

January 13, 2015

NRC 2015-0003
10 CFR 54

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Point Beach Nuclear Plant, Units 1 and 2
Dockets 50-266 and 50-301
Renewed License Nos. DPR-24 and DPR-27

Reactor Vessel Internals Inspection Plan
Response to Request for Additional Information

- References:
- (1) NextEra Energy Point Beach, LLC letter to NRC, dated December 19, 2011, License Renewal Commitment, Reactor Vessel Internals Program Submittal (ML113540301)
 - (2) NRC electronic mail to NextEra Energy Point Beach, LLC, dated November 21, 2014, Point Beach Nuclear Plant, Units 1 and 2 – Request for Additional Information re: Aging Management Program for Reactor Vessel Internals (TAC ME8235 and ME8236)

NextEra Energy Point Beach, LLC (NextEra) submitted the Point Beach Nuclear Plant (PBNP) program NP 7.7.30, Reactor Vessel Internals Program, via Reference (1). The PBNP Reactor Vessel Internals Program is based on Electric Power Research Institute (EPRI) Materials Reliability Program (MRP) Technical Report MRP-227, Pressurized Water Reactor (PWR) Internals Inspection and Evaluation Guidelines, Revision 0.

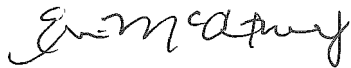
The NRC determined additional information was required to enable the staff's continued review of the PBNP Reactor Vessel Internals Program (Reference 2). The Enclosure to this letter contains NextEra's response to this request.

This letter contains no new or revised Regulatory Commitments.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on January 13, 2015.

Very truly yours,

NextEra Energy Point Beach, LLC

A handwritten signature in cursive script, appearing to read "Eric McCartney".

Eric McCartney
Site Vice President

Enclosure

cc: Administrator, Region III, USNRC
Project Manager, Point Beach Nuclear Plant, USNRC
Resident Inspector, Point Beach Nuclear Plant, USNRC
PSCW

ENCLOSURE

NEXTERA ENERGY POINT BEACH, LLC POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

REACTOR VESSEL INTERNALS INSPECTION PLAN RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

By letter dated April 18, 2014 (ML14111A050), NextEra Energy Point Beach, LLC (NextEra) provided a response to the U.S. Nuclear Regulatory Commission (NRC) staff's requests for additional information (RAIs) regarding the Point Beach Nuclear Plant (PBNP), Units 1 and 2, Reactor Vessel Internals Aging Management Program Plan, which credits the implementation of Materials Reliability Program (MRP)-227-A, "Pressurized Water Reactor Internals Inspection and Evaluation Guidelines."

The NRC staff in the Vessels and Internals Integrity Branch of the Office of Nuclear Reactor Regulation reviewed the April 18, 2014, response and, based on its review, requires additional clarification to NextEra's response to RAI-1a, as detailed below.

RAI-1a (Follow-up)

Since the NRC staff's submittal of RAI-1a, industry guidance MRP 2013-025 (Reference 1) has been approved to answer the issues raised in RAI-1a. NextEra's response in the April 18, 2014, letter, includes information that answers part of the checklist of issues in MRP 2013-025, but does not clearly address all of the points.

As such, in order to demonstrate that PBNP is bounded by MRP-227-A, the staff requests NextEra answer the following questions listed below from MRP 2013-025:

Question 2 Fuel Design or Fuel Management

Does the plant have atypical fuel design or fuel management that could render the assumptions of MRP-227-A, regarding core loading/core design, non-representative for the plant?" and,

Question 3 Extended Power Uprate (EPU)

"If the plant implemented an Extended Power Uprate (EPU), are the peak internal metal temperatures within the assumptions made in developing MRP-227-A?"

Reference

1. *Electric Power Research Institute letter to MRP, MRP 2013-025, "MRP-227-A Applicability Template Guideline," dated October 14, 2013 (ADAMS Accession No. ML13322A454).*

NextEra Response to Question 2

As stated in the Conclusion Section from MRP 2013-025, "To demonstrate plant-specific applicability of the MRP-227-A sampling inspection strategy for managing aging in reactor internals, licensees must demonstrate that the criteria of MRP-227-A, Section 2.4 are met, and that the neutron fluence and heat generation rates are within the range of the following variables summarized. The limiting threshold values for Westinghouse plants are:

- active fuel – upper core plate distance > 12.2 inches,
- average core power density < 124 Watts/cm³,
- heat generation figure of merit, $F \leq 68$ Watts/cm³."

Both Point Beach Units comply with the MRP-227-A assumptions regarding core loading/core design. Neutron fluence and heat generation rates are concluded to be acceptable based on the following assessment to the limiting MRP guidance threshold values.

- **Distance from top of active fuel to the upper core plate**

The distance from the top of the active fuel to the upper core plate is 13.2 inches for both Point Beach Units. This meets the requirement of > 12.2 inches.

- **Average core power density**

The average core power density for all cycles evaluated is less than 103 W/cc. This meets the requirement of < 124 W/cc.

- **Heat generation figure of merit**

The highest calculated figure of merit (W/cc) is 63.6 W/cc. This meets the requirement of < 68 W/cc.

NextEra Response to Question 3

Point Beach Nuclear Plant Units 1 and 2 reactor thermal power was increased by 17% to 1800 MWt by an extended power uprate (EPU) license amendment. All EPU fuel cycles for both Units were evaluated.

- **Average core power density**

The average core power density for all cycles evaluated is less than 103 W/cc. This meets the requirement of < 124 W/cc.

• **Heat generation figure of merit**

The heat generation figure of merit was determined for each unique corner (assuming eighth-core symmetry) using cycle average assembly powers. The results for each cycle evaluated are provided in the tables below.

Unit 1 Cycle	F (W/cc)	
	Corner 1	Corner 2
34	56.7	54.5
35	62.4	56.8
36	63.6	54.3

Unit 2 Cycle	F (W/cc)	
	Corner 1	Corner 2
32	56.0	59.0
33	55.9	53.1
34	62.7	57.7

As stated in the response to Question 2, the highest calculated figure of merit (W/cc) is 63.6 W/cc which meets the requirement of < 68 W/cc. Given the margin to the requirement in the cycles evaluated, it is expected to be met in future cycles with typical cycle-to-cycle variations.

Note that pre-EPU cycles are bounded by the evaluation above since the pre-EPU average core power density was significantly lower.

References

1. NextEra Energy Point Beach, LLC letter to NRC, dated December 19, 2011, License Renewal Commitment, Reactor Vessel Internals Program Submittal (ML113540301)
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