



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

March 6, 2009

Mr. Bryan S. Ford  
Senior Manager, Nuclear Safety & Licensing  
Entergy Operations, Inc.  
1340 Echelon Parkway  
Jackson, MS 39213-8298

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT 1, GRAND GULF NUCLEAR STATION, RIVER BEND STATION, AND WATERFORD STEAM ELECTRIC STATION, UNIT 3 - REQUEST FOR ALTERNATIVE CEP-ISI-012, USE ALTERNATIVE REQUIREMENTS IN ASME CODE CASE N-753 (TAC NOS. MD8813, MD8814, MD8815 AND MD8816)

Dear Mr. Ford:

By letter dated May 20, 2008, as supplemented by letter dated January 23, 2009, Entergy Operations, Inc. (Entergy, the licensee), submitted a request for alternative CEP-ISI-012 for Arkansas Nuclear One, Unit 1 (ANO-1), Grand Gulf Nuclear Station (GGNS), River Bend Station (RBS), and Waterford Steam Electric Station, Unit 3 (Waterford 3), proposing an alternative to the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, IWA-2321(a), "Visual Tests." The licensee's proposed alternative is applicable to the fourth 10-year inservice inspection (ISI) program interval for ANO-1 and the third 10-year ISI program intervals for GGNS, RBS, and Waterford 3.

Specifically, IWA-2321(a) requires that non-destructive examination personnel be administered the following vision tests annually:

Personnel shall demonstrate natural or corrected, near-distance acuity of 20/25 or greater Snellen fraction, with at least one eye, by reading words or identifying characters on a near-distance test chart, such as a Jaeger chart, that meets the requirements of IWA-2322. Equivalent measures of near distance acuity may be used. In addition, personnel performing VT-2 or VT-3 visual examinations shall demonstrate natural or corrected far-distance acuity of 20/30 or greater Snellen fraction or equivalent with at least one eye.

Entergy requested authorization to utilize the alternative requirements in ASME Code Case N-753 in lieu of the requirements of IWA-2321(a).

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the licensee's submittal and determined that the proposed alternative provides an acceptable level of quality and safety. Therefore, pursuant to paragraph 50.55a(a)(3)(i) of Title 10 of the *Code of Federal Regulations* (10 CFR), the NRC staff authorizes the use of the proposed alternative for the fourth 10-year ISI program interval for ANO-1, and the third 10-year ISI program intervals for GGNS, RBS, and Waterford 3, or until Code Case N-753 is approved for general use by reference in Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1." After that time, if the licensee wishes to continue to use Code Case N-753, the licensee must

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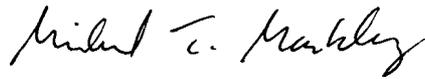
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follow all conditions and limitations placed on the use of the Code Case, if any, that are specified in Regulatory Guide 1.147.

All other ASME Code, Section XI requirements for which relief was not specifically requested and approved in this relief request remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

The NRC staff's safety evaluation is enclosed.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael T. Markley". The signature is written in a cursive style with a large initial "M".

Michael T. Markley, Chief  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-313, 50-416,  
50-458, and 50-382

Enclosure:  
Safety Evaluation

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REQUEST FOR ALTERNATIVE CEP-ISI-012

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNIT 1

GRAND GULF NUCLEAR STATION

RIVER BEND STATION, AND

WATERFORD STEAM ELECTRIC STATION, UNIT 3

DOCKET NOS. 50-313, 50-416, 50-458, AND 50-382

1.0 INTRODUCTION

By letter dated May 20, 2008 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML081620369), as supplemented by letter dated January 23, 2009 (ADAMS Accession No. ML090540059), Entergy Operations, Inc. (Entergy, the licensee), submitted a request for alternative CEP-ISI-012 for Arkansas Nuclear One, Unit 1 (ANO-1), Grand Gulf Nuclear Station (GGNS), River Bend Station (RBS), and Waterford Steam Electric Station, Unit 3 (Waterford 3), proposing an alternative to the requirements of American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," 2001 Edition, 2003 Addenda, IWA-2321(a), "Visual Tests," for non-destructive examination (NDE) personnel near-distance vision testing requirements. Specifically, Entergy is requesting the use of Code Case N-753 in lieu of the requirements of IWA-2321(a).

