



Entergy Operations, Inc.
P.O. Box 756
Port Gibson, MS 39150
Tel 601 437 6408
Fax 601 437 2795

Joseph J. Hagan
Vice President
Operations
Grand Gulf Nuclear Station

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Document Control Desk
U.S. Nuclear Regulatory Commission
Mail Station P1-37
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Subject: Additional Information for the Approval of ASME Code Cases
N-508-1, N-509, N-524 and N-546

Grand Gulf Nuclear Station
Docket No. 50-416
License No. NPF-29

Arkansas Nuclear One- Units 1 and 2
Docket Nos. 50-313 and 50-368
License Nos. DPR-51 and NPF-6

Waterford 3 Steam Electric Station
Docket No. 50-382
License No. NPF-38

River Bend Station
Docket No. 50-458
License No. NPF-47

GNRO-97/00003

Gentlemen:

On June 20, 1996, requests for the subject Code Cases were submitted to the Nuclear Regulatory Commission (NRC) to obtain their approval for use at Arkansas Nuclear One, Units 1 and 2, Grand Gulf Nuclear Station, River Bend Station, and Waterford 3 Steam Electric Station. During the review process, the NRC verbally communicated that the Entergy submittals were inconsistent with current 10 CFR 50.55a requirements in that the requests did not demonstrate that the alternatives would result in an acceptable level of safety; or that compliance with existing commitments would result in hardship or unusual difficulty without a compensating increase in the level of quality or safety. Additionally, the NRC has requested that Entergy identify the interval for each facility in which the proposed Code Case is to be used.

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Although the Entergy submittals were similar to previous requests made by Entergy and other utilities, and that some of the Code Cases have already been approved by the NRC for other facilities, your staff has determined that the requested details are necessary for compliance.

Additionally, on August 22, 1996 during a conference call between the NRC and Entergy, four NRC questions on Code Case N-508-1 were discussed, and the responses submitted by Grand Gulf in correspondence dated September 5, 1996.

The following information is being provided in accordance with 10 CFR 50.55a(a)(3)(i) to support our request for alternatives to the current ASME Section XI requirements at EOI facilities.

The intervals for which each Code Case will be used at each Entergy facility are provided in Table 1, and the Edition and Addenda of ASME Section XI in affect at each EOI facility are provided in Table 2.

Facility	N-508-1		N-509		N-524		N-546	
	Current Interval	New Interval	Current Interval	New Interval	Current Interval	New Interval	Current Interval	New Interval
GGNS	1	1		X		X		X
RBS		X	2	X		X	X	X
W3		X		X		X	X	X
ANO-1		X		X		X		X
ANO-2	X		X		X		X	

TABLE 1

Facility	Repair/Replacement		Inservice Inspection	
	Current Interval Edition/ Addenda	New Interval ³ Edition/ Addenda	Current Interval Edition/ Addenda	New Interval ³ Edition/ Addenda
GGNS	77/S79	92/93A	77/S79	92/93A
RBS	80/W81	92/93A	80/W81	92/93A
W3	80/W81	92/93A	80/W81	92/93A
ANO-1	86/N/A	92/93A	80/W81	92/93A

¹ Already Approved by the NRC, reference correspondence from the NRC to Mr. J. J. Hagan, dated October 7, 1996

² Already Approved by the NRC, reference correspondence from the NRC to Mr. J. R. McGaha, Jr., dated January 16, 1996

³ Only portions of the 93 Addenda are included in the new interval update for pressure testing, Reference GNRO 96-00066

Code Case N-508-1, "Rotation of Serviced Snubbers and Pressure Relief Valves for the Purpose of Testing, Section XI, Division 1"

NRC Requested Additional Information:

1. A detailed description of the snubber and pressure relief valve replacement plans utilizing the Code Case, and the differences from the requirements of the applicable ASME Code Editions and Addenda, for each plant.

