September 10, 2021

L-2021-165
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 CONFIRMATION OF/ADDITIONAL INFORMATION (RCI/RAI) SET 1 RESPONSES SUPPLEMENT 1

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. U.S. Nuclear Regulatory Commission (NRC) Public Meeting with NEPB to Discuss Point Beach Nuclear Plant, Units 1 and 2, Subsequent License Renewal Application - Proposed Aging Management of Irradiated concrete and Steel Reactor Vessel Supports, August 5, 2021 (ADAMS Accession No. ML21204A070)
3. NEPB Letter L-2021-129 dated July 8, 2021, Subsequent License Renewal Application - Aging Management Requests for Confirmation of/Additional Information (RCI/RAI) Set 1 Responses (ADAMS Accession No. ML21189A173)

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). Based on discussions with the NRC staff (Reference 2), NEPB is providing the attached information to supplement certain attachments in Reference 3.

For ease of reference, the index of attached information is provided on page 3 of this letter. Attachments may include associated revisions to the SLRA (Enclosure 3 Attachment 1 of Reference 1) denoted by ~~strikethrough~~ (deletion) and/or **bold red underline** (insertion) text. Any previous SLRA revisions are denoted by **bold black** text, and SLRA table revisions are 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 10th day of September 2021.

Sincerely,

William D. Maher
Licensing Director - Nuclear Licensing Projects

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	3.5.2.2.2.6-1	Reactor Pressure Vessel Extended Beltline Uncertainty Analysis
2	3.5.2.2.2.6-2	Biological Shield Wall Intended Functions
3	3.5.2.2.2.6-3	Primary Shield Wall Liner Aging Effect Management
4	3.5.2.2.2.6-4	Radiation Induced Volumetric Expansion Effective Depth
5	3.5.2.2.2.7-2 3.5.2.2.2.7-4	Reactor Vessel Support Structure Movement

NEPB Supplemental Response to RAI 3.5.2.2.2.6-1

Based on the public meeting conducted between NEPB and NRC on August 5, 2021 (Reference 1), the following information supplements the NEPB response in Attachment 1 of Reference 2.

A description of the reactor pressure vessel extended beltline uncertainty analysis used to establish the estimated uncertainty of the bioshield wall concrete exposures may be found in WCAP-18124-NP-A, Revision 0 (Reference 3) and WCAP-18124-NP-A Revision 0 Supplement 1-P (Reference 4). This topical report and supplement provide a description of the parameters identified as having a potentially significant contribution to the core neutron source, reactor geometry, coolant temperature, discretization, and modeling approximation uncertainties. Note that the level of detail in the model used for the extended beltline uncertainty analysis is commensurate with the plant-specific model for Point Beach. For example, the mesh sizes, treatment of anisotropic scattering, angular quadrature, modeling of internals structures, etc., are similar.

The estimated analytical uncertainty of 20% associated with the exposures of the bioshield wall inner surface is bounding for neutrons with energies greater than 1 MeV and representative for neutrons with energies greater than 0.1 MeV. This is because the maximum bioshield exposures for Point Beach occur at elevations near the core midplane, where the analytical uncertainty for 1 MeV neutrons in the reactor cavity is approximately 12%. However, the estimated uncertainty value of 20% reported for the bioshield exposures was based on transport calculations performed at elevations above the active fuel, where analytical uncertainties are greater. While the uncertainty associated with 0.1 MeV neutrons at elevations near the core midplane is greater than 12%, the uncertainty would not be expected to be significantly different, or greater, than the 20% value reported for Point Beach.

References:

1. NRC Public Meeting with NextEra Energy to Discuss Point Beach Nuclear Plant, Units 1 and 2, Subsequent License Renewal Application – Proposed Aging Management of Irradiated Concrete and Steel Reactor Vessel Supports, August 5, 2021 (ADAMS Accession No. ML21204A070)
2. NEPB Letter L-2021-129 dated July 8, 2021, Point Beach Units 1 and 2 Subsequent License Renewal Application – Aging Management Requests for Confirmation of/ Additional Information (RCI/RAI) Set 1 Responses (ADAMS Accession No. ML21189A173)
3. Westinghouse Topical Report WCAP-18124-NP dated July 2018, Fluence Determination with RAPTOR-M3G and FERRET (ADAMS Accession No. ML18204A010)

4. Westinghouse Letter LTR-NRC-20-69 dated December 7, 2020, Submittal of WCAP-18124-NP-A Revision 0 Supplement 1-P and WCAP-18124-NP-A Revision 0 Supplement 1-NP, “Fluence Determination with RAPTOR-M3G and FERRET – Supplement for Extended Beltline Materials,” Revision 0 (Proprietary/Non-Proprietary)(ADAMS Accession No. ML20344A386)

Associated SLRA Revisions:

None.

