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

May 7, 2015

Mr. Eric McCartney
Site Vice President
NextEra Energy Point Beach, LLC
Point Beach Nuclear Plant
6610 Nuclear Road
Two Rivers, WI 54241-9516

SUBJECT: POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2 – RELIEF REQUEST RR-9, PROPOSED ALTERNATIVE FROM THE REQUIREMENTS OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS BOILER AND PRESSURE VESSEL CODE FOR SYSTEM LEAKAGE TEST (TAC NOS. MF4142 AND MF4143)

Dear Mr. McCartney:

By letter dated May 13, 2014, NextEra Energy Point Beach, LLC (NextEra) submitted a request to the U.S. Nuclear Regulatory Commission (NRC) for relief from certain requirements specified in the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, at the Point Beach Nuclear Plant (Point Beach), Units 1 and 2.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), 50.55a(a)(3)(i), NextEra submitted Relief Request RR-9, requesting relief from the system pressure test of the emergency diesel generator subsystem components required by ASME Section XI, IWD-5220. In lieu of the required system pressure test, NextEra proposed to use existing technical specification tests to demonstrate an equivalent level of quality and safety.

By Federal Register Notice 79 FR 65776, dated November 5, 2014, which became effective on December 5, 2014, the paragraph headings in 10 CFR 50.55a were revised. Accordingly, relief requests that had been previously covered by 10 CFR 50.55a(a)(3)(i) are now covered under the equivalent 10 CFR 50.55a(z)(1) and relief requests that had been previously covered by 10 CFR 50.55a(a)(3)(ii) are now covered under the equivalent 10 CFR 50.55a(z)(2).

The NRC staff has reviewed the subject 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(z)(1). Therefore, the NRC staff determines that the proposed alternative provides an acceptable level of quality and safety.

If you have any questions, please contact Mahesh Chawla at (301) 415-8371, or via e-mail at Mahesh.Chawla@nrc.gov.

Sincerely,

David L. Pelton, 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
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REGARDING RELIEF REQUEST RR-9

FOR THE FIFTH 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. MF4142 AND MF4143)

1.0 INTRODUCTION

By letter dated May 13, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14133A365), and as supplemented by letter dated December 8, 2014 (ADAMS Accession No. ML14342A417), NextEra Energy Point Beach, LLC (the licensee) requested relief from the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) associated with system leakage tests for Emergency Diesel Generator subsystems at Point Beach Nuclear Plant, Units 1 and 2.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(a)(3)(i), the licensee requested to use the proposed alternative on the basis that the alternative examination provides an acceptable level of quality and safety.

2.0 REGULATORY EVALUATION

In this relief request, the licensee proposes to use alternatives to the requirements of ASME Section XI, IWA-5220 pursuant to 10 CFR 50.55a(a)(3)(i). By Federal Register Notice 79 FR 65776, dated November 5, 2014, which became effective on December 5, 2014, the paragraph headings in 10 CFR 50.55a were revised. Accordingly, relief requests that had been previously covered by 10 CFR 50.55a(a)(3)(i) are now covered under the equivalent 10 CFR 50.55a(z)(1), and relief requests that had been previously covered by 10 CFR 50.55a(a)(3)(ii) are now covered under the equivalent 10 CFR 50.55a(z)(2).

Adherence to Section XI of the ASME Code is mandated by 10 CFR 50.55a(g)(4), which states, in part, that ASME Code Class 1, 2, and 3 components (including supports) will meet the requirements, except the design and access provisions and the pre-service examination requirements, set forth in the ASME Code, Section XI.

Section 50.55a(z) of 10 CFR states, in part, that alternatives to the requirements of paragraph (g) of 10 CFR 50.55a may be used, when authorized by the NRC, if the licensee demonstrates that: (1) the proposed alternative provides 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 basis exists for the licensee to request and the Commission to authorize the proposed alternative requested by the licensee. Accordingly, the NRC staff has reviewed and evaluated the licensee's request pursuant to 10 CFR 50.55a(z)(1).

