



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

June 27, 2012

Mr. Kevin Walsh
Site Vice President
c/o Michael O'Keefe
Seabrook Station
NextEra Energy Seabrook, LLC
P.O. Box 300
Seabrook, NH 03874

SUBJECT: SEABROOK STATION, UNIT NO. 1 – REQUEST FOR RELIEF 3IR-1,
EXAMINATION CATEGORY C-B PRESSURE RETAINING NOZZLE WELDS IN
VESSELS (TAC NO. ME7257)

Dear Mr. Walsh:

By letter dated September 26, 2011, NextEra Energy Seabrook, LLC (NextEra or licensee) submitted request for relief 3IR-1 for the third 10-year inservice inspection (ISI) interval program at the Seabrook Station, Unit 1 (Seabrook) from certain examination requirements of the American Society of Mechanical Engineers (ASME) *Boiler and Pressure Vessel Code* (Code). Specifically, the licensee requested relief from the ASME Code, Section XI requirements for the steam generator (SG) main steam (MS) outlet nozzle inside radius section. The Seabrook third 10-year ISI interval started on August 19, 2010. The request is for the remainder of the third 10-year ISI interval. The Seabrook third 10-year ISI interval is projected to end August 18, 2020.

The ASME Code, Section XI, 2004 Edition with no Addenda, Table IWC-2500-1 Category C-B, Item No. C2.22 Nozzle Inside Radius Section requires that the inner radius sections of all nozzles at terminal ends of piping runs be volumetrically examined. Note 4 of Table IWC-2500-1, Category C-B states "in the case of multiple vessels of similar design, size, and service (such as steam generators, heat exchangers), the required examinations may be limited to one vessel or distributed among the vessels." Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(g)(5)(iii), NextEra determined that due to design and geometry, the volumetric examination requirement for nozzle inside radius section of the SG MS Outlet Nozzle Inner Radius, RC E-11A 16-IR as specified in Table IWC-2500-1, Examination Category C-B, Item No. C2.22 is impractical to meet.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the subject request and concludes that the visual examination associated with the system pressure test is performed on this nozzle each inspection period, as specified in Table IWC-2500-1, Examination Category C-H of the 2004 Edition of ASME Code Section XI, provides reasonable assurance of continued structural integrity for weld RC E-11A 16-IR. Therefore, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i) for Seabrook's third 10-year ISI interval.

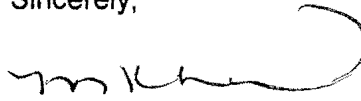
All other ASME Code, Section XI requirements for which relief was not specifically requested and approved in this relief request remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

K. Walsh

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The NRC staff's safety evaluation is enclosed. If you have any questions, please contact John G. Lamb at 301-415-3100 or via e-mail at John.Lamb@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read 'm khanna', with a large, sweeping loop at the end.

Meena Khanna, Chief
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-443

Enclosure:
Safety Evaluation

cc w/encl: Distribution via Listserv



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REQUEST FOR RELIEF 3IR-1

STEAM GENERATOR MAIN STEAM OUTLET NOZZLE INSIDE RADIUS SECTION

NEXTERA ENERGY SEABROOK, LLC

SEABROOK STATION, UNIT 1

DOCKET NO. 50-443

1.0 INTRODUCTION

By letter dated September 26, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML11277A269), NextEra Energy Seabrook, LLC (NextEra or licensee), submitted request for relief 3IR-1 for the third 10-year inservice inspection (ISI) interval program at the Seabrook Station, Unit 1 (Seabrook) from certain examination requirements of the American Society of Mechanical Engineers (ASME) *Boiler and Pressure Vessel Code* (Code). Specifically, the licensee requested relief from the ASME Code, Section XI requirements for the steam generator (SG) main steam (MS) outlet nozzle inside radius (IR) section. The Seabrook third 10-year ISI interval started on August 19, 2010. The request is for the remainder of the third 10-year ISI interval. The Seabrook third 10-year ISI interval is projected to end August 18, 2020.

2.0 REGULATORY EVALUATION

Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(g), "Inservice inspection requirements," requires, in part, that ASME Class 1, 2, and 3 components must meet the inspection examination requirements set forth in the applicable editions and addenda of the ASME Code, except where alternatives have been authorized by the U.S. Nuclear Regulatory Commission (NRC) pursuant to 10 CFR 50.55a(a)(3)(i) or (a)(3)(ii).

10 CFR 50.55a(a)(3) states, in part, that alternatives to the requirements of paragraph (g) may be authorized by the NRC, if the applicant demonstrates that: (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. The Code of Record for the third 10-year ISI interval at Seabrook is the 2004 Edition of the ASME Code, Section XI.

Enclosure

10 CFR 50.55a(g)(5)(iii) states, "If the licensee has determined that conformance with a code requirement is impractical for its facility, the licensee shall notify the NRC and submit, as specified in § 50.4, information to support the determinations. Determinations of impracticality in accordance with this section must be based on the demonstrated limitations experienced when attempting to comply with the code requirements during the inservice inspection interval for which the request is being submitted. Requests for relief made in accordance with this section must be submitted to the NRC no later than 12 months after the expiration of the initial or subsequent 120-month inspection interval for which relief is sought."

