dimensions of the parts and the pressures to which they will be exposed, these components possess very significant design margins relative to strength irrespective of whether they are constructed from type 304, 304L, 316, or 316L stainless steels. The NRC staff finally notes that both types 304 and 316 stainless steels are highly resistant to corrosion in deionized water environments, such that corrosion of a QA approved component or a non-QA approved component constructed from either type 304 or 316 stainless steel is not considered a credible failure mechanism. The NRC staff, therefore, finds that adherence to the ASME Code requirement as stated will not result in a compensating increase in the level of quality and safety.

Based on the above analysis, the NRC staff finds that the technical requirements of 10 CFR 50.55a(a)(3)(ii) have been met and, therefore, the licensee's proposal provides reasonable assurance of structural and leak tight integrity of the subject components.

4.0 CONCLUSION

As set forth above, the NRC staff finds that the proposed alternative provides reasonable assurance of structural integrity and leak tightness of the subject components and that complying with the specified requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii), the NRC staff authorizes the use of non-QA compliant mechanical seal plates for RPCCW pumps M33CCP*P1A, M33CCP*P1B, and M33CCP*P1C at MPS3 for a period of time not to extend beyond December 15, 2012.

All other ASME Code, Section XI requirements for which relief was not specifically requested and approved remain applicable, including the third party review by the Authorized Nuclear In-service Inspector.

Principal Contributor: D. Alley

Date: March 14, 2012

If you have any questions, please contact the Project Manager, Carleen Sanders, at 301-415-1603.

Sincerely,

/ra/

Meena Khanna, Chief
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-423

Enclosure:
As stated

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