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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

OF THE SECOND TEN-YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN

DUKE POWER COMPANY

DOCKET NOS. 50-269, 50-270 AND 50-287

OCONEE NUCLEAR STATION, UNITS 1, 2 AND 3

1. INTRODUCTION

Technical Specification 4.2.1 for the Oconee Nuclear Station, Units 1, 2, and 3, states that the surveillance requirements for Inservice Inspection and Testing of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Class 1, 2, and 3 components shall be applicable as follows: Inservice Inspection of ASME Code Class 1, 2, and 3 components shall be performed in accordance with Section XI of the ASME 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 used if (1) the proposed alternatives would provide an acceptable level of quality and safety, or (2) 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 ten-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 twelve 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), 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 or 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 reqirements were imposed.

On December 2, 1983, the licensee, Duke Power Company, requested the approval of a common ISI interval start date of April 1, 1984, for all three Oconee units. The ASME Code edition and addenda applicable for an inspection interval with a start date of April 1, 1984, would be the 1980 Edition, Winter 1981 Addenda. This request was approved by the NRC staff on November 7, 1984. Subsequent to this approval, the licensee submitted a request on January 23, 1986, to move the interval start date back by one month to March 1, 1984.

Based on the start date of March 1, 1984, the licensee has prepared the Oconee Nuclear Station, Units 1, 2, and 3, Second Ten-Year Interval Inservice Inspection (ISI) Program Plan to meet the requirements of the 1980 Edition, Winter 1980 Addenda, of Section XI of the ASME Boiler and Pressure Vessel Code, except that the extent of examination of Class 2 piping welds in the Residual Heat Removal, Emergency Core Cooling, and Containment Heat Removal systems has been determined by the 1974 Edition, Summer 1975 Addenda, as required by 10 CFR 50.55a(b)(2)(iv)(A) and Category D-B examinations will be performed according to the 1980 Edition, Winter 1982 Addenda. Use of this later Code edition is acceptable provided all related requirements of the later addenda are met pursuant to 10 CFR 50.55a(g)(4)(iv).

The NRC staff, with technical assistance from its contractor, Science Applications International Corporation (SAIC), has evaluated the Second Ten-Year Interval Inservice Inspection Program Plan, additional information related to the Program Plan, and the requests for relief from certain ASME Code requirements determined to be impractical or unnecessary for the Oconee Nuclear Station, Units 1, 2, and 3, during the second inspection interval.

2.0 EVALUATION

The ISI Program Plan has 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 impractical Section XI Code requirements. The staff has determined that the licensee's ISI Program Plan, with the exception of the denied relief requests, reflects compliance with the requirements listed above.

The licensee's January 23, 1986, request to move the interval start date back by one month to March 1, 1984 and, therefore, to use the 1980 Edition, Winter 1980 Addenda, of the ASME Section XI Code in lieu of the 1980 Edition, Winter 1981 Addenda, is acceptable as the differences in the subject codes are administrative in nature, with no substantive technical differences.

The information provided by the licensee in support of requests for relief from impractical requirements has been evaluated and the bases for granting relief from those requirements are documented in SAIC's Technical Evaluation Report (TER) SAIC-88/1942. We concur with and adopt the findings and recommendations contained in the subject report. Table 1 of this Safety Evaluation presents a summary of the reliefs requested and the status of the requests as determined by the NRC staff.

3.0 CONCLUSION

The NRC staff concludes that the Oconee Nuclear Station, Units 1, 2, and 3, Second Ten-Year Interval Inservice Inspection Program Plan, with the additional information provided and the specific written relief, constitutes the basis for compliance with 10 CFR 50.55a(g) and Technical Specification 4.2.1 and is therefore acceptable, with the exception of the denied relief requests. We have determined that certain requirements of Section XI of the ASME Code for which the licensee has requested relief are either impractical or unnecessary to perform at the Oconee Nuclear Station, and the alternate examinations specified in the licensee's submittals ensure an acceptable level of structural integrity of the subject components. The alternate methods of examination are acceptable as discussed in the TER and are imposed in lieu of the applicable Code requirements. For these requirements, relief from the Code requirements is granted as requested, or with conditions as specified in Table 1, pursuant to 10 CFR 50.55a(a)(3)i, 50.55a(a)(3)ii, and 50.55a(g)(6)(i). The specific section is identified in Table 1. This 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 given due consideration to the burden that could result if the requirements were imposed on the facility.