Associated Enclosures:

None.

NEPB Supplemental Response to RAI 3.5.2.2.2.6-2:

Based on the public meeting conducted between NEPB and NRC on August 5, 2021 (Reference 1), the following information supplements the NEPB response in Attachment 2 of Reference 2.

SLRA Table 2.4-1 incorrectly includes a parenthetical "(and biological shield wall)" next to component type "Primary shield wall". Although the BSW provides shielding, this shielding does not support subsequent license renewal intended functions. Additionally, the BSW performs no structural intended functions. Since the BSW performs no subsequent license renewal intended functions, the SLRA is revised to remove this parenthetical.

Attachment 2, page 8 of 13 of Reference 2 indicated that Table 3.5-1 was augmented by line item 3.1.-1, 134. Revised line item 3.1.-1, 134 actually augments Table 3.1-1 located on SLRA page 3.1-59. The Table 3.5-1 in Attachment 2, page 8 of 13 of Reference 1 is replaced to make this correction.

Additionally, to address the additional insulation inspections added to the PBN External Surfaces AMP, Commitment 27 is amended to include an additional item (y.) to revise procedures to perform RC piping RMI insulation and insulation jacketing inspections.

References:

1. NRC Public Meeting with NextEra Energy to Discuss Point Beach Nuclear Plant, Units 1 and 2, Subsequent License Renewal Application – Proposed Aging Management of Irradiated Concrete and Steel Reactor Vessel Supports, August 5, 2021 (ADAMS Accession No. ML21204A070)
2. NEPB Letter L-2021-129 dated July 8, 2021, Point Beach Units 1 and 2 Subsequent License Renewal Application – Aging Management Requests for Confirmation of/ Additional Information (RCI/RAI) Set 1 Responses (ADAMS Accession No. ML21189A173)
3. NEPB Letter L-2021-081 dated April 21, 2021, Point Beach Units 1 and 2 Subsequent License Renewal Application – Aging Management Supplement 1 (ADAMS Accession No. ML21111A155)

Associated SLRA Revisions:

SLRA Table 2.4-1, page 2.4-6, as revised by References 2 and 3, is amended as indicated by the following text deletion:

Component Type	Intended Function(s)
Penetration assemblies (Electrical)	Fire barrier Pressure boundary Structural support
Penetration assemblies (Mechanical)	Pressure boundary Structural support
Penetration sleeves (Electrical)	Pressure boundary Structural support
Penetration sleeves (Mechanical)	Pressure boundary Structural support
Pressure-retaining bolting	Pressure boundary Structural support
Primary shield wall ~~(and biological shield wall)~~	Radiation shielding Shelter, protection Structural support
RC Class 1 supports	Structural support
RC Class 1 support bolting	Structural support
Reactor cavity seal ring	Pressure boundary
Refueling components (containment upender, davit arm)	Structural support
Service Level I coatings	Maintain adhesion
Sliding surfaces	Structural support
Tendons (post-tensioning system)	Structural support
Tendon anchorage and attachments	Pressure boundary Structural support
Thermal Insulation (high temperature penetrations **and reactor coolant piping passing through the PSW**)	Insulate (thermal) Insulation jacket integrity

The table presented in Attachment 2, page 8 of 13 in Reference 2 is replaced in its entirety by SLRA Table 3.1-1 on page 3.1-59 amended as indicated by the following text deletions and additions:

Table 3.1-1: Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System					
Item Number	**Component**	**Aging Effect Requiring Management**	**Aging Management Program**	**Further Evaluation Recommended**	**Discussion**
3.1-1, 134	Non-metallic thermal insulation exposed to air, condensation	Reduced thermal insulation resistance due to moisture intrusion	AMP XI.M36, "External Surfaces Monitoring of Mechanical Components"	No	~~Not applicable.~~ **Consistent with NUREG-2191.** ~~No n~~**N**on-metallic thermal insulation associated with reactor coolant piping and piping components does not perform a SLR intended function and is therefore not in scope**, with exception of the insulation on the reactor coolant piping passing through the primary shield wall.** **See discussion in Section 3.5.2.2.1.2.**

