

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

April 25, 2022

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Serial No.: 22-113
NRA/ENC: R1
Docket No.: 50-339
License No.: NPF-4

VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION ENERGY VIRGINIA)
NORTH ANNA POWER STATION UNIT 2
ASME SECTION XI INSERVICE INSPECTION PROGRAM
RELIEF REQUEST N2-I4-LMT-004
FOURTH INTERVAL THIRD PERIOD LIMITED EXAMINATIONS
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

By letter dated December 13, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21348A711), Virginia Electric and Power Company (Dominion Energy Virginia) requested relief from the examination coverage requirements of Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) for the North Anna Power Station Unit 2 (NAPS2) fourth 10-year Inservice Inspection (ISI) interval.

Pursuant to 10 CFR 50.55a(g)(5)(iii), Dominion Energy Virginia requested relief from the ASME Code, Section XI, requirement for "essentially 100 percent" volumetric examination coverage of certain risk-informed piping welds performed during ISI examinations in the third period of the fourth 10-year ISI interval for NAPS2 on the basis that the applicable ASME Code requirements are impractical. Examinations of these welds were performed to meet the requirements of the 2004 Edition of ASME Code Section XI with no Addenda and the Risk-Informed/Safety-Based Inservice Inspection (RI-ISI) Program Plan based on Code Case N-716, "Alternative Piping Classification and Examination Requirements." Limited access and configuration of these components prevents full volumetric examination coverage of these welds.

The NRC indicated additional information was necessary to complete their review of the requested alternatives by email on March 24, 2022. The NRC desires a response to their request for additional information (RAI) by April 25, 2022. The Enterprise Project Identifier (EPID) referenced for this request is L-2021-LLR-0088.

Dominion Energy Virginia's response to the NRC's RAI is provided in Attachment 1. While developing its response to the NRC's RAI, Dominion Energy Virginia identified three (3) errors in the December 13, 2021, relief request. A marked-up version of the affected pages is included in Attachment 2. A clean copy of the corrected pages is included in Attachment 3. These two (2) pages replace the same two (2) pages of the relief request submitted on December 13, 2021.

If you have any questions or require additional information, please contact Erica Combs at (804)-273-3386.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. Lawrence', written over the word 'Sincerely,'.

Douglas C. Lawrence

Vice President – Nuclear Engineering & Fleet Support
Dominion Energy Virginia

Attachments:

1. Response to NRC Request for Additional Information
2. Corrected Pages for Relief Request: N2-I4-LMT-004 (Marked-up)
3. Clean Copy of Corrected Pages for Relief Request: N2-I4-LMT-004

Commitments made in this letter: None.

cc: Regional Administrator, Region II
U. S. Nuclear Regulatory Commission
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NRC Senior Resident Inspector
North Anna Power Station

ATTACHMENT 1

Response to NRC Request for Additional Information

**Virginia Electric and Power Company
(Dominion Energy Virginia)
North Anna Power Station Unit 2**

RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION
REGARDING RELIEF REQUEST N2-I4-LMT-004:
ASME SECTION XI INSERVICE INSPECTION PROGRAM
FOURTH INTERVAL THIRD PERIOD LIMITED EXAMINATIONS

By letter dated December 13, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21348A711), Virginia Electric and Power Company (Dominion Energy Virginia) requested relief from the examination coverage requirements of Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) for the North Anna Power Station Unit 2 (NAPS2) fourth 10-year Inservice Inspection (ISI) interval.

Pursuant to 10 CFR 50.55a(g)(5)(iii), Dominion Energy Virginia requested relief from the ASME Code, Section XI, requirement for "essentially 100 percent" volumetric examination coverage of certain risk-informed piping welds performed during ISI examinations in the third period of the fourth 10-year ISI interval for NAPS2 on the basis that the applicable ASME Code requirements are impractical. Examinations of these welds were performed to meet the requirements of the 2004 Edition of ASME Code Section XI with no Addenda and the Risk-Informed/Safety-Based Inservice Inspection (RI-ISI) Program Plan based on Code Case N-716, "Alternative Piping Classification and Examination Requirements." Limited access and configuration of these components prevents full volumetric examination coverage of these welds.