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 Commission to grant the relief requested by the licensee.

3.0 TECHNICAL EVALUATION

3.1 Affected Component

System: Reactor Coolant (RC)

ISI Component ID: RC-E-11A 16-IR

The component, designated RC E-11A 16-IR by the licensee, is a Class 2 nozzle IR section in the SG MS outlet nozzle. The examination Category is C-B, Pressure Retaining Nozzle Welds in Vessels.

3.2 Applicable Code

NextEra is currently in the 3rd 10-Year ISI interval. The ASME Code of Record the current 10-Year ISI interval is Section XI, 2004 Edition. This relief request covers for the third 10-year inspection interval which began on August 19, 2010, and is scheduled to end on August 18, 2020.

3.3 Code Requirements for Which Relief is Requested

ASME Code, Section XI, 2004, Table IWC-2500-1 Category C-B, Item No. C2.22, Nozzle Inside Radius Section requires that the inner radius sections of all nozzles at terminal ends of piping runs be volumetrically examined. Note 4 of Table IWC-2500-1, Category C-B states, "in the case of multiple vessels of similar design, size, and service (such as steam generators, heat exchangers), the required examinations may be limited to one vessel or distributed among the vessels."

3.4 Licensee's Bases for Relief (as stated)

The geometry of this nozzle design, with the bored flow restrictor holes, does not result in an actual inner radius, and therefore, no meaningful examination can be performed. This design does not entail a nozzle with a radius as described in

Figure IWC-2500-4, but instead has several "corners," corresponding to each bored hole. As a result, the design of the nozzle is not applicable to the Code requirement and compliance with the Code should not be required. Therefore, no alternate examinations of inner radius section RC E-1 1A 16-IR are proposed.

A VT-2 [visual] examination associated with the system pressure test is performed on this nozzle each inspection period as specified in Table IWC-2500-1, Examination Category C-H of the 2004 Edition of ASME [Code] Section XI. The required VT-2 visual examination provides reasonable assurance of continued structural integrity.

3.5 Licensee Basis for the Alternative (as stated)

Pursuant to 10 CFR 50.55a(g)(5)(iii), NextEra has determined that due to design and geometry, the volumetric examination requirement for nozzle inside radius section of the Steam Generator Main Steam Outlet Nozzle Inner Radius, RC E-11A 16-IR as specified in Table IWC-2500-1, Examination Category C-B, Item No. C2.22 is impractical to meet.

The steam generator main steam outlet nozzle is one piece containing a set of seven holes bored parallel to the nozzle centerline. These seven flow limiting bores make a square transition (no inner radius) to the nozzle making it ultrasonically impractical to examine. In addition, this nozzle design does not match typical figures in Figure IWC-2500-4.

To perform an inner radius examination, the main steam outlet nozzle would require modification/replacement. This type of modification/replacement would be impractical and would not provide an increase in quality and safety.

3.6 NRC Staff Evaluation

The Code requires 100-percent volumetric examination for the subject weld. The SG MS outlet nozzle is somewhat typical of a dropout nozzle, which is welded to the head. It is unlike a forged dropout, which has an inner radius transition. The MS outlet nozzle contains a flow limiter device within the bore of the nozzle. This device makes a square transition to the nozzle, making it impractical to ultrasonically examine.

The Code requirements are impractical for Weld RC E-11A 16-IR and in order to meet the Code coverage requirements, design modifications would be necessary to provide access for examination. Imposition of the Code requirements would result in an undue burden on the licensee. This weld is also subject to VT-2 visual examination each inspection period. A VT-2 examination associated with the system pressure test is performed on this nozzle each inspection period, as specified in Table IWC-2500-1, Examination Category C-H of the 2004 Edition of ASME Code, Section XI.

Based on the visual examination associated with the system pressure test conducted on the subject nozzle, reasonable assurance of continued structural integrity for weld RC E-11A 16-IR has been provided. Therefore, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i).

4.0 CONCLUSION

The NRC staff has reviewed the licensee's request for relief for ASME Code, Section XI, Examination Category C-B, *Pressure Retaining Nozzle Welds in Vessels*, and concludes that the ASME Code requirements are impractical and would result in an undue burden on the licensee. The NRC staff concludes that reasonable assurance of continued structural integrity for weld RC E-11A 16-IR has been provided based on the visual examination associated with the system pressure test conducted on the subject nozzle. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), the licensee's relief request 3IR-1 is authorized for the third 10-year ISI interval at Seabrook.

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: Steve Cumblidge

Date: June 27, 2012

K. Walsh

-2-

The NRC staff's safety evaluation is enclosed. If you have any questions, please contact John G. Lamb at 301-415-3100 or via e-mail at John.Lamb@nrc.gov.

Sincerely,

/ra/

Meena Khanna, Chief
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-443

Enclosure:
Safety Evaluation

cc w/encl: Distribution via Listserv

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*via email

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DATE	06/25/12	06/26/12	06/22/12	06/27/12

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