



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

REQUEST FOR RELIEF 93-11

FOR

DUKE POWER COMPANY

OCONEE NUCLEAR STATION, UNITS 1 AND 2

DOCKET NOS. 50-269 AND 50-270

1.0 INTRODUCTION

The Technical Specifications for Oconee Nuclear Station state that the 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 Title 10 of the Code of Federal Regulations (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). Section 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, 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 applicable edition of Section XI of the ASME Code for the Oconee Nuclear Station, second 10-year inservice inspection (ISI) interval is the 1980 Edition through Winter 1980 Addenda. 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.

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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.

In its letter dated November 10, 1993, Duke Power Company (the licensee) submitted Request for Relief No. 93-11, asking relief from the periodic hydrostatic pressure testing requirements of the ASME Code for portions of the Class 3 feedwater piping which are unisolable from the steam generators. In the May 24, 1994, letter, which corrected a commitment in the May 17, 1994, letter, the licensee committed to perform a volumetric examination of 25 percent of the welds within the system boundary covered by the relief request.

## 2.0 EVALUATION

The staff has evaluated the information provided by the licensee in support of Request for Relief 93-11 as follows:

### Code Requirement:

Table IWD-2500-1 requires a system hydrostatic pressure test of Class 3 pressure-retaining components once each 10-year inspection interval in accordance with IWD-5223.

### Licensee's Code Relief Request:

The licensee requested relief from performing the Code-required system hydrostatic pressure test of portions of the Class 3 feedwater piping between Valves FDW-32, FDW-36, FDW-37, FDW-127, and FDW-245, and between Valves FDW-41, FDW-45, FDW-46, FDW-216, and FDW-251 for Units 1 and 2.

### Licensee's Basis for Requesting Relief (as stated):

Consistent with the philosophy of ASME Code Case N-498, this request is premised upon performing a VT-2 examination at normal operating pressures in lieu of the ten year ISI hydrostatic test. Hydro testing this Class 3 portion (not currently covered by Code Case N-498), which is unisolable from the Class 2 portion, would cause the Class 2 portion to also be hydrostatically tested. The hydrostatic testing of the Class 2 portion, in lieu of pressure testing at operating conditions as allowed by Code Case N-498, will result in undue burden without a compensating increase in the level of quality or safety.

Due to the inability to isolate any of these welds from the steam generators, performing a hydrostatic pressure test on any of these sections of piping would require A) that the steam generators, the main steam lines, and over 600 feet of feedwater lines (excluding the subject Class 3 piping) must be filled with water and pressurized and B) temporary supports would have to be installed on the main steam piping. Performing a hydro pressure test on these welds would expose the steam generators to a needless cycle possibly shortening the life of the steam generators.

The VT-2 examinations at normal operating pressure will substantiate the ability of the welds to maintain leak tightness for the conditions they were designed for. Additionally, from a statistics bases, Oconee has greater than a 95-95 confidence level the welds would not fail a hydro test.

This alternate examination along with Oconee's excellent welding provides an acceptable level of assurance concerning the quality of the piping section, and the health and safety of the general public will not be diminished.

Licensee's Proposed Alternative Examination:

The subject Class 3 piping will receive a VT-2 visual examination during pressure testing at normal operating pressure. In addition, by letter dated May 24, 1994, the licensee committed to perform volumetric examinations on 25 percent of the welds in the subject system. The licensee stated that this examination and sampling is equivalent to that of Class 2 piping welds.

Evaluation:

The Code requires a system hydrostatic pressure test for Class 3 pressure-retaining components once each inspection interval. Alternatives to this requirement were not considered in Code Case N-498, *Alternative Rules for 10-Year Hydrostatic Pressure Testing for Class 1 and 2 Systems, Section XI, Division 1*, because Class 1 and 2 systems receive surface and/or volumetric examinations whereas Class 3 systems do not.

The licensee states that the subject portions of Class 3 feedwater piping cannot be isolated from connecting Class 2 piping and that performance of the Class 3 hydrostatic pressure test will require simultaneous testing of the Class 2 portions. Because these portions cannot be isolated from the steam generators, performing the hydrostatic test would require that the steam generators, the main steam lines, and over 600 feet of connecting feedwater lines would have to be filled with water and pressurized. This would also require the installation of temporary supports for the main steam system. Imposition of this requirement on the licensee would create a considerable burden without a compensating increase in quality and safety.

In lieu of the system hydrostatic test, the licensee has proposed to perform a volumetric examination of 25 percent of the welds in the subject Class 3 system, in addition to a VT-2 visual examination during pressure testing at

normal operating pressure. This alternative is comparable to the examinations being performed for Class 2 systems, and should therefore provide reasonable assurance of operational readiness of the subject Class 3 portions of the feedwater system.

Considering the burden on the licensee if the Code requirements were imposed, the licensee's proposed alternative may be authorized pursuant to 10 CFR 50.55a(a)(3)(ii).

### 3.0 CONCLUSION

Paragraph 50.55a(a)(g)(4) requires that components (including supports) that are classified as ASME Code Class 1, 2, and 3 meet the requirements, except the design and access provisions and preservice requirements, set forth in applicable editions of ASME Section XI to the extent practicable within the limitations of design, geometry, and materials of construction of the components.

The staff has reviewed and evaluated the licensee's submittal, and it has concluded that compliance with the periodic hydrostatic pressure testing requirements of the Code on the subject sections of the feedwater piping would result in undue hardship without a compensating increase in quality and safety. The staff also finds that the licensee's proposed alternative testing program will provide reasonable assurance of the structural integrity of the pressure retaining boundary. Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii), the licensee's proposed alternative testing contained in Request for Relief No. 93-11 is authorized.

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