



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

December 20, 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, UNITS 1 AND 2 – RELIEF FROM THE REQUIREMENTS OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) BOILER AND PRESSURE VESSEL CODE (CODE), SECTION XI, FOR THE FOURTH 10-YEAR INSERVICE INSPECTION INTERVAL (TAC NOS. MF1144 AND MF1145)

Dear Mr. Meyer:

By letter dated March 19, 2013, as supplemented by letter dated August 28, 2013, NextEra Energy Point Beach, LLC (NextEra, the licensee), submitted to the U.S. Nuclear Regulatory Commission (NRC) a Request for Relief (RR-4L3) from certain inspection coverage requirements of the ASME Code, Section XI, for two full-penetration welds at the Point Beach Nuclear Plant (PBNP), Units 1 and 2.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(g)(6)(i), the licensee requested relief from the 100 percent weld examination coverage requirements specified in Subarticle IWB-2500 of the ASME Code, Section XI on the basis that the code requirement is impractical. The request is applicable to two Class 1 full-penetration welds at PBNP, Units 1 and 2, with access limitations caused by design, and reduced coverage caused by the materials of construction.

The NRC staff has reviewed the request and concludes, as set forth in the enclosed safety evaluation, that NextEra has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(g)(6)(i) based on the impracticality to comply with the ASME Code examination coverage requirements for the subject welds listed in RR-4L3. The NRC staff determines that the ASME Code-required essentially 100 percent volumetric examination from both sides of Welds AC-10-SI-1001-19 and AC-10-SI-2001-17 is considered impractical. Furthermore, the staff concludes that the examinations performed provide reasonable assurance of structural integrity of the subject components.

L. Meyer

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If you have any questions, please contact Terry Beltz at (301) 415-3049, or via e-mail at 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 Nos. 50-266 and 50-301

Enclosure:
Safety Evaluation

cc w/encl: Distribution via ListServ



UNITED STATES
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REGARDING RELIEF REQUEST RR-4L3

FOR THE FOURTH 10-YEAR INSERVICE INSPECTION INTERVAL

NEXTERA ENERGY POINT BEACH, LLC

POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-266 AND 50-301

TAC NOS. MF1144 AND MF1145

1.0 INTRODUCTION

By letter dated March 19, 2013 (Agencywide Document Access and Management System (ADAMS) Accession Number ML13079A144), as supplemented by letter dated August 28, 2013, (ADAMS Accession No. ML13241A201), NextEra Energy Point Beach, LLC (NextEra, the licensee), requested relief from inspection coverage requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code), Section XI for two full-penetration welds.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.55a(g)(6)(i), the licensee submitted Relief Request (RR)-4L3 requesting relief from the 100 percent weld examination coverage requirements specified in Subarticle IWB-2500 of the ASME Code Section XI on the basis that the code requirement is impractical. The request is applicable to two Class 1 full-penetration welds at the Point Beach Nuclear Plant (PBNP), Units 1 and 2, with access limitations caused by design, and reduced coverage caused by the materials of construction.

2.0 REGULATORY EVALUATION

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 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, which was

Enclosure

incorporated by reference in 10 CFR 50.55a(b) 12 months prior to the start of the 120-month interval, subject to the conditions 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 shall notify the Commission and submit information in support of the determination.

10 CFR 50.55a(g)(6)(i), states that the Commission will evaluate determinations under paragraph (g)(5) of this section that code requirements are impractical. 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 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.

The licensee has requested relief from the ASME Code, Section XI requirements pursuant to 10 CFR 50.55a(g)(5)(iii). Based on the above, and subject to the following technical evaluation, the U.S. Nuclear Regulatory Commission (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 Licensee's Relief Request

Component Descriptions

Relief Request RR-4L3 includes two Inspection Category R-A Item Number R1.16 piping welds. These welds are listed below in Table 1.

Table 1 - Examination Category R-A Item Number R1.16 Welds				
Unit	Weld ID	Claimed Coverage	Description	Materials
1	AC-10-SI-1001-19	50%	Auxiliary Cooling 10-inch Pipe to Valve 1SI-867B	Wrought Stainless Steel Pipe to Cast Stainless Steel Valve
2	AC-10-SI-2001-17	50%	Auxiliary Cooling 10-inch Pipe to Valve 2SI-867B	Wrought Stainless Steel Pipe to Cast Stainless Steel Valve

Applicable ASME Code Requirement

The licensee was granted permission to use a risk-informed in service inspection (RI-ISI) program for the fourth inspection interval in a letter dated July 2, 2003 (ADAMS Accession No. ML031630940). The RI-ISI program was developed in accordance with the Electric Power Research Institute (EPRI) Topical Report TR-112657, Revision B-A, using the Nuclear Energy Institute template methodology. The welds are assigned Examination Category R-A, Item R1.16, and are either subject to thermal fatigue/stratification or defaulted to "thermal fatigue" as the most likely degradation mechanism.