Dated:

Principal Contributors: G. Johnson
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TABLE 1

SUMMARY OF RELIEF REQUESTS

Relief Request Number	System or Component	Exam. Cat.	Item No.	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
ONS-001 (Units 1, 2, and 3)	Class 1 Piping	B-F	B5.10	RPV core flood nozzle-to-safe end welds (2 each unit)	Volumetric and surface examinations	Volumetric examination from ID	Granted with conditions (NOTES 1 and 7)
ONS-002 (Units 1, 2, and 3)	Class 1 Piping	B-J	B9.11	Four inlet and two outlet nozzle-to-pipe welds in the RC System	Volumetric and surface examinations	Volumetric examination from ID	Granted with conditions (NOTES 1, 2 and 7)
ONS-003 (Units 1, 2, and 3)	Reactor Coolant System	UT calibration blocks for ferritic steel main loop welds			Cal. blocks made from material of same nom. diam. and wall thick.	UT Cal. block 40350 used for ferritic steel RC piping welds	Denied
ONS-004 (Units 1, 2, and 3)	Pressurizer and Steam Generator	UT calibration blocks for examination of Pressurizer and Steam Generator welds			Cal. blocks made from a nozzle dropout or material of same spec., product form, and heat treatment	Use existing calibration blocks	Denied

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SUMMARY OF RELIEF REQUESTS

Relief Request Number	System or Component	Exam. Cat.	Item No.	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
ONS-005 (Units 1, 2, and 3)	Reactor Coolant System	Class 1 piping between valves: 1RC-4 & 1RC-66 (SYS 50, ISO 47, Unit 1) 2RC-4 & 2RC-66 (SYS 50, ISO 44, Unit 2) 3RC-4 & 3RV-67 (SYS 50, ISO 45, Unit 3)			Hydrostatic test per IWB-5222	Surface exam. of welds between valves at or near the end of the interval	Granted (NOTE 9)
ONS-006 (Units 1, 2, and 3)	Class 2 Piping	C-F	C5.11	Containment spray system piping welds from valves BS-14 and BS-19 to spray nozzles, and reactor building emergency sump piping welds to valves LP-19 and LP-20	Surface examination	None	Denied for the CS system piping welds; Granted for the emergency sump line welds embedded in concrete, with condition (NOTE 9 and 10)
ONS-007 and ONS-008 (Units 2 and 3)	Reactor Coolant Pumps	B-L-1	B12.10	Pump casing welds	Volumetric examination	Volumetric exam. to maximum extent practical	Granted (NOTE 9)
		B-L-2	B12.20	Pump casing internal surfaces	VT-3 visual examination	VT-3 exam. to maximum extent practical	

TABLE 1

SUMMARY OF RELIEF REQUESTS

Relief Request Number	System or Component	Exam. Cat.	Item No.	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
Section 3.4.1.2 of TER (Unit 1)	Low Pressure Injection System			Class 1 repair welds associated with check valve 1LP-46 (1-1/2 inch valve)	Hydrostatic test after repairs	Surface examination of the replacement socket welds	Granted with conditions (NOTE 3 and 8)
Section 3.4.1.3 of TER (Unit 2)	Low Pressure Injection System			Class 1 repair welds associated with check valve 2LP-45	Hydrostatic test after repairs	System functional test during next cold shutdown of sufficient duration	Relief not required (valve 2LP-45 replaced, see Section 3.4.1.5 of TER)
Section 3.4.1.4 of TER (Unit 2)	High Pressure Injection System			Class 1 repair welds associated with 4-inch check valve 2HP-188	Hydrostatic test after repairs	System functional test during next refueling outage	Granted with conditions (NOTE 4 and 8)
Section 3.4.1.5 of TER (Units 1 and 2)	Low Pressure Injection System			Class 1 and 2 repair welds assoc. with check valve LP-131 and gate valves LP-132 and LP-133	Hydrostatic test after repairs	Penetrant examination and inservice leak test	Granted with conditions (NOTE 5 and 8)

