



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

December 28, 2015

Mr. C. R. Pierce
Regulatory Affairs Director
Southern Nuclear Operating Company, Inc.
P. O. Box 1295, Bin - 038
Birmingham, AL 35201-1295

SUBJECT: EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2 - RELIEF FROM THE REQUIREMENTS OF THE ASME CODE (CAC NOS. MF6494 AND MF6495)

Dear Mr. Pierce:

By letter dated July 16, 2015, as supplemented by letter dated December 16, 2015, Southern Nuclear Operating Company, Inc. (the licensee) submitted a request to the U.S. Nuclear Regulatory Commission (NRC) for relief from the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (B&PV Code) at the Edwin I. Hatch Nuclear Plant (HNP), Units 1 and 2. The licensee requested to use the current ASME B&PV code of record, the 2001 edition through the 2003 addenda, in combination with the 2007 edition through the 2008 addenda for certain inservice inspection and containment inservice inspection activities from January 1, 2016, through November 30, 2017.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(z)(1), the licensee proposed to use the alternative edition and addenda of the ASME B&PV Code for the performance of repair/replacement, pressure testing, and nondestructive examination on the basis that the alternative provides an acceptable level of quality and safety.

The NRC staff has reviewed the subject request and concludes, as set forth in the enclosed safety evaluation, that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(1). Therefore, the NRC staff authorizes the use of Relief Request HNP-ISI-ALT-5-01 at HNP, Units 1 and 2, from January 1, 2016, to November 30, 2017.

All other requirements of ASME Code, Section XI, for which relief was not specifically requested and authorized by the NRC staff remain applicable, including the third party review by the Authorized Nuclear In-service Inspector.

C. R. Pierce

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If you have any questions, please contact the Project Manager, Michael Orenak at 301-415-3229 or via e-mail at Michael.Orenak@nrc.gov.

Sincerely,

Handwritten signature of Shawn Williams in cursive script, with the letters "for" written in a smaller font to the right of the signature.

Michael T. Markley, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-321 and 50-366

Enclosure:
Safety Evaluation

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REQUEST FOR RELIEF NO. HNP-ISI-ALT-5-01

REGARDING FIFTH 10-YEAR INSERVICE INSPECTION INTERVAL

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

EDWIN I. HATCH NUCLEAR PLANT - UNITS 1 AND 2

DOCKET NOS. 50-321 and 50-366

1.0 INTRODUCTION

By letter dated July 16, 2015, as supplemented by letter dated December 16, 2015, Southern Nuclear Operating Company, Inc. (SNC, or the licensee) submitted a request to the U.S. Nuclear Regulatory Commission (NRC) for relief from the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (B&PV Code) at the Edwin I. Hatch Nuclear Plant (HNP), Units 1 and 2. The licensee requested to use the current ASME B&PV code of record, the 2001 edition through the 2003 addenda, in combination with the 2007 edition through the 2008 addenda for certain inservice inspection (ISI) and containment inservice inspection (CII) activities from January 1, 2016, through November 30, 2017.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(z)(1), the licensee proposed to use the alternative edition and addenda of the ASME B&PV Code for the performance of repair/replacement (R/R), pressure testing (PT) and nondestructive examination (NDE) on the basis that the alternative provides an acceptable level of quality and safety.

2.0 REGULATORY EVALUATION

Section 50.55a(g)(4) of 10 CFR requires, in part, 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, Class 2, and Class 3 must meet the requirements set forth in Section XI of editions and addenda of the ASME B&PV Code to the extent practical within the limitations of design, geometry, and materials of construction of the components.

Section 50.55a(g)(4)(ii) of 10 CFR requires, in part, that the inservice examination of components and system pressure tests conducted during successive 120-month inspection intervals must comply with the requirements of the latest edition and addenda of the ASME B&PV Code incorporated by reference in paragraph (b) of Section 50.55a 12 months before the start of the 120-month inspection interval (or the optional ASME Code cases listed in NRC Regulatory Guide 1.147, Revision 17). However, a licensee whose ISI interval commences during the 12 through 18-month period after July 21, 2011, may delay the update of their Appendix VIII program by up to 18 months after July 21, 2011.

