



November 3, 2021

L-2021-190
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 2 RESPONSES REVISION 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 Programs, September 2, 2021 (ADAMS Accession No. ML21225A562)
3. NEPB Letter L-2021-144 dated August 11, 2021, Subsequent License Renewal Application - Aging Management Requests for Additional Information (RAI) Set 2 Responses (ADAMS Accession No. ML21223A308)

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 superseding Attachment 4 and supplementing Attachment 29 of 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 ~~strike through~~ (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 3rd day of November 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	B.2.2.1-1	Fatigue Monitoring – Reactor Vessel Internals (RVI) Baffle Bolts
2	4.3.1-1	Metal Fatigue Class 1 Components – 80-Year Allowable Transient Cycles

3. SLRA Section B.2.2.1, “Fatigue Monitoring”

RAI B.2.2.1-1

Regulatory Basis:

10 CFR 54.21(a)(3) 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 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 making a finding under 10 CFR 54.29(a), the staff requires additional information in regard to the matters described below.

Background:

The “parameters monitored or inspected” program element of GALL-SLR AMP X.M1, “Fatigue Monitoring,” states that the program monitors all applicable plant transients that cause cyclic strains and contribute to fatigue, as specified in the fatigue analyses, and monitors or validates appropriate environmental parameters that contribute to F_{en} values. SLRA Section B.2.2.1 addresses the Fatigue Monitoring program as a consistent program with GALL-SLR AMP X.M1.

SLRA Section B.2.2.1 states that SLRA Table 4.3.1-1 identifies the design cycles utilized in the component fatigue analyses and concludes that the projected cycles through the subsequent period of extended operation (SPEO) will not exceed the design cycles assumed in the analyses. In a similar manner, the fatigue transients and their allowable cycle numbers are provided in SLRA Appendix A, UFSAR supplement, Table 4.1-8.

Issue:

Generally speaking, the UFSAR supplement table in SLRA Appendix A is less comprehensive than SLRA Table 4.3.1-1 in terms of the design transients identified in the tables. For example, SLRA Appendix A, UFSAR supplement, Table 4.1-8 does not identify the accumulator safety injection, loss of charging flow, loss of letdown flow, or pressurizer heatup transient as a design transient, while these transients are included in SLRA Table 4.3.1-1.

In addition, SLRA Appendix A, UFSAR supplement, Table 4.1-8 specifically identifies the more limiting allowable cycle numbers for RVI baffle bolts (also called baffle former bolts) as well as the general limits to the design transient cycle numbers that are applied to the other reactor vessel internal (RVI) and piping components. In contrast, the specific allowable cycle numbers for the baffle former bolts are not described in SLRA Table 4.3.1-1.

Request:

1. Reconcile the difference between SLRA Table 4.3-1 and SLRA Appendix A, Table 4.1-8 regarding the allowable transient cycles for the RVI baffle former bolts.
2. Explain why the design transients listed in SLRA Table 4.1.3-1 and SLRA Appendix A, Table 4.1-8 are different. If the difference cannot be justified, identify a consistent design transient table for both SLRA Section 4.3.1 and SLRA Appendix A.

NEPB Response:

Based on the public meeting conducted between NEPB and NRC on September 2, 2021 (Reference 1), this response supersedes Attachment 4 of NEPB's August 11, 2021 response (Reference 2) to include additional information. The following numbered responses correspond to the numbered requests above:

1. SLRA Table 4.3.1-1 Note 1 inadvertently omitted the baffle bolt limitations contained in SLRA Appendix A, Table 4.1-8. Notes 2 and 3 are added to reflect the UFSAR table baffle bolt design cycles. This supersedes the information in SIA Report Number 2000088.401, Revision 2 Table 2.1-3.
2. The design transients listed in SLRA Appendix A, Table 4.1-8 titled "THERMAL AND LOADING CYCLES" only apply to RCS design transients used for equipment design purposes and are not intended to reflect operating experience. SLRA Table 4.3.1-1 titled "80-Year Projected Cycles – PBN Units 1 and 2" includes design cycles from Table 4.1-8, additional system transients used in the fatigue analysis of components that are subject to these transients (e.g., Accumulator, Aux Spray and HPSI Injections, loss of charging, loss of letdown, etc.) and includes transient cycle projections and allowable cycles for 80 years of operation based on plant operating experience. Accordingly, there is no need to make a consistent design transient table.