TABLE 1

SUMMARY OF RELIEF REQUESTS

Relief Request Number	System or Component	Exam. Cat.	Item No.	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
Section 3.4.2.1 of TER (Unit 3)	Steam Generator Drain Lines			Class 2 Steam generator drain lines between 3A OTSG and 3FDW-144	Hydrostatic test after repairs	Penetrant exam. and system pressure test prior to startup	Granted with conditions (NOTE 5 and 7)
Section 3.4.2.2 of TER (Unit 2)	Main Steam			Class 2 repair welds associated with MS Power Operated valve 2MS-84	Hydrostatic test after repairs	100% radiographic exam. of welds	Granted with conditions (NOTE 6 and 7)
Section 3.4.2.3 of TER (Unit 3)	Low Pressure Service Water			Class 2 repair welds associated with LPSW valve 3LPSW-15	Hydrostatic test after repairs	100% radiographic exam. and system inservice test	Granted with conditions (NOTE 6 and 7)
Section 3.4.2.4 of TER (Unit 2)	Low Pressure Injection System			Class 2 repair welds associated with 14-inch gate valve 2LP-19	Hydrostatic test after repairs	System functional test during next refueling outage	Denied
Section 3.4.2.5 of TER (Unit 1)	Feedwater System			Class 2 repair weld 30B	Hydrostatic test after repairs	Radiographic and VT-2 visual examinations	Granted with conditions (NOTE 6 and 7).

TABLE 1

SUMMARY OF RELIEF REQUESTS

Relief Request Number	System or Component	Exam. Cat.	Item No.	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
Section 3.4.2.6 of TER (Unit 1)	Low Pressure Service Water System			Class 2 repair welds 31 and 32 associated with valve 1LPSW-6	Hydrostatic test after repairs	Radiographic and VT-2 visual examinations	Granted with conditions (NOTE 6 and 7)
Section 3.4.2.7 of TER (Unit 1)	Low Pressure Service Water System			Class 2 and 3 repair welds associated with valve 1LPSW-15	Hydrostatic test after repairs	Radiographic examination and system inservice leak test	Granted with conditions (NOTE 6 and 7)
Section 3.4.2.8 of TER (Unit 1)	Feedwater System			Class 2 repair welds associated with valves 1FDW-207 and 1FDW-209	Hydrostatic test after repairs	Surface exam. and VT-2 visual exam. during hot shutdown	Granted with conditions (NOTE 5 and 7)
Section 3.4.2.9 of TER (Unit 2)	Feedwater System			Class 2 repair welds associated with valves 2FDW-206, 2FDW-209, and 2FDW-144	Hydrostatic test after repairs	Surface examination and system inservice test	Granted with conditions (NOTE 5 and 7)

TABLE 1

SUMMARY OF RELIEF REQUESTS

Relief Request Number	System or Component	Exam. Cat.	Item No.	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
Section 3.4.3.1 of TER (Units 1, 2, and 3)	Emergency Feedwater System			Class 3 piping downstream of valves FDW-372 and FDW-382	System inservice test	None	Granted (NOTE 9)
Section 3.4.3.2 of TER (Units 1, 2, and 3)	Reactor Building Hydrogen Purge Cart			Pressure testing of the Class 3 reactor building hydrogen purge cart	Boundary for pressure test per IWA-5224(d)	Visual examination	Relief not required
Section 3.4.3.3 of TER (Units 1, 2, and 3)	Penetration Room Ventilation System			Class 3 penetration room ventilation system	System pressure test	None	Granted, with condition (NOTE 9 and 11)
Section 3.4.3.4 of TER (Units 1, 2, and 3)	Purif. Demin. System			Class 3 purification demineralizer piping	VT-2 visual examination during hydrostatic test	Hydrostatically tested by performing a pressure drop test	Granted (NOTE 9)

