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January 14, 1998

U. S. Nuclear Regulatory Commission Attn.: Document Control Desk Mail Stop OP1-17 Washington, DC 20555-0001

Subject: Entergy Operations, Inc. Alternative to ASME Code Requirements

> Arkansas Nuclear One - Unit 2 Docket No. 50-368 License No. NPF-6

Waterford 3 Steam Electric Station Docket No. 50-382 License No. NPF-38

2.00009

CNRO-98/00003

Pursuant to 10CFR50.55a(a)(3), Entergy Operations, Inc. (Entergy) requests authorization to perform an alternative to the requirements of ASME Section XI, Subarticle IWA-5242(a). Relief Request ISI2-09 (see attachment) proposes an alternative to removing insulation for the examinations specified in IWA-5242(a). This request applies to Entergy's nuclear units Arkansas Nuclear One - Unit 2 and Waterford 3 Steam Electric Station.

Should you have any questions regarding this submittal, please contact Guy Davant at (601) 368-5756.

Very truly yours,

JGD/SJB/GHD/bae attachment

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Relief Request ISI2-09 System Pressure Tests for Insulated Components

I. Code Requirement

ASME Section XI, 1992 Edition, Subarticle IWA-5242(a) states that for systems borated for the purpose of controlling reactivity, insulation shall be removed from pressure-retaining bolted connections for a direct VT-2 visual examination. The VT-2 examination must be performed at system test pressure in accordance with Subarticle IWA-5211.

II. Requested Authorization

Entergy requests authorization to perform an alternative to removing insulation for VT-2 visual examinations of bolted connections in Class 1 and 2 borated systems as required by IWA-J242(a) during system pressure tests.

III. Basis for Requesting Authorization

Entergy requests relief from the requirements of IWA-5242(a) during system pressure tests for the following reasons:

- 1. Code Class 1 and 2 systems borated for the purpose of controlling reactivity are large, extensive systems which extend into multiple plant areas and elevations. Scaffolding is required to access many of the bolted connections. In addition, many of these connections are located in difficult to access areas and in medium to high radiation areas. Insulation removal combined with scaffolding requirements results in increased personnel exposure, additional radwaste, and increased financial cost.
- 2. Visual VT-2 examinations of Class 1 systems, primarily the Reactor Coolant System (RCS) piping and components, are performed while ascending in power from Mode 3 to Mode 2 during plant startup. During such times, the RCS is at normal operating pressure of approximately 2250 psig with reactor coolant temperature at approximately 550° F. (These parameters are controlled by each plant's specific Technical Specifications and procedures for this condition.) Performing a visual VT-2 examination, installing insulation, and removing scaffolding at bolted connections under these operating conditions represents a personnel safety hazard. Since the majority of Class 1 piping is inside the containment building bio-shield wall, removing and

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reinstalling insulation along with disassembly of scaffolding may substantially increase the outage duration.

- 3. In response to NRC Generic Letter 88-05, "Boric Acid Corrosion Of Carbon Steel Reactor Pressure Boundary Components In PWR Plants," Entergy established a program to inspect boric acid leaks discovered in the containment building and to evaluate the impact of those leaks on carbon steel or low alloy steel components. Per this program, evidence of leaks, including boric acid crystals or residue, is inspected and evaluated regardless of whether the leak was discovered at power or during an outage. Based on the evaluation, appropriate corrective actions are initiated to prevent recurrence of the leak and to repair, if necessary, any degraded materia's or components.
 - To ensure that degradation mechanisms in stainless steels are mitigated, Entergy maintains a program for controlling materials (insulation, thread lubricant, boron, etc.) that may come in contact with safety-related components, including bolting. This program ensures impurities are not present in concentrations that would promote development of stress corrosion cracking in stainless steel bolted connections.

The only carbon steel and low alloy pressure boundary components at Entergy plants in systems borated for the purpose of controlling reactivity are clad with stainless steel. Specifically, these clad components are the reactor vessel, steam generators (primary side), pressurizer, and portions of the reactor coolant system piping. Other pressure boundary piping and components in boundaries systems within inservice inspection boundaries are constructed of stainless steel. There is substantial information, such as EPRI NP-5679, attesting to the resistance of stainless steels to boric acid corrosion.

IV. Proposed Alternative Examination

Entergy proposes an alternative examination methodology utilizing current material control programs and additional inspection activities as discussed below.

 Bolted connections in systems borated for the purpose of controlling reactivity shall receive a VT-2 vicual examination without removing the insulation following a 4-hour hold time at required test conditions. If evidence of leakage is detected either by discovery of active leakage or evidence of boric Alternative to ASME Code Requirements CNRO-98/00003 January 14, 1998 Attachment Page 3 of 3

acid crystals, the insulation shall be removed and the bolted connection shall be re-examined. If necessary, the connection shall be evaluated in accordance with the corrective measures of IWA-5250.

 Insulation at bolted connections in systems borated for the purpose of controlling reactivity shall be removed during each refueling outage and a VT-2 visual examination performed at cold conditions. The connection is not required to be pressurized. Any evidence of leakage shall be evaluated in accordance with IWA-5250.

V. Conclusion

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10CFR50.55a(a)(3) states:

"Proposed alternatives to the requirements of (c), (d), (e), (f), (g), and (h) of this section or portions thereof may be used when authorized by the Director of the Office of Nuclear Reactor Regulation. The applicant shall demonstrate that:

- (i) The proposed alternatives would provide an acceptable level of quality and safety, or
- (ii) Compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety."

Entergy believes that the proposed alternative presented above provides an acceptable level of quality and safety for ensuring the integrity of bolted connections in systems borated for reactivity control. Therefore, we request the proposed alternative be authorized pursuant to 10CFR50.55a(a)(3)(i).