

July 22, 2002

Mr. Michael Krupa
Director, Nuclear and Safety Engineering
Entergy Operations, Inc.
1340 Echelon Parkway
Jackson, MS 39213-8293

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT 2 - CORRECTION TO AUTHORIZATION
OF RELIEF REQUEST RE: REQUEST FOR RELIEF FROM THE
REQUIREMENTS OF THE AMERICAN SOCIETY OF MECHANICAL
ENGINEERS (ASME) BOILER AND PRESSURE VESSEL CODE (CODE)
CONCERNING AUTHORIZATION TO USE NEW DESIGN OF MECHANICAL
NOZZLE SEAL ASSEMBLY (MNSA) (TAC NO. MB4517)

Dear Mr. Krupa:

By letter dated March 15, 2002, as supplemented by letters dated April 4, and April 26, 2002, Entergy Operations, Inc. (Entergy), requested relief from ASME Code, Section XI, requirements for IWA-4170 required repairs. Entergy requested Nuclear Regulatory Commission (NRC) staff approval to use the new design of the MNSA in temporary applications on locations in the reactor coolant system that exhibit leakage due to primary water stress corrosion cracking at Arkansas Nuclear One, Unit 2.

The staff evaluated the information provided in the submittal and determined that the proposed alternative would provide an acceptable level of quality and safety for the requested two cycles. Therefore, by letter dated July 3, 2002, NRC authorized Entergy's proposed alternative, pursuant to 10 CFR 50.55a(a)(3)(i). A copy of our related Safety Evaluation (SE) was also enclosed.

Errors were discovered on page 2 of the cover letter and page 9 of the SE (Section 4.0, "CONCLUSION"). Revised sheets of these two pages are enclosed with the corrections identified by a marginal vertical bar. Please replace page 2 of the cover letter and page 9 of the SE of the previous submittal with the enclosed, revised sheets.

Mr. M. Krupa

- 2 -

Please call N. Kalyanam, at (301) 415-1480, with any questions you may have.

Sincerely,

/RA/

N. Kalyanam, Project Manager, Section 1
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosure: Page 2 of the cover letter, Page 9 of the SE

cc w/encls: See next page

Mr. M. Krupa

- 2 -

Please call N. Kalyanam, at (301) 415-1480, with any questions you may have.

Sincerely,

/RA/

N. Kalyanam, Project Manager, Section 1
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosure: Page 2 of the cover letter, Page 9 of the SE

cc w/encls: See next page

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Mr. M. Krupa

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If the evidence of leakage is at the socket weld, the proposed MNSA-2 repair would not be appropriate and normal weld repair techniques would be required.

Subsequent to the verbal authorization, your staff informed NRC that five pressurizer heater sleeve nozzles were found leaking during walkdown following shutdown and MNSAs were installed on these nozzles during the outage. One additional pressurizer heater sleeve nozzle was found leaking during the heatup walkdown in preparation for power ascension. ANO-2 was shut down to install a MNSA on this nozzle. No other leaking nozzles were found.

Entergy indicated in its application that it may seek relief in the future to use the MNSA-2 for permanent application. Supplemental letters dated April 4, and April 26, 2002, contained the design stress report for qualification of the MNSA-2 for use at ANO-2. The staff notes that the analysis contains several aspects that would trigger questions and requests for additional clarifying information from ANO-2, if the relief request was intended for a period exceeding two operating cycles. These aspects, however, are less significant when the use of the MNSA-2s is limited to two operating cycles. The staff did not review the design stress reports with respect to use of the MNSAs beyond a time period of two operating cycles. Therefore, if an application for extended operation, i.e., beyond the approved two operating cycles, is submitted, the staff will need to evaluate all current and any new data, including stress and fatigue calculations, that may pertain to long-term usage before approval is granted for extended operation.

This authorization is valid for two operating cycles of the current inspection interval, which ends on March 25, 2010.

The staff's safety evaluation is enclosed.

Sincerely,

/RA/

Robert A. Gramm, Chief, Section 1
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-368

Enclosure: Safety Evaluation

cc: w/encl: See next page

of plant restart and will be conducted at normal operating pressure, with the test temperature determined in accordance with the ANO-2 P-T Limits, as stated in the ANO-2 Technical Specifications. Additionally, VT-2 examination of the external edge of the counterbore region will be performed to verify no leakage is present that would not be detected by the leakoff nozzle.

7. With respect to the two modified instrument nozzles, the socket weld between the inserted new nozzle and the old nozzle is the new pressure boundary. Cracks in the "J"-groove welds have the potential to show leakage at the surface of the pressurizer in the annulus region between the old nozzle and the base material, and if the socket weld were to crack, the leakage is observed at the socket weld. Since "...*the MNSA-2 is a mechanical device designed to replace the function of partial penetration J-groove welds that attach Alloy 600 nozzles or heater sleeves to the pressurizer...*" (as stated in your application dated March 15, 2002), for evidence of leakage at the surface of the pressurizer, the proposed MNSA-2 repair would be appropriate. On the other hand, if the evidence of leakage is at the socket weld, the proposed MNSA-2 repair would not be appropriate. Normal weld repair techniques would be required.

The NRC staff has reviewed the proposed licensee actions and limitations noted above, and concludes that they are sufficient to assure proper installation and operation of the MNSA-2 for their intended use and duration.

4.0 CONCLUSION

The NRC staff concludes that, pursuant to 10 CFR 50.55a(a)(3)(i), the use of MNSA-2s as an alternative to an ASME Code Section XI repair on any leaking nozzles or heater sleeves of the type described above, may be authorized for a period not to exceed two operating cycles, since it is found to provide an acceptable level of quality and safety. This authorization is valid for two operating cycles of the current ISI interval for ANO-2, which ends on March 25, 2010.

Principle Contributors: T. Bloomer, M. Hartzman

Date: July 3, 2002

Arkansas Nuclear One

cc:

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March 2001