



January 6, 2022

L-2021-240  
10 CFR 54.17

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
11545 Rockville Pike  
One White Flint North  
Rockville, MD 20852-2746

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

**SUBSEQUENT LICENSE RENEWAL APPLICATION – AGING MANAGEMENT REQUESTS FOR  
ADDITIONAL INFORMATION (RAI) SET 13 RESPONSE**

References:

1. NextEra Energy Point Beach, LLC (NEPB) Letter NRC 2020-0032 dated November 16, 2020, Application for Subsequent Renewed Facility Operating Licenses (ADAMS Package Accession No. ML20329A292)
2. NRC Email and Attachment dated December 15, 2021, Point Beach SLRA Safety RAIs Set 13 Final (ADAMS Accession Nos. ML21362A671, ML21362A670)

NEPB, owner and licensee for Point Beach Nuclear Plant (PBN) Units 1 and 2, has submitted a subsequent license renewal application (SLRA) for the Facility Operating Licenses for PBN Units 1 and 2 (Reference 1). The attachment to this letter provides the response to the NRC's Set 13 RAI (Reference 2).

For ease of reference, the index of attached information is provided on page 3 of this letter. The attachment includes associated revisions to the SLRA (Enclosure 3 Attachment 1 of Reference 1) denoted by ~~strike through~~ (deletion) and/or **bold red underline** (insertion) text. Prior SLRA revisions are denoted by **bold black** text, with SLRA table revisions included as excerpts from each affected table.

Should you have any questions regarding this submittal, please contact me at (561) 304-6256 or William.Maher@fpl.com.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on the 6<sup>th</sup> day of January 2022.

Sincerely,

**William  
Maher**

William D. Maher  
Licensing Director - Nuclear Licensing Projects

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NextEra Energy Point Beach, LLC

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Cc: Administrator, Region III, USNRC  
Project Manager, Point Beach Nuclear Plant, USNRC  
Resident Inspector, Point Beach Nuclear Plant, USNRC  
Public Service Commission Wisconsin

Attachments Index		
Attachment No.	RAI No.	Subject
1	B.2.3.23-1	External Surfaces Monitoring of Mechanical Components

**SLRA Section B.2.3.23, “External Surfaces Monitoring of Mechanical Components”**

Regulatory Basis:

Section 54.21(a)(3) of Title 10 of the *Code of Federal Regulations* (10 CFR) requires an applicant to demonstrate that the effects of aging for structures and components will be adequately managed so that the intended function(s) will be maintained consistent with the current licensing basis for the period of extended operation. One of the findings that the U.S. Nuclear Regulatory Commission (NRC) staff must make to issue a renewed license (10 CFR 54.29(a)) is that actions have been identified and have been or will be taken with respect to managing the effects of aging during the period of extended operation on the functionality of structures and components that have been identified to require review under 10 CFR 54.21, such that there is reasonable assurance that the activities authorized by the renewed license will continue to be conducted in accordance with the current licensing basis. 10 CFR 54.21(d) requires that the UFSAR supplement for the facility contain a summary description of the programs and activities for managing the effects of aging and the evaluation of time-limited aging analyses for the period of extended operation determined by 10 CFR 54.21(a) and (c), respectively. In order to complete its review and enable making a finding under 10 CFR 54.29(a), the staff requires additional information in regard to the matters described below.

**RAI B.2.3.23-1**

Background:

NextEra submitted an annual update to the Point Beach SLRA by letter dated November 30, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21334A293). In the update, the applicant modified SLRA Table 3.3.2-12 by adding carbon steel valve bodies exposed externally to raw water and manage loss of material using the External Surfaces Monitoring of Mechanical Components program. Additionally, this item was given a note “E” and a plant-specific note “2”, which states, “[t]he External Surfaces Monitoring of Mechanical Components (B.2.3.23) AMP [is] used to manage loss of material of the submerged forbay inlet motor operated valves.”

SLRA Section B.2.3.23, “External Surfaces Monitoring of Mechanical Components,” program states, in part, “[v]isual inspections are performed during system inspections and walkdowns. The inspection parameters for metallic components include material condition, which consists of evidence of rust, general, pitting, and crevice corrosion; surface imperfections such as cracking and wastage, coating degradation such as cracking, flaking, or blistering; evidence of insulation damage or wetting, leakage, and accumulation of debris on heat exchanger surfaces.”

Issue:

As noted in the SLRA Section 16.2.2.23, periodic visual inspections are performed at a frequency that do not exceed the refueling outage interval, for metallic, polymeric, and



insulation jacketing (insulation when not jacketed). It is not clear to the NRC staff how the visual inspections performed during system inspections and walkdowns will be effective on submerged components and at a frequency that does not exceed the refueling outage interval.

Request:

Provide clarification on how visual inspections for loss of material during system inspections and walkdowns, at a frequency that does not exceed the refueling outage interval, will be effective on components that are submerged.

