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1CAN041603

April 22, 2016

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

SUBJECT: Request for Relief from ASME Section XI Table IWB-2500-1 Requirements
Arkansas Nuclear One, Unit 1
Docket No. 50-313
License No. DPR-51

REFERENCES

1. NRC letter to Entergy Operations dated July 23, 2008, "Approval of Request for Relief No. ANO1-ISI-010 for the Third 10-Year Inservice Inspection Interval (TAC NO. MD8017)," (ML081680317)

2. NRC letter to Diablo Canyon dated January 3, 2014, "Relief Request No. NDE-RCS-SE-1R18 to Allow Use of Alternative Depth-Sizing Criteria (TAC No. MF1427)," (ML13350A151)

3. NRC letter to Catawba dated October 26, 2015, Proposed Relief Request 14-CN-003, American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (ASME Code), Code Case N-695 (CAC NO. MF5447)," (ML15286A326)

Dear Sir or Madam:

During the upcoming 2016 fall refueling outage at Arkansas Nuclear One, Unit 1 (ANO-1), Entergy Operations, Inc. (Entergy) plans to examine the Core Flood Nozzle to Safe-End dissimilar metal welds. The examinations will be performed using techniques that are qualified for flaw detection and sizing using procedures, personnel, and equipment qualified by demonstration in all aspects except depth sizing. Therefore; as a contingency for depth sizing of any flaws detected, Entergy hereby requests approval of the proposed alternative to the requirements of the 2001 Edition w/2003 Addenda of ASME Section XI for ANO-1, specifically, the requirements of Examination Category B-F, Table IWB-2500-1. This request is made pursuant to 10 CFR 50.55a(z). The basis for the request is provided in Attachment 1 to this letter.

Reference 1 documents the NRC approval of the same request for a previous Inservice Inspection Interval for ANO-1. References 2 and 3 provide examples of recent NRC approvals for similar requests.

In accordance with 10 CFR 50.55a(z), the proposed alternative to the referenced requirements may be approved by the NRC provided an acceptable level of quality and safety are maintained. Entergy believes the proposed alternative meet this requirement, as discussed in Attachment 1 of this letter.

The relief request includes one new regulatory commitment as summarized in Attachment 2.

Although this request is neither exigent nor emergency, your prompt review is requested. If the need for this relief changes due to the identification of flaws in the core flood nozzle dissimilar metal welds during the 2016 fall outage, this request may become an exigent or emergency request. It should be noted that the applicable welds were last inspected in 2008. No indications were identified in those inspections.

If you have any questions or require additional information, please contact me.

Sincerely,

ORIGINAL SIGNED BY STEPHENIE L. PYLE

SLP/rwc

Attachments:

1. Request for Relief ANO1-ISI-025
2. List of Regulatory Commitments

cc: Mr. Marc L. Dapas
Regional Administrator
U. S. Nuclear Regulatory Commission, Region IV
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Arlington, TX 76011-4511

NRC Senior Resident Inspector
Arkansas Nuclear One
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U. S. Nuclear Regulatory Commission
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11555 Rockville Pike
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Attachment 1

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Request for Relief

ANO1-ISI-025

REQUEST FOR RELIEF

ANO1-ISI-025

Components/Numbers:	Core Flood Nozzle to Safe-End Dissimilar Metal (DM) Welds 01-025, 01-026
Code Classes:	American Society of Mechanical Engineers (ASME) Code Class 1
References:	ASME Section XI 2001 Edition w/2003 Addenda, Table IWB-2500-1 ANO Unit 1 Risk Informed In-service Inspection (ISI) Program (based in part on ASME Code Case N-716-1) 10 CFR 50.55a ASME Code Case N-770-1, Table 1, Inspection Item B
Examination Category:	B-F
Item Number(s):	B5.10
Description:	Pressure Retaining Dissimilar Metal Welds in Vessel Nozzles – Inspection Program B
Unit / Inspection Interval Applicability:	Arkansas Nuclear One, Unit 1 / Fourth (4th) 10-year interval (May 31, 2008 to May 20, 2017)

I Code Requirement(s)

The current code of record governing in-service inspection for Arkansas Nuclear One, Unit 1 (ANO-1), is the 2001 Edition w/ 2003 Addenda. Table IWB-2500-1, Examination Category B-F, "Pressure Retaining Dissimilar Metal Welds in Vessel Nozzles," Item B5.10 requires a volumetric and surface examination of the weld volume as identified in Figure IWB-2500-8.

1) Code Item B5.10, as designated by the risk-informed process of ASME Code Case N-716-1 to R-A Item R1.11/15, requires a volumetric examination of circumferential nozzle to safe end butt welds nominal pipe size 4 inches or larger, as depicted in Figures IWB-2500-8 and Risk-Informed In-service Inspection Evaluation Procedure, EPRI Report No. TR-112657; Topical Report, Revision B-A, June 1999. Surface examination is no longer required with the implementation of ASME Code Case N-716-1.

