POINT BEACH

November 25, 2024

L-2024-196
10 CFR 54.17

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

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 - FOURTH ANNUAL UPDATE

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. NextEra Energy Point Beach, LLC (NEPB) Letter L-2021-224 dated November 30, 2021, Subsequent License Renewal Application - First Annual Update (ADAMS Package Accession No. ML21334A293)
3. NextEra Energy Point Beach, LLC (NEPB) Letter L-2022-177 dated November 28, 2022, Subsequent License Renewal Application - Second Annual Update (ADAMS Package Accession No. ML22332A491)
4. NextEra Energy Point Beach, LLC (NEPB) Letter L-2023-073 dated June 1, 2023, Subsequent License Renewal Application - Second Annual Update Request for Additional Information (RAI) Set 1 Response (ADAMS Package Accession No. ML23153A097)
5. NextEra Energy Point Beach, LLC (NEPB) Letter L-2023-174 dated December 13, 2023, Subsequent License Renewal Application - Third Annual Update (ADAMS Package Accession No. ML23347A094)

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 first annual update (Reference 2), the second annual update (References 3 and 4), and the third annual update (Reference 5). The License Renewal Rule, 10 CFR 54.21(b), requires that each year following submittal of an LRA, and at least 3 months before scheduled completion of the NRC review, an update to the LRA must be submitted that identifies any change to the current licensing basis (CLB) of the facility that materially affects the content of the LRA including the Updated Final Safety Analysis Report Supplement.

In accordance with the License Renewal Rule, NEPB has performed the fourth annual review of PBN Units 1 and 2 CLB changes since SLRA submittal to determine whether any sections of the SLRA were materially affected by these changes. As a result of this annual review, NEPB identified two changes to the PBN Units 1 and 2 CLB materially affecting SLRA content. A description of these changes and the corresponding affected SLRA content revisions are in Attachment 1.

NextEra Energy Point Beach, LLC

6610 Nuclear Road, Two Rivers, WI 54241

For ease of reference, the index of attached information is provided on page 3 of this letter. Attachment 2 includes associated revisions to the SLRA (Enclosure 3 Attachment 1 of Reference 1) denoted by ~~strikethrough~~ (deletion) and/or **bold red underline** (insertion) text. Previous SLRA revisions are denoted by **bold black** text. SLRA table revisions are included as excerpts from each affected table.

Should you have any questions regarding this submittal, please contact Ms. Maribel Valdez, Fleet Licensing Manager, at 561-904-5164.

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

Executed on the _____ day of November 2024.

Sincerely,

Kenneth A. Mack
Director, Licensing and Regulatory Compliance

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.	Subject
1	Current Licensing Basis (CLB) Changes Affecting the SLRA
2	Affected SLRA Content Revisions

CURRENT LICENSING BASIS (CLB) CHANGES AFFECTING THE SLRA

CLB Changes	ENERCON SLRA Reports / Documents Affected	SLRA Sections Affected
Regulatory Guide 1.35 has been incorporated into ASME Section XI, Subsection IWL. As a result, references to the reg guide will be changed to the ASME Code. See Attachment 2 Section 1.6 reference 1.6.71.	FPLCORP00036-REPT-062 FPLCORP00036-REPT-038 FPLCORP00036-CALC-001	Section 1.6 Section 4.5 Appendix A, Sections 16.2.1.3, 16.2.2.30, 16.3.5, and Table 16-3, Commitment 3 Appendix B, Sections B.2.2.3 and B.2.3.30
A commitment was made for the Unit 1 SG divider plate to be inspected in the event that EPRI Report 3002002850 was not bounding. Westinghouse completed an analysis to demonstrate that the report is bounding. As a result, the inspection is no longer required. See Attachment 2 Section 1.6 references 1.6.72 and 1.6.73.	FPLCORP00036-REPT-049 FPLCORP00036-REPT-056	Section 1.6 Section 3.1.2.2.11 Table 3.1-1 Table 3.1.2-5 and notes Appendix A, Section 16.2.2.20 and Table 16-3, Commitments 14 and 24 Appendix B, Sections B.2.3.10 and B.2.3.20

SLRA Section 1.6, page 1-16, is revised as follows:

1.6.66 NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2011 Edition.

1.6.67 EPRI 1007933, Aging Assessment Field Guide, December 2003.

1.6.68 WCAP-12866, “Bottom Mounted Instrumentation Flux Thimble Wear (PROPRIETARY)”.

1.6.69 Regulatory Guide 1.54, Service Level I, II, III, and In-Scope License Renewal Protective Coatings Applied to Nuclear Power Plants, Revision 3, April 2017.

1.6.70 Regulatory Guide 1.160, Monitoring the Effectiveness of Maintenance at Nuclear Power Plants, Revision 4, August 2018.

