

November 16, 2006

Mr. Karl W. Singer
Chief Nuclear Officer and
Executive Vice President
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: BROWNS FERRY UNIT 2 - SAFETY EVALUATION FOR REQUEST TO USE
SUBSEQUENT EDITION OF ASME CODE (TAC NO. MC9287)

Dear Mr. Singer:

By a letter dated December 20, 2005, as supplemented by a letter dated August 4, 2006, the Tennessee Valley Authority (TVA, the licensee) requested Nuclear Regulatory Commission (NRC) approval, pursuant to Title 10 of the *Code of Federal Regulations*, Section 50.55a(g)(4)(iv), to adopt a later version of the American Society of Mechanical Engineers (ASME) Code for Browns Ferry Nuclear Plant (BFN) Unit 2. Specifically, TVA proposed to adopt the requirements for repair and replacement activities specified in the 2001 Edition, 2003 Addenda of the ASME Section XI Code, Article IWA-4000 and all related requirements, as the code of record for the third 10-year inservice inspection (ISI) interval for BFN Unit 2.

In its August 4, 2006, supplement, the licensee modified its request such that when BFN Unit 2 selects the option of performing the system leakage test to satisfy the IWA-4540(a) requirements, the additional requirements for the nondestructive examination (NDE) method and acceptance criteria of the 1992 Edition or later of ASME Section III shall be met prior to returning the equipment to service. This commitment addressed an NRC staff concern regarding the 2003 Addenda. The 2002 Addenda of Section XI had required NDE to be conducted when performing a system leakage test in support of repair and replacement activities performed by welding or brazing; the 2003 Addenda of Section XI removed this requirement.

In the future, should the staff determine that the proposed limitation is not required, BFN Unit 2 would no longer be bound by the requirement to perform NDE in accordance with IWA-4540(a)(2) of the 2002 Addenda when performing system leakage tests after repair and replacement activities using the 2003 Addenda. However, until that time, these requirements are a condition for the approval of this request.

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Therefore, subject to the above condition, the licensee's request to use the later Code edition is approved for the remainder of the third 10-year ISI interval at BFN Unit 2, which ends May 24, 2011. The NRC staff's evaluation is contained in the enclosed safety evaluation (SE).

Sincerely,

/RA/

LRaghavan, Chief
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-260

Enclosure: Safety Evaluation

cc w/encl: See next page

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Therefore, subject to the above condition, the licensee's request to use the later Code edition is approved for the remainder of the third 10-year ISI interval at BFN Unit 2, which ends May 24, 2011. The NRC staff's evaluation is contained in the enclosed safety evaluation (SE).

Sincerely,

/RA/

L. Raghavan, Chief
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
THIRD 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN
REQUEST TO USE PORTION OF SUBSEQUENT AMERICAN SOCIETY OF MECHANICAL
ENGINEERS CODE EDITION FOR REPAIR/REPLACEMENT ACTIVITIES
TENNESSEE VALLEY AUTHORITY
BROWNS FERRY NUCLEAR PLANT, UNIT 2
DOCKET NO. 50-260

1.0 INTRODUCTION

By a letter dated December 20, 2005, as supplemented by a letter dated August 4, 2006, the Tennessee Valley Authority (TVA, the licensee) requested Nuclear Regulatory Commission (NRC, Commission) approval, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(g)(4)(iv), to adopt a later version of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) for Browns Ferry Nuclear Plant (BFN) Unit 2. Specifically, TVA proposed to adopt the requirements for repair and replacement activities specified in the 2001 Edition through 2003 Addenda of the ASME Code, Section XI, Article IWA-4000 and all related requirements, as the code of record for the third 10-year inservice inspection (ISI) interval at BFN Unit 2.

2.0 REGULATORY REQUIREMENTS

The ISI of ASME Code Class 1, 2 and 3 components is to be performed in accordance with Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," of the ASME Code and applicable editions and addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2 and 3 components (including supports) must meet the requirements, except the design and access provisions and preservice examination requirements, set forth in the ASME Code, Section XI, to the extent practical within the limitations of design, geometry and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by

Enclosure

reference in paragraph (b) of 10 CFR 50.55a on the date 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein.

Pursuant to 10 CFR 50.55a(g)(iv), inservice examination of components and system pressure tests may meet the requirements set forth in subsequent editions and addenda that are incorporated by reference in paragraph (b) of 10 CFR 50.55a (or the optional ASME Code cases listed in NRC Regulatory Guide 1.147, through Revision 14, that are incorporated by reference in paragraph (b) of 10 CFR 50.55a), subject to the limitations and modifications listed in paragraph (b) of 10 CFR 50.55a, 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. Also, subarticle IWA-4150(b) of the ASME Section XI Code allows use of later editions and addenda when the later editions and addenda have been accepted by the enforcement and regulatory authorities having jurisdiction at the plant site.

3.0 TECHNICAL EVALUATION

3.1 ASME Code Requirement

Pursuant to 10 CFR 50.55a, the ISI code of record for BFN Unit 2 for the third 10-year interval is the 1995 Edition of the ASME Code, with 1996 Addenda. The third 10-year interval for BFN Unit 2 is scheduled to end on May 24, 2011.