2.0 REGULATORY EVALUATION

The inservice inspection (ISI) of the ASME Code Class 1, 2, and 3 components must meet the requirements of the Section XI of editions of the ASME Code and Addenda as required by Section 50.55a(g), "Inservice inspection requirements," of Title 10 of the *Code of Federal Regulations* (10 CFR). Section 10 CFR 50.55a(g)(4) states that throughout the service life of a boiling or pressurized water-cooled nuclear power facility, components (including supports) which are classified as ASME Code Class 1, 2, and 3 must meet the requirements, except design and access provisions and preservice examination requirements, set forth in Section XI of editions of the ASME Code and addenda, to the extent practical within the limitations of design, geometry and materials of construction of the components. Pursuant to 10 CFR 50.55a(g)(4)(ii), inservice examination of components and system pressure tests conducted during successive 120-month inspection intervals must comply with the requirements in the

Enclosure

latest edition and addenda of the Code incorporated by reference in 10 CFR 50.55a(b), 12 months before the start of the 120-month inspection interval, subject to the limitations and modifications listed therein. In accordance with this requirement, the Code of record for the fourth 10-year ISI interval at ANO-1, and the third 10-year ISI intervals at GGNS, RBS, and Waterford 3, is the ASME Code, Section XI, 2001 Edition with the 2003 Addenda.

Pursuant to 10 CFR 50.55a(g)(6)(i), a licensee may obtain relief from these ISI requirements when written relief is granted by the U.S. Nuclear Regulatory Commission (NRC). Pursuant to 10 CFR 50.55a(a)(3), the alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

### 3.0 LICENSEE'S EVALUATION

#### 3.1 Code Requirements From Which Relief is Requested

ASME Code, Section XI, 2001 Edition through 2003 Addenda, paragraph IWA-2321(a).

IWA-2321(a), "Vision Tests," states that the following test shall be administered annually to NDE personnel:

Personnel shall demonstrate natural or corrected near-distance acuity of 20/25 or greater Snellen fraction, with at least one eye, by reading words or identifying characters on a near-distance test chart, such as a Jaeger chart, that meets the requirements of IWA-2322. Equivalent measures of near-distance acuity may be used. In addition, personnel performing VT-2 or VT-3 visual examinations shall demonstrate natural or corrected far-distance acuity of 20/30 or greater Snellen fraction or equivalent with at least one eye.

#### 3.2 Licensee's Reason for Request

The licensee requests to allow the use of ASME Code Case N-753, "Vision Tests," during the fourth 10-year ISI interval at ANO-1 and the third 10-year ISI intervals at GGNS, RBS, and Waterford 3, as an acceptable alternative method for NDE personnel near-distance acuity testing.

#### 3.3 Proposed Alternative and Basis for Use (as stated by the licensee)

Code Case N-753 provides an alternative to the visual acuity demonstration requirements of IWA-2321(a) that will allow the testing to be administered and documented by an Optometrist, Ophthalmologist, or other health care professional who administers vision tests.

The visual acuity testing for NDE personnel performing ASME Code, Section XI examinations is required to be administered annually. In addition to this vision testing, which is typically administered by utility personnel, many NDE personnel also have annual visual acuity testing in conjunction with routine eye examinations administered by

an Optometrist, an Ophthalmologist, or other health care professional who administers vision tests.

Optometrists, Ophthalmologists, and other health care professionals who administer vision tests are typically educated and experienced in the proper techniques for vision testing, such as the Snellen fraction or Jaeger chart methods required by ASME Code, Section XI. This training and expertise provides a sound level of confidence that the visual acuity testing administered will be a reliable indicator that the tested NDE personnel can satisfactorily perform Section XI non-destructive examinations.

The testing performed by Optometrists, Ophthalmologists, and other health care professionals who administer vision tests will satisfy IWA-2321(a) requirements, including documentation which details the tests performed, compliance with IWA-2321(a) criteria and the date the testing was administered.

The use of Code Case N-753 alternative requirements allows the flexibility for utilities to accept visual acuity testing performed by outside health care professionals in lieu of the visual acuity testing performed by in-house personnel. In many instances, this flexibility will eliminate duplicative testing and thus provide a reduction in the costs and manpower associated with qualifying NDE personnel.