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Dominion Energy Virginia's response to the NRC request for additional information (RAI) is provided below.

NRC RAI:

What are the ASME code classes for welds 10, 19, and 8 in Section R2 "Elements Subject to Intergranular or Transgranular Stress Corrosion Cracking" of the RR N2-14-LMT-003? ¹

¹ The title of Dominion Energy Virginia's letter dated December 13, 2021 (ADAMS Accession No. ML21348A711), contains a typographical error, and incorrectly states "Relief Request N2-I4-LMT-003". The corrected title is "Relief Request N2-I4-LMT-004". There are no other instances of this typographical error in the December 13, 2021, letter. The NRC's RAI refers to the incorrect title in the December 13, 2021, letter, however the NRC's RAI and Dominion Energy Virginia's response are regarding Relief Request N2-I4-LMT-004, *Fourth Interval Third Period Limited Examinations*.

Dominion Energy Virginia's Response:

The ASME Code Class for welds 10, 19, and 8 are Class 1. See table below.

Weld	Line No.	Class
10	6"-SI-416	1
19	6"-SI-532 ²	1
8	12"-SI-469	1

² The table in Section R2, "Elements Subject to Intergranular or Transgranular Stress Corrosion Cracking," of the December 13, 2021, request contains an error in which the system designation for weld 19 is incorrectly reported as "RC". The line number for weld 19 should be "6"-SI-532". This error also appears in the discussion in Section 4.R2, Impracticality of Compliance. An additional error was identified upon further review, also in the discussion in Section 4.R2, in which weld 8 is incorrectly identified as "6"-SI-469". The correct pipe size for weld 8 is 12". There is only one instance of this error and the line number for weld 8 is correctly identified as "12"-SI-469" in the remainder of the December 13, 2021, request. These errors were captured in the station's Corrective Action Program (CR1197168).

Attachment 2 of this RAI response contains marked-up copies identifying the errors in the December 13, 2021, request. Clean copies of the corrected pages are provided in Attachment 3 of this RAI response.

ATTACHMENT 2

Corrected Pages for
Relief Request: N2-I4-LMT-004 (Mark-up)

Virginia Electric and Power Company
(Dominion Energy Virginia)
North Anna Power Station Unit 2

R2. Risk-Informed Piping Welds Subject to Intergranular or Transgranular Stress Corrosion Cracking (IGSCC or TGSCC)

4.R2 IMPRACTICALITY OF COMPLIANCE

In accordance with 10 CFR 50.55a(g)(5)(iii), relief is requested from the “essentially 100 percent” volumetric examination coverage requirement for the identified piping welds. This requirement is considered impractical primarily due to single-sided access for these components.

Weld	Line No.	Scan Coverage (%) ²	Enclosure	Exam ¹	Exam Date	Angle (degree)	Mode	Frequency (MHz)
10	6"-SI-416	50% + 3.6% BE	R2-1	Up/CW/CCW Up/CW/CCW Dwn	3/21/2019	45 60 60	Shear Shear Longitudinal	1.5 1.5 2.0
19	6"-RC-532 6"-SI-532	50% + 25% BE	R2-2	Up/CW/CCW Up/CW/CCW Dwn	3/21/2019	45 60 60	Shear Shear Longitudinal	1.5 1.5 2.0
8	12"-SI-469	50% + 14.75% BE	R2-3	Up/CW/CCW Dwn	3/13/2019	45 60	Shear Longitudinal	1.5 2.0

NOTES: ¹ Up Axial scan on the upstream side of weld
Dwn Axial scan on the downstream side of weld
CW Circumferential scan in the clockwise direction
CCW Circumferential scan in the counterclockwise direction
² BE Best Effort non-Code coverage used to gain additional information

These examinations were performed manually using advanced ASME Section XI, Appendix VIII demonstrated procedures and techniques in accordance with the performance demonstration requirements. Based on access and physical limitations of these welds, alternative or other advanced technologies would not have provided complete coverage of the examination volume at the time of this examination.