3.2 Licensee's Proposed Alternative

The licensee requested approval to adopt the 2001 Edition through the 2003 Addenda of the ASME Section XI Code, Article IWA-4000 and all related requirements, for BFN Unit 2.

3.3 Licensee's Bases for Alternative

In accordance with the provisions of 10 CFR 50.55a(g)(4)(iv), and ASME Section XI, Subarticle IWA-4150(b), TVA seeks to adopt the requirements for repair and replacement activities specified in the 2001 Edition, 2003 Addenda of the ASME Code, Section XI, Article IWA-4000 and all related requirements, for BFN Unit 2. BFN Unit 3 has adopted the 2001 ASME Section XI Code through 2003 Addenda, for the third 10-year interval, which began on November 19, 2005. This requested change for BFN Unit 2 would allow both operating units at BFN to use the same ASME requirements for repair and replacement activities.

3.4 Staff Evaluation

The licensee is requesting to use the 2001 Edition through 2003 Addenda of the ASME Section XI Code, Article IWA-4000 for repair and replacement activities in lieu of the same subarticle in the 1995 Edition, with 1996 Addenda of the Code. Use of the 2001 Edition through 2003 Addenda of the Code has been incorporated by reference in 10 CFR 50.55a(b)(2).

However, 10 CFR 50.55a also contains certain restrictions that apply to the 2001 Edition through the 2003 Addenda of the Section XI Code, specific to Article IWA-4000. These restrictions will remain in effect. These include:

1. In accordance with 10 CFR 50.55a(b)(2)(xii), the provisions in IWA-4660, "Underwater Welding," of Section XI 1997 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(2) of 10 CFR 50.55a, are not approved for use on irradiated material.
2. In accordance with 10 CFR 50.55a(b)(2)(xix), the provisions of IWA-4520(c), 1997 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(2) of 10 CFR 50.55a, allowing the substitution of alternative examination methods, a combination of methods, or newly developed techniques for the methods specified in the Construction Code are not approved for use.
3. In accordance with 10 CFR 50.55a(b)(2)(xxiii), the use of the provisions for eliminating mechanical processing of thermally cut surfaces in IWA-4461.4.2 of Section XI, 2001 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(2) of 10 CFR 50.55a is prohibited.
4. In accordance with 10 CFR 50.55a(b)(2)(xxv), the use of the provisions in IWA-4340, "Mitigation of Defects by Modification," Section XI, 2001 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(2) of 10 CFR 50.55a is prohibited.
5. In accordance with 10 CFR 50.55a(b)(2)(xxvi), the repair and replacement activity provisions in IWA-4540(c) of the 1998 Edition of Section XI for pressure testing Class 1, 2, and 3 mechanical joints must be applied when using the 2001 Edition through the latest edition and addenda incorporated by references in paragraph (b)(2) of 10 CFR 50.55a.

In addition, the NRC staff is considering rulemaking that would require the nondestructive examination (NDE) provision in IWA-4540(a)(2) of the 2002 Addenda of Section XI to be applied when performing system leakage tests after repair and replacement activities performed by welding or brazing using the 2003 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(2) of 10 CFR 50.55a. The 2002 Addenda of Section XI had required NDE to be conducted when performing a system leakage test in support of repair and replacement activities performed by welding or brazing; the 2003 Addenda of Section XI removed this requirement. Until this requirement is added to 10 CFR 50.55a or until the NRC staff determines that the proposed limitation is not required, application of the NDE requirements will be a condition of NRC staff approval of requests to use the 2003 Addenda.

By letter dated August 4, 2006, the licensee agreed that when BFN Unit 2 selects the option of performing the system leakage test to satisfy the IWA-4540(a) requirements, the additional requirements for the NDE method and acceptance criteria of the 1992 Edition or later of ASME Section III shall be met prior to returning the equipment to service.

Since the 2001 Edition through 2003 Addenda of the Code has been incorporated by reference in 10 CFR 50.55a(b)(2), with the restrictions identified in 10 CFR 50.55a, and because the licensee has agreed to perform the NDE under IWA-4540(a)(2) of the 2002 Addenda when

performing system leakage tests after repair and replacement activities performed by welding or brazing, the NRC staff finds the licensee's request acceptable.

4.0 CONCLUSION

Pursuant to 10 CFR 50.55a(g)(4)(iv), the licensee's request to use the 2001 Edition through 2003 Addenda of the ASME Code, Section XI, Article IWA-4000 along with all related ASME Code requirements as well as the applicable restrictions listed in 10 CFR 50.55a(b)(2) and the use of NDE in support of system leakage tests, in lieu of the 1995 Edition, 1996 Addenda of the Code, Section XI, Article IWA-4000, provides an acceptable level of quality and safety. Therefore, the licensee's use of the later Code edition and addenda is approved in accordance with 10 CFR 50.55a(g)(4)(iv) for the third 10-year ISI interval for BFN Unit 2, provided all related requirements of the 2001 Edition through 2003 Addenda are met for the Repair and Replacement program under IWA-4000, as modified by 10 CFR 50.55a, and NDE under IWA-4540(a)(2) of the 2002 Addenda are completed when performing system leakage tests after repair and replacement activities using the 2003 Addenda.

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