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CNRO-2002-00056

December 6, 2002

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

SUBJECT: Entergy Operations, Inc.
Request to Use ASME Code Case N-663

Arkansas Nuclear One, Unit 1	Grand Gulf Nuclear Station
Docket No. 50-313	Docket No.
License No. DPR-51	License No. NPF-29

Waterford Steam Electric Station, Unit 3	River Bend Station
Docket No. 50-382	Docket No. 50-458
License No. NPF-38	License No. NPF-47

Dear Sir or Madam:

On November 25, 2002, a meeting sponsored by the Electric Power Research Institute (EPRI) was held between representatives of the NRC technical staff and the nuclear industry to discuss various risk and performance initiatives. In that meeting, the NRC staff suggested that, as a pilot application for the industry, a licensee submit a request to use ASME Code Case N-663 (previously numbered as N-662) Entergy Operations, Inc. (Entergy) agreed to submit such a request with the understanding that NRC resources would be available to support authorizing use of the Code case during the upcoming spring refueling outage at River Bend Station.

Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), Entergy requests authorization to use ASME Code Case N-663, as documented in Request for Alternative CEP-ISI-007, Rev. 0 (Enclosure 1). Entergy plans to use this Code case as an alternative to certain surface examination requirements specified in ASME Section XI Tables IWB-2500-1 and IWC-2500-1. A copy of ASME Code Case N-663 is also provided in Enclosure 2. CEP-ISI-007 is applicable to Arkansas Nuclear One, Unit 1, Grand Gulf Nuclear Station, River Bend Station, and Waterford Steam Electric Station, Unit 3.

Entergy requests that the NRC staff authorize use of CEP-ISI-007 by March 1, 2003 in order to support the upcoming refueling outage at River Bend Station, which is currently scheduled to begin in the spring of 2003.

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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/bal

- enclosures: 1. Request for Alternative CEP-ISI-007, Rev. 0
2. ASME Code Case N-663

- cc: Mr. C. G. Anderson (N-GSB-3C)
Mr. P. D. Hinnenkamp (R-GSB-40)
Mr. W. A. Eaton (G-ESC3-VPO)
Mr. J. E. Venable (W-GSB-300)

- Mr. P. J. Alter, NRC Senior Resident Inspector (RBS)
Mr. R. L. Bywater, NRC Senior Resident Inspector (ANO)
Mr. M. C. Hay, NRC Senior Resident Inspector (W3)
Mr. T. L. Hoeg, NRC Senior Resident Inspector (GGNS)
Mr. D. H. Jaffe, NRR Project Manager (GGNS)
Mr. N. Kalyanam, NRR Project Manager (W3)
Mr. E. W. Merschoff, NRC Regional Administrator, Region IV
Mr. W. D. Reckley, NRR Project Manager (ANO-1)
Mr. M. K. Webb, NRR Project Manager (RBS)

ENCLOSURE 1

CNRO-2002-00056

**REQUEST FOR ALTERNATIVE
CEP-ISI-007**

**REQUEST FOR ALTERNATIVE
CEP-ISI-007, Rev. 0**

I. COMPONENTS

Component Numbers:	Class 1 piping welds (NPS 4 and larger) and all Class 2 piping welds
Code Classes:	1 and 2
References:	<ol style="list-style-type: none">1. ASME Section XI, 1992 Edition, IWB-2500, IWC-25002. ASME Section XI Task Group on ISI Optimization, Report No. 92-01-01, "Evaluation of Inservice Inspection Requirements for Class 1, Category B-J Pressure Retaining Welds in Piping," dated July 19953. EPRI TR-112657, Rev B-A "Revised Risk-Informed Inservice Inspection Evaluation Procedure," dated December 19994. ASME Code Case N-663
Examination Category:	B-F, B-J, C-F-1 and C-F-2
Item Number:	B5.10, B5.40, B5.70, and B5.100, B9.10 and B9.31, C5.10 through C5.42 and C5.50 through C5.82
Description:	Alternative Requirements for Class 1 and 2 Surface Examinations
Unit/Inspection Interval Applicability:	ANO-1 - third (3 rd) 10-year interval (Class 2 only) GGNS – second (2 nd) 10-year interval RBS – second (2 nd) 10-year interval Waterford 3 – second (2 nd) 10-year interval

II. CODE REQUIREMENTS

ASME Section XI IWB-2500 and IWC-2500 require components be examined and pressure tested as specified in Tables IWB-2500-1 and IWC-2500-1, respectively. These tables require a sampling of piping welds (as well as other components) be subjected to various types of non-destructive examinations (NDE) (i.e., volumetric and/or surface examinations) and pressure testing (i.e., visual, VT-2).

III. PROPOSED ALTERNATIVE

Pursuant to 10 CFR 50.55a(a)(3)(i), Entergy Operations, Inc. (Entergy) proposes to use ASME Code Case N-663 in its entirety as an alternative to the surface examination requirements of Table IWB-2500-1 for examination categories B-F (NPS 4 and larger) and B-J (NPS 4 and larger) and Table IWC-2500-1 for examination categories C-F-1 and C-F-2.