Entergy Response: Currently when a snubber or relief valve is removed for the purposes of testing, two options are available, (1) maintain the system or portion of the system in a degraded condition, while complying with Technical Specifications, until the removed item is tested, and refurbish if required, and then reinstalled, or (2) rotate a "like" item into its place and test the removed item at a later time. For those facilities who are fortunate enough to have ample spares, option (2) is the typical method for minimizing the duration of systems being in a degraded condition. Currently, this activity is required to be treated like an ASME Section XI replacement meeting all the requirements of IWA-7000. This entails the use of Replacement Programs, Replacement Plans, suitability evaluations, unique reviews within the licensee's Section XI programs, review and concurrence by the ANII, and maintenance of NIS-2s or other Section XI documentation to record the replacement. Such controls are appropriate when items are replaced for the purpose of design changes, failures, or expiration of component life, but as indicated by the industry and the ASME with the issuance of Code Case N-508 these controls are considered excessive for the removal and installation of snubbers and relief valves solely for the purpose of testing. Because of the nine provisions within the Code Case, the alternative only eliminates the administrative controls and documentation requirements associated with an ASME Section XI replacement. All other aspects of the replacement such as design, manufacture, operational limits and settings are still maintained.

2. A clarification of the Licensee's intention to comply with "same design and construction" as indicated in item (a) of the Code Case. Explain how it relates to model, size, manufacture, capacity, design specifications and criteria.

Entergy Response: The use of any Code Case is restricted to its complete use and selecting specific provisions from within a Code Case is not an acceptable practice. Entergy plans to implement item (a) of the Code Case in a manner that ensures that the items being removed and installed are comparable in their design, construction, and operating parameters to the extent that installation can be

performed without requiring a plant design change or modification. Additionally, in response to the NRC's concern, it should be noted that paragraph (d) of the Code Case limits the use of items to be installed to those that have been in previous service. This requirement was specifically added to the Code Case to ensure that the initial purchase of an item was in accordance with the Licensee's Section XI Replacement Program and that the item does comply with a component design specification, if required. This ensures that all reconciliations and evaluations have been completed, and that compliance with original Construction Code requirements is maintained before the item is stocked as part of the useable inventory.

3. A clarification of what would be considered repair or replacement of both removed mechanical and hydraulic snubbers, as far as the use of an NIS-2 form is concerned.

Entergy Response: Code Case N-508-1 does not alter any Section XI requirements if the removed snubber requires any repair or replacement of the snubber's Code parts, it only applies to the unpinning and re-pinning of the original and replacement snubber when they are rotated for the purpose of testing. As required by paragraph (i) of the Code Case, repair or replacement of the removed item, when required, shall be performed in accordance with IWA-4000 for repairs and IWA-7000 for replacements. Because of this requirement, if the removed item requires a repair or replacement of Code items contained in the snubber, then this activity will be a typical Section XI repair or replacement and the required Section XI documentation generated (NIS-2 or NIS-2A for Code Case N-532).

4. A discussion of the potential impact on the required plant snubber service life monitoring program due to the use of the Code Case.

Entergy Response: As stated in the "Inquiry" and "Reply" of the Code Case, the alternatives are only provided for IWA-4000 (IWA-7000 for Editions and Addenda prior to the 1991 Addenda). All other requirements of ASME Section XI are still required including any testing that may be performed as a result of Section XI. If testing of snubbers and relief valves is performed to other commitments, then that testing is still required. That is why paragraph (h) of the Code Case states that testing of removed snubbers and pressure relief valves, including required sample expansions, shall be performed in accordance with the Owner's test program. Use of the Code Case has no affect on any requirements beyond ASME Section XI replacement requirements. Commitments and programs in effect at EOI facilities for monitoring snubber service life are unaffected by the alternatives of Code Case N-508-1.

The use of ASME Code Case N-508-1 as an alternative to IWA-7000 for rotation of snubbers and relief valves for the purpose of testing provides a reduction in administrative requirements and documentation. All technical requirements (design, fabrication, installation, testing, etc.,) are still maintained in a manner that provides an acceptable level of safety that is consistent with the level of safety afforded by compliance with the ASME Section XI requirements that are currently being implemented at each of the EOI facilities.

