

May 30, 2002

Mr. Michael Krupa
Director, Nuclear and Safety Engineering
Entergy Operations, Inc.
1340 Echelon Parkway
Jackson, MS 39213-8293

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 - RE: REQUEST FOR RELIEF FROM THE REQUIREMENTS OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) BOILER AND PRESSURE VESSEL CODE (CODE) TO PERFORM VT-2 VISUAL EXAMINATION AT NORMAL OPERATING PRESSURE (TAC NO. MB3178)

Dear Mr. Krupa:

By letter dated October 8, 2001, Entergy Operations, Inc. (Entergy) requested relief from ASME Code requirements to perform VT-2 visual examination at normal operating pressure of lines 2CH2-60 A/B and 2CH2-53 A/B in the vertical pipe chase. You stated that, due to the design of the system, the subject piping is inaccessible during normal operation without a deliberate entry into a Technical Specification action statement requiring plant shutdown. However, when the pipe is accessible during plant shutdown, the system can not be operated to obtain required test conditions (normal operating pressure). Entergy proposed an alternative which provides an acceptable level of quality and safety, and requested authorization to perform the requested alternative to the Code requirement pursuant to 10 CFR 50.55a(a)(3)(i).

Based on the evaluation of the request, the U. S. Nuclear Regulatory Commission (NRC) staff concludes that complying with the specified requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety, and the proposed alternative provides reasonable assurance of structural integrity. Therefore, even though your request for the relief was pursuant to 10 CFR 50.55a(a)(3)(i), the staff authorizes the proposed alternative pursuant to 10 CFR 50.55a(a)(3)(ii), since complying with specified requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. The relief is authorized for the second 10-year inservice inspection interval at Waterford Steam Electric Station, Unit 3.

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The NRC staff's safety evaluation is enclosed.

Sincerely,

/RA by W D Reckley for/

Robert A. Gramm, Chief, Section 1
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosure: Safety Evaluation

cc w/encl: See next page

The NRC staff's safety evaluation is enclosed.

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Waterford Generating Station 3

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REQUEST FOR RELIEF FROM 10 CFR 50.55a EXAMINATION REQUIREMENTS

ENTERGY OPERATIONS, INC.

WATERFORD STEAM ELECTRIC STATION, UNIT 3

DOCKET NO. 50-382

1.0 INTRODUCTION

By letter dated October 8, 2001, Entergy Operations, Inc. (Entergy or the licensee) submitted a relief request proposing to use an alternative examination in lieu of the required VT-2 during a system pressure test for Lines 2CH2-60 A/B and 2CH2-53 A/B in the vertical pipe chase for the second 10-Year Interval Inservice Inspection (ISI) at Waterford Steam Electric Station, Unit 3 (Waterford 3). The U. S. Nuclear Regulatory Commission (NRC or the Commission) staff has reviewed the information submitted by the licensee in support of the request for relief, and the basis for disposition is documented below.

2.0 BACKGROUND

The ISI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code), Class 1, 2, and 3 components is performed in accordance with Section XI of 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)(6)(i). The regulation at 10 CFR 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if the licensee demonstrates that (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 difficulty 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 pre-service examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection (ISI) 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 first 10-year interval and subsequent intervals 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) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The Section XI Code of record for the second 10-year ISI interval at Waterford 3 is the 1992 Edition including the 1993 Addenda of the Code.

3.0 EVALUATION OF RELIEF REQUEST

The items for which relief is requested:

Line 2CH2-60 A/B and Line 2CH2-53 A/B in the vertical pipe chase

Code Requirement:

ASME Section XI, Table IWC-2500-1, Examination Category C-H, Item Nos. C7.30 and C7.70 require the subject lines to be VT-2 visually examined during a system leakage test each inspection period. IWA-5211 requires that the VT-2 visual examination be performed while the item being tested is at normal operating pressure.

Licensee's Proposed Alternative (as stated):

"Pursuant to 10 CFR 50.55a(a)(3)(i), Entergy requests authorization to perform a VT-2 visual examination of the subject lines and the surrounding areas once each period during a refueling outage with no pressure/temperature requirements. This alternative will be performed in lieu of the requirements of IWA-5211 for the subject lines inside the vertical pipe chase. This examination will be performed prior to any maintenance being performed inside the pipe chase or on the subject lines."