Enclosure

Section 50.55a(b)(2) of 10 CFR states, in part, that references to Section XI refer to Section XI, Division 1, of the ASME B&PV Code, and include the 1970 Edition through the 1976 Winter Addenda and the 1977 Edition through the 2007 Edition with the 2008 Addenda.

Section 50.55a(z) of 10 CFR states, in part, that proposed alternatives to the requirements of 10 CFR 50.55a(g) may be used when authorized by the NRC if the applicant demonstrates that:

- (1) the proposed alternatives would provide an acceptable level of quality and safety, or
- (2) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Based on the above, and subject to the following technical evaluation, the NRC staff finds that regulatory authority exists for the licensee to request and the NRC staff to authorize the alternative requested by the licensee.

3.0 TECHNICAL EVALUATION

3.1 Components Affected

The affected components are ASME B&PV Code, Section XI, Class 1, 2, 3 components and component supports.

3.2 Applicable Code Edition and Addenda

The current code of record for the fourth 10-year ISI and CII interval is the ASME B&PV Code 2001 edition through the 2003 addenda.

The proposed code of record for the fifth 10-year ISI and CII interval is the ASME B&PV Code 2007 edition through the 2008 addenda.

3.3 ASME Code Requirements

The licensee requested relief from the requirements of 10 CFR 50.55a(b)(2), 10 CFR 50.55a(g)(4), and 10 CFR 50.55a(g)(4)(ii). Specifically, the licensee asked relief from updating the HNP ISI program to certain sections of the 2007 edition through the 2008 addenda while maintaining and performing ISI/CII related activities such as R/R, PT, and NDE to the current ASME B&PV Code, Section XI, 2001 edition through the 2003 addenda requirements. For the 2007 edition through the 2008 addenda, the licensee will be using articles IWA-2400, IWA-2500 and articles 1000 and 2000 of IWB, IWC, IWD, IWE, and IWF. The relief request identifies specific articles to be used from each set of edition and addenda.

3.4 Reason for Request

The four other SNC nuclear power plants will be starting new 10-year ISI/CII inspection intervals in May and November of 2017 and will be adopting the ASME B&PV Code, 2007 edition through the 2008 addenda, at that time. The licensee proposed to maintain standardization of the R/R, PT, and NDE programs across its entire nuclear fleet by using the ASME B&PV Code, 2001 edition through 2003 addenda, through November 2017 at HNP.

3.5 Proposed Alternative

Pursuant to 10 CFR 50.55a(z)(1), SNC requests authorization to maintain the current use of ASME B&PV Code, 2001 edition through the 2003 addenda, for the performance of R/R, PT and NDE subject to the conditions contained in 10 CFR 50.55a. In implementing this proposal, SNC will continue to comply with all NRC conditions, limitations, and restrictions as specified in 10 CFR 50.55a for the 2001 edition through the 2003 addenda. The table on page A-1 of the July 16, 2015, submittal specifies which paragraphs of ASME B&PV Code, Section XI, will be advanced to the 2007 edition through the 2008 addenda and which will be retained at the 2001 edition through the 2003 addenda. Code Cases will also be adopted per Regulatory Guide 1.147, Revision 17, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," (ADAMS Accession No. ML13339A689) for those cases applicable to the 2001 edition through the 2003 addenda.

Additionally, the relief and alternative requests listed below were authorized for use during the fourth 10-year interval at HNP. The licensee additionally requested that they be extended for use into the fifth 10-year interval for the time duration coinciding with the planned use of the 2001 edition through the 2003 addenda of ASME B&PV Code, Section XI.

