Entergy

Entergy Operations, Inc.
1340 Echelon Parkway
Jackson, MS 39213-8298
Tel 601 368 5758

Michael A. Krupa
Director
Nuclear Safety & Licensing

April 24, 2000

U. S. Nuclear Regulatory Commission
Attn.: Document Control Desk
Mail Stop OP1-17
Washington, DC 20555-0001

Subject: Entergy Operations, Inc.
Alternative to ASME Code Requirements

Arkansas Nuclear One - Units 1 & 2	Waterford Steam Electric Station – Unit 3
Docket Nos. 50-313 & 50-368	Docket No. 50-382
License Nos. DPR-51 & NPF-6	License No. NPF-38

CNRO-2000-00011

Pursuant to 10CFR50.55a(a)(3)(ii), Entergy proposes an alternative to the requirements of ASME Section XI, IWB-2420(a) and Table IWB-2500-1, Examination Category B-A, Note (4). Specifically, Relief Request CEP-ISI-001, Rev. 0 (see attachment) proposes an alternative to:

(1) Repeating the sequence of examinations as established in the first Inservice Inspection (ISI) interval, as required by IWA-2420(a); and

(2) Performing a 50% volumetric examination of the subject weld from the reactor vessel flange face in the first period of the interval, as required by Note (4) of Table IWA-2500-1, Examination Category B-A.

Entergy proposes the alternative on the basis that the requirements of IWB-2420(a) and Note (4) of Table IWA-2500-1, Examination Category B-A result in a hardship without a compensating increase in the level of quality and safety.

This request applies to Entergy's nuclear units Arkansas Nuclear One – Units 1 and 2 and Waterford Steam Electric Station – Unit 3. The NRC has approved a similar request for Byron Nuclear Power Station (12R-24).[1]

[1] Letter dated March 26, 1999, "Evaluation of Second 10-Year Interval Inservice Inspection Requests for Relief for Byron Nuclear Power Station, Units 1 and 2 (TAC Nos. MA3932 and MA3933)"

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Relief Request CEP-ISI-001, Rev. 0 is needed to support the upcoming refueling outages at ANO-2 and Waterford 3, currently scheduled to begin in the autumn of 2000. Therefore, Entergy requests the NRC review and authorize use of CEP-ISI-001, Rev. 0 on or before August 31, 2000.

This letter contains no commitments.

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

Very truly yours,

MAK/GHD/baa
attachment
cc: Mr. C. G. Anderson (N-GSB)
Mr. C. M. Dugger (W-GSB-300)
Mr. G. J. Taylor (M-ECH-65)

Mr. T. W. Alexion, NRR Project Manager (ANO-2)
Mr. R. L. Bywater, NRC Senior Resident Inspector (ANO)
Mr. T. R. Farnholtz, NRC Senior Resident Inspector (W3)
Mr. N. Kalyanam, NRR Project Manager (W3)
Mr. E. W. Merschoff, NRC Regional Administrator, Region IV
Mr. M. C. Nolan, NRR Project Manager (ANO-1)

RELIEF REQUEST
CEP-ISI-001, Rev. 0

Component Number:	ANO-1/01-001 ANO-2/01-020 W3/01-020
Code Class:	1
References:	IWB-2420(a), IWB-2500, Table IWB-2500-1
Examination Category:	B-A
Item Number:	B1.30
Description:	Deferral of volumetric examinations on the shell-to-flange weld of the reactor vessel
Unit/Inspection Interval Applicability:	ANO-1 - third (3rd) 10-year interval ANO-2 – third (3rd) 10-year interval Waterford 3 – second (2nd) 10-year interval

I. Code Requirement(s)

ASME Section XI, 1992 Edition, IWB-2420(a) states that the sequence of component examinations established during the first inspection interval shall be repeated during each successive inspection interval, to the extent practical.