The ASME Code, Section XI and the licensee's RI-ISI program require "essentially" 100 percent volumetric examinations of the Category R-A Item Number R1.16. ASME Code Case N-460, "Alternative Examination Coverage for Class 1 and Class 2 Welds, Section XI, Division 1," is an

alternative approved for use by the NRC in Regulatory Guide (RG) 1.147, Revision 16, "Inservice Inspection Code Case Acceptability," and states that a reduction in examination coverage due to part geometry or interference for any Class 1 and 2 weld is acceptable provided that the reduction is less than 10 percent, (i.e., greater than 90 percent examination coverage is obtained).

The ASME Code of record for the fourth inspection interval at PBNP, Units 1 and 2, is the ASME Code, Section XI, 1998 Edition through the 2000 Addenda. The fourth inspection interval at PBNP, Units 1 and 2, began on July 1, 2002, and ended on July 31, 2012.

Basis for Relief

The licensee has examined the welds to the maximum extent possible utilizing approved examination techniques and equipment. Ultrasonic examination of each of the welds was conducted using personnel, equipment, and procedures qualified in accordance with ASME Code Section XI, Appendix VIII.

The system leakage tests were performed each refueling outage in accordance with Table IWB-2500-1; Examination Category B-P. Examination Category B-P requires a VT-2 visual examination to detect evidence of leakage.

In addition to the above ASME Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provided assurance that, in the event that leakage did occur through this weld, it would be detected and proper action taken.

The licensee did not propose any alternative examinations for the subject welds.

3.2 NRC Staff Evaluation

Welds AC-10-SI-1001-19 and AC-10-SI-2001-17 are both 10-inch diameter Class 1 stainless steel welds joining a wrought stainless steel auxiliary cooling pipe to cast stainless steel valves in Units 1 and 2. The ASME Code, Section XI and the Licensee's RI-ISI program require essentially 100 percent volumetric coverage of the welds. However, volumetric examinations are limited by the geometry of the welds and the associated piping configurations, which restrict scanning to one side only.

To gain access for examination, the welds and piping would require design modifications. Imposition of this requirement would create a burden on the licensee.

The ASME Code coverage for each weld was 50 percent. The licensee stated that their "best effort" coverage values are 50 percent for axial flaws and 80 percent coverage for circumferential flaws for Weld AC-10-SI-1001-19 and 50 percent for axial flaws and 56.25 percent coverage for circumferential flaws for AC-10-SI-2001-17. This coverage was obtained using 45 degree shear and 60 degree longitudinal waves in the axial scans for circumferential flaws. The entire length of the weld was examined on one side of the pipe side for circumferential flaws and the entire weld width was scanned for axial flaws.

Although the essentially 100 percent ASME Code-required coverage could not be obtained, the ultrasonic testing techniques employed provided volumetric coverage for the near-side of the

welds and limited volumetric coverage for the weld far-side, weld fusion zone and base materials on the opposite side of the welds. The staff has determined that there is no known operational experience showing cracking in similar stainless steel welds, and the only forms of cracking that are expected to occur are thermal fatigue, due to very low oxygen concentration in pressurized water reactor coolant. Given the location of these welds, it is expected that thermal fatigue cracking would progress relatively slowly through the weld. Considering the coverage obtained, axial cracking would likely be detected and circumferential cracking on the near side or initiating near the weld root should also be detected.

4.0 CONCLUSION

As set forth above, the NRC staff has reviewed the licensee's submittals and determined 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 given due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. Furthermore, the staff concluded that the examinations performed to the extent practical provide reasonable assurance of structural integrity of the subject components. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(g)(5). Therefore, the NRC staff grants relief for the subject examinations of the components contained in RR-4L3 for the fourth 10-year inspection intervals at the Point Beach Nuclear Plant, Units 1 and 2.

The NRC staff concludes that the burden on the licensee, the ASME Code-required essentially 100 percent volumetric examination from both sides of Welds AC-10-SI-1001-19 and AC-10-SI-2001-17, is considered impractical. Furthermore, the staff concludes that the examinations performed provide reasonable assurance of structural integrity of the subject components.

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.

Principal Contributor: S. Cumblidge

Date: December 20, 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.

Sincerely,

/RA/

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

Docket Nos. 50-266 and 50-301

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Safety Evaluation

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