References:

1. NRC Public Meeting with NextEra Energy Point Beach, LLC (NextEra) to Discuss Subsequent License Renewal Application Proposed Aging Management Programs, September 2, 2021 (ADAMS Accession No. ML21225A562)
2. FPL Letter L-2021-144 to NRC dated August 11, 2021, Point Beach Nuclear Plant 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 4.3.3-1, page 4.3-7, is revised as follows:

**Table 4.3.1-1
80-Year Projected Cycles – PBN Units 1 and 2**

Item	Transient	Current Cycles Year-end 2019		80-year Projection	Design Allowable Cycles	80-year Allowable Cycles
		Unit 1	Unit 2			
1	10% Step Load Decrease	25	30	44	2000 <u>(Note 3)</u>	100 <u>(Note 3)</u>
2	10% Step Load Increase	0	1	2	2000 <u>(Note 3)</u>	20 <u>(Note 3)</u>
3	50% Step Load Decrease	46	20	66	200 <u>(Note 3)</u>	100 <u>(Note 3)</u>
4	Accumulator Safety Injection	4	1	7	89	8
5	Auxiliary Spray Actuation	0	0	0	10	2
6	HPSI Injection	2	0	4	89	4
7	Inadvertent Accumulator Blowdown	0	0	0	4	2
8	Inadvertent RCS Depressurization	0	0	0	20	2
9	Loss of Charging Flow	16	17	34	60	50
10	Loss of Letdown Flow	20	17	46	200	75
11	Pressurizer Cooldown	78	61	115	200	120
12	Pressurizer Heatup	79	62	116	200	120
13	Primary Side Hydrostatic Test	1	2	3	5	3
14	Primary Side Leak Test	36	38	57	94	60
15	Primary to Secondary Leak Test	2	9	14	27	15
16	RCS Cooldown	79	62	118	200	120
17	RCS Heatup	80	63	119	200	120
18	RPV Safety Injection	0	0	0	89	2
19	Reactor Trip	68	52	107	300 <u>(Note 3)</u>	120 <u>(Note 3)</u>
20	Refueling	49	46	77	80	80
21	Relief Valve Actuation	1	3	7	100	8
22	Secondary to Primary Leak Test	38	33	57	128	60
23	Trip Due to Loss of RCP	1	2	4	100	4
24	Unit Loading 5%/min	1691	1806	2478	11600 <u>(Note 2)</u>	8000 (Note 1 <u>and 2</u>)
25	Unit Unloading 5%/min	1544	1670	2295	11600 <u>(Note 2)</u>	8000 (Note 1 <u>and 2</u>)
26	FW Cycling at Hot Standby	NC	NC	N/A	2000	Not provided
27	Boron Concentration Eq.	NC	NC	N/A	23360	Not provided
28	Loss of Load (Trip)	NC	NC	N/A	80 <u>(Note 3)</u>	80 <u>(Note 3)</u>
29	Loss of Power (Trip)	NC	NC	N/A	40 <u>(Note 3)</u>	40 <u>(Note 3)</u>
30	Loss of Flow (Trip)	NC	NC	N/A	80 <u>(Note 3)</u>	80 <u>(Note 3)</u>
31	Turbine Roll Test	NC	NC	N/A	10	10
32	Control Rod Drop	NC	NC	N/A	N/A	80
33	Excessive FW Flow	NC	NC	N/A	N/A	30
34	OBE	NC	NC	N/A	N/A	10

Notes

1 – Specific 80-year allowable cycles are limited to the following values for specific RCS components due to environmentally-assisted fatigue (EAF) values presented in [Table 4.3.4-1](#):

- (a) CRDM upper latch housings are limited to 2700 loading and unloading cycles at 5%/min
- (b) Vessel flanges are limited to 5000 loading and unloading cycles at 5%/min
- (c) The fatigue crack growth (FCG) analysis of longitudinal flaws in reactor coolant loop cast austenitic stainless steel piping components ([Reference 4.8.15](#)) utilizes a limit of 3,000 loading and unloading cycles.

2 – Cycle limit for reactor vessel internal baffle bolts is 2485

3 – For reactor vessel internal baffle bolts, the total of these 7 transients is 750

Associated Enclosures:

None.

NEPB Supplemental Response to RAI 4.3.1-1

Based on the public meeting conducted between NEPB and NRC on September 2, 2021 (Reference 1), the following information supplements the NEPB response in Attachment 29 of Reference 2.

The original response to RAI 4.3.1-1 indicated that the “feedwater cycling at hot standby” transient and “boron concentration equilibrium” transient will be monitored by the Fatigue Monitoring program to ensure the transient cycles remain within limits. However, the staff requires clarification whether Point Beach will ensure the 225 cycle limit for the controlling pressurizer spray transient group will be monitored (involving the “boron concentration equilibrium” transient) for the 10-year interval, as discussed in Appendix A of Westinghouse Report LTR-SDA-20-064-P/NP, Revision 1 (Reference 3) for the flaw tolerance evaluation of the Point Beach Units 1 and 2 pressurizer spray nozzles per ASME Code Section XI, Appendix L.

