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Stephenie L. Pyle
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2CAN061303

June 25, 2013

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

SUBJECT: ASME Code Case N-770-1 Successive Examination
Request for Relief ANO2-ISI-016
Arkansas Nuclear One, Unit 2
Docket No. 50-368
License No. NPF-6

Dear Sir or Madam:

Pursuant to 10 CFR 50.55a(a)(3)(ii), Entergy Operations, Inc., (Entergy) requests relief from the requirements of the American Society of Mechanical Engineers (ASME) Code Case N-770-1, as conditioned by 10 CFR 50.55a(g)(6)(ii)(F) pertaining to volumetric examinations of the dissimilar metal welds associated with the suction and discharge piping for the Reactor Coolant Pumps at Arkansas Nuclear One, Unit 2 (ANO-2). The required coverage cannot be obtained due to interference or geometry.

The ASME Code, Section XI, 2001 Edition with the 2003 Addenda is the code of record for the current fourth 10-year Inservice Inspection interval. This request is for the current interval. This interval is scheduled to conclude on March 25, 2020. Attachment 1 provides the specific request and a discussion of the basis for the request.

This request requires NRC approval prior to completing the spring 2014 (2R23) ANO-2 refueling outage. To support that outage, Entergy requests approval of this request by March 31, 2014.

This document contains a new regulatory commitment which is identified in Attachment 2.

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 ANO2-ISI-016
2. List of Regulatory Commitments

cc: Mr. Arthur T. Howell
Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV
1600 East Lamar Boulevard
Arlington, TX 76011-4511

NRC Senior Resident Inspector
Arkansas Nuclear One
P. O. Box 310
London, AR 72847

U. S. Nuclear Regulatory Commission
Attn: Mr. Kaly Kalyanam
MS O-8B1
One White Flint North
11555 Rockville Pike
Rockville, MD 20852

Attachment 1 to

2CAN061303

Request for Relief
ANO2-ISI-016

REQUEST FOR RELIEF
ANO2-ISI-016

Components / Numbers:	Reactor Coolant Pump (RCP) 2P-32B Suction Nozzle Elbow-to-Safe-End (SE) Circumferential Weld	08-014
	RCP 2P-32B Discharge Nozzle SE-to-Pipe Circumferential Weld	09-008
	RCP 2P-32A Suction Nozzle Elbow-to-SE Circumferential Weld	10-014
	RCP 2P-32A Discharge Nozzle SE-to-Pipe Circumferential Weld	11-008
	RCP 2P-32C Suction Nozzle Elbow-to-SE Circumferential Weld	12-014
	RCP 2P-32C Discharge Nozzle SE-to-Pipe Circumferential Weld	13-008
	RCP 2P-32D Suction Nozzle Elbow-to-SE Circumferential Weld	14-014
	RCP 2P-32D Discharge Nozzle SE-to-Pipe Circumferential Weld	15-008
Code Classes:	American Society of Mechanical Engineers (ASME) Code Class 1	
Examination Category:	Code Case N-770-1, as conditioned by 10 CFR 50.55a(g)(6)(ii)(F)	
Inspection Item:	B	
Description:	Unmitigated Butt Weld at Cold Leg Operating Temperature	
Unit / Inspection Interval Applicability:	Arkansas Nuclear One, Unit 2 (ANO-2) / Fourth (4th) 10-Year Interval	

I. CODE REQUIREMENTS

10 CFR 50.55a(g)(6)(ii)(F)(1) requires “licensees of existing, operating pressurized water reactors as of July 21, 2011, shall 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.”

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

after the baseline examination is performed using Section XI, Appendix VIII requirements (Reference 2).

10 CFR 50.55a(g)(6)(ii)(F)(4) states, “The axial examination coverage requirements of -2500(c) may not be considered to be satisfied unless essentially 100 percent coverage is achieved.”

ASME Code Case N-460 allows a reduction in coverage due to interference or geometry as long as the overall coverage is greater than 90 percent (Reference 3). ASME Code Case N-460 has been unconditionally accepted by the NRC in Regulatory Guide 1.147.

II. RELIEF REQUEST

Pursuant to 10 CFR 50.55a(a)(3)(ii), Entergy Operations, Inc. (Entergy) requests relief from achieving the Code-required coverage when performing volumetric examinations of the components identified in Table 1.

III. BASIS FOR RELIEF

The credited baseline examination requirement of 10 CFR 50.55a(g)(6)(ii)(F) for the eight subject dissimilar metal welds was performed in the fall of 2009 (Reference 4). These examinations were performed using ASME Code, Section XI, Appendix VIII, requirements. The examinations could not obtain essentially 100 percent coverage of the required examination volume for axial flaws due to the weld taper and the presence of the cast austenitic stainless steel (CASS) safe-ends. Component specific details of each weld examination, including the percent of code-required coverage achieved, has been previously submitted (References 5, 6, 7, and 8).