Because Code Case N-753 does not change the qualification criteria in IWA-2321(a), the implementation of the included alternative requirements does not affect the level of quality and safety provided by NDE personnel.

#### 4.0 TECHNICAL EVALUATION

The licensee is requesting relief from the requirements of the ASME Code Section XI, 2001 Edition through 2003 Addenda, paragraph IWA-2321(a) to use ASME Code Case N-753, "Vision Tests," as an alternative to near-distance acuity testing for the fourth 10-year ISI interval at ANO-1, and the third 10-year ISI intervals at GGNS, RBS, and Waterford 3. Code Case N-753 was approved by the ASME on July 14, 2006, and provides an alternative to the existing ASME Code requirements.

Code Case N-753 allows for tests administered by an optometrist, ophthalmologist, or other health care professionals who administer vision tests and documents compliance with the acuity requirements of IWA-2321(a) to be acceptable. This grants the licensee flexibility to accept examinations performed by outside health care professionals in lieu of those performed by in-house personnel. Consequently, any NDE personnel administered an acuity test as a routine eye examination would also fulfill the near-distance visual acuity examination requirements set forth by the ASME Code. The requirements of paragraph IWA-2321(a) call for personnel performing NDE examinations to have an annual visual acuity test. The NDE personnel taking the test shall be able to demonstrate natural or corrected near-distance acuity of 20/25 or greater Snellen fraction, with at least one eye, by reading words or identifying characters on a near-distance test chart, such as a Jaeger chart. Equivalent measures (e.g., optometrist, ophthalmologist) of near-distance acuity may be used.

that can be read accurately indicates the patient's visual acuity in that eye. The letters used in a Snellen chart have a specific geometry in which the thickness of the lines equals the thickness of the white spaces between lines and the thickness of the gap in the letter "C". The height and width of each letter consist of five times the thickness of the line. The Jaeger chart is a similar method but it is specifically used to determine near-vision acuity.

The NRC staff considered the licensee's statements concerning many NDE personnel performing ASME Section XI examinations have the annual vision acuity tests in conjunction with routine eye examinations performed by optometrists, ophthalmologists, or other health care professionals who administer vision tests. The NRC staff also considered the fact that eye care professionals must go through education, certification, and are subject to regulated practice that has requirements for training on the standards of eye care. The NRC staff concluded that there is sufficient evidence to support the licensee's statement that health care professionals who perform such vision acuity examinations have the education and experience in the proper techniques to perform such examinations with an acceptable level of safety and quality. Furthermore, by allowing credit for routine eye exams will eliminate duplicative testing and provide a reduction in cost associated with in-house testing programs. Code Case N-753 does not change the requirements of IWA-2321(a), but provides an alternative for a qualified practitioner to perform the required near-distance examinations to NDE personnel. The NRC staff concludes that the requirements of ASME Code Case N-753 provide an acceptable level of quality and safety for administering near-distance acuity examinations and is, therefore, acceptable.

## 5.0 CONCLUSION

Based on the above, the NRC staff concludes that the licensee's proposed alternative to use ASME Code Case N-753 in lieu of ASME Code, Section XI, paragraph IWA-2321(a) will provide an acceptable level of safety and quality. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the use of the proposed alternative is authorized for the fourth 10-year ISI interval at ANO-1, and the third 10-year ISI intervals at GGNS, RBS, and Waterford 3, or until Code Case N-753 is approved for general use by reference in Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1." After that time, if the licensee wishes to continue to use Code Case N-753, the licensee must follow all conditions and limitations placed on the use of the Code Case, if any, that are specified in Regulatory Guide 1.147.

All other ASME Code, Section XI requirements for which relief was not specifically requested and approved in this relief request remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

Principal Contributor: Isaac A. Anchondo

Date: March 6, 2009

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follow all conditions and limitations placed on the use of the Code Case, if any, that are specified in Regulatory Guide 1.147.

All other ASME Code, Section XI requirements for which relief was not specifically requested and approved in this relief request remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

The NRC staff's safety evaluation is enclosed.

Sincerely,

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Michael T. Markley, Chief  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-313, 50-416,  
50-458, and 50-382

Enclosure:  
Safety Evaluation

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