



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SECOND 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM AND PLAN

VIRGINIA ELECTRIC AND POWER COMPANY

NORTH ANNA POWER STATION, UNIT NO. 1

DOCKET NO. 50-338

1.0 INTRODUCTION

By letter dated November 21, 1990, Virginia Electric and Power Company (the licensee) submitted the Second 10-Year Interval Inservice Inspection Program, Revision 1. On December 10, 1990, the licensee submitted the Second 10-Year Interval Inservice Inspection Plan, Revision 0. Included in these submittals were requests for relief from the ASME Code Section XI requirements that the licensee determined to be impractical. By letter dated April 11, 1991, the NRC staff requested additional information from the licensee. On May 31, 1991, the licensee provided the requested information, as well as Revision 2 to the Second 10-Year Interval Inservice Inspection Program and Revision 1 to the Second 10-Year Interval Inservice Inspection Plan. In addition, as a result of telephone conversations with the licensee on October 28 and 29, 1991, Relief Request NDE-16 was withdrawn. By letter dated November 27, 1991, the licensee submitted Relief Request NDE-17.

Technical Specification 4.0.5 for the North Anna Power Station, Unit 1, states that inservice inspection and testing of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). 10 CFR 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be authorized if (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 difficulties without a compensating increase in the level of quality and safety.

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 preservice 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 second 10-year interval 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) on the date 12 months prior to the start of the

120-month inspection interval, subject to the limitations and modifications listed therein. The components (including supports) may meet the requirements set forth in subsequent editions and addenda of the ASME Code incorporated by reference in 10 CFR 50.55a(b), subject to the limitations and modifications listed therein.

Pursuant to 10 CFR 50.55a(g)(5)(iii), if the licensee determines that conformance with an examination requirement of Section XI of the ASME Code is not practical for his 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.

The licensee, Virginia Electric and Power Company, has prepared the North Anna Power Station, Unit 1, Second 10-Year Interval Inservice Inspection (ISI) Program, Revision 2, and Plan, Revision 1, to meet the requirements of the 1983 Edition, Summer 1983 Addenda of Section XI of the ASME Boiler and Pressure Vessel Code, except that Class 2 carbon steel piping welds have been selected based on the requirements of the 1974 Edition, Summer 1975 Addenda as required by 10 CFR 50.55a(b)(2)(iv)(B). Class 2 stainless steel piping welds have been selected based on the requirements of ASME Code Case N-408 as allowed by NRC Regulatory Guide 1.147.

The staff, with technical assistance from its contractor, the Idaho National Engineering Laboratory (INEL), has evaluated the Second 10-Year Interval ISI Program, Revisions 1 and 2, and Plan, Revisions 0 and 1, additional information related to the Program and Plan submitted in letters dated May 31, 1991, and November 27, 1991, and the requests for relief from certain ASME Code requirements determined to be impractical for the North Anna Power Station, Unit 1, during the second inspection interval.

2.0 EVALUATION

The ISI Program and Plan have been evaluated for (a) application of the correct Section XI Code edition and addenda, (b) compliance with examination and test requirements of Section XI, (c) acceptability of the examination sample, (d) compliance with prior ISI commitments made by the licensee, (e) correctness of the application of system or component examination exclusion criteria, and (f) adequate information in support of requests for relief from certain Section XI Code requirements deemed impractical by the licensee. The staff has determined that the licensee's ISI Program and Plan reflect compliance with the requirements listed above.

The information provided by the licensee in support of requests for relief from certain Section XI requirements has been evaluated and the bases for granting relief from those requirements are documented in the attached INEL Technical Evaluation Report (TER) EGG-MS-9858. The NRC staff concurs with the findings and recommendations contained in the subject report. Table 1 presents a summary of the reliefs requested and the status of the requests as determined by the staff.

3.0 CONCLUSION

Pursuant to 10 CFR 50.55a(g)(6)(i), Requests for Relief NDE-7 through NDE-9, NDE-15, NDE-17, and SPT-1 (parts 1&2) through SPT-9 are granted as requested and NDE-5, NDE-6, NDE-13 and SPT-11 are granted with conditions as specified in the attached TER. The staff has determined that certain Section XI required inservice inspections cannot be performed to the full extent required by Section XI. Such reliefs are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest.

