



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

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

REQUESTS FOR RELIEF RR-4, RR-29, AND RR-33
FOR SOUTHERN NUCLEAR OPERATING COMPANY, INC.*
JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-346 AND 50-364

1.0 INTRODUCTION

Technical Specifications for the Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley), state 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 (the 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)(5)(i). As stated in 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) subject to the limitations and modifications listed therein.

*Amendment Nos. 90 and 83 to Facility Operating Licenses NPF-2 and NPF-8, respectively, were issued authorizing Southern Nuclear Operating Company, Inc., to become the licensed operator. This change was implemented on December 23, 1991.

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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 and 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 on the facility.

By separate letters dated December 2, 1991, Alabama Power Company (the licensee) submitted revised relief requests RR-29, and RR-33, and withdrew relief request RR-4. The licensee determined that the requirements in Section XI of the ASME Code for certain examinations were impractical to perform at Farley Nuclear Plant.

2.0 EVALUATION AND CONCLUSIONS

Relief Request RR-4 was withdrawn for both Units 1 and 2 by the licensee and will not be discussed below. The staff, has evaluated the information provided by the licensee in support of Request for Relief Nos. RR-29 and RR-33 for Farley as follows:

2.1 Request for Relief No. RR-29 - HYDROSTATIC TESTING OF CLASS 2 BORON INJECTION RECIRCULATION PUMP DISCHARGE PIPING (Units 1 and 2)

Code Requirement:

Table IWC-2500-1, Category C-H, requires a hydrostatic test for all Class 2 pressure retaining components once every 10-year inspection interval, in accordance with IWC-5222.

Licensee's Code Relief Request:

Unit 1 - Relief is requested from hydrostatic testing of Class 2 boron injection recirculation pump discharge piping between valves Q1E21V006A and B, Q1E21V005A and B, and the adjoining drain piping (line No. CCB-62).

Unit 2 - Relief is requested from hydrostatic testing of Class 2 boron injection recirculation pump discharge piping between valves Q2E21V006A and B, Q2E21V005A and the adjoining drain piping (line No. CCB-62).

Licensee's Basis for Requesting Relief:

Performance of a hydrostatic test at 3107 psi (1.25 Pd) on the portion of the system described above requires the use of check valves which are subject to leakage when used as a hydrostatic test boundary. These valves, which are welded in place, cannot be removed and replaced by blind flanges. Experience has shown that these 1-inch Kerotest check

valves have some leakage when subjected to pressure in this range.

Leakage past these valves could potentially pressurize and overstress the adjoining Class 3 piping which has design pressure of 150 psi. (Units 1 and 2).

Licensee's Proposed Alternative Examination:

Code Case N-498, "Alternate Rules for 10-Year Hydrostatic Pressure Testing for Class 1 and 2 Systems Section XI, Division 1" will be incorporated for use on the above lines. They will be virtually examined by a system pressure test at normal operating pressure. (Units 1 and 2).

Staff Evaluation and Conclusions:

The licensee has proposed use of Code Case N-498 as an alternative to the hydrostatic-test requirements of Section XI of the ASME Code. Code Case N-498 provides alternative rules for the 10-year hydrostatic pressure test, required by the Code, Section XI, Table IWB-2500-1, Category B-P, and Table IWC-2500-1, Categories C-H and has been reviewed and found acceptable by the staff.

The staff has determined that the alternative requirements given in Code Case N-498 provided adequate assurance of the structural integrity of the subject piping systems. The staff, therefore, concludes, pursuant to 10 CFR 50.55a(a)(3)(i), that the proposed alternative requirements to those of Section XI will provide an acceptable level of quality and safety and the proposed alternative may be used.

2.2 Request for Relief No. RR-33, Hydrostatic testing of portions of Class 3 piping and components.

Code Requirement:

Paragraph IWD-2510 and Table IWD-2500-1 of ASME Section XI require that all Class 3 pressure retaining components be subjected to visual examination (VT-2) in conjunction with the system pressure tests of IWD-5000.

