March 26, 2001

Mr. David A. Christian
Senior Vice President - Nuclear
Virginia Electric and Power Company
5000 Dominion Blvd.
Glen Allen, Virginia 23060

SUBJECT: NORTH ANNA POWER STATION UNIT 1 RE: ASME SECTION XI INSERVICE INSPECTION (ISI) PROGRAM RELIEF REQUEST NDE-49 (TAC NO. MB0393)

Dear Mr. Christian:

This letter grants the relief you requested for NDE-49 for North Anna Power Station, Unit 1.

By letter dated October 25, 2000, Virginia Electric and Power Company (VEPCO) requested relief from the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI requirement of 100-percent volumetric examination of the reactor vessel circumferential lower head weld 8. Interference from a flux thimble tube had prevented the complete examination of the weld.

Our evaluation and conclusion are contained in the enclosed Safety Evaluation. The staff has concluded that the requirements of Section XI of the ASME Code are impractical for the subject weld and reasonable assurance of structural integrity is provided by the completed examinations. The relief you requested is authorized pursuant to Title 10 of the *Code of Federal Regulations* Section 50.55a(g)(6)(i) for the second 10-year ISI interval.

The staff has completed its evaluation of this request; therefore, we are closing TAC No. MB0393.

Sincerely,

/RA/

Maitri Banerjee, Chief, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-338

Enclosure: As stated

cc w/encl: See next page

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Virginia Electric and Power Company

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REQUEST FOR RELIEF NDE-49

SECOND 10-YEAR INTERVAL INSERVICE INSPECTION

NORTH ANNA POWER STATION, UNIT 1

VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NO. 50-338

1.0 INTRODUCTION

The inservice inspection (ISI) of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components is to be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel (B&PV) Code and applicable addenda as required by Title 10 of the *Code of Federal Regulations (*10 CFR) Section 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i).

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, "Rules for Inservice Inspection of Nuclear Power Plant Components," 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 Code of record for the North Anna Power Station, Unit 1, second 10-year ISI interval is the 1983 Edition of the ASME B&PV Code.

Pursuant to 10 CFR 50.55a(g)(5), if the licensee determines that conformance with an examination requirement of Section XI of the ASME Code is not practical for its facility, information shall be submitted to the Commission in support of that determination and a request made for relief from the ASME Code requirement. After evaluation of the determination, pursuant to 10 CFR 50.55a(g)(6)(i), the Commission may grant relief and may impose alternative requirements that are determined to be authorized by law, will not endanger life, property, or the common defense and security, and are otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed.

By letter dated October 25, 2000, Virginia Electric and Power Company, licensee for North Anna Power Station, Unit 1, submitted Request For Relief NDE-49 for the second 10-year interval. This request pertains to relief from performing the Code required 100 percent examination of the Reactor Vessel Circumferential Lower Head Weld 8.

2.0 EVALUATION

2.1 Request for Relief NDE-49 Examination Category B-A, Item B1.21 Lower Head Circumferential Weld

2.2 Code Requirement: The 1983 Edition of ASME Section XI, Table IWB-2500-1, Examination Category B-A, Item Number B 1.21, does not allow any limitations to the required volumetric examinations. Code Case N-460, Alternative Examination Coverage for Class 1 and Class 2 Welds, which has been approved for use by NRC in Regulatory Guide 1.147, allows a reduction in coverage if the reduction is less than 10 percent.

2.3 Licensee's Code Relief Request: Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee requested relief from performing the Code-required essentially 100-percent volumetric examination of the Reactor Vessel Circumferential Lower Head Weld 8, a class 1 weld.

2.4 Licensee's Basis for Requesting Relief:

> Weld 8 has been examined to the extent practical as required by the Code. Due to an obstruction from a flux thimble tube near Weld 8 the reduction in the required volumetric coverage was greater than 10% for the entire weld. Table NDE-49-1 is provided detailing the limitations experienced. An amplifying sketch [Sketch NDE-49-1, attached] is also provided. The upper sketch details the obstructed area for the perpendicular scan between 8.13° and 26.57°. No obstructions were experienced for the remainder of the weld for perpendicular scans. The lower sketch details the obstructed area for the circumferential scan between 308.66° and 26.57°. No obstructions were experienced for the remainder of the weld for circumferential scans.

2.5 Licensee's Proposed Alternative Examination:

> It is proposed that the examinations already completed at the reduced coverage be counted as meeting the Code requirements.

2.6 Staff Evaluation: The Code requires 100-percent volumetric examination of the subject Reactor Vessel Circumferential Lower Head Weld. Sketch NDE-49-1 of Weld 8 shows that limited coverage is due to interference by the flux thimble tube that limits examination of the subject weld. These limitations make the 100-percent volumetric examination impractical. To gain access for examination, the subject Reactor Vessel Circumferential Lower Head Weld would require design modifications. Imposition of this requirement would create an undue burden on the licensee.

The licensee has examined a significant portion of this weld, as shown on Table NDE-49-1 (attached), obtaining 80.5% volumetric coverage. Based on the coverage obtained, it is concluded that any existing patterns of degradation would have been detected by the examination completed, and reasonable assurance of the structural integrity has been provided.

3.0 CONCLUSION

The staff has evaluated the licensee's submittal and concludes that certain inservice examinations cannot be performed to the extent required by the Code at the North Anna Power Station, Unit 1. For Request for Relief NDE-49, the staff concludes that the Code requirement is impractical for the subject weld and the examination performed provides reasonable assurance of structural integrity. Therefore, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i) for the second 10-year ISI interval. The staff has determined that this grant of relief is authorized by law and will not endanger life or property, or the common defense and security and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

Principal Contributor: T. McLellan

Date: March 26, 2001