- Request ISI-ALT-1 (HNP, Units 1 and 2), authorized on January 3, 2006, and is associated with the NDE program for the use of ASME B&PV Code, Section XI, Appendix VIII, for the examination of the reactor Vessel Shell-to-Flange and Head-to-Flange Welds (ADAMS Accession No. ML053470091)
- Request ISI-ALT-2 (HNP, Units 1 and 2), authorized on November 9, 2005, and is associated with the NDE program for weld reference system requirements (ADAMS Accession No. ML052970008)
- Request ISI-ALT-4 (Units 1 and 2), authorized on November 9, 2005, and is associated with the NDE program for the use PDI [Performance Demonstration Initiative] as an alternate to ASME B&PV Code, Section XI, Appendix VIII, Supplement 1 (ADAMS Accession No. ML052970008)
- Request ISI-ALT-6 (HNP, Units 1 and 2), authorized on November 9, 2005, and is associated with the NDE program for the use of PDI as an alternate to ASME B&PV Code, Section XI, Appendix VIII, Supplement 10, Table VIII-S2-1 (ADAMS Accession No. ML052970008)
- Request ISI-GEN-ALT-08-01 (HNP, Unit 1), authorized on August 26, 2008, and is associated with the NDE program for the inservice examination of weld 1C11-1CRD-3R-18A (control rod drive nozzle-to-cap weld overlay) (ADAMS Accession No. ML081680476)
- Request ISI-ALT-08-02 (HNP, Units 1 and 2), authorized on June 24, 2009, and is associated with the R/R program for preemptive overlays, (ADAMS Accession No. ML090340017). Based on HNP comments, a revised safety evaluation was issued on May 26, 2011 (ADAMS Accession No. ML11139A438)

3.6 Basis for Use

On January 1, 2016, the licensee will update the HNP ISI and CII Programs to the fifth ten-year interval in accordance with 10 CFR 50.55a(g)(4)(ii). While the ISI- and CII- related activities such as R/R, PT, and NDE would normally be included as part of the update to the 2007 edition through the 2008 addenda of ASME B&PV Code, Section XI, the licensee proposed to maintain the ISI- and CII-related activities in compliance with ASME B&PV Code, Section XI, 2001 edition through the 2003 addenda, while conforming to all conditions required in 10 CFR 50.55a.

The licensee standardized the performance of ISI- and CII-related activities such as R/R, PT, and NDE across its entire nuclear fleet to the ASME B&PV Code, Section XI, 2001 edition through the 2003 addenda. The licensee stated that while the ISI and CII program plans are controlled on a site-by-site basis, the R/R, PT, and NDE programs are administered under a corporate set of procedures. The licensee noted that updating the HNP ISI and CII, R/R, PT, and NDE program activities to the 2007 edition through the 2008 addenda would require establishing and continuing to maintain four different programs; one for HNP and one for the other four SNC nuclear power plants.

The licensee stated that aligning the HNP ISI- and CII-related activities to the 2001 edition through the 2003 addenda standard with the other SNC nuclear power plants when they enter their new interval in November 2017 provides an acceptable level of quality and safety at HNP. The licensee further stated that this allows leveraging the knowledge from the four other nuclear power plants of ISI- and CII-related activities to provide HNP with a wealth of experience to draw on and minimizing the time spent on developing and maintaining procedures that are different from the rest of the SNC fleet.

The licensee stated that pursuant to 10 CFR 50.55a(b)(3)(v), this request is not applicable to the snubber program because HNP will use the ASME Code for Operations and Maintenance of Nuclear Power Plants (OM Code) for snubber inservice inspection and testing.

The licensee further stated that it has process controls in place to track and monitor the implementation of the dual code editions and addenda of ASME B&PV Code, Section XI. These process controls, summarized below, need only be updated as they apply to the selection, planning, and scheduling of ISI and CII examinations and tests.