Code Case N-509, "Alternative Rules for the Selection and Examination of Class 1, 2, and 3 Integrally Welded Attachments Section XI, Division 1"

Current Section XI requirements for EOI facilities require 100% of non-exempt integrally welded attachments in Examination Categories B-H, B-K-1, and C-C to be examined by a volumetric or surface examination, as applicable, and Examination Categories D-A, D-B, and D-C to be visually examined.

Code Case N-509 provides alternative requirements for selecting and examining integrally welded attachments of piping and components. The alternative reduces the total number of examinations from that stated above to 10% of the welded attachments associated with the component supports selected for examination under the 1990 Addenda, IWF-2510 requirements. However, for the EOI facilities seeking approval of this Code Case for the new interval, the 1992 Edition of IWF-2510 will be used in lieu of the 1990 Addenda as specified in the Code Case. IWF-2510 as written in the 1990 Addenda and the 1992 Edition are the same, and if permitted, this will simplify development of EOI ISI program updates by minimizing the references to various Editions and Addenda of Section XI within EOI ISI programs.

This Code Case is a significant departure from original ASME requirements, but is supported by industry experience that has been gathered and reviewed by the ASME. As part of this Code action, ASME conducted an industry survey to determine the extent of integral welded attachment failures. The data that was collected from the survey (43 nuclear plants responded) concluded the following:⁴

- Over the past 20 years, a total of five integral attachment failures were reported,

⁴ Reference SER attached to letter dated January 16, 1996 from William D. Beckner, NRC to John R. McGaha, Jr., Entergy

- The failures which were reported were identified as a result of connected support member deformation rather than during the scheduled examination of the integral attachment,
- Of the five failures, only one resulted in leakage from the pressure boundary. The root cause was determined to be design failure.

Our experience with integral attachments supports the findings of ASME in that scheduled ISI examinations of integral attachments at EOI facilities have not identified any failed attachments. Additionally, paragraph 1.3 (b) of the Code Case now requires that when integrally welded attachments are examined as a result of identified component support deformation and the results of these examinations exceed the applicable acceptance criteria, additional examinations are required. This change is more restrictive than Code requirements. Under current Code requirements, additional examinations are only required when the rejected item is found during scheduled ISI examinations.

Supported by the research of the ASME, EOI's experience, and the increased requirements for additional examinations when attachments are found to be unacceptable in conjunction with deformed supports, Code Case N-509 is believed to provide an acceptable level of quality and safety.

Code Case N-524, "Alternative Examination Requirements for Longitudinal Welds in Class 1 and 2 Piping Section XI, Division 1

Current Code requirements at EOI facilities require longitudinal welds in non-exempt Class 2 pipe to be examined for a distance of 2.5t from the intersecting point of the circumferential weld, and longitudinal welds in non-exempt Class 1 pipe to be examined for a distance of at least one pipe-diameter but no more than twelve inches from the intersecting point of the circumferential weld.

The alternative rules of Code Case N-524 reduce the longitudinal weld examination length to that portion of the longitudinal weld contained within the examination volume of the intersecting circumferential weld. In May of 1993, Report 90-07-001 was prepared for the ASME Section XI Task Group On ISI Optimization, this report concluded that:

- Twenty-five nuclear units were surveyed representing 319 cumulative years of operation. Total number of longitudinal welds examined equaled 2,059 with twenty-three welds (1.1%) identified with indications. Evaluation of the twenty-three

longitudinal welds concluded that none of the indications were rejectable and all indications were non-serviced induced.

- When considering the operational loadings, residual stresses from fabrication and degradation mechanisms, examining the circumferential weld to longitudinal weld intersection is adequate, and examining the additional length currently required by ASME Section XI is not necessary.
- There are no significant loading conditions or known material degradation mechanisms currently evident that specifically relate to longitudinal seam welds in nuclear piping.