3.0 TECHNICAL EVALUATION

3.1 ASME Code Components Affected

Component: Emergency Diesel Generator Subsystems; starting air, glycol cooling (G-03 and G-04 only) and fuel oil

ASME Code Class: Code Class 3

Examination Category: D-B

Item Number: D2.10

3.2 Applicable Code Edition and Addenda

The Code of Record for the fifth 10-year inservice inspection (ISI) interval for Point Beach Nuclear Plant, which commenced on August 1, 2012, is ASME Code, Section XI, 2007 Edition with Addenda through 2008.

3.3 Applicable Code Requirement

ASME Code, Section XI, Table IWD-2500-1, Examination Category D-B, Item No D2.10 requires a system leakage test and a VT-2 visual examination each inspection period.

3.4 Proposed Alternative

The licensee proposes to use existing technical specification testing of the emergency diesel generator (EDG) starting air, glycol cooling (G-03 and G-04) and fuel oil subsystems to demonstrate an equivalent level of quality and safety.

3.5 Licensee's Basis for Use of the Proposed Alternative

The primary intent of technical specification surveillance testing is slightly different from ASME Code required examinations. Technical specifications are intended to demonstrate component operability, whereas the system leakage and hydrostatic tests required by the ASME Code, Section XI, are intended to demonstrate pressure boundary integrity. There are no VT-1 visual examinations imposed on the EDG subsystems due to pressure/temperature or size exemptions as allowed by the ASME Code, Section XI, IWD-1220. Therefore, verification of pressure

boundary structural integrity on EDG subsystems is not included in the PBNP ISI program. Successful EDG operability testing requires the associated subsystems to maintain pressure boundary integrity and therefore, provides an equivalent level of quality and safety to that of ASME Section XI inspections. Those auxiliary support subsystems addressed within the scope of this request for relief include the starting air system, fuel oil system, and glycol cooling system (G-03 and G-04 only for glycol cooling).

The repeatability of auxiliary subsystem instrumentation (pressure, fluid level, and temperature) recorded during surveillance testing provides supporting data for the indirect verification of component integrity. Operations personnel are specifically trained in the testing of the standby EDGs and are aware of the necessity to maintain pressure boundary of the auxiliary subsystems. They are also aware of the necessity to maintain unobstructed flow characteristics for components discharging to a tank vented to atmosphere as do the diesel fuel oil transfer pumps. Although not a specific step in the surveillance procedure, verification of component pressure boundary integrity is administratively required of personnel performing standby EDG operability testing. If evidence of leakage is identified during the test, a condition report and/or work order is initiated with corrective actions or repairs implemented and follow-up confirmatory testing is performed.

The following paragraphs provide specific procedural actions which support the use of alternative operability testing in lieu of ASME Section XI system pressure testing and VT-2 visual examination.

Starting Air Auxiliary Subsystem

PBNP surveillance test procedures TS-81, 82, 83, and 84 are performed monthly to demonstrate EDG operability. As part of these procedures, pressures of both right and left bank air receivers are recorded prior to and subsequent to starting the engine with the drop in pressure verified to occur at the air start motor outlet ports. The satisfactory completion of this test demonstrates the skid-mounted air start components are properly performing their function and provides positive indication the pressure boundary integrity of the starting air subsystem is intact. In addition to the monthly testing, Inservice Test Procedure IT-100 performs quarterly reverse exercising of the right/left bank air start receivers' inlet check valves. During the performance of this procedure, each air compressor is isolated with a vent path provided upstream of the air receiver supply check valves. Receiver pressure is observed for 15 minutes with stringent leakage criteria applied. If a through wall or otherwise excessive leak were to occur in the pressure boundary, seat leakage acceptance criteria for the check valves would be exceeded, resulting in a requirement to determine the source of the leak and repair/replacement. This data also provides a positive indication that pressure boundary integrity is being maintained for the starting air subsystem. Based on the monthly and quarterly test frequencies and the data collected during these alternative tests, PBNP considers that testing performed to satisfy the technical specification surveillance requirements provide an acceptable level of quality and safety as an alternative to ASME Section XI system pressure testing.

