



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

RELIEF REQUEST NOS. 92-01 AND 92-02

FOR

DUKE POWER COMPANY

OCONEE NUCLEAR STATION, UNIT 1

DOCKET NO. 50-269

1.0 INTRODUCTION

Technical Specification 4.2.1 for the Oconee Nuclear Station states that inservice inspection of 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). Under 10 CFR 50.55a(a)(3), 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.

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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 this 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 requirements were imposed.

In two separate letters, both dated January 28, 1992, Duke Power Company (licensee) submitted Request for Relief Nos. 92-01 and 92-02. In Relief Request No. 92-01, the licensee requests relief from performing a visual examination and pressure test of portions of piping for the emergency flow path to the Reactor Coolant Pump seals. The new testing is required because the pressure rating of this piping has been increased. The licensee, in Relief Request No. 92-02, is requesting relief from hydrostatic testing of pressure containing components of Unit 1's Component Cooling Water System serving the Reactor Coolant Pump Seal Cooling Jacket. The staff has evaluated Request for Relief Nos. 92-01 and 92-02 in the sections that follow.

## 2.0 EVALUATION

The information provided by the licensee in support of the requests for relief has been evaluated and documented below.

- A. Request for Relief No. 92-01, Examination Category C-H, Items C7.10 through C7.80, visual examination and pressure test of portions of piping for the emergency flow path to the Reactor Coolant Pump seals from the RC Makeup Pump for Unit 1.

Code Requirement: ASME Boiler and Pressure Vessel Code Section XI, 1980 Edition, with Addenda through 1980 Article IWC-5210(a)(2) which requires that the pressure retaining components within each system boundary shall be subjected to visual examination by the method specified in Table IWC-2500-1, Examination Category C-H, and a system pressure test IWA-5211(d) for each system or portions of systems.

Licensee's Code Relief Request: Relief is requested from performance of the Code-required hydrostatic pressure tests for Class 3 piping between valves 1HP-398 and 1HP-446, 447, 448, and 449.

Licensee's Basis for Requesting Relief: The licensee states that this section of line is currently rated for 2500 psig (17.22 Mega Pascal (MPa)) and has been hydrostatically tested to 2750 psig (18.95 MPa) and 3137 psig (21.61 MPa) depending on the specific section of pipe. The new pressure rating of this pipe will be 2790 psig (19.23 MPa). To perform the required ASME Code hydrostatic test at 125% of the new rated pressure would require placing the Unit in cold shutdown and securing flow to the Reactor Coolant Pump seals.

The valves 1HP-446, 447, 448, and 449 are 1-inch manually operated valves and are normally open. As long as these valves are open, the RCS would prevent over-pressurizing the section of pipe that would not be hydrostatically tested until the Unit is in cold shutdown and flow secured to the seals.

Alternate Examination: The licensee stated that this line will be tested at the next cold shutdown when flow is secured to the reactor coolant pump seals.

Staff Evaluation: To perform the Code-required hydrostatic pressure test would be a hardship for the licensee because it would require placing the Unit in cold shutdown and securing flow to the Reactor Coolant Pump seals. There would be no compensating increase in quality or safety, because the licensee proposes an alternative mode of reactor operation with the four isolation valves (1HP-446, 447, 448, and 449) in the open position so that pressure in the section of line beyond the valve could not exceed reactor coolant pressure. The Code Relief Valve for reactor coolant pressure has a set point of 2500 psig (17.22 MPa). Therefore, pressure in the section of line could not exceed 2500 psig. This section of line has previously been hydrostatically tested at 2750 psig (18.95 MPa). Therefore, the proposed alternative would provide an acceptable level of quality and safety for operation until the next cold shutdown, when the Code-required hydrostatic testing at 125% of the new pressure rating of 2790 psig (19.23 MPa) will be performed.

B. Request for Relief No. 92-02, Hydrostatic test of Pressure Containing Components in Support of Reactor Shutdown Function.

Code Requirement: ASME Boiler and Pressure Vessel Code Section XI, 1980 Edition (with Addenda through Winter 1980) Table IWD-2500-1, Item Number D1.10. Hydrostatic test of Pressure Containing Components in Support of Reactor Shutdown Function.

Licensee's Code Relief Request: Relief is requested from hydrostatic testing of pressure containing components in support of reactor shutdown function.

Licensee's Basis for Requesting Relief: The licensee states that all the piping between ICC-3 and 33, ICC-4 and 37, ICC-5 and 25, and ICC-6 and 29 is welded and rated for 2500 psig (17.22 MPa). This section of piping would be exposed to reactor coolant pump seal water pressure in the event of a tube leak in a seal water cooling jacket. Because of the piping design, extensive modifications would be required to provide test connections for high pressure testing as required by the ASME Code. The added lines and valves would provide additional leak paths for water potentially contaminated with radioactive and chemically hazardous materials (chromates). Therefore, high pressure testing is considered impractical by the licensee.

Licensee's Proposed Alternative Examination: The licensee proposed to test all piping at 187.5 psig (1.291875 MPa) and that this would provide assurance that the system is capable of containing the component cooling liquid at normal operating conditions.

Staff Evaluation: The staff determined that the Code-required hydrostatic testing for the Reactor Coolant Pump Seal Cool Jacket portion of Unit 1's Component Cooling system is impractical to perform. The system would have to be redesigned because some of the system's adjacent piping is rated at 150 psig (0.103 MPa) vs 2500 psig (17.22 MPa) for the main system piping. There are no vents or drain taps in these lines. Thus, there are no reasonable methods to hydrostatically test this pipe at 125% of the rated 2500 psig.

The hydrostatic test at 187.5 psig (1.292 MPa) would provide assurance that the system is capable of containing the component cooling liquid at normal operating conditions and would insure structural integrity of the subject system's components. In the event of a cooling jacket tube leak, the affected cooler would be isolated from the rest of the Component Cooling system.

### 3.0 Conclusion

Pursuant to 10 CFR 50.55a(a)(3)(i) and (ii), the staff has determined that meeting the hydrostatic pressure testing requirements of the ASME Boiler and Pressure Code for the section of piping described in Relief Request No. 92-01 would be a burden on the licensee without a compensating increase in the level of quality and safety, and that the proposed alternative of operation with the four isolation valves open to the reactor coolant system will provide an acceptable level of quality and safety for operation until the next cold shutdown. At that time, the required hydrostatic pressure testing will be performed. Therefore, the alternative proposed in Relief Request No. 92-01 is authorized.

Pursuant to 10 CFR 50.55(g)(6)(i), the staff has determined that meeting the hydrostatic pressure testing requirements of the ASME Boiler and Pressure Code is impractical for the section of Component Cooling Water piping described in Relief Request No. 92-02. This section of piping, rated at a pressure of 2500 psig, has previously been tested hydrostatically. The staff concludes that the proposed alternative hydrostatic pressure testing at 187.5 psig would provide assurance that the system is capable of containing the component cooling water at normal operating conditions. Provisions also exist to isolate the system in case of a cooling jacket tube leak. Therefore, Relief Request No. 92-02 is granted with the imposition of the alternative testing proposed. The staff has determined that 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 giving due consideration to the burden upon the licensee that could result if the ASME Code requirements were imposed on the facility.

Date: August 25, 1992