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Acting Director
Nuclear Safety & Licensing

CNRO-2004-00061

December 20, 2004

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

SUBJECT: Request for Alternative ANO2-R&R-008 - Use of Mechanical Nozzle Seal Assemblies

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

REFERENCES:

1. Letter from Entergy Operations, Inc. to the NRC dated March 15, 2002
2. Letter to Entergy Operations, Inc. from the NRC (TAC No. MB4517) dated July 3, 2002
3. Letter from Entergy Operations, Inc. to the NRC dated March 11, 2004

Dear Sir or Madam:

In Reference #1, Entergy Operations, Inc. (Entergy) requested, via Request for Alternative ANO2-R&R-002, NRC authorization to use the new design of the mechanical nozzle seal assembly (MNSA-2) on various pressurizer nozzle locations at Arkansas Nuclear One, Unit 2 (ANO-2) for two (2) operating cycles. The staff granted this request, as documented in Reference #2. Entergy installed six MNSA-2 devices during the spring 2002 refueling outage at ANO-2 (2R15).

In Reference #3, Entergy requested NRC staff authorization to use those MNSA-2s installed via ANO2-R&R-002 as permanent repairs and also to consider any future MNSA-2 installations as permanent repairs. Representatives from Entergy and the NRC staff participated in a telephone conference call on December 2, 2004 to discuss Entergy's request. Based on this discussion, Entergy is withdrawing its request made via Reference #3.

Pursuant to 10 CFR 50.55a(a)(3)(i), Entergy requests that the NRC staff extend the temporary installation time period from the current two (2) operating cycles to three (3) operating cycles for the six MNSA-2 devices installed on the ANO-2 pressurizer during 2R15. This request is documented in ANO2-R&R-008, which is contained in Enclosure 1. As discussed with the staff during the December 2 telephone call, Entergy will replace the ANO-2

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pressurizer during the fall 2006 refueling outage (2R18), thereby eliminating further need of the installed MNSA-2 devices beyond 2R18.

In the event a leaking pressurizer heater sleeve is discovered during the upcoming refueling outage at ANO-2 (2R17), Entergy may elect to install a MNSA-2 at that location. Such an installation would be performed in accordance with approved ANO2-R&R-002 and the augmented preservice inspection activities specified in ANO2-R&R-008.

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

This letter contains two commitments as identified in Enclosure 2.

Very truly yours,

FGB/GHD/ghd

Enclosures: 1. Request for Alternative ANO2-R&R-008
2. Licensee-Identified Commitments

cc: Mr. W. A. Eaton (ECH)
Mr. J. S. Forbes (ANO)

Dr. Bruce S. Mallett, Regional Administrator
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ENCLOSURE 1

CNRO-2004-00061

REQUEST FOR ALTERNATIVE

ANO2-R&R-008

ENTERGY OPERATIONS, INC.
ARKANSAS NUCLEAR ONE, UNIT 2
REQUEST FOR ALTERNATIVE
ANO2-R&R-008

I. COMPONENTS / IDENTIFICATION

Components/Numbers:	ANO-2 Pressurizer (2T-1) heater sleeve nozzle locations C2, E1, E2, , F4, G1, and N2
Code Class:	ASME Section III, Class 1
References:	1) ASME Section XI, 1992 Edition with Portions of 1993 Addenda 2) ASME Section III, 1989 Edition 3) ASME Section III, 1968 Edition through and including Summer 1970 Addenda 4) Entergy Operations, Inc., Letter CNRO-2002-00012 to the NRC dated March 15, 2002 5) NRC Letter to Entergy, Operations, Inc. (TAC No. MB4517) dated July 3, 2002 6) Westinghouse Design Report No. DAR-CI-02-02, Rev. 1, *Addendum to CENC-1224 Analytical Report for Arkansas Nuclear One Unit 2 Pressurizer*
Unit:	Arkansas Nuclear One, Unit-2 (ANO-2)
Inspection Interval:	Third (3rd) 10-year interval

II. CODE REQUIREMENTS

The code of record for performing ASME Section XI repair/replacement activities at ANO-2 is the 1992 Edition with portions of the 1993 Addenda (Reference 1) for pressure testing. ASME Section XI IWA-4170 requires repairs and installation of replacements to be performed in accordance with the owner's design specification and the original construction code of the component or system. The affected pressurizer heater sleeves and nozzles were designed and constructed to the rules of ASME Section III, Subsection NB, 1968 Edition through and including the summer 1970 Addenda (Reference 3). Rules for replacing ASME Section III, Class 1 welded nozzles with mechanical clamping devices are not clearly defined by ASME Section III.