1.6.71 NRC Letter to Robert Coffey dated January 23, 2024 - Point Beach Nuclear Plant, Units 1 and 2 - Issuance of Amendment Nos. 274 and 276 regarding revision to the Technical Specification 5.5.17, Pre-stressed Concrete Containment Tendon Surveillance Program (EPID L-2023-LLA-0132) (ML23352A275)

1.6.72 FPL Letter L-2024-093 dated June 10, 2024, Point Beach Nuclear Plant, Units 1 and 2, Point Beach Unit 1 Steam Generator Divider Plate Assemblies Bounding Analysis Evaluation for Aging Management Commitment 14 Revision (ML24163A007)

1.6.73 Westinghouse LTR-CECO-21-046, Revision 2, Subsequent License Renewal Bounding Analysis Evaluation for the Point Beach Unit 1 Steam Generator Divider Plate Assemblies

SLRA Section 3.1.2.2.11, pages 3.1-17 and 3.1-18, is revised as follows:

PBN Unit 1 has an Alloy 600 divider plate assemblies ~~and the EPRI analysis is applicable~~. The industry analysis (EPRI TR-3002002850) ~~**is conservatively assumed to not**~~ was determined to **be bounding** for the PBN **Unit 1 Alloy 600 divider plate assemblies (References 1.6.72 and 1.6.73) and therefore, a one-time inspection of the divider plates is not required.**

~~**As such, the One-Time Inspection AMP will be implemented for SLR to verify the effectiveness of the Water Chemistry (B.2.3.2) and Steam Generators (B.2.3.10) AMPs and that there is no presence of PWSCC in the divider plate assemblies.** The **volumetric** examinations will be performed by qualified personnel and will be capable of detecting primary water stress corrosion cracking in the divider plate assemblies and associated welds.~~

2. *Cracking due to PWSCC could occur in SG nickel alloy tube-to-tubesheet welds exposed to reactor coolant. The acceptance criteria for this review are:*

For units with Alloy 600 SG tubes for which an alternate repair criterion such as C, F*, H*, or W* has been permanently approved for both the hot- and cold-leg side of the steam generator, the weld is no longer part of the reactor coolant pressure boundary and a plant-specific AMP is not necessary;*

- *For units with Alloy 600 steam generator tubes, if there is no permanently approved alternate repair criteria such as C*, F*, H*, or W*, or permanent approval applies to only either the hot- or cold-leg side of the steam generator, a plant-specific AMP is necessary;*
- *For units with thermally treated Alloy 690 SG tubes and with tubesheet cladding using Alloy 690 type material, a plant-specific AMP is not necessary;*
- *For units with thermally treated Alloy 690 SG tubes and with tubesheet cladding using Alloy 600 type material, a plant-specific AMP is necessary unless the applicant confirms that the industry's analyses for tube-to-tubesheet weld cracking (e.g., chromium content for the tube-to-tubesheet welds is approximately 22 percent and the tubesheet primary face is in compression as discussed in EPRI 3002002850) are applicable and bounding for the unit, and the applicant will perform general visual inspections of the tubesheet region looking for evidence of cracking (e.g., rust stains on the tubesheet cladding) as part of the steam generator program. In lieu of a plant-specific AMP, the applicant may provide a rationale for why a plant-specific AMP is not necessary.*

The existing programs rely on control of reactor water chemistry to mitigate cracking due to PWSCC and visual inspections of the steam generator head interior surfaces. Along with the primary water chemistry and steam generator programs, a plant-specific AMP should be evaluated to confirm the effectiveness of the primary water chemistry and steam generator programs in certain circumstances. A plant-specific AMP may include a one-time inspection that is capable of detecting cracking to confirm the absence of PWSCC in the

SLRA Table 3.1-1, page 3.1-32, is revised as follows:

Table 3.1-1: Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Program (AMP)/TLAA	Further Evaluation Recommended	Discussion
3.1-1, 025	Steel (with nickel alloy cladding) or nickel alloy steam generator primary side components: divider plate and tube-to-tube sheet welds exposed to reactor coolant	Cracking due to primary water SCC	AMP XI.M2, "Water Chemistry," and AMP XI.M19, "Steam Generators." In addition, a plant- specific program is to be evaluated.	Yes (SRP-SLR Sections 3.1.2.2.11.1 and 3.1.2.2.11.2)	**Consistent with NUREG-2191. The PBN Water Chemistry (B.2.3.2) and Steam Generators (B.2.3.10) AMPs will be used to manage primary water SCC in the Unit 1 divider plate assemblies.** ~~**The One Time Inspection (B.2.3.20) AMP is used to verify the effectiveness of the Water Chemistry and Steam Generators AMPs in accordance with EPRI Report 3002002850 regarding primary water SCC in the divider plate.**~~ Further evaluation is documented in subsection 3.1.2.2.11.

