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

August 5, 2014

Mr. David A. Heacock
President and Chief Nuclear Officer
Virginia Electric and Power Company
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

SUBJECT: NORTH ANNA POWER STATION, UNIT NOS. 1 AND 2, RELIEF REQUEST (RR) IWE-5240, VISUAL EXAMINATIONS OF VARIOUS COMPONENTS (TAC NOS. MF3292 AND MF3293)

Dear Mr. Heacock:

By letter dated December 18, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13365A060), Dominion (the Licensee) submitted request, Alternative IWE1, to the Nuclear Regulatory Commission (NRC). On January 24, 2014, the NRC requested the licensee to submit additional information to support this request (ADAMS Accession No. ML14024A414). By letter dated February, 17, 2014 (ADAMS Accession No. ML14051A106), the licensee submitted this additional information. The licensee requested to use alternative requirements to the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, "Rules for Inservice Inspection (ISI) of Nuclear Power Plant Components," and to use ASME Code Case N-649, "Alternative Requirements for IWE-5240 Visual Examination," to address the requirements for visual examination during the post-repair pressure test of portions of the concrete containment steel liner affected by repair/replacement for North Anna Power Station (North Anna), Units 1 and 2.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the licensee's request, as supplemented. As set forth in the enclosed safety evaluation, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(3)(i) and is in compliance with the ASME Code, Section XI requirements. All other ASME Code, Section XI requirements for which relief was not specifically requested and approved remains applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

If you have any questions concerning this matter, please contact Dr. Sreenivas, at (301) 415-2597.

Sincerely,

Robert J. Pascarelli, Branch Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-338 and 50-339

Enclosure:
Safety Evaluation

cc w/encl: Distribution via Listserv

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REQUEST, ALTERNATIVE IWE1, REGARDING

IWE-5240 VISUAL EXAMINATION OF VARIOUS COMPONENTS

VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)

NORTH ANNA POWER STATION, UNITS 1 AND 2

DOCKET NOS. 50-338 AND 50-339

1.0 INTRODUCTION

By letter dated December 18, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13365A060), Dominion (the Licensee) submitted request, Alternative IWE1, to the Nuclear Regulatory Commission (NRC). On January 24, 2014, the NRC requested the licensee to submit additional information to support this request (ADAMS Accession No. ML14024A414). By letter dated February, 17, 2014 (ADAMS Accession No. ML14051A106), the licensee submitted this additional information. The licensee requested to use alternative requirements to the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, "Rules for Inservice Inspection (ISI) of Nuclear Power Plant Components," for North Anna Power Station (North Anna), Units 1 and 2. The licensee requested to use ASME Code Case N-649, "Alternative Requirements for IWE-5240 Visual Examination," to address the requirements for visual examination during the post-repair pressure test of portions of the concrete containment steel liner affected by repair/replacement.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(a)(3)(i), the licensee requested to use the proposed alternative on the basis that the alternative provides an acceptable level of quality and safety.

2.0 REGULATORY EVALUATION

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components must meet the requirements set forth in the ASME Code, Section XI, to the extent practical. The regulations require that inservice examination of components and system pressure tests comply with the requirements in the latest edition and addenda of the ASME Code, Section XI, incorporated by reference in 10 CFR 50.55a(b), 12 months prior to the start of the inspection interval. The applicable ASME Section XI Code of Record for the second 10-year ISI intervals at North Anna, Units 1 and 2, is the 2001 Edition through 2003 Addenda. The North Anna, Units 1 and 2, second ISI intervals are scheduled from October 7, 2007 to October 6, 2017, and October 12, 2008 to October 11, 2018, respectively.

Enclosure

The ISI of ASME Code Class 1, 2, and 3 components is to be performed in accordance with Section XI of the ASME Code and applicable edition and addenda as required by 10 CFR 50.55a(g). Further, 10 CFR 50.55a(a)(3)(i) states, in part, that alternatives to the requirements of paragraph (g) may be used when authorized by the NRC, if the applicant demonstrates that the proposed alternative will provide an acceptable level of quality and safety.

Based on the above, and subject to the following technical evaluation, the NRC staff finds that regulatory authority exists for the licensee to request and the Commission to authorize alternative requested by the licensee.

3.0 TECHNICAL EVALUATION

3.1 The Licensee's Alternative Request (Alternative IWE1)

ASME Code, Section XI, Paragraph IWE-5220, "System Pressure Tests: Tests Following Repair/Replacement Activities," requires, in part, that, "repair/replacement activities performed on the pressure retaining boundary of Class MC or Class CC components shall be subjected to a pneumatic leakage test in accordance with the provisions of Title 10, Part 50 of the *Code of Federal Regulations*, Appendix J, Paragraph IV.A." The paragraph further states, in part, that "leakage tests for ... minor repair/replacement activities ... may be deferred until the next scheduled leakage test, provided nondestructive examination is performed in accordance with the Repair/Replacement Program and Plan."

Paragraph IWE-5240, "System Pressure Tests: Visual Examination," requires that, "During the pressure test required by IWE-5220, a detailed visual examination (IWE-2310) shall be performed on areas affected by repair/replacement activities."