Pursuant to 10 CFR 50.55a(a)(3)(i), Requests for Relief NDE-4, NDE-14, CS-1 and CS-2 are authorized as the licensee's proposed alternative requirements provide an acceptable level of quality and safety. Requests for Relief NDE-3 and NDE-11 are authorized pursuant to 10 CFR 50.55a(a)(3)(ii) as compliance with the specified requirements would result in hardship or unusual difficulties without a compensating increase in the level of safety and quality.

Requests for Relief NDE-1, NDE-2, NDE-10, NDE-16 and SPT-10 were withdrawn by the licensee. Request for Relief NDE-12 (use of a Code Case previously approved by the NRC) did not require relief and no action was taken.

The staff concludes that the North Anna Power Station, Unit 1, Second 10-Year Interval Inservice Inspection Program, Revision 2, and Plan, Revision 1, with the additional information provided, the specific written relief, and the authorized alternative inspection requirements, constitutes the basis for compliance with 10 CFR 50.55a(g) and Technical Specification 4.0.5 and are therefore acceptable.

Principal Contributor: D. Smith

Date: April 7, 1992

TABLE 1
SUMMARY OF RELIEF REQUESTS

<u>Relief Request Number</u>	<u>System or Component</u>	<u>Exam. Cat.</u>	<u>Item No.</u>	<u>Volume or Area to be Examined</u>	<u>Required Method</u>	<u>Licensee Proposed Alternative</u>	<u>Relief Request Status</u>
NDE-1	Pressurizer	B-D	B3.110	Nozzle-to-vessel weld	Volumetric exam		Withdrawn in 5/31/91 submittal
NDE-2 (Parts 1, 2, and 3)	Pressurizer and Steam Generator	B-D C-B	B3.120 B3.140 C2.22	Nozzle inside radius sections	Volumetric exam		Withdrawn 5/31/91 submittal
NDE-3	Reactor Pressure Vessel	B-G-1	B6.40	Vessel flange threads	Volumetric exam	Examine 50% first period, 50% end of interval	Granted
NDE-4	Class 1 Piping	B-J		Selection of Class 1 piping for examination	Selection based on Note 1(b) and 2 of Table IWB-2500-1	25% sample will include terminal ends and be evenly distributed based on line size, function and design.	Granted

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NDE-5	Reactor Coolant Pumps	B-L-1	B12.10	Pump casing welds	Volumetric exam	Surface exam of external casing weld, visual exam of external surfaces	Granted with conditions stated in the Technical Evaluation Report (TER)
		B-L-2	B12.20	Pump casing internal surfaces	VT-3 visual exam		
NDE-6	Class 1 Valves	B-M-2	B12.50	Valve body internal surfaces	VT-3 visual exam	None. Code required visual exam if valve disassembled for maintenance	Granted with conditions stated in TER
NDE-7	Main Steam System	C-F	C5.31	Relief header branch connection welds: SW-52 to SW-56 SW-15 to SW-17 SW-40W to SW-41W SW-32W to SW-35W and SW-18W	Surface exam	Surface exam of reinforcement pad fillet weld	Granted
NDE-8	Recirc. Spray Pumps	C-G	C6.10	Pumps 2A and 2B casing welds: SW-1, SW-2, SW-3, LS-6, LS-7, LS-8, LS-9 (partial access), LS-10 (partial access)	Surface exam	None. Surface exam of accessible portions; remote visual of inside if disassembled	Granted

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NDE-9	Low Head Safety Injection Pumps	C-6	C6.10	Pumps 1A and 1B casing welds: 1, 2, 3, LS-1, LS-2, LS-3, LS-4 (partial access), LS-5 (partial access)	Surface exam	None. Surface exam of accessible portions; remote visual of inside if disassembled	Granted
NDE-10	Auxiliary Feedwater System			1-inch NPS integral attachment welds	VT-3 visual exam		Withdrawn in 5/31/91 submittal
NDE-11	Ultrasonic Calibration Blocks			Fabrication of ultrasonic calibration blocks	IWA-2232(a) IWA-2232(c) (4)	Code Case N-461	Granted with conditions stated in the TER
NDE-12	Class 1 and 2 Piping			Essentially 100% coverage requirements	100% coverage	Code Case N-460	Relief not required
NDE-13	Class 1 and 2 Systems			Weld reference system	IWA-2610	Weld reference system will be established as welds are examined	Granted with conditions of the TER