SLRA Table 3.1.2-5, page 3.1-101, is revised as follows:

Table 3.1.2-5: Steam Generators – 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
Divider plate	Direct flow	Nickel alloy	Reactor coolant	Loss of material	Water Chemistry (B.2.3.2)	IV.C2.RP-23	3.1-1, 088	D
Divider plate (U1)	Direct flow	Nickel alloy	Reactor coolant	Cracking	Steam Generators (B.2.3.10) Water Chemistry (B.2.3.2) ~~One-Time Inspection (B.2.3.20)~~	IV.D1.RP-367	3.1-1, 025	B ~~B~~ ~~E, 1~~
Divider plate (U2)	Direct flow	Nickel alloy	Reactor coolant	Cracking	Steam Generators (B.2.3.10) Water Chemistry (B.2.3.2)	IV.D1.RP-367	3.1-1, 025	B
Blowdown piping nozzles and secondary side shell penetrations	**Pressure boundary**	**Carbon steel**	**Treated water**	**Wall thinning – FAC**	**Steam Generators (B.2.3.10) Water Chemistry (B.2.3.2)**	**IV.D1.RP-49**	**3.1-1, 074**	**D**
Blowdown piping nozzles and secondary side shell penetrations	**Pressure boundary**	**Carbon steel**	**Treated water**	**Loss of material**	**Steam Generators (B.2.3.10) Water Chemistry (B.2.3.2)**	**IV.D1.RP-161**	**3.1-1, 072**	**D**
Feedwater feedring and support structure	Structural integrity (attached) **Direct flow**	Carbon steel (U1)	Treated water >140°F Steam	Cracking	Steam Generators (B.2.3.10) Water Chemistry (B.2.3.2)	IV.D1.RP-384	3.1-1, 071	D

SLRA Table 3.1.2-5 notes, page 3.1-110, is revised as follows:

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

Plant Specific Notes

1. ~~Per Section 3.1.2.2.11, the Unit 1 divider plate aging effect of cracking is managed by the Steam Generators (B.2.3.10), Water Chemistry (B.2.3.2), and One-Time Inspection (B.2.3.20) AMPs.~~Deleted
2. **Per Section 3.1.2.2.2, loss of material in the new transition cone welds is managed by the Water Chemistry (B.2.3.2) and One-Time Inspection (B.2.3.20) AMPs.**

SLRA Section 4.5, page 4.5-2, is revised as follows:

Per Reference 1.6.71, the guidance for developing a containment ISI program was provided with the issuance of RG 1.35 in February 1973 (ML12305A260). The final revision of RG 1.35, Revision 3, was issued in July 1990 (ML003740007). In a Federal Register notice dated August 8, 1996 (61 FR 41303), the NRC amended 10 CFR 50.55a to incorporate, by reference, Subsections IWE and IWL of Section XI of the ASME Code. Subsection IWL includes the requirements for ISI of concrete containments and includes the guidance provided in RG 1.35. Therefore, RG 1.35 was made obsolete when the requirements of ASME Section XI, Subsection IWL, were incorporated by reference into 10 CFR 50.55a. The NRC withdrew RG 1.35 in August 2015 (ML15040A665). As a result, future references to RG 1.35 will be replaced with ASME Section XI, Subsection IWL.

The PBN Prestressed Concrete Containment Tendon Surveillance Program is a confirmatory program that monitors the loss of prestressing forces in containment tendons throughout the life of the plant, including the SPEO. This program consists of an assessment of the results of the tendon prestressing force measurements performed in accordance with ASME Section XI, Subsection IWL (Reference 1.6.37). As part of this program, tendon forces were measured for selected tendons in Unit 1 and Unit 2 periodically. Detensioned/retensioned tendons are no longer considered to be statistically relevant to the original tendon population and excluded from the regression analysis conservatively. Regression analyses are performed to obtain the trendlines which fit the measured tendon force data most accurately in order to forecast the tendon forces for the extended 80-year operating life. The post-tensioning system of the PBN containment structure consists of dome tendons, hoop tendons, and vertical tendons. For each tendon group in PBN Unit 1 and Unit 2, the measured tendon force data, the trendlines obtained from regression analyses, the upper and lower bound lift-off force curves and the minimum required tendon forces are plotted in log-linear time-force plots for the 80-year SPEO.

As shown in Figures 4.5-1 through 4.5-6, the trendlines developed using past surveillance data remain above the lower bound curves for all PBN Unit 1 and Unit 2 dome, hoop, and vertical tendons during the entire 80-year SPEO. The tendon forces used to develop these plots are tabulated in Tables 4.5-2 through 4.5-7.

Table 4.5-1 provides a summary of the forecasted tendon forces and concludes all tendon forces for 80-year SPEO are higher than the minimum required tendon forces. Furthermore, the lower bound curves for all dome, hoop and vertical tendons remain above the minimum required tendon forces. Consequently, the trendlines remain above the minimum required tendon forces for all containment tendons.

SLRA Section 16.2.1.3, page A-13, is revised as follows:

are taken to ensure containment prestress adequacy. Upper and lower bounds and regression trends are assessed based on the guidance of Nuclear Regulatory Commission (NRC) Information Notice (IN) 99-10, "Degradation of Prestressing Tendon Systems in Prestressed Concrete Containments" and Regulatory Guide (RG) 1.35.1, "Determining Prestressing Forces for Inspection of Prestressed Concrete Containments" for calculating prestressing losses and predicted forces.

The PBN Concrete Containment Unbonded Tendon Prestress AMP is part of the Pre-Stressed Concrete Containment Tendon Surveillance Program described in Technical Requirements Manual (TRM) 4.17 and Technical Specification (TS) 5.5.17. The program incorporates plant-specific and industry OE.

