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John P. Jarrell III
Manager, Regulatory Assurance
Waterford 3

10 CFR 50.55a

W3F1-2018-0008

February 20, 2018

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

Subject: Request for NRC Alternative to ASME IWA-5211 Regarding Charging Pipe
Visual Inspection, Relief Request W3-ISI-030
Waterford Steam Electric Station, Unit 3 (Waterford 3)
Docket No. 50-382
License No. NPF-38

Dear Sir or Madam:

Pursuant to 10 CFR 50.55a, "Codes and Standards," paragraph (z)(1), Entergy Operations, Inc. (Entergy) hereby requests NRC approval of the attached relief request associated with the Fourth Inservice Inspection (ISI) interval of the ISI program for Waterford 3.

Entergy is requesting to use an alternative to the requirements of the American Society of Mechanical Engineers (ASME) Code requirement to perform VT-2 visual examination method. As documented in the Attachment, this request pertains to portions of two charging lines that are enclosed in a vertical pipe chase. The Attachment provides Entergy's request for relief including the basis for the proposed alternative.

Entergy proposes to perform the VT-2 visual examination during an outage with no pressure or temperature requirements. Entergy believes that the proposed alternative provides reasonable assurance that any through wall leakage occurring during the operating cycle will be found. As such, Entergy believes the proposed alternative provides an acceptable level of quality and safety.

Relief from this requirement was previously granted as W3-ISI-017 during Waterford's third 120-month Inservice Inspection Interval on the basis that the proposed alternative would provide an acceptable level of quality and safety. That approval was documented in the NRC Safety Evaluation Report dated January 13, 2011 (Reference 3).

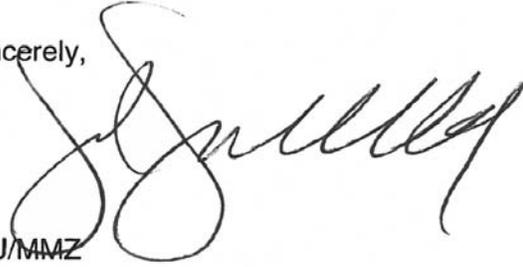
Entergy requests approval of the proposed alternative by February 20, 2019.

This letter contains no new commitments.

If you have any questions or require additional information, please contact the Regulatory Assurance Manager, John P. Jarrell, at (504) 739-6685.

Sincerely,

JPJ/MMZ

A handwritten signature in black ink, appearing to read "JPJ/MMZ", written over a large, stylized, cursive signature that is mostly illegible.

Attachment: 10 CFR 50.55a Request Number W3-ISI-030, Proposed Alternative
in Accordance with 10 CFR 50.55a(z)(1)

cc: Mr. Kriss Kennedy, Regional Administrator
U.S. NRC, Region IV
RidsRgn4MailCenter@nrc.gov

U.S. NRC Project Manager for Waterford 3
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U.S. NRC Senior Resident Inspector for Waterford 3
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Attachment

to

W3F1-2018-0008

Entergy Operations, Inc.

10 CFR 50.55a Request Number W3-ISI-030

**Proposed Alternative
in Accordance with 10 CFR 50.55a(z)(1)**

Alternative Provides Acceptable Level of Quality and Safety

(4 pages)

Entergy Operations, Inc.
10 CFR 50.55a Request Number W3-ISI-030
Proposed Alternative
in Accordance with 10 CFR 50.55a(z)(1)

Alternative Provides Acceptable Level of Quality and Safety

PLANT/UNIT: Waterford Steam Electric Station, Unit 3 (WF3)

INTERVAL: 4th Interval beginning December 1, 2017, and ending November 30, 2027

COMPONENTS AFFECTED: Line 2CH2-60 A/B and 2CH2-53 A/B in the vertical pipe chase (periodic system leakage test of piping contained in a vertical pipe chase)
Code Class: 2
Examination Category: C-H
Item Numbers: C7.10

CODE EDITION AND ADDENDA: ASME Section XI, 2007 Edition, 2008 Addenda, Table IWC-2500-1 ASME Section XI, 2007 Edition, IWA-5211

REQUIREMENTS: ASME Section XI, Table IWC-2500-1, Examination Category C-H, Item Nos. C7.10 requires the subject lines to be VT-2 visually examined during a system leakage test each inspection period. IWA-5211 requires that the visual examination be performed while the item being tested is at normal operating pressure.

REASON FOR REQUEST: 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. Waterford 3 utilizes the CVAS to provide high efficiency particulate filtration and iodine adsorption in the controlled ventilation area. The system must exhaust air from the controlled ventilation area at a rate required to create and maintain a negative pressure below 0.25-inch water gage relative to the surrounding areas. CVAS is composed of two independent trains, each capable of creating and maintaining the 0.25-inch water gage negative pressure. (Further discussions of CVAS operation is provided in the Waterford 3 Updated Final Safety Analysis Report Section 6.5.1.)