Licensee's Basis for Relief:

Letdown line 2CH2-60 A/B and charging line 2CH2-53 A/B are located in a pipe chase (the vertical L-wall pipe chase) that is part of a Controlled Ventilation Area System (CVAS) boundary. Temporary access to the pipe chase is provided through special block-out sections consisting of multiple layers of solid concrete blocks. Except for the temporary access block-outs, the pipe chase is totally enclosed by reinforced concrete walls. The blocks are mortared in place. The block-out sections penetrate into the CVAS boundary. Removing the block wall during normal operation (Modes 1, 2, 3, or 4) violates the CVAS boundary placing both CVAS trains in INOPERABLE status in accordance with the site technical specifications (TS). Approximately six days are required to remove and re-install the block wall.

The subject piping is inaccessible during normal operation without deliberate entry into a TS action statement requiring plant shutdown. When the pipe is accessible during plant shutdown (Modes 5 and 6), the system cannot be operated to obtain the required test conditions.

Based on the following, the licensee believes the proposed alternative provides an acceptable level of quality and safety:

1. If leakage from the subject sections of charging and letdown piping were to occur, it would show up as unidentified leakage in the reactor coolant system inventory balance. Operations personnel perform this balance at least once every 72 hours when in Modes 1, 2, 3, and 4. The TS limit for unidentified leakage is 1 gallon per minute (gpm). If the 1 gpm limit is exceeded, TS require a plant shutdown if leakage is not restored below the limit within 4 hours.

2. These two non-insulated sections of piping in the vertical pipe chase do not see leakage test conditions during Modes 5 and 6. However, they do experience significant operation while at normal plant conditions during plant operation. These lines operate at system pressure for a substantial time each period.
3. The subject charging and letdown lines are part of the charging and volume control system. This system is borated for the purpose of controlling reactivity. The boric acid provides a chemical marker that leaves behind a white stain when very small amounts of leakage occur. As this leakage occurs over a period of time, this boric acid residue builds leaving an additional residue of crystals.
4. The time at pressure since the last VT-2 visual examination is in excess of 20,000 hours, far greater than the Code-required 10-minute hold time. Since these lines are borated and non-insulated, sufficient time is available for boric acid to build-up on the piping or adjacent surfaces. A subsequent VT-2 visual examination, after the block wall has been removed and prior to any maintenance activities, is adequate to discover any leakage.

4.0 EVALUATION

ASME Code requires a VT-2 visual examination during a system leakage test each inspection period for the subject piping. The subject piping is inaccessible during normal operation without deliberate entry into a TS action statement requiring plant shutdown. When the pipe is accessible during plant shutdown (Modes 5 and 6), the system cannot be operated to obtain the required test conditions. The licensee proposes to perform a VT-2 visual examination of the subject lines and the surrounding areas once each period during a refueling outage with no pressure/temperature requirements. This alternative will be performed in lieu of the requirements of IWA-5211 for the subject lines inside the vertical pipe chase. This examination will be performed prior to any maintenance being performed inside the pipe chase or on the subject lines. The subject charging and letdown lines are part of the charging and volume control system. This system is borated for the purpose of controlling reactivity. The time at pressure for the subject piping since the last VT-2 visual examination is in excess of 20,000 hours, far greater than the Code-required 10-minute hold time. The direct visual examination during an outage will allow the licensee to detect minor leakage by the presence of boric acid crystals or residue. Therefore, the staff finds that complying with the specified requirement would result in a hardship or unusual difficulty without a compensating increase in the level of quality and safety. The staff finds the licensee's approach will provide reasonable assurance of structural integrity of the subject lines inside the vertical pipe chase.

5.0 CONCLUSION

The NRC staff concludes that compliance with the Code's requirements would result in a hardship or unusual difficulty without a compensating increase in the level of quality and safety. Although the licensee submitted the request pursuant to 10 CFR 50.55a(3)(i), the staff has reviewed the request under 10 CFR 50.55a(3)(ii), and finds the licensee's approach will provide reasonable assurance of structural integrity of the subject lines inside the vertical pipe chase. Therefore, the proposed relief is authorized pursuant to 10 CFR 50.55a(3)(ii) for using an alternative examination in lieu of the required VT-2 during a system pressure test for lines 2CH2-60 A/B and 2CH2-53 A/B in the vertical pipe chase. The relief is authorized for the second 10-year interval ISI at Waterford 3.

Principal Contributor: A. Keim

Date: May 30, 2002