Licensee's Code Relief Request:

The licensee requests relief from hydrostatic testing of portions of Class 3 piping in the following systems:

Unit 1 (TAC No. M82253)

1. Reactor Makeup - Portion of piping (3/4-inch HCC-236) off main line (16-inch HCC-236) from RMWST to Cation Conductivity instrument,

located on non-code side of valve Q1P12V537 (Basis for relief - Note "Reactor Makeup").

2. Service Water

- a. Portion of piping upstream of valves Q1P16V540 and Q1P16V541 (Basis for relief - Note 1)
- b. Portion of piping downstream of valves Q1P16V516 and Q1P16V517 (Basis for relief - Note 1)
- c. Portion of piping downstream of valves Q1P16V545 and V546 to valves Q1P16V549 and V550 (Basis for relief - Note 2)
- d. Portion of piping downstream of valves Q1P16V538 and V539 to the SW pond wet pit (Basis for relief - Note 3)
- e. Portion of piping between valves Q1P16V520, V529 and Q1P16V521, V528 and D.G. 2C (Basis for relief - Note 4)

Portion of piping between valves Q1P16V523, V531 and Q1P16V522, V530 and D.G. 1B (Basis for relief - Note 4)

Portion of piping between valves Q1P16V592, V593 and D.G. 2B (Basis for relief - Note 4)

Portion of piping between valves Q1P16V524, V532 and Q1P16V525, V533 and D.G. 1C (Basis for relief - Note 4)

Portion of piping between valves Q1P16V526, V534 and Q1P16V527, V535 and D.G. 2A (Basis for relief - Note 4)

3. Component Cooling Water

- a. Component Cooling Water Surge Tank (Basis for relief - Note 2)
- b. Portion of Piping from CCW Surge Tank to valves listed below (Basis for relief - Note 2):

Q1P17V117A, Q1P17V117B, Q1P17V121A, Q1P17V121B,
Q1P17V110A, Q1P17V110B, Q1P17V110E, Q1P17V110F,
Q1P17V109A, Q1P17V109C, Q1P17V278A, Q1P17V278B,
Q1P17V278C, Q1P17V144A, Q1P17V144C, Q1P17V017A,
Q1P17V017B
- c. Piping between valves Q1P17V287 and V288 (Basis for relief - Note 5)

4. Chemical and Volume Control

Portion of piping from valve Q1E21V019 to discharge of Boron Injection Recirculation Pumps- valves Q1E21V006A and Q1E21V006B (Basis for relief - Note 2).

5. Spent Fuel Pool Cooling

- a. Portion of piping downstream of valves Q1G31V003A and Q1G31V003B (Basis for relief - Note 2)
- b. Portion of piping downstream of valve Q1G31V005 (Basis for relief - Note 2).
- c. Portion of piping upstream of valves Q1G31V001A and Q1G31V001B (Basis for relief - Note 2).

Unit 2

1. Reactor makeup - Portion of piping (3/4-inch HCC-236) off main line (16 inch HCC-236) from RMWST to Cation Conductivity instrument, located on non-code side of valve Q2P12V537 (Basis for relief - Note "Reactor Makeup").

2. Service Water

- a. Portion of piping upstream of valves Q2P16V540 and Q2P16V541 (Basis for relief - Note 1)
- b. Portion of piping downstream of valves Q2P16V516 and Q2P16V517 (Basis for relief - Note 1)
- c. Portion of piping downstream of valves Q2P16V545 and V546 to valves Q2P16V549 and V550 (Basis for relief - Note 2)
- d. Portion of piping downstream of valves Q2P16V538 and V539 to the SW pond wet pit (Basis for relief - Note 3)
- e. Portion of piping between valves Q2P16V592, V593 and D.G. 2B (Basis for relief - Note 4)

