



ENTERGY

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June 23, 1997

1CAN069704

U. S. Nuclear Regulatory Commission
Document Control Desk
Mail Station OP1-17
Washington, DC 20555

Subject: Use Of ASME Code Cases N-416-1 And N-532

Arkansas Nuclear One - Unit 1	Grand Gulf Nuclear Station
Docket No. 50-313	Docket No. 50-416
License No. DPR-51	License No. NPF-29
Waterford 3 Steam Electric Station	River Bend Station
Docket No. 50-382	Docket No. 50-458
License No. NPF-38	License No. NPF-47

Gentlemen:

The purpose of this submittal is to request approval, pursuant to 10CFR50.55a(a)(3), for the use of the American Society of Mechanical Engineers (ASME) Code Cases N-416-1 and N-532 as alternatives to the ASME Section XI Code requirements in effect at the following Entergy Operations' nuclear units: Arkansas Nuclear One, Unit 1, Grand Gulf Nuclear Station, Waterford 3 Steam Electric Station, and River Bend Station. These facilities have previously had the subject code cases approved for use for the inservice inspection (ISI) intervals which will shortly, or which have recently, ended. New ISI intervals have begun/will begin on the dates shown below:

Arkansas Nuclear One, Unit 1	June 1, 1997
Grand Gulf Nuclear Station	June 1, 1997
Waterford 3 Steam Electric Station	July 1, 1997
River Bend Station	December 1, 1997

The current Arkansas Nuclear One, Unit 2, ISI interval does not expire until March 2000; therefore, the previous NRC approvals to use Code Cases N-416-1 and N-532 remain applicable at this time.

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On December 12, 1996, the NRC approved Entergy Operation's request to utilize the 1992 Edition of Section XI of the ASME Code, along with the pressure testing requirements of the 1993 Addenda, as the code of record for the next ISI intervals at each nuclear unit. Entergy Operation's review of this code of record has determined that Code Cases N-416-1 and N-532 have not yet been incorporated; neither have they been added to approved list of code cases in the latest revision of Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI Division 1." Therefore, Entergy Operations requests that use of these code cases be re-approved for use in the new ISI intervals. Justifications for the approvals are included in the attachment.

Prompt review and approval of Entergy Operation's use of Code Case N-416-1 is requested, since a post repair/replacement hydrostatic test could be required at any time in the interval. Approval of the use of Code Case N-532 is not as urgent (although desired), since additional administrative burden would not occur until after the first refueling outage in the new ISI interval at each unit.

Should you have any questions regarding this submittal, please contact me.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Dwight C. Mims", with the letters "DC MIMS" written in a larger, more stylized font to the right of the signature.

Dwight C. Mims
Director, Nuclear Safety

DCM/jjd

attachment

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COMPONENT IDENTIFICATION

Code Classes:	1, 2, and 3
References:	ASME Section XI, Paragraphs IWA-4700(a), IWA-4700(b), IWA-5120, IWA-5214, IWB-5230, IWC-5230, IWD-5222; ASME Code Case N-416-1
Examination Category:	N/A
Item Number:	N/A
Description:	Alternative Pressure Test Requirement for Welded Repairs or Installation of Replacement Items by Welding, Class 1, 2 and 3
Component Numbers:	All Class 1, Class 2, and Class 3 Pressure Retaining Components Subject to Hydrostatic Testing per IWA-4700.

CODE REQUIREMENTS

ASME Section XI, IWA-4700(a) requires a hydrostatic test to be performed per IWA-5000 after welded repair or replacement of classed components, except those exempted by IWA-4700(b).

IWA-5120 and IWA-5212 requires a pressure test per IWB-5230, IWC-5230, or IWD-5222, as applicable to the system which contains the repaired or replaced component.

BASIS FOR ALTERNATIVE

Pursuant to 10CFR50.55a(a)(3)(ii), an alternative is requested to the requirements to perform hydrostatic tests following welded repairs or replacements to ASME Class 1, 2, or 3 pressure retaining components. Due to the additional preparation required to safely accomplish the required hydrostatic tests (at pressures above normal operating levels) after welded repairs and replacements on Code Class 1, 2, and 3 components, these tests present unusual difficulties and hardship situations for Entergy Operations' nuclear facilities.

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BASIS FOR ALTERNATIVE (con't)

Some of the specific problems typically encountered when preparing and performing hydrostatic tests include:

- Complicated or abnormal valve line-ups in order to properly vent, fill, and isolate the component requiring testing.
- Relief valves with setpoints lower than the hydrostatic test pressure must be gagged or removed and blind flanged. This process requires the draining and refilling of the system both prior to the test and prior to system restoration.
- Valves that are not normally used for isolation (e.g., normally open pump discharge valves) are often required to provide pressure isolation for an elevated pressure hydrostatic test. These valves frequently require time consuming seat maintenance in order to obtain a leak tight pressure boundary.
- The radiation exposure to plant personnel involved in hydrostatic tests is high in comparison to operational pressure testing due to the large amount of time required to prepare the volume for testing (i.e., installing relief valve gags, performing appropriate valve line-ups, completing valve maintenance, filling and venting, etc.).

The alternative pressure tests permitted by Code Case N-416-1 fulfill the same purpose as a hydrostatic pressure test, i.e., a check for component/system leakage. No leakage detection benefit is gained from the added challenge to the piping system provided by an elevated pressure hydrostatic test as compared to a system leakage test. The stresses experienced during a hydrostatic test may not include stresses caused by thermal and operational transients due to normal system operation; therefore, the accumulated stress experienced during hydrostatic testing may actually be less than the total stress experienced during a system leakage test. Thus, if a through wall leakage path exists, leakage during a system leakage test may be more evident.