IV. BASIS FOR THE PROPOSED ALTERNATIVE

The subject item numbers in ASME Section XI require a volumetric and/or surface exam on selected piping welds to ensure that generic degradation mechanisms are not active on either the inside diameter (I.D.) or the outside diameter (O.D.). However, these welds are selected using a deterministic set of requirements that are un-informed as to any possible degradation mechanisms. ASME Code Case N-663 provides an alternative to the current ASME Section XI requirements for defining the number and location of surface examinations for piping components.

The ASME Section XI Task Group on ISI Optimization, Report No. 92-01-01, *Evaluation of Inservice Inspection Requirements for Class 1, Category B-J Pressure Retaining Welds in Piping*, dated July 1995, concluded (with 50 units responding with a total of 9333 welds inspected) only 2 welds (0.02%) were found to have flaws detected by Section XI surface examinations. These flaws were determined to be fabrication-induced.

In parallel with the above, several risk-informed Code cases have been developed for use on piping welds (e.g., ASME Code Cases N-560, N-577, and N-578). One of the methods for risk-informing piping examinations is via use of EPRI TR-112657, Rev. B-A, *Revised Risk-Informed Inservice Inspection Evaluation Procedure (NRC SER dated 10/28/99)*. Table 4-1, *Summary of Degradation-Specific Inspection Requirements and Examination Methods*, of the EPRI report lists the required degradation mechanisms to be evaluated in Class 1, 2, and 3 piping. It also identifies the risk-informed examination method required for each of these degradation mechanisms. The only degradation mechanism that requires a surface examination is O.D. chloride cracking. These two initiatives led ASME to investigate the value of surface examinations.

Code Case N-663 incorporates lessons learned from the risk-informed initiatives and industry examination experience into Section XI by requiring that an evaluation be conducted to identify locations, if any, where a surface examination would be of benefit from a generic piping degradation perspective. The results of this evaluation identify where O.D. degradation is most likely to occur by reviewing plant-specific programs and practices, and operating experience. If the potential for degradation is identified, Code Case N-663 defines examination techniques, volumes, and frequencies. As such, implementing Code Case N-663 will identify appropriate locations for surface examination, if any, and eliminate unnecessary examinations.

Other ASME Section XI examination requirements for the subject piping welds, including volumetric examinations and pressure testing, will continue to be performed. Examination requirements for other components, including Class 1 piping less than NPS 4, will continue to meet all Section XI requirements and are not subject to this request.

Code Case N-663 was approved by the ASME Boiler and Pressure Vessel Code Committee on September, 17, 2002, but has not yet been included in the most recent listing of NRC approved code cases provided in Revision 12 of Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability – ASME Section XI Division 1."

V. CONCLUSION

10 CFR 50.55a(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 believes the proposed alternative specified in ASME Code Case N-663 provides an acceptable level of quality and safety. The additional requirement of Code Case N-663 to evaluate susceptibility to O.D. degradation is an improvement to existing "random" examination requirements. Therefore, Entergy requests the NRC authorize the use of Code Case N-663 in accordance with 10 CFR 50.55a(a)(3)(i).

ENCLOSURE 2

CNRO-2002-00056

ASME CODE CASE N-663

Approval Date: September 17, 2002
Expiration Date: September 18, 2005

Case N-663
Alternative Requirements for Class 1 and 2
Surface Examinations
Section XI, Division 1

Inquiry: What alternative to the surface examination requirements for piping welds of Examination Categories B-F, B-J, C-F-1, and C-F-2 may be used?

Reply: It is the opinion of the Committee that in lieu of the surface examination requirements for piping welds of Examination Category B-F (NPS 4 and larger), B-J (NPS 4 and larger), C-F-1, and C-F-2, surface examinations may be limited to areas identified by the Owner as susceptible to outside surface attack.

Susceptibility to outside surface attack shall be determined in accordance with Table 1.

Examination Category B-F less than NPS 4 and Examination Category B-J less than NPS 4 shall be examined in accordance with IWB-2500.

All areas identified as susceptible to outside surface attack shall be examined during each interval. The requirements of IWB-2411, IWB-2412, IWC-2411, and IWC-2412, as applicable, shall be met. Acceptance standards shall be in accordance with IWB-3514 or IWC-3514, as applicable. The areas shall be reexamined in the same sequence, during subsequent inspection intervals over the service lifetime of the piping item, to the extent practical.

TABLE 1
SUSCEPTIBILITY CRITERIA

Mechanism	Criteria
External chloride stress corrosion cracking	<ul style="list-style-type: none"> • austenitic stainless steel base metal, welds, or heat affected zone (HAZ), and • operating temperature > 150°F, and • a piping outside surface is within five pipe diameters of a probable leak path (e.g., valve stem) and is covered with nonmetallic insulation that is not in compliance with U.S. NRC Regulatory Guide 1.36 (e.g., chloride content) or equivalent requirements <p style="text-align: center;">or</p> <ul style="list-style-type: none"> • austenitic stainless steel base metal, welds, or HAZ, and • a piping outside surface is exposed to wetting from a concentrated chloride-bearing environment (e.g., seawater, brackish water, brine)
Other outside surface initiated mechanisms	Items identified as susceptible to outside surface attack by a plant-specific service history review. This review should include plant-specific processes and programs that minimize chlorides and other contaminants.