Although the alternative examination volumes provided by Code Case N-524 reduces the total length of longitudinal welds now examined by ASME Section XI, it does require the portions of longitudinal welds that are most susceptible to service induced degradation to be examined as part of the circumferential weld seam. Performing examinations to the extent described by Code Case N-524 provides a level of safety and quality consistent with the level of safety and quality currently provided by the ASME Section XI rules being implemented at EOI facilities.

Code Case N-546, "Alternative Requirements for Qualification of VT-2 Examination Personnel Section XI, Division 1

Current Section XI requirements for EOI facilities require personnel who perform VT-2 examinations to be qualified in accordance with comparable levels of competency as defined in ANSI N45.2.6. Additionally, the examination personnel will have natural or corrected near distance vision acuity, in at least one eye equivalent to a Snell fraction of 20/20 or a Jaeger Number 1 on a standard Jaeger test. Also, they shall demonstrate a far distance acuity that is equivalent to the near distance requirement at 15 ft. or a Snell fraction of 20/30 at 20 ft.

Code Case N-546 permits experienced plant personnel such as licensed and nonlicensed operators, local leak rate personnel, system engineers, and inspection and nondestructive examination personnel to perform VT-2 visual inspections without having to be certified to comparable levels of ANSI N45.2.6. However, the Code Case does require personnel performing VT-2 inspections to have:

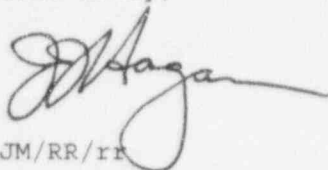
- (1) At least 40 hrs plant walkdown experience, such as that gained by licensed and nonlicensed operators, local leak rate personnel, system engineers, and inspection and nondestructive examination personnel.

- (2) At least (4) hours of training on Section XI requirements and plant specific procedures for VT-2 visual examination.
- (3) Vision test requirements of IWA-2321, 1995 Edition of ASME Section XI.

The requirements of Code Case N-546 as an alternative to the requirements of ASME Section XI as currently implemented at EOI's facilities will provide an acceptable level of quality and safety. The qualification requirements in Code Case N-546 are not significantly different from the qualifications required for VT-2 visual examiner certification. Licensed and nonlicensed operators, local leak rate personnel, system engineers, and inspection and nondestructive examination personnel typically have a sound working knowledge of plant components and piping layouts. This knowledge makes them acceptable candidates for performing VT-2 visual examinations. Therefore, this alternative provides a level of safety and quality consistent with that which is currently provided by the ASME Section XI rules being implemented at EOI facilities

Should you have any questions regarding this request, please contact Riley Ruffin at 601-437-2167.

Yours truly,



MJM/RR/rr

cc:

Mr. R. B. McGehee
Mr. N. S. Reynolds
Mr. H. L. Thomas
Mr. J. W. Yelverton

Regional Administrator
U.S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011

Mr. J. N. Donohew, Project Manager (w/2)
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Mail Stop 13H3
Washington, D.C. 20555

CC: NRC Senior Resident Inspector
Grand Gulf Nuclear Station
P. O. Box 756
Bald Hill Road
Port Gibson, MS 39150

NRC Senior Resident Inspector
Arkansas Nuclear One
1448 S. R. 333
Russellville, AR 72801

NRC Resident Inspector
Waterford 3 Steam Electric Station
Trailer 426
P. O. Box B
Killona, LA 70066

NRC Resident Inspector
River Bend Station
P. O. Box 1051
St. Francisville, LA 70775

Mr. George Kalman, Project Manager
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Region IV/ANO-1 & 2
Mail Stop
Washington, D.C. 20555

Mr. David Wiggington, Project Manager
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Region IV/W3
Mail Stop 13H3
Washington, D.C. 20555

Mr. Ramon Azua, Project Manager
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Region IV/RB
Mail Stop 13H3
Washington, D.C. 20555

Mr. Eugene Imbro
CBLA Task Force
U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Mail Stop 9A1
Washington, D.C. 20555