The guidance for developing a containment ISI program was provided with the issuance of RG 1.35 in February 1973 (ML12305A260). The final revision of RG 1.35, Revision 3, was issued in July 1990 (ML003740007). In a Federal Register notice dated August 8, 1996 (61 FR 41303), the NRC amended 10 CFR 50.55a to incorporate, by reference, Subsections IWE and IWL of Section XI of the ASME Code. Subsection IWL includes the requirements for ISI of concrete containments and includes the guidance provided in RG 1.35. Therefore, RG 1.35 was made obsolete when the requirements of ASME Section XI, Subsection IWL, were incorporated by reference into 10 CFR 50.55a. The NRC withdrew RG 1.35 in August 2015 (ML15040A665). As a result, future references to RG 1.35 will be replaced with ASME Section XI, Subsection IWL.

16.2.1.4. Environmental Qualification of Electric Equipment

The PBN Environmental Qualification (EQ) of Electric Equipment AMP, previously the PBN EQ Program, is an existing AMP that implements the EQ requirements in 10 CFR Part 50, Appendix A, Criterion 4, and 10 CFR 50.49, and manages the effects of thermal, radiation, and cyclic aging through the use of aging evaluations based on 10 CFR 50.49(f) qualification methods. This AMP provides the requirements for the EQ of electrical equipment important to safety that could be exposed to harsh environment accident conditions as required by 10 CFR 50.49 and RG 1.89, "Environmental Qualification of Certain Electric Equipment Important to Safety for Nuclear Power Plants." This AMP is established per the requirements of 10 CFR 50.49 to demonstrate that certain electrical components located in harsh plant environments (i.e., those areas of the plant that could be subject to the harsh environmental effects of a loss of coolant accident (LOCA), high-energy line breaks (HELBs), or a main steam line break (MSLB) inside or outside the containment, from elevated temperatures or high radiation or steam, or their combination) are qualified to perform their safety function in those harsh environments after the effects of inservice (operational) aging. 10 CFR 50.49 requires that the effects of significant aging mechanisms be addressed as part of EQ, and that the equipment be demonstrated to function in the harsh environment, following aging.

SLRA Section 16.2.2.20, page A-27, is revised as follows:

criteria that would be effective in managing the aging effect for which the component is examined, and (d) an evaluation of the need for follow-up examinations to monitor the progression of aging if age-related degradation is found that could jeopardize an intended function before the end of the SPEO. The inspection sample includes locations where the most severe aging effect(s) would be expected to occur. Inspection methods may include visual (or remote visual), surface or volumetric examinations, or other established NDE techniques.

The inspection includes a representative sample of each population (defined as components having the same material, environment, and aging effect combination) and, where practical, focuses on the bounding or lead components most susceptible to aging due to time in service, and severity of operating conditions. A representative sample size is 20 percent of the population or a maximum of 25 components at each unit. Otherwise, a technical justification of the methodology and sample size used for selecting components for one-time inspection is included as part of the program documentation. Factors that will be considered when choosing components for inspection are time in service, severity of operating conditions, and OE.

The PBN One-Time Inspection AMP will also perform inspections on the~~ Unit 1 steam generator divider plate assemblies and the~~ steam generator circumferential transition cone field welds on both units in order to verify the effectiveness of the PBN Water Chemistry **and** Steam Generator AMP~~s and verify the absence of PWSCC in the divider plate assemblies~~.

The PBN One-Time Inspection AMP is used to verify the effectiveness of the PBN Water Chemistry, Fuel Oil Chemistry, and Lubricating Oil Analysis AMPs. For steel components exposed to water environments that do not include corrosion inhibitors as a preventive action (e.g., treated water, treated borated water, raw water, waste water), the program is used to verify that long-term loss of material due to general corrosion will not cause a loss of intended function [e.g., pressure boundary, leakage boundary (spatial), structural integrity (attached)].

The PBN One-Time Inspection AMP is not used for structures or components with known age-related degradation mechanisms or when the environment in the SPEO is not expected to be equivalent to that in the prior operating period. Inspections not conducted in accordance with ASME Code Section XI requirements are conducted in accordance with plant-specific procedures including inspection parameters such as lighting, distance, offset, and surface conditions.

SLRA Section 16.2.2.30, page A-34, is revised as follows:

If triggered by plant-specific OE, a one-time supplemental volumetric examination will be performed by sampling randomly-selected as well as focused locations susceptible to loss of thickness due to corrosion of containment shell or liner that is inaccessible from one side. Inspection results are compared with prior recorded results in acceptance of components for continued service.

16.2.2.30. ASME Section XI, Subsection IWL

The PBN ASME Section XI, Subsection IWL AMP is an existing AMP that was formerly part of the ASME Section XI, Subsections IWE and IWL Inservice Inspection Program. This AMP is performed in accordance with ASME Code Section XI, Subsection IWL, and consistent with 10 CFR 50.55a "Codes and Standards," with supplemental recommendations. This program will use the edition and addenda of ASME Section XI required by 10 CFR 50.55a, as reviewed and approved by the NRC staff for aging management under 10 CFR 54. Alternatives to these requirements that are aging management related will be submitted to the NRC in accordance with 10 CFR 50.55a prior to implementation.