In Reference 4, the NRC staff issued a safety evaluation concerning the examination of the subject welds. In the safety evaluation, the NRC staff determined that fulfilling the essentially 100 percent examination requirements for axial flaws is not possible using current available technology and procedures. The NRC staff also concluded that achieving the required examination coverage would require modification and / or replacement of the components which would constitute a hardship.

ASME Code Case N-770-1 requires successive examination of all Inspection Item B welds, be performed using Section XI, Appendix VIII requirements and meeting the Code required examination volume of essentially 100 percent.

The successive examinations are required to be performed during the spring of 2014 (2R23) refueling outage. Encoded phased array ultrasonic techniques are planned to be used in these examinations. These techniques are qualified in accordance with ASME Section XI, Appendix VIII, Supplement 10 for dissimilar metal welds, as modified by the Performance Demonstration Initiative (PDI) Program.

The design configuration of these welds limits the volumetric examination to be performed primarily from the ferritic steel side of the welds. Due to the short length of the CASS safe-ends and the adjacent safe-end-to-pump welds, there is not adequate surface from which to perform scanning from the safe-end side of the weld. Based on the previous baseline data and the

known geometric limitations, it is anticipated that less than the required essentially 100 percent coverage will be obtained and approval of a relief request will be needed prior to the end of the refueling outage in which the examinations are performed. Therefore, this relief request is being submitted to allow for less than essentially 100 percent examination coverage.

Examination summary and coverage results will be provided to the NRC following completion of these examinations.

It should be noted that the examination of these welds performed in the credited baseline used non-encoded Linear Phased Array (LPA) ultrasonic techniques. For the scheduled examinations, phased array ultrasonic techniques are planned to be used with encoding for data capture allowing independent review away from the examination location. The use of the LPA ultrasonic techniques with encoding is not expected to significantly increase the examination volume coverage from the previous examinations due to the inherent access limitations of the weld configurations. The overall coverage of the susceptible material may increase slightly due to developing enhanced scan plans including detailed documentation of scan limitations, based on the experience provided by the baseline examinations.

Entergy continues to monitor technology changes and plan to use the best available and PDI qualified techniques to examine the subject piping welds, as practical. The examination techniques utilized in the 2009 examinations are essentially unchanged and continue to be the best available technology and will be enhanced with encoding the data. To improve upon these examination coverage percentages, modification and/or replacement of the component would be required. Consistent with the ASME Section XI sampling approach, examination of the subject welds is adequate to detect generic degradation, if it existed, therefore demonstrating an acceptable level of integrity.

IV. PROPOSED ALTERNATIVE EXAMINATIONS

Entergy will examine the subject items to the extent practical.

V. CONCLUSION

10 CFR 50.55a(g)(6)(i) states:

> The Commission will evaluate determinations under paragraph (g)(5) of this section that Code requirements are impractical. The Commission may grant such relief and may impose such alternative requirements as it determines is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

Entergy believes that it is impractical to obtain greater examination coverage on these areas. To obtain additional coverage would necessitate modification and/or replacement of the component. Consistent with the ASME Section XI sampling approach, examination of the subject welds is adequate to detect generic degradation, if it existed, therefore demonstrating an

acceptable level of integrity. Therefore, Entergy requests the proposed alternative be authorized pursuant to 10 CFR 50.55a(a)(3)(ii).

VI. REFERENCES

1. ASME Boiler and Pressure Vessel Code, Section XI, 2001 Edition with 2003 Addenda, American Society of Mechanical Engineers, New York
2. ASME Section XI, Division 1, 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, Division 1, Code Case N-460, "Alternative Examination Coverage for Class 1 and Class 2 Welds, Section XI, Division 1."
4. NRC letter to Entergy, "Arkansas Nuclear One, Unit 2 – Request for Alternative ANO2_ISI-007, Use of Alternate ASME Code Case N-770-1 Baseline Examination (TAC NO. ME7646) (ML12319A367)
5. Entergy letter to NRC, "Use of Alternate ASME Code Case N-770-1 Baseline Examination, Request for Alternative ANO2-ISI-007," dated November 30, 2011 (ML113340158)
6. Entergy letter to NRC, "Response to Request for Additional Information Regarding Request for Alternative ANO2-ISI-007, Code Case N-770-1 Baseline Examination," dated April 13, 2012 (ML12104A066)
7. Entergy letter to NRC, "Additional Information Related to Request for Alternative ANO2-ISI-007, Code Case N-770-1 Baseline Examination," dated May 21, 2012 (ML12142A319)
8. Entergy letter to NRC, "Response to Second Request for Additional Information, Request for Alternative ANO2-ISI-007, Code Case N-770-1 Baseline Examination," dated September 10, 2012 (ML12255A388)

Attachment 2 to

2CAN061303

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 (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
Examination summary and coverage results will be provided to the NRC following completion of these examinations.	X		Prior to conclusion of Spring 2014 ANO-2 Refueling Outage