SLRA Table 16-3, Commitment number 27, page A-93, is amended as indicated by the following text addition:

No.	Aging Management Program or Activity (Section)	NUREG-2191 Section	Commitment	Implementation Schedule
27	External Surfaces Monitoring of Mechanical Components (16.2.2.23)	XI.M36	**y. Revise procedure(s) to specify that visual inspections for loss of material (every refueling outage) and cracking (every ten years) on accessible portions of the RC piping RMI insulation and insulation jacketing within the PSW will be performed.**	No later than 6 months prior to the SPEO, i.e.: PBN1: 04/05/2030 PBN2: 09/08/2032

Associated Enclosures:

None.

NEPB Supplemental Response to RAI 3.5.2.2.2.6-3:

Based on the public meeting conducted between NEPB and NRC on August 5, 2021 (Reference 1), the following information supplements the NEPB response in Attachment 3 of Reference 2.

As was the case for first license renewal, the PSW liner works in conjunction with the concrete to which it is attached to provide structural support to the reactor vessel (RV) through the RV supports which are partially embedded in the PSW concrete.

The reason the BSW steel liner is not listed in Table 3.5.2-1 is because it is not in the scope of SLR (Reference 2). However, although the BSW liner is not in the scope of SLR, the potential for localized distortion of the BSW liner will be used as a leading indicator of the RIVE effect on the underlying concrete (Reference 2). Distortion of the PSW liner is not expected, because its 80-year radiation exposure is less than the neutron fluence and gamma dose thresholds in NUREG-2192. If distortion of the liner plate due to RIVE was to occur, it would be expected to first appear on the BSW liner. Accordingly, SLRA Table 3.5.2-1 is revised to include a plant specific note for clarification.

References:

1. NRC Public Meeting with NextEra Energy to Discuss Point Beach Nuclear Plant, Units 1 and 2, Subsequent License Renewal Application – Proposed Aging Management of Irradiated Concrete and Steel Reactor Vessel Supports, August 5, 2021 (ADAMS Accession No. ML21204A070)
2. NEPB Letter L-2021-129 dated July 8, 2021, Point Beach Units 1 and 2 Subsequent License Renewal Application – Aging Management Requests for Confirmation of/ Additional Information (RCI/RAI) Set 1 Responses (ADAMS Accession No. ML21189A173)
3. NEPB Letter L-2021-081 dated April 21, 2021, Point Beach Units 1 and 2 Subsequent License Renewal Application – Aging Management Supplement 1 (ADAMS Accession No. ML21111A155)
4. NEPB Letter L-2021-144 dated August 11, 2021, Point Beach Units 1 and 2 Subsequent License Renewal Application – Aging Management Requests for Additional Information (RAI) Set 2 Responses (ADAMS Accession No. ML21223A308)

Associated SLRA Revisions:

SLRA Table 3.5.2-1, pages 3.5-88 and 3.5-96, as revised by References 2, 3 and 4, is amended as follows:

Table 3.5.2-1: Containment Building Structure and Internal Structural Components - 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
Fuel transfer tube (including penetration sleeves, expansion joints, and blind flange)	Fire barrier Pressure boundary Radiation shielding	Stainless steel	Air – indoor uncontrolled	Loss of material	ASME Section XI, Subsection IWE (B.2.3.29)	III.B3.T-37b	3.5-1, 100	E, 4
Liners (refueling cavity) and covers (sand box, Unit 1 sump A strainer)	Direct flow Fire barrier Pressure boundary Radiation shielding	Stainless steel	Air – indoor uncontrolled	Loss of material	Structures Monitoring (B.2.3.34)	III.B3.T-37b	3.5-1, 100	E, 4
Liners (refueling cavity) and covers (sand box, Unit 1 sump A strainer)	Direct flow Fire barrier Pressure boundary Radiation shielding	Stainless steel	Air – indoor uncontrolled	Cracking	Structures Monitoring (B.2.3.34)	III.B3.T-37b	3.5-1, 100	E, 4
~~Liners~~ (**primary shield wall**)	Structural support	Steel	Air – indoor uncontrolled	Loss of material **Distortion**	Structures Monitoring (B.2.3.34)	VII.A1.A-94	3.3-1, 111	C**, 15**
~~Liners~~ (**primary shield wall**)	Structural support	Steel	Air with borated water leakage	Loss of material	Boric Acid Corrosion (B.2.3.4)	III.B1.1.T-25	3.5-1, 089	C
Liner plate	Pressure boundary Structural support	Steel	Air – indoor uncontrolled	Cumulative fatigue damage	TLAA – Section 4.6, Containment Liner Plate, Metal Containments, and Penetrations Fatigue Analysis	II.A3.C-13	3.5-1, 009	A