This AMP consists of: (a) periodic visual inspection of concrete surfaces for the pre-stressed concrete containments, (b) periodic visual inspection and sample tendon testing of un-bonded post-tensioning systems for prestressed concrete containments for signs of degradation, assessment of damage, and corrective actions, and testing of the tendon corrosion protection medium and free water. Measured tendon lift-off forces are compared to predicted tendon forces calculated in accordance with Regulatory Guide 1.35.1 as addressed in PBN AMP X.S1, "Concrete Containment Unbonded Tendon Prestress." The Subsection IWL requirements are supplemented to include quantitative acceptance criteria for evaluation of concrete surfaces based on the "Evaluation Criteria" provided in Chapter 5 of ACI 349.3R.

This program manages aging effects for reinforced concrete containments and unbonded post-tensioning systems, which are inspected in accordance with ASME Section XI, Subsection IWL.

The guidance for developing a containment ISI program was provided with the issuance of RG 1.35 in February 1973 (ML12305A260). The final revision of RG 1.35, Revision 3, was issued in July 1990 (ML003740007). In a Federal Register notice dated August 8, 1996 (61 FR 41303), the NRC amended 10 CFR 50.55a to incorporate, by reference, Subsections IWE and IWL of Section XI of the ASME Code. Subsection IWL includes the requirements for ISI of concrete containments and includes the guidance provided in RG 1.35. Therefore, RG 1.35 was made obsolete when the requirements of ASME Section XI, Subsection IWL, were incorporated by reference into 10 CFR 50.55a. The NRC withdrew RG 1.35 in August 2015 (ML15040A665). As a result, future references to RG 1.35 will be replaced with ASME Section XI, Subsection IWL.

SLRA Section 16.3.5, page A-57, is revised as follows:

evaluation are adjusted to account for 1 percent allowance for wire breakage at 80 years of operating life.

The PBN Prestressed Concrete Containment Tendon Surveillance AMP (Section 16.2.1.3) is a confirmatory program that monitors the loss of prestressing forces in containment tendons throughout the life of the plant. This program consists of an assessment of the results of the tendon prestressing force measurements performed in accordance with the PBN ASME Section XI, Subsection IWL AMP (Section 16.2.2.30). Regression analyses are performed to obtain the trendlines which fit the measured tendon force data most accurately in order to forecast the tendon forces for the extended 80-year operating life. For each tendon group, the measured tendon force data, the trendlines obtained from regression analyses, the upper and lower bound lift-off force curves and the minimum required tendon forces are plotted in log-linear time-force plots for the 80-year SPEO.

The forecasted tendon forces for the 80-year SPEO are higher than the minimum required tendon forces. Furthermore, the lower bound curves for all dome, hoop and vertical tendons remain above the minimum required tendon forces. Consequently, the trendlines remain above the minimum required tendon forces for all containment tendons. In conclusion, the predicted tendon prestressing forces at 80 years of service life will be adequate to maintain the structural integrity of the containment post-tensioning system.

The concrete containment tendon prestress analysis has been projected to the end of the SPEO. Additionally, the PBN Concrete Containment Unbonded Tendon Prestress AMP (Section 16.2.1.3) and the PBN ASME Section XI, Subsection IWL AMP (Section 16.2.2.30) will manage the effects of aging related to prestress forces on the containment tendon prestressing system in accordance with 10 CFR 54.21(c)(1)(iii).

The guidance for developing a containment ISI program was provided with the issuance of RG 1.35 in February 1973 (ML12305A260). The final revision of RG 1.35, Revision 3, was issued in July 1990 (ML003740007). In a Federal Register notice dated August 8, 1996 (61 FR 41303), the NRC amended 10 CFR 50.55a to incorporate, by reference, Subsections IWE and IWL of Section XI of the ASME Code. Subsection IWL includes the requirements for ISI of concrete containments and includes the guidance provided in RG 1.35. Therefore, RG 1.35 was made obsolete when the requirements of ASME Section XI, Subsection IWL, were incorporated by reference into 10 CFR 50.55a. The NRC withdrew RG 1.35 in August 2015 (ML15040A665). As a result, future references to RG 1.35 will be replaced with ASME Section XI, Subsection IWL.

SLRA Section 16.4, Table 16-3 (Item 3), page A-64, is revised as follows:

No.	Aging Management Program or Activity (Section)	NUREG-2191 Section	Commitment	Implementation Schedule
2	Neutron Fluence Monitoring (16.2.1.2)	X.M2	Continue the existing PBN Neutron Fluence Monitoring AMP, including enhancement to: a) Follow the related industry efforts, such as by the PWROG, and use the information from supplemental nozzle region dosimetry measurements and reference cases or other information to provide additional justification for use of the approved WCAP-16083 (equivalent to WCAP-14040-A) or similar methodology for determination of RPV fluence in regions above or below the active fuel region. b) Draw from Westinghouse's NRC approved RPV fluence calculation methodology and include discussion of the neutron source, synthesis of the flux field and the order of angular quadrature (e.g., S8), etc. used in the estimates for projection of TLAAs to 80 years.	No later than 6 months prior to the SPEO, i.e.: PBN1: 04/05/2030 PBN2: 09/08/2032
3	Concrete Containment Unbonded Tendon Prestress (16.2.1.3)	X.S1	Continue the PBN Concrete Containment Unbonded Tendon Prestress AMP including enhancement to: a) Formalize the update of prestress calculations and trend lines after each scheduled "physical" inspection, which includes monitoring of tendon forces, in accordance with ~~RG 1.35.1~~**ASME Section XI, Subsection IWL**.	No later than 6 months prior to the SPEO, i.e.: PBN1: 04/05/30 PBN2: 09/08/32

