



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

March 18, 2013

Mr. Larry Meyer  
Site Vice President  
NextEra Energy Point Beach, LLC  
Point Beach Nuclear Plant  
6610 Nuclear Road  
Two Rivers, WI 54241

**SUBJECT: POINT BEACH NUCLEAR PLANT, UNIT 1 – RELIEF FROM THE REQUIREMENTS OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) BOILER AND PRESSURE VESSEL CODE (B&PV CODE), SECTION XI, FOR THE RE-EXAMINATION OF THE REACTOR PRESSURE VESSEL “A” INLET NOZZLE WELD RC-32-MRCL-AIII-03 FOR THE FIFTH INSPECTION INTERVAL (TAC NO. ME9905)**

Dear Mr. Meyer:

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated November 9, 2012, as supplemented by letters dated December 14, 2012, and February 1, 2013, NextEra Energy Point Beach, LLC (NextEra), requested relief from the requirements of the ASME B&PV Code, Section XI, 2007 Edition with 2008 Addenda, for re-examination of the Point Beach Nuclear Plant, Unit 1, reactor pressure vessel “A” Inlet Nozzle Weld RC-32-MRCL-AIII-03.

The NRC staff has reviewed the subject relief request and concludes, as set forth in the enclosed safety evaluation, that NextEra adequately addressed all the regulatory requirements set forth in 10 CFR 50.55a(g)(6)(i) based on the impracticality to comply with the specified code case requirement and that the proposed inspection provides reasonable assurance of structural integrity or leak tightness of the subject component. Therefore, the NRC staff grants relief at the Point Beach Nuclear Plant, Unit 1, for the first period of the Fifth Inspection Interval, which is scheduled to end on July 31, 2015.

L. Meyer

- 2 -

If you have any questions, please contact Terry Beltz at (301) 415-3049 or via e-mail at [Terry.Beltz@nrc.gov](mailto:Terry.Beltz@nrc.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Robert D. Carlson", with a long horizontal flourish extending to the right.

Robert D. Carlson, Chief  
Plant Licensing Branch III-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-266

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

RELIEF REQUEST (1-RR-4)

FOR THE FIRST PERIOD OF THE FIFTH INSPECTION INTERVAL

NEXTERA ENERGY POINT BEACH, LLC

POINT BEACH NUCLEAR PLANT, UNIT 1

DOCKET NO. 50-266

TAC NO. ME9905

1.0 INTRODUCTION

By letter to the U.S. Nuclear Regulatory Commission (NRC or the Commission) dated November 9, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12318A125), as supplemented by letters dated December 14, 2012, and February 1, 2013 (ADAMS Accession Nos. ML12349A364 and ML13035A018, respectively), NextEra Energy Point Beach, LLC (NextEra, the licensee), submitted relief request 1-RR-4.

NextEra requested relief from the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code), Section XI, 2007 Edition with 2008 Addenda, for re-examination of the Point Beach Nuclear Plant (PBNP), Unit 1, reactor pressure vessel "A" Inlet Nozzle Weld RC-32-MRCL-AIII-03. Specifically, relief was requested for the use of alternate root mean square (RMS) error criteria for ultrasonic examinations conducted from the inside diameter of welds as contained in the ASME Code, Section XI, Appendix VIII, Supplement 10, i.e., root mean square error (RMSE) not greater than 0.125 inches (in.).

The licensee requested NRC authorization pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Section 50.55a(a)(3)(i), for the use of proposed alternative on the basis that the alternative provides an acceptable level of quality and safety. The NRC staff evaluated the licensee's submittal and determined that the request would be reviewed pursuant to 10 CFR 50.55a(g)(6)(i), in that the current code requirements are impractical due to inability for existing technology to meet the established acceptance criteria.

2.0 REGULATORY EVALUATION

The licensee requested relief from the depth sizing acceptance criteria contained in ASME Code Section XI, Appendix VIII, Supplement 10 (Supplement 10), pursuant to 10 CFR 50.55a(g)(6)(i).

Enclosure

10 CFR 50.55a(g)(4)(ii) states that 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 of Nuclear Power Plant Components," 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 inspection interval and subsequent 10-year inspection intervals 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) twelve months prior to the start of the 120-month inspection interval, subject to the limitations and modifications listed therein.

10 CFR 50.55a(g)(5)(iii) states, in part, that licensees may determine that conformance with certain code requirements is impractical and that the licensee shall notify the Commission and submit information in support of the determination.