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NDE-14	Reactor Pressure Vessel			RPV weld reference system	IWA-2600	None. Automated vessel tool use with existing zero reference	Granted
NDE-15	Steam Generator	B-D	B3.140	Primary side nozzle inside radius sections on 1-RC-E-1A, -1B, and -1C: 11 NIR and 12 NIR	Volumetric exam	VT-1 visual exam from the inside using direct or remote techniques	Granted
NDE-16	Pressurizer	B-D	B3.120	Nozzle inner radius sections	Volumetric exam		Withdrawn in 11/27/91 submittal
NDE-17	Pressurizer	B-D	B3.110 B3.120	Surge line nozzle-to-vessel weld No. 9 and inside radius section 9NIR	Volumetric exam	None.	Granted
SPT-1 (Parts 1 & 2)	Chemical and Volume Control System	B-P C-H		Class 1 and 2 CVC piping (see TER for specific line and boundary information)	Hydro test per IWB-5222 and IWC-5222	None. Normal system leakage test	Granted

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SPT-2	Chemical and Volume Control System	B-P		Class 1 CVC piping (see TER for specific line and boundary information)	Hydro test per IWB-5222 (2550 psig)	Test at a pressure between 2300 and 2335 psig	Granted
SPT-3	Residual Heat Removal System	B-P		Class 1 RHR line 24"-RH-1-1502 between valves 1-RH-MOV-1700 and 1-RH-MOV-1701	Hydro test per IWB-5222	Hydrostatic test per IWC-5222	Granted
SPT-4	Safety Injection System	B-P		Class 1 SI piping (see TER for specific line and boundary information)	Hydro test per IWB-5222 (2432 psig)	Test at a pressure between 2300 and 2335 psig	Granted
SPT-5	Chemical and Volume Control System	C-H		Class 2 CVC piping (see TER for specific line and boundary information)	Hydro test per IWC-5222 (3419 psig)	Test at a pressure between 2300 and 2335 psig	Granted
SPT-6	Safety Injection System	C-H		Class 2 SI piping (see TER for specific line and boundary information)	Hydro test per IWC-5222 (2733 psig)	Test at pressure between 2300 and 2335 psig	Granted

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SPT-7	Safety Injection System	C-H		Class 2 SI piping (see TER for specific line and boundary information)	Hydr. test per IWC-5222	Hydro at Class 1 pressure (IWB-5222)	Granted
SPT-8	Steam Generators and Class 2 Piping	C-H		Secondary side of the steam generators and attached Class 2 unisolatable piping (see TER for specific line and boundary information)	Hydro test per IWC-5222	Use Westinghouse SG Technical Manual for pressure, and hold time	Granted
SPT-9	Feedwater System			Class 3 feedwater piping (see TER for specific line and boundary information)	Hydro test per IWD-5223	Use Westinghouse SG Technical Manual for pressure, and hold time	Granted
SPT-10	Class 1, 2, and 3 Piping				Hydro tests per IWB, IWC, and IWD requirements		Withdrawn in 5/31/91 submittal

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SPT-11	Reactor Pressure Vessel	B-E	B4.13	Instrumentation nozzle partial penetration welds	VT-2 visual exam during system pressure tests (sub-atmospheric)	VT-2 visual each refueling, when containment is at atmospheric conditions	Granted
		B-P	B15.10 B15.11	Pressure retaining boundary during leakage test			
CS-1	Class 1, 2, and 3 Component Supports			Exemption, selection and examination requirements for component supports	Select supports of those components req'd under IWB, IWC and IWD	Proposed Code Case WGCS 89-1(b) and 1990 Addenda	Granted
CS-2	Class 1, 2, and 3 Component Supports	F-C	F3.50	Spring type, constant load type, shock absorbers, and hydraulic and mechanical type snubbers	VT-3 and VT-4 visual examinations	VT-3 visual exam per Winter 84 Addenda	Granted