Entergy

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PNP 2015-075

September 16, 2015

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

SUBJECT: Relief Request Number RR 4-23 – Proposed Alternative Concerning ASME Code Depth Sizing Requirement

Palisades Nuclear Plant
Docket 50-255
Renewed Facility Operating License No. DPR-20

Dear Sir or Madam:

Pursuant to 10 CFR 50.55a(z)(1), Entergy Nuclear Operations, Inc. (ENO) hereby requests NRC approval of the enclosed request for relief RR 4-23 for a proposed alternative for the Palisades Nuclear Plant (PNP).

This relief request provides for an alternative to the depth sizing qualification required by American Society of Mechanical Engineers (ASME) Code Case N-695, "Qualification Requirements for Dissimilar Metal Piping Welds, Section XI, Division 1," for volumetric examinations associated with the requirements of the ASME Code Case N-770-1, as conditioned by 10 CFR 50.55a(g)(6)(ii)(F)(1) and 10 CFR 50.55a(g)(6)(ii)(F)(3).

The proposed duration of this relief request is to the end of the current fourth 10-year interval, which will end on December 12, 2015. The fourth interval complies with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, 2001 Edition through 2003 Addenda.

This letter contains no new commitments and no revised commitments.

To support volumetric examinations scheduled during the current refueling outage, ENO requests approval of this alternative by September 19, 2015.

Sincerely,

JAH/jse

Enclosure: Entergy Nuclear Operations, Inc., Palisades Nuclear Plant, Relief Request Number RR 4-23 Proposed Alternative

cc: Administrator, Region III, USNRC
Project Manager, Palisades, USNRC
Resident Inspector, Palisades, USNRC

ENCLOSURE

ENTERGY NUCLEAR OPERATIONS, INC.
PALISADES NUCLEAR PLANT

RELIEF REQUEST NUMBER RR 4-23 PROPOSED ALTERNATIVE
in Accordance with 10 CFR 50.55a(z)(1)
Acceptable Level of Quality and Safety

1. ASME CODE COMPONENT(S) AFFECTED / APPLICABLE CODE EDITION

Components / Numbers:	See Attachment Table 1, "ASME Code Components" Pressure Retaining Dissimilar Metal Piping Butt Welds Containing Alloy 82/182
Code of Record:	For the fourth interval, the American Society of Mechanical Engineers (ASME) Section XI, 2001 Edition through 2003 Addenda as amended by 10 CFR 50.55a ASME Code Case N-770-1, "Alternative Examination Requirements and Acceptance Standards for Class 1 PWR Piping and Vessel Nozzle Butt Welds Fabricated with UNS N06082 or UNS W86182 Weld Filler Material With or Without Application of Listed Mitigation Activities, Section XI, Division 1" Section XI Code Case N-695, "Qualification Requirements for Dissimilar Metal Piping Welds"
N-770-1 Inspection Item:	A-2 and B
Description:	Class 1 Pressurized Water Reactor (PWR) pressure retaining Dissimilar Metal Piping and Vessel Nozzle Butt Welds containing Alloy 82/182
Unit / Inspection Interval:	Palisades Nuclear Plant (PNP) / Fourth 10-Year Interval December 13, 2006 through December 12, 2015

2. APPLICABLE CODE REQUIREMENTS

For the fourth interval, the applicable code is the ASME Boiler and Pressure Vessel Code, Rules for Inservice Inspection of Nuclear Power Plant Components, Section XI, 2001 Edition through 2003 Addenda, as amended by 10 CFR 50.55a.

With the issuance of a revised 10 CFR 50.55a in June 2011, the Nuclear Regulatory Commission (NRC) staff incorporated, by reference, Code Case N-770-1. Specific

implementing requirements are documented in 10 CFR 50.55a(g)(6)(ii)(F) and are listed below:

A. Regulation 10 CFR 50.55a(g)(6)(ii)(F)(1) states "Licensees of existing, operating pressurized water reactors as of July 21, 2011 must implement the requirements of ASME Code Case N-770-1, subject to the conditions specified in paragraphs (g)(6)(ii)(F)(2) through (g)(6)(ii)(F)(10) of this section, by the first refueling outage after August 22, 2011."

B. Regulation 10 CFR 50.55a(g)(6)(ii)(F)(3) states that baseline examinations for welds in Code Case N-770-1, Table 1, Inspection Items A-1, A-2, and B, must be completed by the end of the next refueling outage after January 20, 2012.

The welds covered by this proposed alternative would be classified as Inspection Items A-2 and B for which essentially 100 percent volumetric examination, as amended by 10 CFR 50.55a(g)(6)(ii)(F)(4), in part, are required, per NRC interpretation.

ASME Section XI, Appendix VIII, Supplement 10, "Qualification Requirements for Dissimilar Metal Piping Welds," is applicable to dissimilar metal (DM) welds without cast materials.

Section XI Code Case N-695, "Qualification Requirements for Dissimilar Metal Piping Welds, Section XI, Division 1," provides alternatives to the qualification requirements of Appendix VIII, Supplement 10. It is referenced in the PNP ISI program for the fourth ten-year interval and is listed in Regulatory Guide 1.147, Revision 16, Table 1 – "Acceptable Section XI Code Cases."

The specific Code Case N-695 requirement for which relief is requested pertains to the depth sizing qualification requirements for performance demonstration of ultrasonic examination systems for dissimilar metal piping welds.

Code Case N-695, Section 3.3, "Depth-Sizing Test," states the following:

> "(c) 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. (3 mm)."