SLRA Section 16.4, Table 16-3 (Item 14), page A-70, is revised as follows:

No.	Aging Management Program or Activity (Section)	NUREG-2191 Section	Commitment	Implementation Schedule
			g) Enhance plant procedures to include the **guidance** for leakage monitoring, sample expansion and additional inspections if inspection results do not meet acceptance criteria **as described in NUREG-2191, Chapter XI.M18, Element 7**.	
14	Steam Generators (16.2.2.10)	XI.M19	Continue the existing PBN Steam Generators AMP~~, including enhancement to:~~ ~~a) **The Unit** 1 steam generator divider plate assemblies are **assumed to** not **be** bounded by industry analyses EPRI 3002002850 **and PBN will** perform **a** one-time inspection of the Unit 1 steam generator divider plate assemblies prior to the SPEO **to confirm that the Water Chemistry and Steam Generator AMPs have mitigated the occurrence of primary water stress corrosion cracking**~~.	No later than 6 months prior to the SPEO, i.e.: PBN1: 04/05/2030 PBN2: 09/08/2032
15	Open-Cycle Cooling Water System (16.2.2.11)	XI.M20	Continue the existing PBN Open-Cycle Cooling Water System AMP, including enhancement to: a) Update the primary program documents and procedures and applicable preventive maintenance requirements to clearly identify the portions of the service water system, within the scope of GL 89-13, where flow monitoring is not performed. For these portions of the service water system, the procedures will calculate friction (or roughness) factors based on test results from the flow monitored portions of the service water system and use these factors to confirm that design flow rates will be achieved with the overall fouling identified in the system.	No later than 6 months prior to the SPEO, or no later than the last refueling outage prior to the SPEO i.e.: PBN1: 04/05/2030 PBN2: 09/08/2032

SLRA Section 16.4, Table 16-3 (Item 24), page A-84 is revised as follows:

No.	Aging Management Program or Activity (Section)	NUREG-2191 Section	Commitment	Implementation Schedule
24	One-Time Inspection (16.2.2.20)	XI.M32	Continue the existing PBN One-Time Inspection AMP, including enhancement to: a) Perform visual exams or other appropriate NDE exams to verify the effectiveness of the PBN Lubricating Oil Analysis AMP for managing the effects of aging of various components in systems containing lubricating oil. b) For steel components exposed to water environments that do not include corrosion inhibitors as a preventive action (e.g., treated water, treated borated water, raw water, waste water), verify that long-term loss of material due to general corrosion will not cause a loss of intended function [e.g., pressure boundary, leakage boundary (spatial), structural integrity (attached)]. Long-term loss of material due to general corrosion for steel components need not be managed if one of the following two conditions is met: (i) the environment for the steel components includes corrosion inhibitors as a preventive action; or (ii) wall thickness measurements on a representative sample of each environment will be conducted between the 50th and 60th year of operation. c) Perform one-time volumetric inspections on each of the steam generator transition cone field welds on both units. This one-time volumetric inspection on each steam generator transition cone field weld is intended to cover essentially 100% of the total weld length. d) ~~Perform one-time inspections of the Unit 1 steam generator divider plate assemblies. The inspections will be capable of detecting primary water stress corrosion cracking in the divider plate assemblies and associated welds,~~ ~~**verify the effectiveness of the Water Chemistry and Steam Generators AMPs and verify the absence of PWSCC in the divider plate assemblies.**~~Deleted	No later than 6 months prior to the SPEO, or no later than the last refueling outage prior to the SPEO i.e.: PBN1: 04/05/2030 PBN2: 09/08/2032 Perform the one time inspections no earlier than 10 years prior to the SPEO and no later than 6 months prior to the SPEO.

SLRA Section B.2.2.3, pages B-34 and B-35, is revised as follows:

B.2.2.3 Concrete Containment Unbonded Tendon Prestress

Program Description

PBN Concrete Containment Unbonded Tendon Prestress AMP is an existing condition monitoring AMP. The purpose of this AMP is to provide reasonable assurance of the continued adequacy of prestressing forces in the unbonded tendons for the pre-stressed concrete containments through the SPEO. Loss of containment tendon prestressing forces is a TLAA that has been projected to the end of the SPEO. For completeness, the PBN Concrete Containment Unbonded Tendon Prestress AMP serves to confirm continued validity of the prestress force projections through the end of the SPEO, a 10CFR54.21(c)(1)(iii) disposition.