ASME Code, Section XI, Code Case N-649, "Alternative Requirements for IWE-5240 Visual Examination," states, in part, that, "following a repair/replacement activity affecting the containment pressure boundary, when a pressure test (Type A, Type B, or Type C) is performed to verify the leak-tight integrity of the affected pressure boundary, VT-3 visual examination (1989 Edition through the 1995 Edition with 1997 Addenda) or general visual examination (1998 Edition through the 1998 Edition with the 2000 Addenda) shall be performed during or after the pressure test on the areas affected by the repair/replacement activity."

The steel liners for the concrete containments, for North Anna, Units 1 and 2, are ASME Code Class MC components.

In accordance with paragraph IWE-5220, the licensee has done the appropriate nondestructive examination and chosen to defer the required post repair leakage test until the next scheduled leakage test. Paragraph IWE-5240 requires a detailed visual examination be performed on areas affected by repair/replacement activities during a post repair pressure test; however, the licensee stated that it is not possible to perform a detailed visual examination during the pressure test. Therefore, the licensee requested to use Code Case N-649 as an alternative to the requirements of Paragraph IWE-5240. In its alternative request, the licensee stated that ASME Code Case N-649, "provides the alternative to perform the visual examination upon completion of the repair/replacement and complete the pressure test at a later scheduled date." The licensee further stated that "a detailed visual examination in accordance with IWE-2310 prior to the

Appendix J pressure test is adequate to assess the condition of the surfaces affected by repair/replacement activities and to determine the magnitude and extent of any deterioration and distress of these surfaces."

In this alternative request, the licensee stated that NRC Regulatory Guide 1.147, Revision 16, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," lists ASME Code Case N-649 as acceptable for use with no conditions or limitations. However, the applicability does not extend to the 2001 Edition. The licensee also stated that the requirements of Paragraph IWE-5240 are identical in the 1998 Edition with the 2000 Addenda and the 2001 Edition through the 2003 Addenda. For the alternative request, the licensee requested that the applicability of ASME Code Case N-649 be extended to the 2001 Edition through the 2003 Addenda for use for use in the second 10-year ISI interval for both Units.

3.2 NRC Staff Evaluation

The NRC staff notes that the North Anna containment steel liners (MC components) would be inaccessible during post repair pressure tests because personnel will not be able to be inside containment during a Type A integrated leak rate test (ILRT) (i.e., the pressure test). To address this limitation, ASME Code Case N-649 was issued to allow the required post-repair visual examination to be performed during *or after* the pressure test. Although IWE-5220 and Code Case N-649 allow a deferral of leakage testing after repair/replacement, the Code Case still requires a VT-1 visual examination following the repair/replacement and a VT-3 visual examination when the pressure test is performed.

In the response to an NRC request for additional information (RAI)(ADAMS Accession No. ML14051A106), the licensee stated that following the Type A pressure test for each unit, VT-3 visual examinations will be performed on the areas affected by the repair/replacement activities to meet the requirements of Code Case N-649 paragraph (a). The NRC staff reviewed the response and found it acceptable because the licensee clearly states that VT-3 visual examinations will be performed after the scheduled Type A pressure test, which meets the requirements of Code Case N-649.

The NRC staff reviewed the requirements of paragraph IWE-5240 in the 1998 Edition through 2000 Addenda and the 2001 Edition through the 2003 Addenda of the ASME Code Section XI, and found that they are identical. The NRC staff has previously identified ASME Code Case N-649 as acceptable for use, with no conditions or limitations, as stated in NRC Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," Revision 16. Based on the consistency of the ASME Section XI code versions over the time period in question, and the licensee's response to the RAI as discussed above, the NRC staff concluded that the use of Code Case N-649 is acceptable and that the proposed alternative provides an acceptable level of quality and safety. The NRC staff notes that although the use of Code Case N-649 is acceptable, the requirements of IWE-5222, "Deferral of Leakage Tests," must still be met and deferral of leakage tests are only allowed for *minor* repair/replacement activities as described in the ASME Code.

4.0 CONCLUSION

As set forth above, the NRC staff determined that the proposed alternative provides an acceptable level of quality and safety. Accordingly, the NRC staff concluded that the licensee adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(3)(i) and is in compliance with the ASME Code, Section XI requirements. All other ASME Code, Section XI requirements for which relief was not specifically requested and approved remains applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

The NRC staff authorizes the proposed alternative request (Alternative IWE1) to use Code Case N-649 at North Anna, Units 1 and 2, for the second ISI intervals, which are scheduled from October 7, 2007 to October 6, 2017, and October 12, 2008 to October 11, 2018, respectively.

Principal Contributors: B. Lehman

If you have any questions concerning this matter, please contact Dr. Sreenivas, at (301) 415-2597.

Sincerely,

/RA/

Robert J. Pascarelli, Branch Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-338 and 50-339

Enclosure:
Safety Evaluation

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ADAMS Accession No.: ML14199A456 * by memo dated 06/12/2014

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