

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

August 17, 2018

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Serial No. 18-159
NRA/DEA R0
Docket Nos. 50-338
50-339
License Nos. NPF-4
NPF-7

VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION ENERGY VIRGINIA)
NORTH ANNA POWER STATION UNITS 1 AND 2
ASME SECTION XI INSERVICE INSPECTION PROGRAM
RELIEF REQUESTS N1-I5-SPT-001 AND N2-I5-SPT-001
PROPOSED ALTERNATIVE – REACTOR VESSEL BOTTOM HEAD
VISUAL EXAMINATION

In accordance with 10 CFR 50.55a(z)(2), Dominion Energy Virginia hereby requests Nuclear Regulatory Commission (NRC) approval of proposed inservice inspection (ISI) relief requests N1-I5-SPT-001 and N2-I5-SPT-001 for North Anna Units 1 and 2. The request is for a proposed alternative to allow the Class 1 VT-2 examination of the bottom of the reactor vessel to be conducted when the containment is at atmospheric conditions. The request for alternative is provided in Attachment 1.

Approval of the proposed alternative is requested by September 1, 2019 to support the Unit 1 2019 Fall outage. If you have any questions, please contact Ms. Diane E. Aitken at (804) 273-2694.

Sincerely,



Mark Sartain
Vice President – Nuclear Engineering and Fleet Support

Attachment:

1. Relief Requests N1-I5-SPT-001 and N2-I5-SPT-001 for Proposed Alternative - Reactor Vessel Bottom Head Visual Examination

This letter contains no NRC commitments.

A047
NRR

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ATTACHMENT 1

RELIEF REQUESTS
N1-I5-SPT-001 and N2-I5-SPT-001

PROPOSED ALTERNATIVE
REACTOR VESSEL BOTTOM HEAD VISUAL EXAMINATION

VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION ENERGY VIRGINIA)
NORTH ANNA POWER STATION UNIT 1 AND UNIT 2

RELIEF REQUESTS N1-I5-SPT-001 and N2-I5-SPT-001

*Proposed Alternative
in Accordance with 10 CFR 50.55a(z)(2)
-Hardship without Compensating Increase in Quality and Safety-*

1. ASME CODE COMPONENT AFFECTED

The component associated with this request is the Class 1 reactor vessel which is accessible for examination from the bottom in the reactor vessel sump area.

1.1 Category and System Details:

Code Class:	Class 1
System:	Reactor Coolant (RC)
Examination Category:	B-P
Item Number:	B15.10

1.2 Component Description:

Reactor Vessel, 1-RC-R-1 and 2-RC-R-1

2. APPLICABLE CODE EDITION AND ADDENDA

ASME Section XI, 2013 Edition

3. APPLICABLE CODE REQUIREMENT

Category B-P, Item No. B15.10 requires a visual (VT-2) examination of the bottom of the reactor vessel during the system leakage test of IWB-5220.

4. REASON FOR REQUEST

In order to meet the Section XI pressure and temperature requirements for the system leakage test of the reactor vessel, the reactor containment at North Anna Unit 1 is required to be at a sub-atmospheric pressure. Station administrative procedures require that self contained breathing apparatus be worn for containment entries under these conditions. This requirement significantly complicates the visual (VT-2) examination of the bottom of the reactor vessel during testing. Access to the bottom of the reactor vessel requires that the examiner descend several levels by ladder and navigate a small entrance leading to the reactor vessel. In addition to these physical constraints, the examiner must contend with extreme environmental conditions: elevated air temperatures due to reactor coolant at temperatures above ≥ 350 degrees F and limited air circulation in the vessel cubicle. In addition, the examiner is limited to the approximate 30 minute capacity of the breathing apparatus to accomplish containment entry, the VT-2 examination, and containment exit.

The hardship arises less from the time constraint created by the use of bottled air or the involved radiation levels, but rather more from the environmental conditions that exist during the test. During the test, the reactor coolant system is at the operational temperature of ≥ 350 degrees F, and the containment is sub-atmospheric. Performing the examination in these conditions is complicated by the following factors:

- The need to use a self-contained breathing apparatus (SCBA) with a full-face respirator. The weight of the air bottle is approximately 25 pounds.
- Access to the bottom of the reactor vessel under sub-atmospheric conditions requires the examiner to descend several levels by ladders and to navigate a small, 2'-7.25" by 2'-0" hatch wearing the SCBA.
- The physical environment that results due to the heat generated by a reactor vessel elevated to a temperature of ≥ 350 degrees F coupled with a lack of ventilation.

These factors increase the safety hazard associated with the examination. To place the examiner under this increased risk and burden is not justified. This combination of conditions does not exist during refueling outages when the proposed alternative examination would take place. The proposed alternate examination would be performed under conditions that are safer and would allow for a more thorough examination.

5. PROPOSED ALTERNATIVE AND BASIS FOR USE

Dominion will continue to monitor leakage on the bottom of the reactor vessel with other surveillance requirements and alarms. The Improved Technical Specifications (ITS) establishes limits on RCS leakage of one gallon per minute of unidentified leakage and no identified leakage in the pressure boundary. To monitor for leakage, the ITS requires that; a) one containment sump (level or discharge flow) monitor, and; b) one containment atmosphere radioactivity monitor (gaseous or particulate) be operable during Modes 1, 2, 3, and 4. In addition, the plant must verify RCS operational leakage is within limits by performance of a RCS inventory balance at a frequency not exceeding 72 hours. The ITS also requires a containment atmosphere radioactivity monitor channel check be performed at a frequency not exceeding 12 hours. The incore sump room has a level alarm in the control room requiring operator action. Additionally, a VT-2 examination will be conducted when containment is at atmospheric conditions during each refueling for evidence of boric acid leakage. The proposed alternative will ensure that the overall level of plant quality and safety will not be compromised and eliminates the burden and hardship in performing the Code requirements.

Therefore, Dominion requests approval of this alternative pursuant to the provisions of 10 CFR 50.55a(z)(2).

6. **DURATION OF PROPOSED ALTERNATIVE**

The proposed alternative to the ASME Code is applicable for the Fifth 10-year Interval at NAPS Unit 1 (May 1, 2019 – April 30, 2029) and NAPS Unit 2 (December 14, 2020 – December 13, 2030).

7. **PRECEDENTS**

Similar alternatives were approved for North Anna Unit 1 in the fourth inspection interval (SPT-001, ADAMS # ML090890171, dated April 14, 2009) and for North Anna Unit 2 in the fourth inspection interval (N2-I4-SPT-001, ADAMS # 102510218, dated November 2, 2010).