**NEPB Response:**

The submerged components are large butterfly valves installed at the intake structure forebay inlet. These intake valves are bolted to the forebay intake concrete wall and are normally open, allowing lake water to flood the forebay. The valve bodies are fully submerged, and all surfaces (internal and external) are exposed to the same raw water environment. In this configuration, there is no basis to differentiate between internal and external valve body surfaces for SLR aging management. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components and One-Time Inspection aging management programs (AMPs) can be used to manage aging effects of these submerged valve body surfaces.

SLRA Section 3.3, Table 3.3.2-12 and the associated plant-specific note 2 are revised to credit the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components and One-Time Inspection AMPs to manage the aging effects of all surfaces (internal and external) exposed to raw water for the submerged forebay inlet valve bodies. The entries for external surfaces of the valve bodies, which credited the External Surfaces Monitoring of Mechanical Components AMP, have been deleted. The entries for long-term loss of material and loss of material have been combined to address exposure to raw water internally and externally. Flow blockage has been deleted as an aging effect because flow blockage due to fouling is not credible for a 14 foot diameter flow path. These changes are consistent with NUREG-2191, Items VII.C1.A-532 and VII.C1.A-727.

The periodicity of inspections for the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components AMP is described in SLRA Appendix A, Section 16.2.2.25 and SLRA Appendix B, Section B.2.3.25. Sections 16.2.2.25 and B.2.3.25 are revised to include the internal and external surfaces of the forebay inlet valve bodies in the scope of the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components AMP. SLRA Table 3.3-1, Item 134 is revised to delete "internally."

**References:**

None

### Associated SLRA Revisions:

SLRA Section 3.3, Table 3.3-1 item 134, page 3.3-57, is revised as follows:

Table 3.3-1: Summary of Aging Management Evaluations for the Auxiliary Systems					
Item Number	Component	Aging Effect/Mechanism	Aging Management Program (AMP)/TLAA	Further Evaluation Recommended	Discussion
3.3-1, 134	Steel, stainless steel, copper alloy piping, piping components, and heat exchanger components exposed to raw water (for components not covered by NRC GL 89-13)	Loss of material due to general (steel, copper alloy only), pitting, crevice corrosion, MIC; flow blockage due to fouling	AMP XI.M38, "Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components"	No	Consistent with NUREG-2191. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B.2.3.25) AMP is used to manage loss of material in steel and stainless steel piping, piping components, and heat exchanger exposed to raw water internally.

SLRA Section 3.3, Table 3.3.2-12, page 3.3-263, is revised as follows:

Table 3.3.2-12: Circulating Water System – Summary of Aging Management Evaluation								
Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Valve body	Pressure boundary	Carbon steel	Raw water (ext)	Long-term loss of material	One-Time Inspection (B.2.3.20)	VII.C1.A-532	3.3-1, 193	A
Valve body	Pressure boundary	Carbon steel	Raw water (ext)	Loss of material	External Surfaces Monitoring of Mechanical Components (B.2.3.23)	VII.C1.A-727	3.3-1, 134	E, 2
Valve body (forebay inlet valves)	Pressure boundary	Carbon steel	Raw water (int/ext)	Long-term loss of material	One-Time Inspection (B.2.3.20)	VII.C1.A-532	3.3-1, 193	A, 2

Table 3.3.2-12: Circulating Water System – Summary of Aging Management Evaluation								
Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Valve body <u>(forebay inlet valves)</u>	Pressure boundary	Carbon steel	Raw water (int/ <u>ext</u> )	Loss of material Flow blockage	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B.2.3.25)	VII.C1.A-727	3.3-1, 134	A, <u>2</u>
Valve body <u>(forebay inlet valves)</u>	Pressure boundary	Carbon steel	Raw water (int/ <u>ext</u> )	Wall thinning – erosion	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B.2.3.25)	VII.C1.A-409	3.3-1, 126	E, <u>4</u> <u>2</u>

#### Generic Notes

- A. Consistent with component, material, environment, aging effect and aging management program listed for NUREG-2191 line item. AMP is consistent with NUREG-2191 AMP description.
- E. Consistent with NUREG-2191 material, environment, and aging effect but a different AMP is credited or NUREG-2191 identifies a plant-specific AMP.

#### Plant Specific Note

1. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B.2.3.25) AMP is enhanced to manage the wall thinning due to erosion aging effect.
2. ~~The External Surfaces Monitoring of Mechanical Components (B.2.3.23) AMP used to manage loss of material of the submerged forebay inlet motor operated valves.~~ The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B.2.3.25) AMP is used to manage loss of material and wall thinning of all surfaces (internal and external) exposed to raw water for the submerged forebay inlet valve bodies. The One-Time Inspection AMP will be used to manage long-term loss of material of these submerged surfaces.