10 CFR 50.55a(g)(6)(i) states, in part, that the Commission will evaluate determinations under paragraph (g)(5) of this section that code requirements are impractical and that the Commission may grant such relief and may impose such alternative requirements as it determines is authorized by law and will not endanger life or property.

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 Component for Which Relief is Being Requested

The licensee stated that this relief request addresses a nozzle-to-safe end dissimilar metal weld. The weld is described as a Class 1, Inspection Category RA, Inspection Number R1.20 Elbow to Inlet Nozzle. The component number is RC-32-MRCL-AIII-03. This inspection is a re-examination of non-ID [inside diameter] connected indications per ASME Section XI, paragraph IWB-2420(b).

#### 3.2 Applicable Code and Addenda

The current inservice inspection program is based on the ASME Code, Section XI, 2007 Edition with 2008 Addenda. Testing of personnel, procedures, and equipment for the ultrasonic examination of applicable Class 1 and 2 components is governed by Appendix VIII, "Performance Demonstration for Ultrasonic Examination Systems," of the ASME Code, Section XI.

#### 3.3 Applicable Code Requirement

The examination of Class 1 and 2 piping welds are required to be performed using procedures, personnel, and equipment qualified to the criteria of the ASME Code, Section XI, Appendix VIII, and specifically Supplement 10, "Qualification Requirements for Dissimilar Metal Piping Welds," for the examination of Item R1.20 nozzle-to-piping dissimilar metal welds.

The 2007 Edition of ASME Code, Section XI, Appendix VIII, Supplement 10, Paragraph 3.3(c) states that "Examination procedures, equipment, and personnel are qualified for depth-sizing when the RMS error of the flaw depth measurements, as compared to the true flaw depths, do not exceed 0.125 in. (3 mm)."

#### 3.4 Licensee's Proposed Alternative

For the re-examination of indications recorded on weld RC-32-MRCL-AIII-03 (Supplement 10), the licensee proposes to apply the difference between the examination vendor's achieved RMSE and the Supplement 10 required 0.125-inch RMSE to actual flaw depths during depth sizing of indications.

The licensee verified through the Performance Demonstration Initiative (PDI) Administrator that the examination vendor selected to perform the scheduled re-examinations at PBNP has achieved a 0.212-inch RMSE for the Supplement 10 qualification, a 0.211-inch RMSE for the Supplement 2 qualification, and a 0.211-inch RMSE for the Combined Supplement 2 and 10.

If the previously reported non-ID connected flaws are determined to be connected to the piping ID surface, the licensee will supply the flaw evaluations performed, along with the measured size as determined by ultrasonic testing (UT), for review. The examination vendor will use eddy current testing in order to determine if the flaw is ID surface breaking. If an additional flaw is detected and depth-sizing is required, the inner profile of the weld, pipe, and nozzle in the region of and surrounding the flaw will be provided along with an estimate of the percentage of potential surface areas with UT probe lift-off. The flaw degradation mechanism will be determined with aid from the initial and additional nondestructive examination data collected.

Flaw(s) detected and measured as less than 50 percent (%) through-wall depth shall be adjusted by adding the industry-proposed correction factor of the RMSE - 0.125 inches to the depth of the flaw.

For flaw(s) detected and measured as 50% through-wall depth or greater, and to remain in service without mitigation or repair, the licensee shall submit flaw evaluations to the NRC for review and approval prior to reactor startup.

#### 3.5 Licensee's Basis for Requesting Relief

The licensee confirmed with the PDI Administrator on September 25, 2012, that no vendor has successfully demonstrated compliance with the Code-required 0.125-inch RMS value for qualification tests for examinations conducted from the ID surface (for either stand-alone Supplement 10 or combined Supplement 2 and 10 qualifications).

#### 3.6 Duration of Relief

The requested duration of this relief request is until the end of the first period of the Fifth Inspection Interval, which would end July 31, 2015.

### 3.7 NRC Staff Evaluation

As described above, the licensee requested relief from the requirements of Supplement 10. Supplement 10 requires that procedures used to inspect welds from the ID be qualified by performance demonstration. The acceptance criterion established by the code case is an RMSE of not greater than 0.125 inches.

The NRC staff has confirmed that attempts have been made to qualify ID UT inspection procedures since 2002 and that, to date, no inspection vendor has been able to meet the acceptance criteria established by the code case despite the fact that numerous individuals from several companies have attempted to do so.

