

March 8, 2007

Mr. Timothy G. Mitchell
Vice President, Operations
Arkansas Nuclear One
Entergy Operations, Inc.
1448 SR 333
Russellville, AR 72802

SUBJECT: ARKANSAS NUCLEAR ONE, UNITS 1 AND 2 - REQUEST NO. ISI-2006-1 TO USE LATER EDITION AND ADDENDA OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS BOILER AND PRESSURE VESSEL CODE, SECTION XI, FOR REPAIR AND/OR REPLACEMENT ACTIVITIES (TAC NOS. MD2702 AND MD2703)

Dear Mr. Mitchell:

By letter dated August 2, 2006, Entergy Operations, Inc., requested to use Subarticle IWA-4461.4 of Section XI of the 1995 Edition, 1997 Addenda of the American Society of Mechanical Engineers Boiler and Pressure Vessel (ASME) Code at Arkansas Nuclear One, Units 1 and 2 (ANO-1 and ANO-2). Subarticle IWA-4461.4 provides requirements for qualification of thermal removal processes as an alternative to mechanical processing of thermally cut surfaces. The licensee submitted Request ISI-2006-1 in accordance with the Nuclear Regulatory Commission (NRC) Regulatory Issue Summary 2004-16, "Use of Later Editions and Addenda to ASME Code, Section XI, for Repair/Replacement Activities," dated October 19, 2004.

On the basis of information submitted, the NRC staff concludes that the proposed request is acceptable and approves the use of the 1995 Edition, 1997 Addenda of the ASME Code, Section XI, for the repair/replacement activities for the remainder of the third 10-year inservice inspection (ISI) interval at ANO-1 and ANO-2, in accordance with paragraph 50.55a(g)(4)(iv) of Title 10 of the *Code of Federal Regulations*. The start date of the next 10-year ISI interval for ANO-1 and ANO-2 is June 1, 2007, and March 26, 2010, respectively.

The NRC staff's safety evaluation is enclosed. This completes the NRC staff's review under TAC Nos. MD2702 and MD2703. If you have any questions concerning this matter, please call Farideh Saba of my staff at 301-415-1447.

Sincerely,

/RA/
David Terao, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-313 and 50-368

Enclosure: Safety Evaluation

cc w/encl: See next page

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* See SE input.

OFFICE	DORL/LPL4/PM	DORL/LPL4/LA	DCI/CVIB/BC	OGC - NLO	DORL/LPL4/BC
NAME	FSaba	LFeizollahi	KGruss*	JRund	DTerao
DATE	3/1/07	3/1/07	2/8/07	3/8/07	3/8/07

OFFICIAL AGENCY RECORD

Arkansas Nuclear One

cc:

Executive Vice President
& Chief Operating Officer
Entergy Operations, Inc.
P.O. Box 31995
Jackson, MS 39286-1995

General Manager Plant
Operations
Entergy Operations, Inc.
Arkansas Nuclear One
1448 SR 333
Russellville, AR 72802

Director, Nuclear Safety Assurance
Entergy Operations, Inc.
Arkansas Nuclear One
1448 SR 333
Russellville, AR 72802

Manager, Licensing
Entergy Operations, Inc.
Arkansas Nuclear One
1448 SR 333
Russellville, AR 72802

Director, Nuclear Safety & Licensing
Entergy Operations, Inc.
1340 Echelon Parkway
Jackson, MS 39213-8298

Section Chief, Division of Health
Radiation Control Section
Arkansas Department of Health and
Human Services
4815 West Markham Street, Slot 30
Little Rock, AR 72205-3867

Section Chief, Division of Health
Emergency Management Section
Arkansas Department of Health and
Human Services
4815 West Markham Street, Slot 30
Little Rock, AR 72205-3867

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
P.O. Box 310
London, AR 72847

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

County Judge of Pope County
100 W. Main Street
Russellville, AR 72801

Vice President, Operations Support
Entergy Operations, Inc.
P.O. Box 31995
Jackson, MS 39286-1995

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

USE OF LATER ASME CODE, SECTION XI

FOR THERMAL REMOVAL PROCESSES

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNITS 1 AND 2

DOCKET NUMBERS 50-313 AND 50-368

1.0 INTRODUCTION

By letter dated August 2, 2006 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML062200491), Entergy Operations, Inc., requested to use Subarticle IWA-4461.4 of Section XI of the 1995 Edition, 1997 Addenda of the American Society of Mechanical Engineers Boiler and Pressure Vessel (ASME) Code at Arkansas Nuclear One, Units 1 and 2 (ANO-1 and ANO-2). Subarticle IWA-4461.4 provides requirements for qualification of thermal removal processes as an alternative to mechanical processing of thermally cut surfaces.