Measurement and assessment of tendon prestress forces, in comparison to lower bound predictions and (minimum) required force, comprise the AMP. Tendon prestress forces are periodically measured during "physical" inspections, concurrent with other required inspections by the PBN ASME Section XI, Subsection IWL AMP. The PBN Concrete Containment Unbonded Tendon Prestress AMP is a confirmatory program for SLR that monitors the loss of containment tendon prestressing forces throughout the life of the plant for each tendon group (i.e., dome, hoop and vertical) to ensure that the trend lines of the measured prestressing forces remain above the (minimum) required force before the next scheduled inspection. Otherwise, corrective actions are taken to ensure containment prestress adequacy. Upper and lower bounds and regression trends are assessed based on the guidance of Nuclear Regulatory Commission (NRC) Information Notice (IN) 99-10, "Degradation of Prestressing Tendon Systems in Prestressed Concrete Containments" (Reference ML031500244) and Regulatory Guide (RG) 1.35.1 for calculating prestressing losses and predicted forces.

The PBN Concrete Containment Unbonded Tendon Prestress AMP is part of the Pre-Stressed Concrete Containment Tendon Surveillance Program described in Technical Requirements Manual (TRM) 4.17 and Technical Specification (TS) 5.5.17.

The guidance for developing a containment ISI program was provided with the issuance of RG 1.35 in February 1973 (ML12305A260). The final revision of RG 1.35, Revision 3, was issued in July 1990 (ML003740007). In a Federal Register notice dated August 8, 1996 (61 FR 41303), the NRC amended 10 CFR 50.55a to incorporate, by reference, Subsections IWE and IWL of Section XI of the ASME Code. Subsection IWL includes the requirements for ISI of concrete containments and includes the guidance provided in RG 1.35. Therefore, RG 1.35 was made obsolete when the requirements of ASME Section XI, Subsection IWL, were incorporated by reference into 10 CFR 50.55a. The NRC withdrew RG 1.35 in August 2015 (ML15040A665). As a result, future references to RG 1.35 will be replaced with ASME Section XI, Subsection IWL.

NUREG-2191 Consistency

The PBN Concrete Containment Unbonded Tendon Prestress AMP, with enhancements, will be consistent with the 10 elements of NUREG-2191, Section X.S1, "Concrete Containment Unbonded Tendon Prestress."

Exceptions to NUREG-2191

None.

Enhancements

The following enhancements will be implemented no later than six months prior to entering the SPEO. There are no new inspections to be implemented for SLR.

Element Affected	Enhancement
5. Monitoring and Trending	Formalize the update of prestress calculations and trend lines after each scheduled "physical" inspection, which includes monitoring of tendon forces, in accordance with ~~RG 1.35.1~~**ASME Section XI, Subsection IWL**.
6. Acceptance Criteria	Include the 80-year prestress calculation in place of the current, 60-year, acceptance limits in the program plan for each IWL inspection interval **during the SPEO**.

Operating Experience

Industry Operating Experience

External (industry) operating experience is evaluated through the action request (AR), initial screening for the CR, process to confirm applicability to Point Beach or identify the appropriate adjustments / improvements to the AMP. There has been limited industry operating experience since entering the period of extended operation, in October of 2010, that address tendon prestress calculations apart from the ASME XI, Subsection IWL considerations.

Low prestress force instances described in NUREG/CR-7111 and IN 99-10 were attributed to a) high tendon wire relaxation, as a result of elevated temperature effects, or b) broken wires, in tendons that were replaced. For Point Beach, the net effect of elevated temperatures on tendons in the vicinity of the Unit 2 main steam and feedwater containment penetrations were addressed in NUREG-1839 (pgs 3-275, 3-276) and the Point Beach response to RAI 3.5-3 associated with the current renewed licenses. The hoop tendons', one above and one below the subject penetration, exposure to higher temperature occurred over a relatively short length of time and was determined to present a negligible effect on tendon prestress. With regard to item b), only one tendon has been replaced at PBN. A Unit 2 dome tendon was replaced in 1979 during the eighth-year surveillance. However, no surveillance instances of low prestress forces could be identified that were attributed to broken wires in that tendon.

SLRA Section B.2.3.10, pages B-89 and B-90, is revised as follows:

Since degradation of divider plate assemblies, channel heads (internal surfaces), or tubesheets (primary side) may have safety implications, the PBN Steam Generators AMP addresses degradation associated with steam generator tubes, plugs, divider plates, interior surfaces of channel heads, tubesheets (primary side), and secondary side components that are contained within the steam generator (i.e., secondary side internals). This AMP does not include in its scope the steam generator secondary side shell, any nozzles attached to the secondary side shell or steam generator head, or the welds associated with these components. In addition, the scope of this AMP does not include steam generator primary side chamber welds (other than general corrosion of these welds caused as a result of degradation (defects/flaws) in the primary side cladding).

In July 2016, PBN submitted an application to amend the PBN Unit 1 Steam Generator Program as well as TS 3.4.13, 5.5.8 and 5.6.8. This application provided a technical justification to establish a permanent steam generator tube alternate repair criteria (H*) for tubing flaws located in the lower region of the tubesheet and accompanying inspection and reporting requirements. This application was reviewed and approved by the staff by letter dated July 27, 2017. This alternate repair criteria removes the tube-to-tubesheet weld from the credited pressure boundary and removes the inspection criteria for the portion of the tube below 20.6 inches from the top of the tubesheet.