3.7 Duration of Proposed Alternative

The HNP fifth 10-year ISI interval begins on January 1, 2016, and ends on December 30, 2025. However, with four of its nuclear plants starting new 10-year ISI intervals between May and November 2017, SNC proposed to standardize its corporate administered R/R, PT, and NDE programs across its entire nuclear fleet using the ASME B&PV Code, 2001 edition through the 2003 addenda, through November 2017. Prior to the expiration of the proposed relief request on November 30, 2017, the licensee will request NRC approval to update these ASME B&PV Code, Section XI, activities to the latest ASME B&PV code edition incorporated by reference in 10 CFR 50.55a for its entire fleet. Therefore, the duration of Relief Request HNP-ISI-ALT-5-01 is from January 1, 2016, through November 30, 2017.

During this period, HNP will undergo two refueling outages, planned for February 2016 at Unit 1 and February 2017 at Unit 2.

3.8 NRC Staff Evaluation

3.8.1 Use of Alternate ASME B&PV Code Editions

In the letter dated July 16, 2015, the table on page A-1, "Proposed ASME Section XI Code of Record for HNP," lists the subsections and articles in the two ASME B&PV Codes applicable to the request for alternative. In the supplement dated December 16, 2015, the licensee clarified that they are not extending the fourth 10-year ISI interval, which is scheduled to end December 31, 2015. The fifth 10-year ISI interval will still start on January 1, 2016, but will retain use of certain paragraphs and subsections of the 2001 edition through the 2003 addenda of the ASME B&PV Code, Section XI. The licensee confirmed that at the end of the requested extension (i.e., November 30, 2017), the ASME B&PV Code, 2001 edition through the 2003 addenda, sections specified in the proposed alternative will be updated as required by 10 CFR 50.55a or that additional alternatives will be requested. The NRC staff notes that the approval of later ASME B&PV Code editions and addenda does not make earlier editions and addenda unsafe. The NRC staff finds this plan of action acceptable because the licensee will always be using an NRC-approved version of the ASME B&PV Code.

In the December 16, 2015, supplement, the licensee explained the use of the Section XI non-mandatory and mandatory appendices. The use of the non-mandatory appendices will be based on the applicable articles of the edition and addenda of the ASME B&PV Code (i.e., the code of record) indicated in the table on page A-1 of the July 16, 2015, submittal. For mandatory appendices, the NRC staff finds that the licensee appropriately identified that when applying Appendix VIII to Section XI to perform performance-demonstrated based ultrasonic examinations, the ASME B&PV Code 2001 edition (no addenda) should be used in lieu of the 2001 edition through the 2003 addenda. Section 50.55a(b)(2)(xv) of 10 CFR requires the use of the ASME B&PV Code, 2001 edition (no addenda) for the performance demonstration of ultrasonic examinations, when the code of record is later than the ASME B&PV Code, 2001 edition.

In the table on page A-1 of the July 16, 2015, letter, the licensee proposed using Sections IWA-2100, -2200, -2300 and -2600 from the 2001 edition through the 2003 addenda of the ASME B&PV Code, but proposed to use IWA-2400 and -2500 from the 2007 edition through the 2008 addenda of the ASME B&PV Code. Similarly, the licensee proposed to use Sections IWB, IWC, IWD, IWE and IWF-1000 and -2000 from the 2007 edition through the 2008 addenda of the ASME B&PV Code, but proposes to use Section IWA-1000 from the 2001 edition through the 2003 addenda of the ASME B&PV Code. In the December 16, 2015, supplement, the licensee explained that these differences arise from the requirements of site-specific ISI program requirements and fleet-wide procedures that pertain to R/R, PT, and NDE programs. The NRC staff reviewed the licensee's justification for the use of the two ASME B&PV Code editions and addenda for the period of January 1, 2016, through November 30, 2017, and finds that the licensee's plan to be acceptable because it continues to use NRC-approved editions and addenda.