Plant Specific Notes

15. Although the BSW liner is not in the scope of SLR, the potential for localized distortion of the BSW liner will be used as a leading indicator of the RIVE effect on the underlying concrete. Distortion of the PSW liner is not expected, because its 80-year radiation exposure is less than the neutron fluence and gamma dose thresholds in NUREG-2192. If distortion of the liner plate due to RIVE was to occur, it would be expected to first appear on the BSW liner.

Associated Enclosures:

None.

NEPB Supplemental Response to RAI 3.5.2.2.2.6-4:

Based on the public meeting conducted between NEPB and NRC on August 5, 2021 (Reference 1), the following information supplements the NEPB response in Attachment 4 of Reference 2.

As noted in Attachment 21 to SLRA – Aging Management Supplement 1 (Reference 3), the realistic 80-year radiation induced volumetric expansion (RIVE) effective depth when using the ACI code concrete strain at ultimate capacity (0.003) is very limited (less than 2 inches into the BSW at the location of peak neutron fluence). Applying the 20% fluence uncertainty to the peak fluence and using the ACI code concrete strain at ultimate capacity, the realistic 80-year RIVE effective depth would increase by approximately 3/4" which would keep the overall RIVE effective depth to less than 3 inches at the location of peak fluence. Thus, considering the cover concrete is 4 inches, the bond effectiveness of the temperature steel of the BSW would be maintained.

References:

1. NRC Public Meeting with NextEra Energy to Discuss Point Beach Nuclear Plant, Units 1 and 2, Subsequent License Renewal Application – Proposed Aging Management of Irradiated Concrete and Steel Reactor Vessel Supports, August 5, 2021 (ADAMS Accession No. ML21204A070)
2. NEPB Letter L-2021-129 dated July 8, 2021, Point Beach Units 1 and 2 Subsequent License Renewal Application – Aging Management Requests for Confirmation of/ Additional Information (RCI/RAI) Set 1 Responses (ADAMS Accession No. ML21189A173)
3. NEPB Letter L-2021-081 dated April 21, 2021, Point Beach Units 1 and 2 Subsequent License Renewal Application – Aging Management Supplement 1 (ADAMS Accession No. ML21111A155)

Associated SLRA Revisions:

None.

Associated Enclosures:

None.

NEPB Supplemental Response to RAIs 3.5.2.2.2.7-2 and -4:

Based on the public meeting conducted between NEPB and NRC on August 5, 2021 (Reference 1) the following information supplements the NEPB response in Attachments 7 and 9 of Reference 2.

The PBN reactor vessel support structure is designed such that all movement is restricted except for typical thermal growth in the radial and vertical directions during heatup and cooldown. The design prevents any considerable movement during normal operation or any postulated events. WCAP-18554-P/NP (Reference 3), Section 5.1.2 mentions “considerable movement of ambient air” while discussing the support structure, but this is only in reference to movement of the ambient air itself and not to physical movement of the support structure.

References:

1. NRC Public Meeting with NextEra Energy to Discuss Point Beach Nuclear Plant, Units 1 and 2, Subsequent License Renewal Application – Proposed Aging Management of Irradiated Concrete and Steel Reactor Vessel Supports, August 5, 2021 (ADAMS Accession No. ML21204A070)
2. NEPB Letter L-2021-129 dated July 8, 2021, Point Beach Units 1 and 2 Subsequent License Renewal Application – Aging Management Requests for Confirmation of/ Additional Information (RCI/RAI) Set 1 Responses (ADAMS Accession No. ML21189A173)
3. Westinghouse Report, WCAP-18554-P/NP, Revision 1, “Fracture Mechanics Assessment of Reactor Pressure Vessel Structural Steel Supports for Point Beach Units 1 and 2.”

Associated SLRA Revisions:

None.

Associated Enclosures:

None.