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PROPOSED ALTERNATE REQUIREMENTS

After welded repairs or installation of replacement items by welding, the following alternative requirements will be met in lieu of performing the hydrostatic pressure test required per paragraph IWA-4700, IWA-5120, and IWA-5212:

- (1) NDE shall be performed in accordance with the methods and acceptance criteria of the applicable Subsection of the 1992 Edition of Section III.
- (2) Prior to or immediately upon return to service, a visual examination (VT-2) shall be performed in conjunction with a system leakage test, using the 1992 Edition of Section XI, in accordance with paragraph IWA-5000, at nominal operating pressure and temperature.
- (3) Use of this Alternative shall be documented on an NIS-2 Form or an NIS-2A Form per Code Case N-532.
- (4) Additional surface examinations shall be performed on the root (pass) layer of butt and socket welds of the pressure retaining boundary of Class 3 components where a surface examination of the final weld is required by (1) above.
- (5) If additional requirements related to Code Case N-416-1 are imposed in a future revision of Regulatory Guide 1.147, they will be adopted in addition to items (1) through (4), above.

These requirements are specified in Code Case N-416-1 as approved by the Board of Nuclear Codes and Standards, with the additional provisions of (4) and (5) above. The commitment in item (4) is consistent with the limitation for Code Case N-416-1 listed in draft Revision 12 to Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," and with Entergy Operation's previous approvals to use this code case.

Based on the above, Entergy Operations has concluded compliance with the Code as written would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety above that provided for in Code Case N-416-1.

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COMPONENT IDENTIFICATION

Code Classes:	1, 2 and 3
References:	IWA-4900, IWA-6200 ASME Code Case N-532
Examination Category:	Not Applicable
Item Number:	Not Applicable
Description:	Alternative Requirements to Repair and Replacement Requirements and Inservice Summary Report Preparation and Submission as Required by IWA-4000 and IWA-6000
Component Numbers:	All Class 1, 2 and 3 Components Subject to Inservice Inspection, Repair or Replacement

CODE REQUIREMENTS

IWA-6200 requires the preparation of Inservice Inspection (ISI) Summary Reports which contain completed Form NIS-1, "Owner's Report for Inservice Inspection" and Form NIS-2, "Owner's Report for Repair or Replacement". In accordance with IWA-6240, the ISI Summary Report is required to be submitted to the enforcement and regulatory authorities having jurisdiction at the plant within 90 days of the completion of the inservice inspections conducted each refueling outage.

IWA-4900 reiterates the requirement to complete NIS-2 forms for repairs and replacements.

BASIS FOR ALTERNATIVE

Pursuant to 10CFR50.55a(a)(3)(i), an alternative is requested on the basis that it provides an acceptable level of quality and safety.

Code Case N-532 was approved by the ASME Boiler and Pressure Vessel Code Committee on December 12, 1994, but is not yet included in the most recent listing of NRC approved code cases provided in Revision 11 of Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability - ASME Section XI Division 1," or the draft revision 12 of the regulatory guide.

Code Case N-532 provides an alternative to the current ASME Section XI repair and replacement documentation requirements, as well as regulatory reporting requirements relating to inservice inspection. This alternative will reduce the resources required to

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prepare NIS-2 forms and prepare and submit the ISI Summary Report currently required by the Code after each refueling outage. This is a significant reduction in the administrative burden required by ASME Section XI, IWA-6000.

By use of this code case, the following would be attached to an Owner's Activity Report Form OAR-1 upon completion of each refueling outage: 1) an abstract of all examinations and tests completed each refueling outage, 2) a listing of item(s) with flaws or relevant conditions that required evaluation to determine acceptability for continued service, and 3) an abstract for repairs, replacements, and corrective measures performed due to an item containing a flaw or relevant condition that exceeded acceptance criteria. Each Form OAR-1 prepared during an inspection period would be available onsite for the NRC's review. All OAR-1 forms generated during an inspection period would be compiled and subsequently submitted following the end of an inspection period.

This request to use Code Case N-532 includes the following clarification regarding reporting of "corrective measures". ASME Section XI uses the term "corrective measures" in two different ways. One use of the term involves Code required activities such as repairs and replacements. The other use of the term, as found in IWX-3000, involves maintenance activities that do not involve repairs or replacements. With this clarification, Entergy Operations proposes not to report corrective measures which only include routine maintenance activities such as tightening threaded fittings to eliminate leakage, torquing of fasteners to eliminate leakage at bolted connections, replacing valve packing due to unacceptable packing leakage, tightening loosened mechanical connections on supports, adjusting and realigning supports, cleaning up corrosion on components resulting from leakage, etc.

Including these routine maintenance activities in the Owner's Activity Report Form OAR-1 required by Code Case N-532 would be a significant expansion of current requirements without any corresponding increase in safety or quality. Corrective measures which refer to Code required activities, such as repairs and replacements, will be reported in compliance with Code Case N-532.

Entergy Operations considers the alternative documentation and reporting requirements of Code Case N-532 to be a reasonable alternative and an improvement to existing requirements. Because the use of this alternative only affects documentation and reporting requirements, Entergy Operations considers this alternative to provide an acceptable level of quality and safety.

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PROPOSED ALTERNATIVE CRITERIA

Entergy Operations will use Code Case N-532 in its entirety with the clarification stated above regarding the provision in paragraph 2(c) of the Code Case for reporting corrective measures.