Based on the review of the information contained within the table and footnotes on page A-1 of the July 16, 2015, letter, the NRC staff finds that it provides clear descriptions and guidance as to which subsections, articles, and subarticles of which ASME B&PV Code, Section XI, editions and addenda will be applicable for the time period under consideration. The NRC staff finds that the table and associated footnotes satisfy the requirements in 10 CFR 50.55a.

3.8.2 Relief Request Extensions

The NRC staff reviewed the relief requests ISI-ALT-1, -2, -4, -6 and ISI-GEN-ALT-08-01 that the licensee proposed to extend the period of applicability through November 2017. For ISI-ALT-1, -2, -4, and -6, the NRC staff's review of operating experience and regulatory changes that have occurred since the issuance of the alternatives identified no significant changes to the conditions associated with the relief requests. As a result, the NRC staff finds that extending the period of applicability of these relief requests would maintain plant safety at HNP.

The NRC staff reviewed ISI-GEN-ALT-08-02 and found no regulatory changes or applicable operating experience have occurred since the alternative was authorized; however, the NRC staff did identify a potential issue associated with material toughness following temper bead welding which could affect the plant PT curves. By letter dated December 16, 2015, HNP indicated that two full-structural weld overlays had been performed at HNP, Unit 2, using this relief request. The licensee further stated that the results of Charpy V notch test indicated that the average lateral expansion in the heat affected zone of the temper bead welds under consideration was greater than in the base material. Based on the lack of regulatory changes and applicable operating experience, as well as the fact that the Charpy V notch test results are in compliance with the ASME B&PV Code, Section XI, requirements, the NRC staff finds the extension of ISI-GEN-ALT-08-02 to be acceptable.

Based on the analyses described above, the NRC staff finds that extending the period of applicability of ISI-ALT-1, -2, -4, -6 and ISI-GEN-ALT-08-01 and -2 will continue to maintain plant safety at HNP. The NRC staff, therefore, finds their extension through November 2017 to be acceptable.

3.8.3 Snubber Inservice Inspection and Testing

In its snubber inspection program (ADAMS Accession No. ML14349A471), as supplemented by the letter dated December 16, 2015, the licensee noted that inservice testing (IST) and ISI of snubbers is not part of this relief request. The snubber IST and ISI is being performed in accordance with ASME OM Code, Subsection ISTD, and that modifications to the plant technical specification have been incorporated in accordance with 10 CFR 50.55a(b)(3)(v)(B). The licensee also noted that during the time period under consideration in this relief request, the ASME OM code of record would be the 2004 edition through the 2006 addenda. The NRC staff reviewed this proposal and found that the licensee has correctly determined the appropriate code of record for the time period under consideration and that the proposal is in accordance with 10 CFR 50.55a(b)(3)(v)(B). Therefore, the NRC staff finds that additional review of this topic with respect to this request is not required.

3.8.4 Summary

Based on the above analyses, the NRC staff finds that the licensee clearly provided the applicable code sections, appendices, cases, and editions and addenda that will apply during the duration of this alternative. The NRC staff also finds that the extension of the applicability of those sections of the code and extension of the five relief requests will not cause a degradation of plant safety during the period of the request. The NRC staff, therefore, finds the licensee's proposed alternative to be acceptable.

4.0 CONCLUSION

As set forth above, the NRC staff determines that the proposed alternative provides an acceptable level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(1). Therefore, the NRC staff authorizes the use of Relief Request HNP-ISI-ALT-5-01 at HNP, Units 1 and 2, from January 1, 2016, to November 30, 2017.

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

Principal Contributor: D. Becker
G. Cheruvinki

Date: December 28, 2015

C. R. Pierce

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If you have any questions, please contact the Project Manager, Michael Orenak at 301-415-3229 or via e-mail at Michael.Orenak@nrc.gov.

Sincerely,

/RA SWilliams for/

Michael T. Markley, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-321 and 50-366

Enclosure:
Safety Evaluation

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