REASON FOR
REQUEST:
(continued)

Waterford 3 Technical Specification (TS) 3/4.7.7 provides the OPERABILITY requirements for CVAS. TS Section 4.7.7.d.2 requires that each CVAS train be capable of maintaining a negative pressure of 0.25-inch water gage. In the event this condition cannot be met, TS requires the associated train to be declared INOPERABLE and restored to OPERABLE status within 7 days or the plant must be placed in HOT STANDBY within the next six hours and in COLD SHUTDOWN within the following 30 hours. With both trains INOPERABLE, entry into TS Limiting Condition for Operation (LCO) 3.0.3 is required. LCO 3.0.3 requires the appropriate LCO to be met within one hour or the plant must be in HOT STANDBY within the next six hours, HOT SHUTDOWN with the following 6 hours, and COLD SHUTDOWN with the subsequent 24 hours.

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. The approximate length of pipe that is inaccessible is approximately 450 feet (combined total length of pipe for both pipe lines 2CH2-60A/B and 2CH2-53A/B). The pipe pressure boundary for these lines contains approximately 105 total combined welds. 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 TS. Approximately six days are required to remove and re-install the block wall.

The use of remote camera devices to perform the subject examination has been evaluated by Waterford 3. It is not considered a reasonable approach because of TS 3/4.7.7 considerations in crossing the CVAS boundary while maintaining CVAS operable and the inability to establish VT-2 examination conditions, including proper illumination, within the pipe chase without opening large access points in the wall due to the crowding of piping and long vertical run within the pipe chase. The long run of piping subject to examination (estimated at 160 ft.) would necessitate numerous access points. No access points are currently installed.

Breaching of the vertical pipe chase would result in both trains of CVAS being declared INOPERABLE as the required negative pressure in the CVAS boundary could not be maintained. Outage time for the CVAS to perform the examination is estimated to be a minimum of 6 days which significantly exceeds the one (1) hour limiting condition of operation (LCO) allowed. This estimate is based on removing the concrete blocks to access the pipe chase, performance of the examination, restoration of the pipe chase, and performance of the necessary surveillances to demonstrate operability.

REASON FOR
REQUEST:
(continued)

As this system leakage inspection of the subject piping contained in the vertical pipe chase has only been performed using the alternative examination method provided by relief, no dose data exists for the normal method. Therefore, no data for hardship justification for dose is presented.

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. Therefore, Entergy proposes the alternative described below.

PROPOSED
ALTERNATIVE
AND BASIS:

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.

ASME Section XI IWA-5213(a) requires that a non-insulated component be at system operating pressure for 10 minutes and a VT-2 visual examination performed while at pressure. IWA-5241(b) allows an examination of the surrounding area (including floor areas or equipment surfaces located underneath the components) for evidence of leakage for non-insulated components that are inaccessible for direct VT-2 visual examination. IWA-5245 allows the pressure to be lowered to a level corresponding to a temperature of 200 °F after the required hold time but prior to the VT-2 visual examination for systems that operate above 200 °F.

Therefore, the code allows a non-insulated, non-borated standby system to be VT-2 examined by inspecting surfaces below the piping after being at test pressure for 10 minutes. In addition, the Code allows owners to perform this VT-2 examination after the pressure has been reduced to a pressure corresponding to a temperature of 200 °F.

Entergy believes the alternative provides an acceptable level of quality and safety based on the following:

- 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 per TS Surveillance 4.4.5.2.1 in Modes 1, 2, 3, and 4. The TS limit for unidentified leakage is 1 gpm unidentified leakage. If the 1-gpm TS limit is exceeded, TS requires a plant shutdown if leakage is not restored below the limit within 4 hours.

PROPOSED
ALTERNATIVE
AND BASIS:
(continued)

- 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.
- 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, allowing discovery of very small leaks.
- 4) These lines are pressurized during normal operations and since they 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.

The subject lines are in service for long periods of time between outages. These periods are many factors of time larger than the Code required 10 minute hold time. These long periods of time in addition to the system being borated will provide positive indication of leakage regardless of system pressure. Entergy believes that performing the proposed alternative will provide a better indication of the condition of the lines than the minimum Code requirement and provides an acceptable level of quality and safety.

DURATION: 4th ISI Interval, December 1, 2017, through November 30, 2027

PRECEDENT: Relief from this requirement was previously granted as W3-ISI-017 during Waterford's third 120-month Inservice Inspection Interval on the basis that the proposed alternative would provide an acceptable level of quality and safety. That approval was documented in the NRC safety evaluation report dated January 13, 2011 (Reference 3).

REFERENCES:

1. Waterford 3 Updated Final Safety Analysis Report
2. Waterford 3 Technical Specifications
3. Letter from the NRC (Michael T. Markley) to Vice President, Operations, Entergy Operations, Inc., "Waterford Steam Electric Station, Unit 3 – Request for NRC Alternative to ASME IWA-5211 Regarding Chemical Volume Control System Pipe Visual Inspection, (TAC No. ME3419)," dated January 13, 2011 (ML103570392)