III. PROPOSED ALTERNATIVE

In support of the spring 2002 refueling outage at ANO-2 (2R15), Entergy Operations, Inc. (Entergy) requested, via Request for Alternative ANO2-R&R-002 (Reference 4), NRC authorization to use the improved design of the mechanical nozzle seal assembly, designated MNSA-2, for two (2) operating cycles. Entergy made this request to repair leaks detected while performing inspections during refueling outages and attributed to primary water stress corrosion cracking (PWSCC). The NRC approved ANO2-R&R-002,

as documented in Reference 5. Entergy installed six (6) MSNA-2 devices on leaking pressurizer heater sleeves (C2, E1, E2, F4, G1, and N2) at ANO-2 during 2R15 in accordance with Request for Alternative ANO2-R&R-002 (Reference 4).

Pursuant to 10 CFR 50.55a(a)(3)(i), Entergy requests that the NRC staff extend the temporary installation time period from the current two (2) operating cycles to three (3) operating cycles for the six MNSA-2 devices installed on the ANO-2 pressurizer during 2R15. Entergy will replace the ANO-2 pressurizer in the fall 2006 refueling outage (2R18), at which time the MNSA-2 devices will no longer be needed.

Entergy proposes to perform the following activities to support the one-cycle extension:

A. Inservice Inspections for MNSAs Installed During 2R15

Since Entergy is replacing the ANO-2 pressurizer during 2R18, those inspections performed on a per-period or per-interval schedule are excluded from the inspections to be performed during 2R17. For the six MNSA-2 devices that were installed during 2R15, Entergy proposes to perform the following inservice inspections:

1. Inspect the leakage detection/diversion fitting for evidence of leakage before the other visual inspections are performed.

2. Perform a VT-2 of the MNSA-2s with insulation installed during system leakage testing required by Table IWB-2500-1 Examination Category B-P during each refueling outage.

3. Perform a VT-2 of the MNSA-2s with insulation installed during system leakage testing required by Table IWB-2500-1 Examination Category B-P.

4. If a MNSA-2 is required to be disassembled[1], perform a VT-1 examination using the acceptance criteria of Table IWB-2500-1 Examination Category B-G-2. Additionally the VT-1 inspection will be expanded to include the counterbore, female threads in the vessel (to the extent they are accessible), and the structural portions of the MNSA clamp, allowing no cracks.

B. Other Actions

If leakage from a MNSA-2 is detected during Cycle 18 operation, Entergy may elect to retorque the MNSA bolting to stop the leak. However, if retorquing above the limit becomes necessary, Entergy will perform an engineering analysis to revise the torque limit. If retorquing fails to stop the leak, Entergy will disassemble the MNSA-2 and examine it in accordance with Section III.B.2. There shall be no evidence of leakage during plant startup.

[1] In Entergy letter CNRO-2002-00018, Entergy committed to disassemble any MNSA-2 that was discovered leaking during the operating cycle and inspect it and the surrounding pressurizer surface for corrosion.

In the event a MNSA-2 is installed on a pressurizer heater sleeve during the spring 2005 refueling outage (2R17), Entergy will perform the following preservice inspection activities:

1. Perform a VT-3 visual examination of the pressurizer in the area of installation in accordance with IWB-3520.2[2].

2. Perform a VT-1 visual inspection of pressure retaining bolting prior to assembly. The acceptance standards of IWB-3517 shall apply.

3. Perform a VT-2 examination in accordance with Table IWB-2500-1 Category B-P with the insulation installed on the pressurizer.

These activities augment the requirements for installing a MNSA-2 specified in Relief for Alternative ANO2-R&R-002.

IV. BASIS FOR PROPOSED ALTERNATIVE

The specific details of the MNSA-2 description, design, and application were provided in Request for Alternative ANO2-R&R-002 (Reference 4), which was approved by the NRC staff (Reference 5). As stated in ANO2-R&R-002, the MNSA-2 device was designed for a 40-year life. The design of the MNSA-2 in combination with the proposed actions discussed in Section III provides reasonable assurance that:

1. The MNSA-2 will adequately perform its design function for one additional operating cycle; and

2. Any degradation of a MNSA-2 device will be discovered and corrected prior to any gross failure of the reactor coolant pressure boundary.