3. REASON FOR REQUEST

This request is being submitted by ENO under 10 CFR 50.55a(z)(1). ENO will be performing volumetric examinations of the subject welds during the current refueling outage, and will implement the requirements of ASME Section XI, Code Case N-695. Code Case N-695, Section 3.3(c), requires that qualified procedures, equipment, and personnel shall demonstrate a flaw depth-sizing error less than or equal to 0.125 inch root-mean-square (RMS). The ENO vendor has attempted to qualify personnel, equipment, and procedures for depth-sizing error less than or equal to 0.125 RMS. To date, no known inspection vendor for primary coolant system branch connection configurations has met the RMS error requirement.

Although qualified for detection and length sizing on the subject welds, the ENO examination vendor has not met the established root-mean-square error (RMSE)

requirement for depth sizing (0.125 inch) when examining from the outside diameter (OD). The ENO examination vendor has achieved a RMSE of 0.242 inch instead of the required 0.125 inch. EPRI Policy/Procedure 03-01, "Criteria for Issuing Documentation of Depth Sizing Errors That Exceed the 0.125-inch RMS Appendix VIII Criteria," describes the criteria for issuing documentation of depth sizing errors that exceed the 0.125 inch RMS Appendix VIII requirement.

4. PROPOSED ALTERNATIVE AND BASIS FOR USE

ENO proposes to use the following alternative for flaw depth sizing when the subject dissimilar metal welds are examined from the outside surface:

Examinations shall be performed using ultrasonic techniques that are qualified for flaw detection and length sizing using procedures, personnel and equipment qualified by demonstration in all aspects except depth sizing. The 0.242 inch RMSE will be used for depth sizing, in lieu of the ASME Code required 0.125 inch RMSE, which does not exceed ten percent of the material wall thickness (consistent with EPRI Policy/Procedure 03-01), and as such will provide an acceptable level of quality and safety.

All other ASME Code, Section XI, requirements for which relief has not been specifically requested applies, including the third party review by the Authorized Nuclear Inservice Inspector.

5. DURATION OF PROPOSED ALTERNATIVE

The proposed alternative to the ASME Code is applicable for the remainder of the fourth 10-year interval at PNP, which began on December 13, 2006, and is scheduled to end on December 12, 2015.

6. REFERENCES

1. 10 CFR 50.55a, "Codes and standards," December 11, 2014.

2. ASME Code Case N-770-1, "Alternative Examination Requirements and Acceptance Standards for Class 1 PWR Piping and Vessel Nozzle Butt Welds Fabricated with UNS N06082 or UNS W86182 Weld Filler Material With or Without Application of Listed Mitigation Activities, Section XI, Division 1."

3. ASME Section XI, "Rules For Inservice Inspection of Nuclear Power Plant Components," 2001 Edition with Addenda through 2003.

4. EPRI Policy/Procedure Directive 03-01, "Criteria for Issuing Documentation of Depth Sizing Errors That Exceed the 0.125-inch RMS Appendix VIII Criteria."

5. "Nondestructive Evaluation: Performance Demonstration Initiative (PDI) Comparison to ASME Section XI, Appendix VIII, 2007 Edition with 2008 Addendum, and 10 CFR 50.55a, Year 2011," Product ID 1026510.

6. Section XI Code Case N-695, "Qualification Requirements for Dissimilar Metal Piping Welds, Section XI, Division 1," Revision 16.

7. NRC Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," Revision 16 (ADAMS Accession No. ML101800536).

8. NRC letter, "McGuire Nuclear Station, Unit 2, Proposed Relief Request 12-MN-003 (TAC No. ME8712)," dated September 24, 2012 (ADAMS Accession No. ML12258A363).

9. NRC letter, "H. B. Robinson Steam Electric Plant, Unit No. 2 - Relief Request -08, from ASME Code Root Mean Square Error Value for the Fifth 10-Year Inservice Inspection Program Plan (TAC No. MF1015)," dated July 16, 2013 (ADAMS Accession No. ML13191A930).

7. PRECEDENTS

Similar relief requests were approved for McGuire Nuclear Station, Unit 2 (Reference 8) and for H. B. Robinson (Reference 9).

8. ATTACHMENT

Table 1 – ASME Code Components

ATTACHMENT

Table 1

ASME Code Components

No.	Description	ISI Weld ID	Location
1.	2 inch Cold Leg Charging Nozzle	PCS-30-RCL-1A-11/2	P-50A Discharge Leg
2.	2 inch Cold Leg Drain Nozzle	PCS-30-RCL-1A-5/2	P-50A Suction Leg
3.	3 inch Cold Leg Pressurizer Spray Nozzle	PCS-30-RCL-1B-10/3	P-50B Discharge Leg
4.	2 inch Cold Leg Drain Nozzle	PCS-30-RCL-1B-5/2	P-50B Suction Leg
5.	2 inch Cold Leg Charging Nozzle	PCS-30-RCL-2A-11/2	P-50C Discharge Leg
6.	3 inch Cold Leg Pressurizer Spray Nozzle	PCS-30-RCL-2A-11/3	P-50C Discharge Leg
7.	2 inch Cold Leg Drain Nozzle	PCS-30-RCL-2A-5/2	P-50C Suction Leg
8.	2 inch Cold Leg Drain and Letdown Nozzle	PCS-30-RCL-2B-5/2	P-50D Suction Leg
9.	2 inch Hot Leg Drain Nozzle	PCS-42-RCL-1H-3/2	A Hot Leg