POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2 (PBN) SUBSEQUENT LICENSE RENEWAL APPLICATION (SLRA) DRAFT REQUEST FOR ADDITIONAL INFORMATION (RAI) SAFETY - SET 5

Fire Protection

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. In order to complete its review and enable it to make a finding under 10 CFR 54.29(a), the staff requires additional information in regard to the matters described below.

DRAI B.2.3.15-1 (Fire Retardant Coatings)

Background:

SLR-ISG-2021-02-Mechanical, "Updated Aging Management Criteria for Mechanical Portions of Subsequent License Renewal Guidance" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20181A434), added Aging Management Review (AMR) Item VII.G.A-807 to Table VII.G in NUREG-2191, "Generic Aging Lessons Learned for Subsequent License Renewal (GALL-SLR) Report," and Table 3.3-1 in NUREG-2192, "Standard Review Plan for Review of Subsequent License Renewal Applications for Nuclear Power Plants." The aging effects for silicates used as fireproofing/fire barriers exposed to air are loss of material, change in material properties, cracking/delamination, and separation. These aging effects are consistent with Section 6, "Fire Barriers," of EPRI 3002013084, "Long-Term Operations: Subsequent License Renewal Aging Effects for Structures and Structural Components (Structural Tools)," dated December 2018.

During the audit of the Point Beach Nuclear Plant (PBN) Fire Protection program, the NRC staff reviewed FPLCORP00036-REPT-052, "Point Beach Units 1 and 2 Subsequent License Renewal Aging Management Program Basis Document – Fire Protection." Section 3.1, "Program Overview and Background," of FPLCORP00036-REPT-052 cites Flamemastic as a

fire-resistant material that serves a fire barrier function. During the audit, NextEra Energy Point Beach, LLC (NextEra) stated that Flamemastic is present at PBN.

Subsequent License Renewal Application (SLRA) Supplement 1, dated April 21, 2021 (ADAMS Accession No. ML21111A155), revised SLRA Section 3.5.2.1.14, "Fire Barrier Commodity," and SLRA Table 3.5.2-14, "Fire Barrier Commodity Group – Summary of Aging Management Evaluation," by adding "fire retardant coatings" as a fire barrier commodity material used as fire barrier penetration seals and fire stops and wraps. Specifically, Table 3.5.2-14 cites AMR item VII.G.A-807, 3.3-1-269 for managing the aging affects for "fire retardant coatings."

Issue:

The NRC staff is unclear whether the addition of "fire retardant coatings" refers to Flamemastic fire barrier penetration seals and fire stops and wraps. In addition, if the addition refers to Flamemastic, the staff is unclear on whether there are other "fire retardant coatings," other than Flamemastic present at PBN.

Request:

1. Please discuss whether the addition of "fire retardant coatings" to SLRA Section 3.5.2.1.14 and SLRA Table 3.5.2-14 includes Flamemastic. In addition, if the addition refers to Flamemastic, discuss whether there are "fire retardant coatings" other than Flamemastic present at PBN.

DRAI B.2.3.15-2 (Intended Function)

Background:

SLRA Table 3.5.2-1, "Containment Building Structure and Internal Structural Components – Summary of Aging Management Evaluation," cites a fire barrier intended function for the following components:

- Steel, copper alloy, and elastomer air locks, equipment hatches and accessories
- Reinforced concrete walls, buttresses, dome, and ring girder (accessible and inaccessible); and internal columns, beams, slabs, and walls (accessible and inaccessible)
- Stainless steel fuel transfer tube (including penetration sleeves, expansion joints, and blind flange)
- Stainless steel liners (refueling cavity) and covers (sand box, Unit 1 sump A strainer)
- Dissimilar metal welds and stainless steel penetration assemblies (electrical)

However, the Fire Protection program is not credited to manage the aging effects for any of these components. SLRA Supplement 1 revised SLRA Table 3.5.2-1 by adding plant-specific Note 11 that states, "Component also provides a fire barrier function as evaluated in the Fire Protection Program Design Document that is physically equivalent to the structural functions managed under the associated Containment structural programs." During the audit of the PBN Fire Protection program, NextEra stated that the intent was that the intended functions, including the fire barrier intended function, will be managed by the programs cited (i.e., 10 CFR

Part 50, Appendix J; ASME Section XI, Subsection IWE; Boric Acid Corrosion; ASME Section XI, Subsection IWL; Structures Monitoring; One-Time Inspection; and Water Chemistry).

SLRA Supplement 1 revised SLRA Table 2.4-1, "Containment Structure and Internal Structural Components Subject to Aging Management Review," to replace component type "liner plate (containment)" with component type "liner plate." The intended functions for component type "liner plate" in SLRA Table 2.4-1 are direct flow, fire barrier, pressure boundary, and structural support. However, SLRA Table 3.5.2-1 states that the intended functions for component types "liner plate," "liner plate (accessible)," and "liner plate (inaccessible)" are pressure boundary and structural support.

SLRA Table 3.5.2-2, "Circulating Water Pumphouse Structure – Summary of Aging Management Evaluation," cites a fire barrier intended function for accessible concrete (reinforced) external walls and roofs exposed to air – indoor uncontrolled, air – outdoor, and water-flowing. Only the Inspection of Water-Control Structures Associated with Nuclear Power Plants program is credited to manage the aging effects for these components. The specific AMR items are 3.5-1-059, 060, 061, and 096. No changes related to these components were made to SLRA Table 3.5.2-2 in SLRA Supplement 1.