Table IWB-2500-1, Examination Category B-A, Item B1.30, requires a volumetric examination of essentially 100% of the reactor vessel shell-to-flange weld once each 10-year inspection interval. The requirements are modified by Notes (3) and (4) as follows:

a. Note (3) states, "If partial examinations are conducted from flange face, the remaining volumetric examinations required to be conducted from vessel wall may be performed at or near the end of each inspection interval."

b. Note (4) states, "The examination of shell-to-flange welds may be performed during the first and third inspections periods in conjunction with the nozzle examinations of Exam. Cat. B-D (program B). At least 50% of the shell-to-flange welds shall be examined by the end of the first inspection period and the remainder by the end of the third inspection period."

II. Requested Authorization

Pursuant to 10CFR50.55a(a)(3)(ii), Entergy proposes an alternative to:

(1) Repeating the sequence of examinations as established in the first Inservice Inspection (ISI) interval as required by IWA-2420(a); and

(2) Performing a 50% volumetric examination of the subject weld from the reactor vessel flange face in the first period of the interval, as required by Note (4) of Table IWA-2500-1, Examination Category B-A.

Entergy proposes the alternative on the basis that the specified requirement of IWB-2420(a) and Note (4) of Table IWA-2500-1, Examination Category B-A result in a hardship without a compensating increase in the level of quality and safety.

III. Proposed Alternative Examination

The reactor vessel shell-to-flange weld will undergo 100% volumetric examinations concurrent with the reactor vessel 10-year examinations at or near the end of the Inservice Inspection (ISI) interval.

IV. Basis for the Proposed Alternative Examination

The reactor vessel shell-to-flange examination may be performed one of two ways: (1) manually or (2) remotely using automated equipment. Performing the exam manually requires the reactor vessel head to be suspended approximately one foot above the vessel flange. This is done to lower the radiation shine from the reactor vessel internals to a reasonable level. Even with the reactor head suspended, the radiation levels are expected to be 350 – 1,500 mrem/hr. With the head suspended, non-destructive examination (NDE) personnel must then place their hands under the head to perform the examination. This method unnecessarily exposes NDE personnel to high radiation doses and hazardous working conditions. Performing the exam remotely requires using the automated equipment necessary for the vessel shell and nozzle–to-vessel weld examinations. Mobilizing automated equipment to perform a partial examination in the first period would constitute a large economic and schedule impact.

In the previous inspection interval, the reactor vessel shell-to-flange weld was examined twice for both ANO units and for Waterford 3. The first examination was a partial examination from the flange face performed manually at ANO and remotely with automated equipment at Waterford 3. The second examination was performed from the vessel interior with automated equipment at each facility. This second examination established a new sequence for the shell-to-flange weld allowing it to be performed in conjunction with the reactor vessel nozzle examinations. The nozzle examinations are scheduled to be performed at the end of the interval, in accordance with ASME Code Case N-521, which was approved for use in Regulatory Guide 1.147.

From an industry perspective, two reasons why deferring the vessel shell-to-flange examination to the end of the inspection interval will not decrease the level of quality and safety are discussed below.

1. Similar PWR reactor vessels have been operating for over 20 years with no recorded inservice-induced flaws or potential degradation mechanisms. Since each PWR reactor vessel in operation is representative of the operating conditions throughout the industry, continued inspection of these vessels ensures that any potential degradation mechanism would be detected.

2. Given the present large population of PWR reactor vessels in operation, the examination of shell-to-flange welds within the industry during any 10-year interval is evenly distributed. This distribution is essentially equivalent, regardless of whether or not a percentage of the shell-to-flange examinations are performed in the first inspection period or performed concurrent with the reactor vessel 10-year examinations at the end of the inspection interval.

In addition to the above reasons, performing the automated reactor vessel examinations during a single refueling outage improves consistency of the examinations by utilizing the same equipment, personnel, and procedures. Moreover, this improves the reliability and reproducibility of the examinations while reducing exposure.

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 proposes the alternative presented above on the basis that the requirements of IWB-2420(a) and Table IWB-2500-1, Examination Category B-A Item B1.30 pertaining to the reactor vessel shell-to-flange examination would result in a hardship without compensating increase in the level of quality and safety. Therefore, Entergy requests the proposed alternative be authorized pursuant to 10CFR50.55a(a)(3)(ii).