The licensee submitted Request ISI-2006-1 in accordance with the Nuclear Regulatory Commission (NRC) Regulatory Issue Summary (RIS) 2004-16, "Use of Later Editions and Addenda to ASME Code, Section XI, for Repair/Replacement Activities," dated October 19, 2004. RIS 2004-16 states that licensees who wish to use provisions of subsequent editions and addenda of the ASME Code, Section XI, for activities, including repair/replacement activities, must receive prior NRC approval as required by paragraph 50.55a(g)(4)(iv) of Title 10 of the *Code of Federal Regulations* (10 CFR).

2.0 REGULATORY REQUIREMENTS

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the pre-service examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection [ISI] of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. Paragraph 50.55a(g)(4)(ii) of 10 CFR requires that ISI examination of components and system pressure tests conducted during successive 120-month inspection intervals must comply with the requirements in the latest edition and addenda of Section XI of the ASME Code, incorporated by reference in 10 CFR 50.55a(b), 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein.

The repair, replacement, and modification of plant components are not explicitly mentioned in 10 CFR 50.55a(g)(4) and associated subparagraphs. However, these activities are specifically

mentioned in the ASME Code, Section XI. The NRC staff maintains that these activities are not separate and distinct from, but are included under, inservice examinations. Therefore, the requirements of 10 CFR 50.55a(g)(4)(iv) are applicable to repair/replacement activities.

Paragraph 10 CFR 50.55a(g)(4)(iv) states that inservice examination of components and system pressure tests may meet the requirements set forth in subsequent editions and addenda of the ASME Code provided that they are incorporated by reference in 10 CFR 50.55a(b), subject to the limitations and modifications listed in 10 CFR 50.55a(b), and subject to Commission approval. Portions of editions or addenda may be used provided that all related requirements of the respective editions or addenda are met. Currently, paragraph 50.55a(b)(2) of 10 CFR incorporates by reference the ASME Code, Section XI, from the 1970 Edition through the 1976 Winter Addenda, and the 1977 Edition through the 2003 Addenda.

3.0 LICENSEE'S REQUEST ISI-2006-1

3.1 ASME Code Components Affected

All Class 1, 2, and 3 vessels, piping, pumps, and valves in the Section XI pressure boundary at ANO-1 and ANO-2.

3.2 Applicable Code Edition and Addenda

Repair/replacement activities at ANO-1 and ANO-2 are currently performed in accordance with the 1992 Edition of ASME Code, Section XI, with portions of the 1993 Addenda for pressure testing.

The start date of the next 120-month ISI interval (the fourth interval) for ANO-1 and ANO-2 is June 1, 2007, and March 26, 2010, respectively.

3.3 Proposed Subsequent Code Edition and Addenda (or Portion)

The licensee currently performs repair/replacement activities in accordance with the 1992 Edition of ASME Code, Section XI, with portions of the 1993 Addenda for pressure testing. However, Subarticle IWA-4000 in the 1992 Edition does not contain rules for qualifying thermal removal processes, such as electrodischarge machining, that can be used without mechanical processing of thermally cut surfaces.

The 1997 Addenda of the 1995 Edition of the ASME Code, Section XI, revised the rules applicable to thermal removal processes for all repair/replacement activities. The 1997 Addenda also added new rules that exempted mechanical processing of thermally cut surfaces provided the thermal removal process was qualified in accordance with Subarticle IWA-4461.4 of the ASME Code, Section XI.

Pursuant to 10 CFR 50.55a(g)(4)(iv), the licensee requested permission to use Subarticle IWA-4461.4 in the 1995 Edition, 1997 Addenda of ASME Code, Section XI. Subarticle IWA-4461.4 provides rules for qualifying thermal removal processes as an alternative to mechanical processing of thermally cut surfaces of P-Numbers 3, 4, 5, 6, 7, 8, 9, 10, 11A, and 43 materials.

The NRC approved the use of the 1995 Edition, 1997 Addenda as documented in 10 CFR 50.55a(b)(2) with no limitations, conditions, or modifications on Subarticle IWA-4461.4.