SLRA Section 16.2.2.25, pages A-30 and A-31, is revised as follows:

16.2.2.25 **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**

The PBN Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components AMP is a new AMP that will manage loss of material, cracking, reduction of heat transfer due to fouling, flow blockage, and hardening or loss of strength of polymeric materials. Applicable environments will include air, gas, condensation, diesel exhaust, water, fuel oil, and lubricating oil. Some inspections and activities within the scope of the new AMP were previously performed by the PBN Periodic Surveillance and Preventive Maintenance Program.

The AMP will consist of visual inspections of accessible internal surfaces of piping, piping components, ducting, heat exchanger components, polymeric and elastomeric components, and other components. Surface examinations or ASME Code Section XI VT-1 examinations will be conducted to detect cracking and **loss of material** of stainless steel, **copper alloy (>15 percent zinc)**, and aluminum components. Aging effects associated with items (except for elastomers) within the scope of the PBN Open-Cycle Cooling Water AMP, the PBN Closed Treated Water Systems AMP, and the PBN Fire Water System AMP are not managed by this AMP. **This AMP also manages the internal and external surfaces of the forebay inlet valve bodies.** This AMP will not manage components in which recurring internal corrosion is evident based on a search of site-specific OE conducted during the SLRA development.

Internal inspections **Inspections** will be performed during the periodic system and component surveillances or during the performance of maintenance activities when the surfaces are made accessible for visual inspection. At a minimum, in each 10-year period during the SPEO a representative sample of 20 percent of the population (defined as components having the same combination of material, environment, and aging effect) or maximum of 19 components per unit will be inspected for the in-scope aging effects. The maximum of 19 components per unit for inspection will be used in lieu of 25 components per unit due to PBN being a two-unit plant with sufficiently similar operating cond

itions at each unit (e.g., flowrate, chemistry, temperature, and excursions), similar time in operation for each unit, similar water sources, and similar operating frequency.

Where practical, the inspections will focus on the bounding or lead components most susceptible to aging because of time in service, and severity of operating conditions. Opportunistic inspections will continue in each period despite meeting the sampling limit. For certain materials, such as flexible polymers, physical manipulation or pressurization to detect hardening or loss of strength will be used to augment the visual examinations conducted under this program. If visual inspection of internal surfaces is not possible, a plant-specific program will be used.

Internal-visual **Visual** inspections used to assess loss of material will be capable of detecting surface irregularities that could be indicative of an unexpected level of degradation due to corrosion and corrosion product deposition. Where such irregularities



SLRA Section B.2.3.25, pages B-183 and B-184, is revised as follows:

**B.2.3.25 Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**

**Program Description**

The PBN Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components AMP is a new condition monitoring AMP that manages the aging effects of loss of material, cracking, reduction of heat transfer due to fouling, flow blockage, and hardening or loss of strength of elastomeric and polymeric materials. Some inspections and activities within the scope of the new AMP were previously performed by the PBN Periodic Surveillance and Preventive Maintenance Program.

The PBN Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components AMP consists of inspections of the internal surfaces of piping, piping components, ducting, heat exchanger components, and other components exposed to potentially aggressive environments. These environments include air, air with borated water leakage, condensation, gas, diesel exhaust, fuel oil, lubricating oil, and any water-filled systems. Aging effects associated with components (except for elastomers and flexible polymeric components) within the scope of the PBN Open-Cycle Cooling Water System AMP ([Section B.2.3.11](#)), the PBN Closed Treated Water Systems AMP ([Section B.2.3.12](#)), and the PBN Fire Water System AMP ([Section B.2.3.16](#)) will not be managed by this AMP. **This AMP also manages the internal and external surfaces of the forebay inlet valve bodies.** Aging effects associated with elastomers and flexible polymeric components installed in open-cycle cooling water, closed-cycle cooling water, ultimate heat sink, and fire water systems will be managed by this AMP in lieu of the AMPs listed above.

Internal inspections **Inspections** are performed during the periodic system and component surveillances or during the performance of maintenance activities when the surfaces are made accessible for visual inspection. The AMP includes visual inspections and when appropriate, surface examinations. For certain materials, such as flexible polymers, physical manipulation or pressurization to detect hardening or loss of strength is used to augment the visual examinations conducted under this AMP. At a minimum, in each 10-year period during the SPEO, a representative sample of 20 percent of the population (defined as components having the same combination of material, environment, and aging effect) or a maximum of 19 components per unit is inspected. The maximum of 19 components per unit for inspection is used in lieu of 25 components per unit due to PBN being a two-unit plant with sufficiently similar operating conditions at each unit (e.g., flowrate, chemistry, temperature, excursions), similar time in operation for each unit, similar water sources, and similar operating frequency.

Internal-visual **Visual** inspections used to assess loss of material will be capable of detecting surface irregularities that could be indicative of an unexpected level of degradation due to corrosion and corrosion product deposition. Where such irregularities are detected for steel components exposed to raw water, raw water (potable), or waste water, follow-up volumetric examinations will be performed.