SLRA Table 3.5.2-6, "Fuel Oil Pumphouse Structure – Summary of Aging Management Evaluation," cites a fire barrier intended function for concrete block masonry (block) walls exposed to air - outdoor. Specifically, AMR item 3.5-1-070 is cited to address cracking by the Masonry Walls program and AMR item 3.5-1-071 was cited to manage cracking and loss of material by the Masonry Walls program. SLRA Supplement 1 revised SLRA Table 3.5.2-6 by replacing AMR item 3.5-1-071 with AMR item 3.3-1-179; therefore, cracking and loss of material is managed by the Fire Protection and Masonry Walls programs. In addition, SLRA Supplement 1 revised SLRA Table 3.5.2-6 by adding plant-specific Note 4 to AMR items 3.5-1-070 and 3.3-1-179. Plant-specific Note 4 states, "Fire Protection AMP in conjunction with the Structures Monitoring AMP is focused on fire barriers internal to the structure recognizing that exterior barriers have additional functions that are managed by the Structures Monitoring AMP or a related AMP."

SLRA Table 3.5.2-11, "Yard Structures – Summary of Aging Management Evaluation," cites AMR item 3.3-1-179 to address cracking and loss of material in concrete block manholes exposed to air – outdoor by the Fire Protection and the Masonry Walls programs. SLRA Supplement 1 revised SLRA Table 3.5.2-11 by adding plant-specific Note 6 to AMR item 3.3-1-179. Plant-specific Note 6 states, "Fire Protection AMP in conjunction with the Structures Monitoring AMP is focused on certain fire barriers in the yard recognizing that other barriers in the yard have additional functions that are managed by the Structures Monitoring AMP or related AMP." SLRA Table 3.5.2-11 credits the Structures Monitoring program for managing loss of form and loss of material of the earth berm that provides a fire barrier for the fuel oil storage tanks, and for managing cracking and distortion of the concrete block manholes with a fire barrier intended function. In addition, SLRA Table 3.5.2-11 credits the Boric Acid Corrosion program for managing loss of material of the steel miscellaneous structural components with a fire barrier intended function.

SLRA Table 3.5.2-3, "Control Building Structure – Summary of Aging Management Evaluation," and SLRA Table 3.5.2-8, "Primary Auxiliary Building Structure – Summary of Aging Management Evaluation," credit the Fire Protection program for managing loss of material of the steel fire rated doors that include, in addition to the fire barrier intended function, a flood barrier intended function. In addition, SLRA Table 3.5.2-8 credits the Fire Protection program for

managing hardening, loss of strength, and shrinkage of the elastomer penetration seals that have a fire barrier and a flood barrier intended function. SLRA Supplement 1 revised Table 3.5.2-8 by adding plant-specific Note 5 to AMR items 3.3-1-057 and 3.3-1-059, which states, "Management of the fire barrier function also manages the component as a flood barrier."

Issue:

It is unclear to the NRC staff whether the progams credited to manage the applicable aging effects are capable of ensuring that the fire barrier intended function is maintained during the subsequent period of extended operation. Specifically, it is unclear whether the inspections and acceptance criteria for the credited programs are equivalent to those in the Fire Protection program; the credited programs perform inspections on the same frequency as required by the Fire Protection program; and the credited programs' procedures have been updated, if necessary, to ensure that the fire barrier intended function is maintained during the subsequent period of extended operation.

Request:

1. Describe how the 10 CFR Part 50, Appendix J; ASME Section XI, Subsection IWE; Boric Acid Corrosion; ASME Section XI, Subsection IWL; Structures Monitoring; One-Time Inspection; and Water Chemistry programs will manage the fire barrier function (i.e., a description of any enhancements to the programs that may be warranted to ensure that they are capable of managing the fire barrier function). Alternatively, add AMR items to SLRA Table 3.5.2-1 for managing applicable aging effects by the Fire Protection program.

2. Discuss the reason for the liner plate intended function discrepancy between SLRA Tables 2.4-1 and 3.5.2-1.

3. Describe how the Inspection of Water-Control Structures Associated with Nuclear Power Plants program will manage the fire barrier function (i.e., a description of any enhancements to the program that may be warranted to ensure that it is capable of managing the fire barrier function). Alternatively, add AMR items to SLRA Table 3.5.2-2 for managing applicable aging effects by the Fire Protection program.

4. Discuss why plant-specific Note 4 that does not address the Masonry Walls program was added to AMR items 3.5-1-070 and 3.3-1-179 in SLRA Table 3.5.2-6. In addition, describe how the Masonry Walls program will manage the fire barrier function of the concrete block masonry (block) walls (i.e., a description of any enhancements to the program that may be warranted to ensure that it is capable of managing the fire barrier function). Alternatively, add AMR items to SLRA Table 3.5.2-6 for managing applicable aging effects by the Fire Protection program.

5. Discuss why plant-specific Note 6 that does not address the Masonry Walls program was added to AMR item 3.3-1-179 in SLRA Table 3.5.2-11.

6. Describe how the Structures Monitoring program will manage the fire barrier function of the earth berm that provides a fire barrier for the fuel oil storage tanks and the concrete block manholes. In addition, describe how the Boric Acid Corrison program will manage the fire barrier function of the steel miscellaneous structural components. The descriptions should include a discussion of any enhancements to the programs that may

be warranted to ensure that they are capable of managing the fire barrier function. Alternatively, add AMR items to SLRA Table 3.5.2-11 for managing applicable aging effects by the Fire Protection program.

7. Describe how the Fire Protection program will manage the flood barrier function of the steel fire rated doors and elastomer penetration seals in the Control Building Structure (i.e., a description of any enhancements to the program that may be warranted to ensure that it is capable of managing the flood barrier function). Alternatively, add AMR items to SLRA Tables 3.5.2-3 and 3.5.2-8 for managing applicable aging effects by the Fire Protection program.