



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE NUCLEAR REACTOR REGULATION
OF THE SECOND TEN-YEAR INTERVAL INSERVICE INSPECTION

REQUEST FOR RELIEF NO. 93-03

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 the 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) of 10 CFR 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. 93-03, asking relief from the hydrostatic pressure testing requirements of the ASME Code after replacement by welding of 16 steam generator shell bottom drain valves.

2.0 EVALUATION

The staff has evaluated the information provided by the licensee in support of Request for Relief No. 93-03 as follows:

Request for Relief No. 93-03: The licensee requests relief from the Code-required hydrostatic pressure testing of welds after replacement by welding of 16 steam generator shell bottom drain valves. Relief is requested only for the welds on the steam generator side of the valves.

Code Requirement: Paragraph IWA-4400(a) of Section XI of the ASME Code states: "After repairs by welding on the pressure retaining boundary a system hydrostatic test shall be performed in accordance with IWA-5000." Testing in accordance with Table IWC-2500-1 is required for 10 year ISI hydrostatic tests.

Licensee's Basis for requesting Relief: Due to the inability to isolate any of these valves from the steam generators, performing a hydrostatic pressure test on these 1 1/2-inch socket welds would require (a) that steam generators, the main steam lines, and over 600 feet of feedwater lines must be filled with water and pressurized, and (b) temporary supports would have to be installed on the main steam piping. Performing a hydrostatic pressure test would result in an excessive burden without a compensating increase in the level of quality and safety. Performing a hydrostatic pressure test on these welds would also expose the steam generators to a needless cycle possibly shortening the life of the steam generators.

Licensee's Proposed Alternative Examination: The licensee proposed that the subject welds will receive (a) a nondestructive examination (MT or PT) on the root pass of the socket welds, (b) a nondestructive examination (MT or PT) on the completed welds; and (c) a VT-2 pressure test at normal operating pressure.

Staff Evaluation: The Code requires that, after repairs by welding on pressure retaining boundary, a system hydrostatic test shall be performed at a test pressure 1.25 times normal operating pressure. The staff has determined that the Code-required test would be an undue hardship on the licensee, because of the practical difficulties involved in performing the test and in disposing of the excessive amount of potentially contaminated water generated, without a compensating increase in quality or safety. Also, the steam generators are limited by design as to the number (35) of hydrostatic pressure tests that are allowed in the plant's operating life span.

As an alternative to the Code-required testing, the licensee proposes to perform MT and PT testing on the root pass and final pass of each weld, and to perform a VT-2 inspection of the welds at normal operating pressure. The staff has determined that this alternative testing program will provide reasonable assurance of continued structural reliability of the subject systems.

3.0 CONCLUSION

Paragraph 10 CFR 50.55a(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 hydrostatic pressure testing requirements of the Code following repairs by welding on the subject steam generator valves would result in undue hardship without a compensating increase in quality or 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. 93-03 is authorized.

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