3. Component Cooling Water

- a. Component Cooling Water Surge Tank (Basis for relief - Note 2)
- b. Portion of Piping from CCW Surge Tank to valves listed below (Basis for relief - Note 2):

Q2P17V117A, Q2P17V117B, Q2P17V121A, Q2P17V121B, Q2P17V110A, Q2P17V110B, Q2P17V110E, Q2P17V110F, Q2P17V109A, Q2P17V109C,

Q2P17V278A, Q2P17V278B, Q2P17V278C, Q2P17V144A, Q2P17V144C,
Q2P17V017A, Q2P17V017B

c. Piping between valves Q2P17V287 and V288 (Basis - Note 5)

4. Chemical and Volume Control

Portion of piping from valve Q2E1V019 to discharge of Boron Injection Recirculation Pumps - valves Q2E21V006A and Q2E21V006B (Basis for relief - Note 2).

5. Spent Fuel Pool Cooling

a. Portion of piping downstream of valves Q2G31V003A and Q2G31V003B (Basis for relief - Note 2)

b. Portion of piping downstream of valve Q2G31V005 (Basis for relief - Note 2).

c. Portion of piping upstream of valves Q2G31V001A and Q2G31V001B (Basis for relief - Note 2).

Licensee's Basis For Relief Request:

Units 1 and 2

Reactor Makeup:

The maximum operating pressure of this two-foot section of instrument piping is 10 psi while the applicable hydrostatic test pressure would be 165 psi. Testing this small section of 3/4-inch instrument line is not warranted considering the possibility of over-pressurizing the Cation Conductivity instrument.

All remaining systems for Units 1 and 2 (as noted above):

Note 1. These portions of Class 3 piping are unisolable from non-safety related piping providing service water supply to and from the turbine building.

Note 2. These portions of Class 3 piping and components cannot be isolated for hydrostatic test since removal from service for testing would render the entire system inoperable.

Note 3. These portions of Class 3 piping and components cannot be isolated for hydrostatic test since removal from service would render both Units 1 and 2 SW recirculation capabilities to the wet pit storage pond flume return inoperable.

- Note 4. With the exception of the 2B Diesel Generator, there are no connections (vent and drains) within these boundaries which facilitate attachment of hydrostatic test pumps. Even if/where connections were/are available, 6" and 8" butterfly valves would have to provide positive pressure boundary for hydrostatic testing using test pumps. To hydro test the subject piping utilizing the SW pumps would require a system valve line-up which renders all diesel generators associated with the Service Water train being tested inoperable.
- Note 5. This portion of Class 3 piping cannot be isolated for hydrostatic testing by any means other than check valve Q1P17V288 (Unit 1) or Q2P17V288 (Unit 2) in the primary chemistry sample room.

Licensee's Alternative Examination:

Units 1 and 2

The subject piping will be visually inspected for leakage (VT-2) during performance of a system inservice test (IWA-5211(c)) once each inspection period.

Staff Evaluation and Conclusions:

Units 1 and 2

The Code requirements to visually examine (VT-2) in conjunction with system pressure tests of IWD-5000 the subject systems as discussed above are impractical for the licensee to perform. The subject systems would have to be redesigned, for some of the following reasons: over-pressurizing a Cation Conductivity Instrument, portions of Class 3 piping are unisolable from non-safety related piping, all diesel generators associated with the Service Water train being tested would be inoperable. The need to redesign the above systems would be a burden on the licensee with no increase in safety.

The staff has determined that the alternative examination proposed by licensee will provide adequate assurance of the structural integrity of the subject piping systems. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), the staff concludes that the Code required examinations are impractical to perform and the licensee's proposal to perform visual Pressure Code requirement may be granted as requested.

Such a relief is authorized by law will not endanger the life or property or the common defense and security and is otherwise in the public

interest. This relief has been granted giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

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Date: March 13, 1992