



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

OF THE SECOND TEN-YEAR INTERVAL INSERVICE INSPECTION

REQUEST FOR RELIEF 94-02

FOR

DUKE POWER COMPANY

OCONEE NUCLEAR STATION, UNIT 1

DOCKET No. 50-269

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.

By letter dated March 2, 1994, Duke Power Company (licensee) requested approval to examine a repair weld on the feedwater header at normal operating pressure in lieu of hydrostatic pressure, which had been a condition in previously approved Request for Relief ONS-32.

2.0 EVALUATION

The staff has evaluated the information provided by the licensee in support of Request for Relief No. 94-02 as follows:

Licensee's Code Relief Request:

The licensee has requested approval to examine a repair weld on the feedwater header at normal system operating pressure in lieu of performing the examination at hydrostatic pressure, which was a condition of a previously approved relief request covering this weld.

Code Requirement:

IWC-2500-1 requires the pressure boundary be hydrostatically pressure tested once during a 10-year inspection interval. The post-repair hydrostatic test of feedwater system weld No. 30B had been deferred to this periodic test as a condition of Request for Relief ONS-32.

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

A review of past hydrostatic tests at Oconee could not find any occasion when a hydrostatic test identified a defective weld. However, there have been several instances where an RT has found inclusions within a weld.

The purpose of this request is to revise the initial request for relief, ONS number 32, which referenced the conditions given in ASME Code Case N-416. Feedwater System Weld #30B was pressure tested at normal operating pressure (system inservice test) in 1987 and tested again (system functional test) in 1993. No weld defects were found during these tests.

Additionally, a walk down examination of the piping in the reactor building is performed at operating pressure at the beginning of each refueling outage and at the end of each refueling outage prior to reaching 100% power.

Performing the hydrostatic test would require filling and pressurizing the secondary side of the 1A steam generator as well as several hundred feet of feedwater and main steam pipe. Well over 200 man-hours would be used just to prepare for and recover from the hydrostatic test. This time is needed for such items as:

- 1) installing additional supports for the main steam line prior to the hydrostatic pressure test and restoration afterwards,
- 2) adjusting approximately 20 spring hangers for the main steam lines and restoration afterwards,
- 3) gagging 8 or 9 relief valves for the higher pressure and restoration after the test,
- 4) repacking about 100 valves after the hydrostatic test (required due to both the higher hydrostatic test pressure and the use of water on valves designed for steam),
- 5) isolating over 30 instruments and restoring them after the test, and
- 6) inspecting at least 10 other valves (relief valves and stop valves) after completion of the hydrostatic test.

This work would extend the outage at least one week (5 days) and cost approximately 3 million dollars in lost revenues.

The premise of this request is that a hydrostatic test for this one weld would result in an excessive burden without a compensating increase in the level of quality or safety. With the radiographic examination, the system inservice test performed in 1987, the system functional test performed in 1993, Oconee's walkdown of this weld twice per each refueling outage since the weld was made, and the continued walkdowns during upcoming refueling outages; performing a hydrostatic test would result in no additional assurance in the quality of the weld.

Licensee's Proposed Alternative Examination:

The subject weld received a radiographic examination and a visual (VT-2) inspection at normal operating pressure. In addition, this section of piping received a system functional test and regular walkdown examinations during each refueling outage.

Evaluation:

The Code requires a system hydrostatic pressure test of the subject repair weld. Hardships are generally encountered with the performance of hydrostatic testing performed in accordance with the Code. This specific weld cannot be isolated from the steam generator and performance of the hydrostatic test would require that the steam generator, the main steam lines, and over 600 feet of connecting feedwater piping be filled with water and pressurized.

Additionally, temporary supports would have to be installed for the main steam system. Imposition of the Code requirement would cause a considerable hardship without a compensating increase in quality and safety.

In lieu of the hydrostatic test, the licensee performed a volumetric radiographic examination of the weld, a VT-2 visual examination while at normal operating pressure, a functional test of the system, and two walkdown examinations of the system every refueling outage. These examinations would have detected any significant fabrication problems that may have occurred and have provided reasonable assurance of the operational readiness of the system. Therefore, the proposed alternative may be authorized pursuant to 10 CFR 50.55a(a)(3)(ii) for the second 10-year ISI interval.

3.0 CONCLUSION

The staff concludes that compliance with the Code hydrostatic testing requirements for feedwater system weld No. 30B would result in a hardship without a compensating increase in the level of quality and safety. Accordingly, the licensee's proposed alternative to perform a radiographic examination of the weld and visual examinations while the system is at normal operating pressure is authorized for Oconee Unit 1, pursuant to 10 CFR 50.55a(a)(3)(ii).

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Date: February 21, 1995