In July 2012, the NRC staff reviewed the proprietary PDI program (administered by the Electric Power Research Institute (EPRI)) data used in blind tests. This review of the PDI data was conducted to verify the information and analysis contained in MRP 2012-11 (provided as Attachment 2 to a March 12, 2012, letter in response to requests for additional information related to NRC staff review of a Braidwood Station relief request (ADAMS Accession No. ML120730196)), and to better understand the sizing errors and the factors affecting the sizing errors in the qualification data. Based on this review, the NRC staff was able to determine that:

1. For flaws measured as less than or equal to 50% through-wall depth the industry-proposed correction factor (procedure RMSE - 0.125 inch) provided reasonable assurance that flaws would not be significantly undersized in Supplement 10 welds.
2. For flaws greater than 50% through-wall, a number of data points were significantly undersized for Supplement 10 welds. The undersizing of large flaws, even with the proposed correction factor, did not provide reasonable assurance that flaws would be adequately sized in Supplement 10 welds.

The NRC staff has determined that the addition of the industry-proposed correction factor prior to flaw evaluation for flaws less than 50% through-wall satisfactorily reduces the effect of the increased sizing error associated with not meeting the 0.125 RMSE required by Supplement 10. The licensee has agreed that if any cracks are detected and measured as 50% through-wall depth or greater, and to remain in-service without mitigation or repair, that they shall submit flaw evaluations to the NRC for review and approval prior to reactor startup. This evaluation will include the inner profile of the weld, pipe, and nozzle in the region at and surrounding the flaw, and an estimate of the percentage of potential surface areas with UT probe lift-off. Requiring NRC approval for restart when a flaw greater than 50% through-wall is discovered and is to be left in service without mitigation or repair addresses the staff concerns with the possibilities of large undersizing errors in deep flaws.

The NRC staff finds that for flaws measured at 50% or less through-wall depth adding the industry-proposed correction factor (procedure RMSE - 0.125 inch) to the depths of any flaw found by the inspections and obtaining NRC review and approval prior to startup for any flaws measured as greater than 50% through-wall depth provides adequate assurance of structural integrity and leak tightness.

Based on the concerted efforts by the industry to meet the acceptance criteria contained in Supplement 10, and the difficulties associated with other inspection methods, the NRC staff

finds that meeting the 0.125 inch acceptance criterion in Supplement 10 is impractical and represents a burden to the licensee. On that basis, and subsequent to NRC staff review and approval of information submitted, the staff finds that this alternative provides reasonable assurance of structural integrity or leak tightness of the subject component and therefore will not endanger life or property as required by 10 CFR 50.55a(g)(6)(i).

#### 4.0 CONCLUSION

As set forth above, the NRC staff determines that granting relief pursuant to 10 CFR 50.55a(g)(6)(i) is authorized by law and will not endanger life or property or the common defense and security, and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(g)(6)(i), and is in compliance with the ASME Code requirements, for which relief was not requested. Therefore, the NRC staff grants relief as specified above (i.e., the use of the alternate depth-sizing qualification (0.212 inch) with the addition of 0.087 inches to the depths of any flaws measured as less than 50% through-wall and NRC review and approval of all flaw evaluations for flaws measured as greater than 50% that are not mitigated or repaired) for the Point Beach Nuclear Plant, Unit 1, until the end of the first period of the Fifth Inspection Interval, which ends July 31, 2015.

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

Principle Contributors: Stephen Cumblidge, NRR

Date of issuance: March 18, 2013

L. Meyer

- 2 -

If you have any questions, please contact Terry Beltz at (301) 415-3049 or via e-mail at [Terry.Beltz@nrc.gov](mailto:Terry.Beltz@nrc.gov).

Sincerely,

*/RA/*

Robert D. Carlson, Chief  
Plant Licensing Branch III-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-266

Enclosure:  
Safety Evaluation

cc w/encl: Distribution via ListServ

**DISTRIBUTION:**

PUBLIC

RidsNrrDorlLpl3-1 Resource  
RidsAcrsAcnw\_MailCTR Resource  
RidsNrrPMMonticello Resource  
RidsNrrLASRohrer Resource

LPL3-1 R/F  
RidsNrrDeEpn Resource  
RidsNrrDorIDpr Resource  
RidsRgn3MailCenter Resource

JCassidy, EDO R-III  
SCumblidge, NRR

**ADAMS Accession No.: ML13064A425**

\* via e-mail dated March 14, 2013

OFFICE	LPL3-1/PM	LPL3-1/LA	EPNB/BC	LPL3-1/BC
NAME	TBeltz	SRohrer	TLupold *	RCarlson
DATE	03/13/13	03/13/13	03/14/13	03/18/13

**OFFICIAL RECORD COPY**