Fuel Oil Transfer Subsystem

For the fuel oil transfer subsystem, an acceptable ASME Section XI pressure test would consist of a VT-2 visual examination of the outlet piping from the day tank to the engine. This is done

when the day tank is filled to design capacity and demonstrates the transfer pump's ability to provide adequate makeup flow to the day tank during system operation. For the fuel oil transfer subsystem, an acceptable ASME Section XI pressure test would consist of a VT-2 visual examination of the outlet piping (that extends from the day tank to the engine). The VT-2 visual examination is performed when two conditions are met: (1) the day tank is filled to design capacity, and (2) it has been demonstrated that the transfer pump is providing adequate flow. This test is performed while the day tank is vented to atmosphere, which is its normal configuration. This is due to the day tank being vented to atmosphere. During the monthly performance of TS-81, 82, 83, and 84, the inventory in the day tank is drained down to the low-level setpoint for pump actuation. The pump is verified to automatically start and allowed to replenish the day tank inventory to the high level setpoint with verification the pump automatically stops. During this process, procedure steps require recording of the percentage of tank level when the transfer pump automatically starts, as well as the percentage of tank level upon cessation of pump operation. The pump flow rate is recorded during replenishment of day tank inventory for G-03 and G-04 with acceptance criteria applied to recorded flow rate values. Discharge flow rate for G01 and G02 transfer pumps is not measured during the monthly performance of TS-81 and TS-82 as there is no flow instrumentation in the pumps discharge lines to G-01 and G-02 day tanks. The flow rate to G-01 and G-02 day tanks is measured during each Unit 1 refueling outage, utilizing an ultrasonic flow meter during inservice testing of unloader valves FO-3982A and FO-3983A. This data provides a positive indication that pressure boundary integrity is being maintained. Based on the technical specification surveillance testing frequency and the data collected during these alternative tests, PBNP considers the testing performed to satisfy the technical specification surveillance requirements provides an acceptable level of quality and safety as an alternative to ASME Section XI system pressure testing.

Glycol Cooling Subsystem (G-03 and G-04 Only)

Standby emergency diesel generators G-03 and G-04 are provided with a glycol cooling subsystem consisting of a coolant to air type heat exchanger. During the monthly performance of TS-83 and TS-84, coolant tank level as well as multiple point temperature indication is recorded prior to starting the engine, after 30 minutes of loaded run time, and prior to shut down, or hourly for extended runs. Normal values for all acquired data are provided in the procedure log-sheet as well as limits for the data recorded. This data provides a positive indication that pressure boundary integrity is being maintained. Based on the monthly frequency and data collected during these tests, PBNP considers the testing performed to satisfy the technical specification surveillance requirements provides an acceptable level of quality and safety as an alternative to ASME Section XI system pressure testing.

Any system leakage would be identified by the parameters monitored before a significant reduction in structural integrity of the components could occur. If evidence of leakage is identified as a result of surveillance testing, corrective actions or repairs would be implemented and a follow-up confirmatory test performed.

Technical specification surveillance requires standby emergency diesel generators to be subject to an inspection in accordance with procedures prepared per the manufacturer's recommendation. These examinations provide added assurance the components within the starting air, fuel oil transfer, and glycol cooling subsystems demonstrate pressure boundary

integrity and the ability to provide adequate flow for satisfactory Standby Emergency Diesel Generator operation.

The licensee stated that use of the technical specification surveillance requirements in lieu of ASME Section XI, Table IWD-5220-1 requirements provides an acceptable level of quality and safety and is an acceptable alternative to ASME Section XI system leakage and hydrostatic testing.

3.6 Duration of Proposed Alternative (as stated by the licensee)

The proposed alternative will be used for the fifth 10-year ISI Interval of the ISI program for PBNP that commenced on August 1, 2012, and is scheduled to end on July 31, 2022.

3.7 NRC Staff Evaluation

The licensee sought relief from the requirements of ASME Code, Section XI, to perform VT-2 examinations on some Class 3 standby EDG subsystems. The licensee indicated that there are no VT-1 visual examinations imposed on the EDG subsystems because of pressure/temperature or size exemptions included in paragraph IWD-1220 of Section XI and, therefore, verification of pressure boundary structural integrity on EDG subsystems is not included in the PBNP ISI program. Specifically, the licensee requested relief for the starting air system, fuel oil system, and glycol cooling system (G-03 and G-04 only for glycol cooling). The licensee proposed an alternative to the Code requirements which included surveillance testing to demonstrate component operability, as required by the plant technical specifications. This surveillance testing is performed monthly in accordance with test procedures TS-81, 82, 83, and 84 to demonstrate EDG operability. The licensee also stated that operations personnel are specifically trained for the testing of the standby EDGs and that surveillance testing records pressure, level, and temperature which provides the supporting data for the verification of component integrity. Further, essentially the same relief was authorized by the NRC for use at PBNP during the fourth 10-year inspection interval by letter dated March 21, 2003 (ADAMS Accession No. ML030730567). Detailed information concerning specific tests performed on the starting air auxiliary subsystem, fuel oil transfer subsystem, and glycol cooling subsystem was provided by the licensee in its basis for requesting relief stated above.