The attached enclosures include the complete Ultrasonic Examination Data Record for the Category R-A, Item R1.16, examinations included in this request. The report includes

details of the UT scanning apparatus, including transducer size, frequency, angle, wave modality and insonification angles. Also included are scan plots for the examinations showing the piping configuration and percent coverage for each individual scan. There were no recordable indications identified for these examinations.

Weld 10 (6"-SI-416) was a single-sided examination due to the pipe-to-valve configuration, limiting downstream scans. Weld 10 is considered a R1.16 element subject to IGSCC as the most likely degradation mechanism. The weld is on the upstream side of Low Head SI check valve, 2-SI-125, in the safety injection pipe to RCS hot leg (29"-RC-407). An additional "Best Effort" (non-Code) scan with a 60-degree Longitudinal search unit obtained an additional 3.6 percent total coverage of the downstream side of the weld. Weld 10 in Line# 6"-SI-416, is 1,500 lb., Type 316 seamless stainless-steel piping, with welding filler metal SFA 5.4 E316L-16, SFA 5.9 ER316L, and/or SFA 5.30 1N316L procured with 8-20 FN delta ferrite and 75 ksi minimum tensile strength.

Weld 19 (6"-SI-532) was a single-sided examination due to the pipe-to-valve configuration, limiting downstream scans. Weld 19 is considered a R1.16 element subject to IGSCC as the most likely degradation mechanism. The weld is on the upstream side of Low Head SI check valve, 2-SI-106, in the safety injection pipe to the RCS cold leg (27.5"-RC-409). An additional "Best Effort" (non-Code) scan with a 60-degree Longitudinal search unit obtained an additional 25 percent total coverage of the downstream side of the weld. Weld 19 in Line# 6"-SI-532, is 1,500 lb., Type 316 seamless stainless-steel piping, with welding filler metal SFA 5.4 E316L-16, SFA 5.9 ER316L, and/or SFA 5.30 1N316L procured with 8-20 FN delta ferrite and 75 ksi minimum tensile strength.

Weld 8 (12"-SI-469) was a single-sided examination due to the elbow-to-valve configuration, limiting downstream scans. Weld 8 is considered a R1.16 element subject to IGSCC as the most likely degradation mechanism. The weld is on the upstream side of Low Head SI check valve, 2-SI-187, in the safety injection pipe to the RCS cold leg (27.5"-RC-409). An additional "Best Effort" (non-Code) scan with a 60-degree Longitudinal search unit obtained an additional 12"-SI-469 percent total coverage of the downstream side of the weld. Weld 8 in Line# 6"-SI-416, is 1,500 lb., Type 316 seamless stainless-steel piping, with welding filler metal SFA 5.4 E316L-16, SFA 5.9 ER316L, and/or SFA 5.30 1N316L procured with 8-20 FN delta ferrite and 75 ksi min tensile strength.

Similar relief was granted for NAPS1 weld 12 (6"-SI-133), 50 percent coverage, during the Fourth Interval [Reference 8]. Relief was granted for three similar welds for the NAPS2 Third Interval [Reference 5].

ATTACHMENT 3

Clean Copy of Corrected Pages for
Relief Request: N2-I4-LMT-004

Virginia Electric and Power Company
(Dominion Energy Virginia)
North Anna Power Station Unit 2

R2. Risk-Informed Piping Welds Subject to Intergranular or Transgranular Stress Corrosion Cracking (IGSCC or TGSCC)

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				Up/CW/CCW	3/21/2019	60	Shear	1.5
				Dwn	3/21/2019	60	Longitudinal	2.0
19	6"-SI-532	50% + 25% BE	R2-2	Up/CW/CCW	3/21/2019	45	Shear	1.5
				Up/CW/CCW	3/21/2019	60	Shear	1.5
				Dwn	3/21/2019	60	Longitudinal	2.0
8	12"-SI-469	50% + 14.75% BE	R2-3	Up/CW/CCW	3/13/2019	45	Shear	1.5
				Dwn		60	Longitudinal	2.0

NOTES:

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These examinations were performed manually using advanced ASME Section XI, Appendix VIII demonstrated procedures and techniques in accordance with the performance demonstration requirements. Based on access and physical limitations of these welds, alternative or other advanced technologies would not have provided complete coverage of the examination volume at the time of this examination.

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