This supplemental response confirms that Point Beach will monitor the controlling pressurizer spray transient group cycles (involving the “boron concentration equilibrium” transient) for each 10-year interval during the SPEO to ensure transient cycles remain within the 225 cycle limit.

SLRA Table 16-3 is updated to add commitment item 1(e) to include monitoring of the controlling pressurizer spray transient group cycles to ensure they remain within the 225 cycle limit for each 10-year period during the SPEO. SLRA Section B.2.2.1 is updated to add two new enhancements to update the Fatigue Monitoring program governing procedure to include 1) monitoring of the “feedwater cycling at hot standby” and “boron concentration equilibrium” transient cycles, and 2) monitoring of the controlling pressurizer spray transient group cycles.

References:

1. NRC Public Meeting with NextEra Energy Point Beach, LLC (NextEra) to Discuss Subsequent License Renewal Application Proposed Aging Management Programs, September 2, 2021 (ADAMS Accession No. ML21225A562)
2. FPL Letter L-2021-144 to NRC dated August 11, 2021, Point Beach Nuclear Plant Units 1 and 2 Subsequent License Renewal Application – Aging Management Requests for Additional Information (RAI) Set 2 Responses (ADAMS Accession No. ML21223A308)
3. Westinghouse LTR-SDA-20-064-P/NP, Revision 1, “ASME Section XI Appendix L Evaluation Results for the Point Beach Units 1 and 2 Pressurizer Spray Nozzles,” October 7, 2020

Associated SLRA Revisions:

SLRA Table 16-3 item 1, page A-64, is revised as follows:

**Table 16-3
 List of SLR Commitments and Implementation Schedule**

No.	Aging Management Program or Activity (Section)	NUREG-2191 Section	Commitment	Implementation Schedule
1	Fatigue Monitoring (16.2.1.1)	X.M1	Continue the existing PBN Fatigue Monitoring AMP, including enhancement to: <ul style="list-style-type: none"> a) Update the plant procedure to monitor chemistry parameters that provide inputs to F_{en} factors used in CUF_{en} calculations. b) Update the plant procedure to identify and require monitoring of the 80-year projected plant transients that are utilized as inputs to CUF_{en} calculations. c) Update the plant procedure to identify the corrective action options to take if component specific fatigue limits are approached. d) Update the plant procedure to include monitoring of “feedwater cycling at hot standby” and “boron concentration equilibrium” transients <u>cycles</u> to ensure they remain within limits. e) <u>Update the plant procedure to include monitoring of the controlling pressurizer spray transient group cycles to ensure they remain within the 225 cycle limit for each 10-year interval within the SPEO for the ASME Code Section XI Appendix L flaw tolerance evaluation of the Point Beach Units 1 and 2 pressurizer spray nozzles.</u> 	No later than 6 months prior to the SPEO, i.e.: PBN1: 04/05/2030 PBN2: 09/08/2032

SLRA Section B.2.2.1, page B-24 is revised as follows:

Element Affected	Enhancement
3. Parameters Monitored or Inspected	Update the AMP governing procedure to monitor the chemistry parameters that provide inputs to F_{en} factors used in CUF_{en} calculations. These chemistry parameters include dissolved oxygen and sulfate and are controlled and tracked in accordance with the PBN Water Chemistry AMP.
3. Parameters Monitored or Inspected	Update the AMP governing procedure to identify and require monitoring of the 80-year plant design cycles, or projected cycles that are utilized as inputs to component CUF_{en} calculations, as applicable.
<u>3. Parameters Monitored or Inspected</u>	<u>Update the AMP governing procedure to include monitoring of “feedwater cycling at hot standby” and “boron concentration equilibrium” transient cycles to ensure they remain within limits.</u>
<u>3. Parameters Monitored or Inspected</u>	<u>Update the AMP governing procedure to include monitoring of the controlling pressurizer spray transient group cycles to ensure they remain within the 225 cycle limit for each 10-year interval within the SPEO as discussed in Appendix A of Westinghouse Report LTR-SDA-20-064-P/NP, Revision 1 for the ASME Code Section XI Appendix L flaw tolerance evaluation of the Point Beach Units 1 and 2 pressurizer spray nozzles.</u>
5. Monitoring and Trending	Update the AMP governing procedure to identify the corrective action options if the values assumed for fatigue parameters are approached, transient severities exceed the design or assumed severities, transient counts exceed the design or assumed quantities, transient definitions have changed, unanticipated new fatigue loading events are discovered, or the geometries of components are modified.

Associated Enclosures:

None.