The licensee has a history in using the PBNP corrective action program to successfully identify instances of leakage associated with the EDGs. The EDGs are tested every month by operations personnel, who are often assisted by the plant system engineers. The EDGs are run to test their ability to start when required and to look for any problems that may have occurred while standing idle. During the testing, the EDG systems are examined for leakage. The licensee monitors the diesels three times each day by walk-downs. During the walkdown, operations personnel look at the appropriate water level, sump tank fuel level, starting air bank pressure, fuel oil day tank level, service water pressure, glycol expansion tank levels, and storage tanks. The operations personnel also take a general look at the diesels. If the readings are not within specifications, the Duty Shift Supervisor is informed and appropriate action is initiated. Also, the diesels are thoroughly examined as part of Routine Maintenance Procedures. Any significant discrepancies require the initiation of an Action Request and, if appropriate, a Work Order to correct the identified discrepancies. Further, the PBNP ISI program requires periodic pressure testing of the service water (SW) piping. The SW piping goes through and around the diesels G-01 and G-02, and is part of their cooling system. During

conduct of the periodic SW pressure testing, the VT-2 examiners are required to go around and look above and below the diesels for leakage. The examiners are trained to report any evidence of a discrepant condition, and while not specifically looking at the diesel systems, would likely notice any evidence of obvious leakage. The licensee concluded that the proposed alternative provides an acceptable level of quality and safety.

The licensee proposed to use existing surveillance tests that are required by the current plant technical specifications as an alternative to the ASME Code-required pressure testing. The required surveillance testing is routinely performed on various portions of the subject system and is intended to demonstrate component operability. As such, the tests provide an indirect verification of the leakage integrity of the pressure boundary, in lieu of a direct visual examination performed under normal operating pressure.

The subject subsystems receive these tests every 30 days, which is a much more frequent testing schedule than the system pressure testing required by the ASME Code (approximately each 40 and 120 months). During each surveillance test, pressure drop, fluid level, flow rates and/or temperature data is monitored. Each of these indicators has associated allowable values which, if exceeded, would alert an operator of potential problems, including pressure boundary leakage. The NRC staff expects that system leakage would be identified by the parameters monitored before a significant reduction in structural integrity of the components could occur. If evidence of leakage is identified as a result of surveillance testing, corrective actions or repairs would be implemented and a follow-up confirmatory test performed. In its December 8, 2014, response to the staff's RAI (ADAMS Accession No. ML14342A417), the licensee confirmed that any repairs or replacement of Class 3 piping covered by this relief request would be conducted in accordance with ASME Code, Section XI, IWA-4000.

The NRC staff finds that the proposed surveillance testing, although not a direct examination and less sensitive to small leakage than the ASME Code-required pressure testing, is performed at more frequent intervals and the parameters monitored should ensure that the leakage integrity of the pressure boundary is maintained. Therefore, the NRC staff concludes that the proposed alternative provides an acceptable level of quality and safety for components in the EDG subsystems.

The NRC staff finds that the alternative testing requirements described above are acceptable because the surveillance testing would detect any leakage in the system, which is the main objective of the ASME Code-required VT-2 examinations. The NRC staff also finds that the surveillance testing performed in accordance with the requirements of the plant technical specifications provides an acceptable level of quality and safety.

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 staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(1). Therefore, the staff authorizes the proposed alternative for the fifth ISI interval at Point Beach Nuclear Plant, Units 1 and 2.

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.

Principal Contributor: M. Audrain, NRR/DE

Date: May 7, 2015

If you have any questions, please contact Mahesh Chawla at (301) 415-8371, or via e-mail at Mahesh.Chawla@nrc.gov.

Sincerely,

/RA/

David L. Pelton, 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

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ADAMS Accession No.: ML15099A018 * via email dated April 2, 2015

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