ASME Code Case N-770-1 requires subsequent volumetric examination of all Inspection Item B welds, as defined in Table 1 of the code case, at a frequency of every second inspection period not to exceed seven years.

The volumetric examination is to be conducted in accordance with ASME Section XI, Mandatory Appendix VIII; Supplement 10.

II. Relief Requested

ASME Code Case N-695, "Qualification Requirements for Dissimilar Metal Piping Welds, Section XI, Division 1," is shown as acceptable for use in Regulatory Guide (RG) 1.147, Revision 17, dated August 2014. This code case provides alternatives to the requirements of Appendix VIII, Supplement 10, but Paragraph 3.3(c) of this case requires that "Examination procedures, equipment, and personnel are qualified for depth-sizing when the RMS error of the flaw depth measurements, as compared to the true flaw depths, do not exceed 0.125 in. (3mm)."

Entergy proposes to use Code Case N-695 with a root mean square error (RMSE) of 0.189 inches instead of the 0.125 inches specified for depth sizing in the Code Case. In the event an indication is detected that requires depth sizing, the 0.064-inch difference between the required RMSE and the demonstrated RMSE (0.189 inches – 0.125 inches = 0.064 inches) will be added to the measured through-wall extent of the detected indication for comparison with the applicable acceptance criteria. If the examination vendor demonstrates an improved depth sizing RMSE prior to the examination, the excess of that improved RMSE over the 0.125 inch RMSE requirement, if any, will be added to the measured value for comparison with applicable acceptance criteria (see Attachment 2, List of Regulatory Commitments).

The activities included in the relief request are subject to third party review by the Authorized Nuclear In-service Inspector.

III. Basis for Alternative

During the upcoming 2016 fall refueling outage at ANO-1 (1R26), Entergy will perform ultrasonic examination of the two (2) core flood piping safe-end to nozzle dissimilar metal welds. These examinations will be performed from the inside surface (ID) of the weld utilizing robotics, coincident with the 10-year ISI reactor vessel examinations. Code Case N-695 will be used as the basis for performing these examinations.

To date, although examination vendors have qualified for detection and length sizing on these welds, the examination vendors have not met the RMSE requirement for depth sizing. Entergy's contracted examination vendor has demonstrated ability to meet the depth sizing qualification requirement with an RMSE of 0.189 inches instead of the 0.125 inches required by the Code Case.

The addition of the difference in allowable depth sizing tolerance to the flaw depths measured as demonstrated to that actually measured during the examination will compensate for the possible variance in the measured depth.

The proposed alternative assures that the safe end-to-nozzle welds will be fully examined by procedures, personnel, and equipment qualified by demonstration in all aspects except depth sizing. For depth sizing, the proposed addition of the difference between the qualified and demonstrated sizing tolerance to any flaw required to be sized compensates for the potential variation. The proposed alternative provides an acceptable level of quality and safety in accordance with 10 CFR 50.55a(z).

IV. Conclusion

10 CFR 50.55a(z) states:

> Alternatives to the requirements of paragraph (b) through (h) of this section or portions thereof may be used when authorized by the Director, Office of Nuclear Reactor Regulation or Director, Office of New Reactors, as appropriate. The applicant shall demonstrate that:
>
> (1) The proposed alternatives would provide an acceptable level of quality and safety, or
>
> (2) 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.

The proposed alternative assures that the safe end-to-nozzle welds will be fully examined by procedures, personnel, and equipment qualified by demonstration in all aspects except depth sizing. For depth sizing, the proposed addition of the difference between the qualified and demonstrated sizing tolerance to any flaw required to be sized compensates for the potential variation. Therefore, as a contingency, Entergy requests authorization to perform the proposed alternative to the Code requirement pursuant to 10 CFR 50.55a(z) for implementation during the ANO-1, 1R26 refueling outage scheduled for the fall of 2016.

Attachment 2

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List of Regulatory Commitments

List of Regulatory Commitments

The following table identifies those actions committed to by Entergy in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

COMMITMENT	TYPE (check one)		SCHEDULED COMPLETION DATE
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
Entergy will use Code Case N-695 with a root mean square error (RMSE) of 0.189 inches instead of the 0.125 inches specified for depth sizing in the code case. In the event an indication is detected that requires depth sizing, the 0.064-inch difference between the required RMSE and the demonstrated RSME will be added to the measured through-wall extent of the detected indication, or if the examination vendor demonstrates an improved depth sizing RMSE prior to the examination, the excess of that improved RMSE over the 0.125 inch RMSE requirement, if any, will be added to the measured value for comparison with applicable acceptance criteria.	✓		Prior to startup from ANO-1 Refueling Outage 1R26