TABLE 1

SUMMARY OF RELIEF REQUESTS

Relief Request Number	System or Component	Exam. Cat.	Item No.	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
Section 3.4.3.5 of TER (Unit 1)	Emergency FW Pump Turbine Steam Drain			Class 3 Velan Model WH-254B-2TY gate valve 1SD43 (3/4-inch valve)	Hydrostatic test after repairs	Liquid penetrant exam. of welds and system inservice test	Relief not required
Section 3.4.3.6 of TER (Unit 1)	Emergency FW Pump Turbine Oil Cooler Pump			Class 3 suction line tie-in weld to the 78-inch condenser circulating water line	Hydrostatic test after repairs	Liquid penetrant exam. of welds and system inservice test	Granted (NOTE 9)
Section 3.4.3.7 of TER (Unit 1)	Auxiliary Steam System			Class 3 repair welds associated with auxiliary steam check valve 1AS-39	Hydrostatic test after repairs	Weld radiography and a system inservice test	Granted (NOTE 9)
Section 3.4.3.8 of TER (Unit 3)	Main Steam System			Class 3 repair welds associated with main steam check valves 3MS-83 and 3MS-85	Hydrostatic test after repairs	Weld radiography and a system inservice test	Granted (NOTE 9)
Section 3.4.3.9 of TER (Unit 1)	Spent Fuel Cooling System			Class 3 repair welds associated with valve 1SF-65	Hydrostatic test after repairs	System functional test	Granted (NOTE 9)

TABLE 1

SUMMARY OF RELIEF REQUESTS

Relief Request Number	System or Component	Exam. Cat.	Item No.	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
Section 3.4.3.10 of TER (Unit 2)	Main Steam System			Class 3 repair welds associated with MS check valves 2MS-83 and 2MS-85	Hydrostatic test after repairs	Weld radiography and system inservice test	Granted (NOTE 9)
Section 3.5.3 of TER (Units 1, 2, and 3)	Start date and applicable Code for the second ten-year inspection interval: Relief is requested from the requirements of Paragraph IWA-2400(b) and from 10 CFR 50.55a(g)(4)(ii). Instead of beginning April 1, 1984, and applying the 1980 Edition, Winter 1981 Addenda, as approved on November 7, 1984, the second interval will begin March 1, 1984 and the 1980 Edition, Winter 1980 Addenda will be applied.						Granted (NOTE 8)
Section 3.6.1 of TER (Units 1, 2, and 3)	Snubbers			Inservice testing requirements (snubber functional testing program)	Articles IWF-5300 and IWF-5400	Hydraulic and mechanical snubbers tested in accordance with Technical Specification 4.18	Denied

TABLE 1

SUMMARY OF RELIEF REQUESTS

NOTE 1: The proposed alternative of an ID volumetric examination is acceptable only if the Licensee meets the following conditions:
(a) The remote volumetric examination includes the entire weld volume and heat affected zone instead of only the inner one-third of the weld; and
(b) The ultrasonic testing instrumentation and procedure are demonstrated to be capable of detecting O.D. surface-connected defects, in the circumferential orientation, in a laboratory test block. The defects should be cracks and not machined notches.

NOTE 2: The proposed alternative examination should be performed in accordance with the scheduling requirements given in Table IWB-2412-1.

NOTE 3: The proposed alternative examination is acceptable provided that, if there are full penetration repair welds associated with valve 1LP-46, a volumetric examination should be performed.

NOTE 4: The proposed alternative examination is acceptable provided that:
(a) for partial penetration repair welds, a surface examination is performed,
(b) for full penetration repair welds, a volumetric examination is performed, and
(c) a visual examination is performed at operating temperature and pressure.

NOTE 5: The proposed alternative examination is acceptable provided that, if the repair areas are full penetration welds, the volumetric examinations required by ASME Code Case N-416 are performed on both the Class 1 and Class 2 welds.

NOTE 6: The proposed alternative examination is acceptable provided that, if the repair areas are partial penetration welds, the surface examinations required by ASME Code Case N-416 are performed.

NOTE 7: Relief granted in accordance with 10 CFR 50.55a(a)(3)i

NOTE 8: Relief granted in accordance with 10 CFR 50.55a(a)(3)ii

NOTE 9: Relief granted in accordance with 10 CFR 50.55a(g)(6)(i)

NOTE 10: The flow tests required by IWC-5221 and IWC-5222 are to be performed.

NOTE 11: Confirmation of adequate flow during system operation is to be obtained in lieu of pressure testing.