3.4 Related Requirements

Subarticle IWA-4461.4 of the 1995 Edition, 1997 Addenda specifies rules for qualification of a thermal removal process as an alternative to mechanical processing of thermally cut surfaces. When applying Subarticle IWA-4461.4, the following related requirement also applies:

Subarticle IWA-4461.4 states that “[m]echanical processing of thermally cut surfaces for materials identified in IWA-4461.2 and IWA-4461.3 is not required when using a thermal removal process qualified as follows...” Because [Subarticle] IWA-4461.4 is an alternative to mechanical processing of thermally cut surfaces for the materials identified in [Subarticles] IWA-4461.2 and IWA-4461.3, it is only applicable to P-Number[s] 3, 4, 5, 6, 7, 8, 9, 10, 11A, and 43 materials; it cannot be applied to P-Number 1 materials of [Subarticle] IWA-4461.1.

Therefore, when invoking Subarticle IWA-4461.4 in the 1995 Edition, 1997 Addenda, the licensee will also apply this related requirement.

The NRC prohibition on “evaluation of thermally cut surfaces” in 10 CFR 50.55a(b)(2)(xxiii) does not apply to the qualification alternative of IWA-4461.4. Rather, this NRC prohibition applies to Subarticle IWA-4461.4.2, “Evaluation of Thermally Cut Surfaces,” which was not included into the ASME Code, Section XI, until the 2001 Edition.

3.5 Duration of Proposed Request

ANO-1 and ANO-2 are currently under the third ISI interval. The duration of Request ISI-2006-1 will be effective from the date of the NRC approval to June 1, 2007, for ANO-1 and March 26, 2010, for ANO-2. These are the dates for the start of the next (fourth) ISI interval. Therefore, the duration of the proposed request is for the remainder of the third ISI interval at ANO-1 and ANO-2.

4.0 STAFF EVALUATION

The NRC staff evaluated the licensee's request ISI-2006-1 pursuant to 10 CFR 50.55a(g)(4)(iv), which states that inservice examination of components and system pressure tests may meet the requirements set forth in subsequent editions and addenda of the ASME Code provided certain criteria are satisfied.

The first criterion is that the edition and addenda of the ASME Code, Section XI, that will be used in the proposed request is incorporated by reference in 10 CFR 50.55a(b). Currently, paragraph 50.55a(b)(2) incorporates by reference the ASME Code, Section XI, from the 1970 Edition through the 1976 Winter Addenda, and the 1977 Edition (Division 1) through the 2003 Addenda (Division 1), which includes the 1995 Edition, 1997 Addenda of the ASME Code, Section XI, which was proposed by the licensee. Therefore, the NRC staff finds that the first criterion has been satisfied.

The second criterion is that the limitations and modifications listed in 10 CFR 50.55a(b) are satisfied for the specific use of the proposed subsequent edition and addenda of the ASME Code, Section XI. Paragraph 50.55a(b) of 10 CFR sets no limitations and modifications on Subarticle IWA-4461.4 of the 1995 Edition, 1997 Addenda of the ASME Code, Section XI. Therefore, the NRC staff finds that the second criterion has been satisfied.

The third criterion is that if portions of subsequent editions or addenda of the ASME Code, Section XI, are used, all related requirements of the respective editions or addenda must be met. The NRC staff is satisfied that the licensee has listed all related requirements in Subarticle IWA-4461.4 of the 1995 Edition, 1997 Addenda of the ASME Code, Section XI, that are relevant to the stated repair/replacement activities. Therefore, the NRC staff finds that the third criterion has been satisfied.

Based on the above, the NRC staff finds that the criteria of 10 CFR 50.55a(g)(4)(iv) are satisfied and that the licensee's request to use the 1995 Edition, 1997 Addenda of the ASME Code, Section XI, for repair/replacement activities is acceptable.

5.0 CONCLUSION

On the basis of evaluating the information submitted, the NRC staff concludes that the proposed request ISI-2006-1 is acceptable and approves the use of Subarticle IWA-4461.4 of the 1995 Edition, 1997 Addenda of the ASME Code, Section XI, for the specified repair/replacement activities for the remainder of the third 10-year ISI intervals at ANO-1 and ANO-2.

All other requirements of the ASME Code, Sections III and XI, for which relief has not been specifically requested and approved remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

Principal Contributor: John Tsao

Date: March 8, 2007