V. CONCLUSION

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:

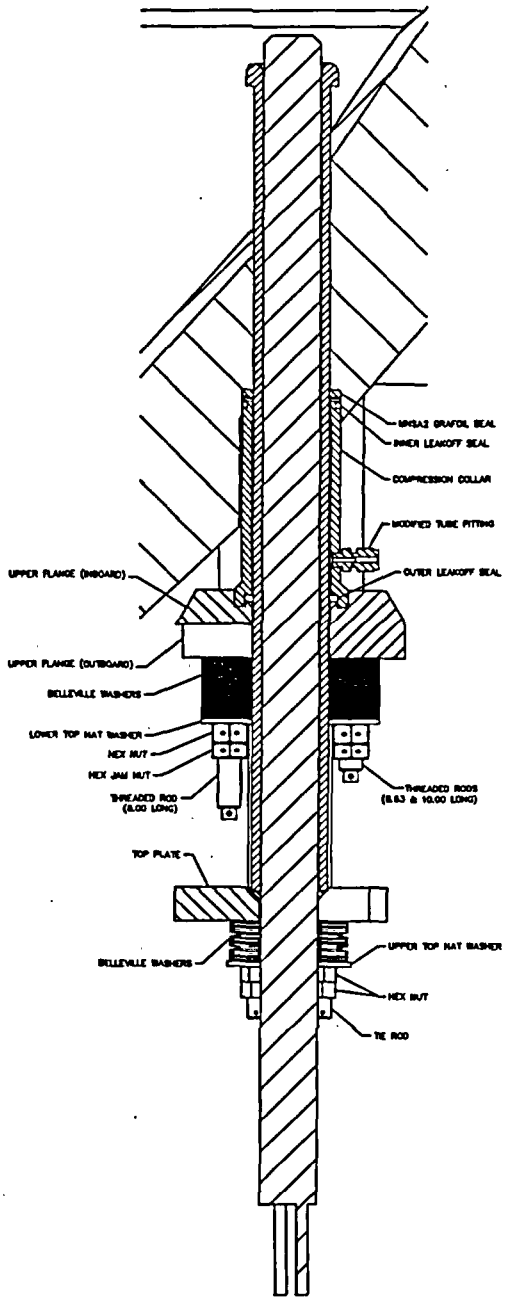
(i) The proposed alternatives would provide an acceptable level of quality and safety, or

(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 requests NRC authorization to use the improved design of the MNSA-2 installed on the ANO-2 pressurizer heater sleeves for one additional operating cycle as an alternative to removing the MNSA-2 devices and performing permanent weld repairs. Entergy will replace the ANO-2 pressurizer during the ANO-2 fall 2006 refueling outage

[2] Although IWB-3520.2 is written specifically for the reactor vessel and its internal structures, application to the pressurizer is believed adequate to determine if conditions are acceptable for the installation of a MNSA-2.

(2R18) at which time no MNSA devices will be needed. Entergy believes that the additional inspection activities described in Section III, above, along with replacing the ANO-2 pressurizer, provide an acceptable alternative to removing the MNSA-2s and performing weld repairs on the associated pressurizer heater sleeves during upcoming ANO-2 refueling outage 2R17. Therefore, Entergy requests that the NRC staff authorize this request pursuant to 10 CFR 50.55a(a)(3)(i).



Heater Sleeve MNSA-2

FIGURE 1

ENCLOSURE 2

CNRO-2004-00061

LICENSEE-IDENTIFIED COMMITMENTS

LICENSEE-IDENTIFIED COMMITMENTS

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
1. Entergy will replace the ANO-2 pressurizer during the fall, 2006 refueling outage (2R18).	✓		Fall, 2006 (2R18)
2. In the event a MNSA-2 is installed on a pressurizer heater sleeve during the spring 2005 refueling outage (2R17), Entergy will perform the following preservice inspection activities: a. Perform a VT-3 visual examination of the pressurizer in the area of installation in accordance with IWB-3520.2[1]. b. Perform a VT-1 visual inspection of pressure retaining bolting prior to assembly. The acceptance standards of IWB-3517 shall apply. c. Perform a VT-2 examination in accordance with Table IWB-2500-1 Category B-P with the insulation installed on the pressurizer. These activities augment the requirements for installing a MNSA-2 specified in Relief for Alternative ANO2-R&R-002.	✓		Spring, 2005 (2R17)

[1] Although IWB-3520.2 is written specifically for the reactor vessel and its internal structures, application to the pressurizer is believed adequate to determine if conditions are acceptable for the installation of a MNSA-2.