The PBN Steam Generator AMP includes preventive and mitigative actions for addressing degradation. This includes foreign material exclusion as a means to inhibit wear degradation and secondary side maintenance/cleaning activities, such as sludge lancing, for removing deposits that may contribute to degradation. Sludge mapping occurs when the steam generator is inspected, and inspections for remaining foreign material are performed after sludge lancing is completed. Primary side preventive maintenance activities include replacing corrosion susceptible plugs with corrosion resistant materials and preventively plugging tubes susceptible to degradation. Additionally, this AMP works in conjunction with the PBN Water Chemistry AMP (Section B.2.3.2), which monitors and maintains water chemistry to reduce susceptibility to SCC or IGSCC.

The procedures associated with this AMP provide parameters to be monitored or inspected except for steam generator divider plates, channel heads, and tubesheets. For these latter components, visual inspections are performed at least every 48 effective full power months or every other RFO, whichever results in more frequent inspections for Unit 1 steam generators, and every 72 effective full power months or every third RFO, whichever results in more frequent inspections for Unit 2 steam generators. These inspections of the steam generator head interior surfaces, including the divider plate, are intended to identify signs that cracking, or loss of material may be occurring (e.g., through identification of rust stains).

~~Inspections of the **Unit 1** divider plate **are** required for the SPEO.~~ Nickel-alloy divider plates could experience PWSCC as described in the SRP-SLR. The analysis performed by the industry in EPRI TR 3002002850 (Reference 1.6.64) is applicable as PBN Unit 1 steam generators have alloy-600 divider plates. The industry analysis ~~**are conservatively assumed to**~~ **was evaluated to be bounding for the** ~~not **be** bounding **and**~~ PBN **Unit 1 steam generators alloy-600 divider plates and therefore, a one-time inspection of**

the divider plate assemblies is not required ~~will perform a one-time inspection of the divider plates to confirm the effectiveness of the actions currently in place **in the Water Chemistry and Steam Generators AMPs** to manage **PW**SCC~~.

The goal of the inspections associated with this AMP is to ensure that the in-scope components continue to function consistent with the design and CLB of the facility (including regulatory safety margins). These inspections, based on the PBN TS, are performance based, and the actual scope of the inspection and the expansion of sample inspections are justified based on the results of the inspections. If degradation or evidence of degradation is detected, then more detailed inspections or evaluations are to be performed. The AMP procedures reflect these requirements and outline the inspection program to detect degradation of tubes, plugs, and secondary side internals and provide the inspection frequencies. The inspections and monitoring are performed by qualified personnel using qualified techniques in accordance with approved PBN procedures. The PBN primary-to-secondary leakage monitoring program also provides a potential indicator of a loss of steam generator tube integrity.

Condition monitoring assessments are performed to determine whether the structural and accident-induced leakage performance criteria were satisfied during the prior operating interval. Operational assessments are performed to verify that structural and leakage integrity will be maintained for the planned operating interval before the next inspection. If tube integrity cannot be maintained for the planned operating interval before the next inspection, corrective actions are taken in accordance with the PBN CAP. Comparisons of the results of the condition monitoring assessment to the predictions of the previous operational assessment are performed to evaluate the adequacy of the previous operational assessment methodology. If the operational assessment was not conservative in terms of the number and/or severity of the condition, corrective actions are taken in accordance with the SG Integrity Assessment Guidelines. Assessment of tube integrity and plugging or repair criteria of flawed tubes is in accordance with the PBN TS.

Degraded plugs, divider plates, channel heads (interior surfaces), tubesheets (primary side), and secondary side internals are evaluated for continued acceptability on a case-by-case basis. The intent of all evaluations is to ensure that the components will continue to perform their functions consistent with the design and licensing basis of the facility and will not affect the integrity of other components (e.g., by generating loose parts). In addition, when degradation of the steam generator tubes is identified, the TS specified actions are followed. For degradation of other components, the appropriate corrective action is evaluated per NEI 97-06 and the associated EPRI guidelines, the ASME Code Section XI, 10 CFR 50.65, and 10 CFR Part 50, Appendix B, as appropriate.

Procedures implement the performance criteria for tube integrity, condition monitoring requirements, inspection scope and frequency, acceptance criteria for the plugging or repair of flawed tubes, acceptable tube repair methods, leakage monitoring requirements, and operational leakage and accident-induced leakage requirements from the TS.

SLRA Section B.2.3.10, page B-92, is revised as follows:

Enhancements

The PBN Steam Generators AMP will be enhanced as follows for alignment with NUREG-2191. Enhancements are to be implemented no later than six months prior to entering the SPEO.

Element Affected	Enhancement
3. Parameters Monitored or Inspected	~~**The** Unit 1 steam generator divider plate assemblies are **conservatively assumed to** not **be** bounded by industry analyses EPRI 3002002850. **As such, PBN will** perform **a** one-time inspection of the Unit 1 steam generator divider plate assemblies prior to the SPEO **to confirm the Water Chemistry and Steam Generator AMPs are effective in mitigating PWSCC**.~~<ins>None</ins>

Operating Experience

<ins>Industry Operating Experience</ins>

- Industry operating experiences suggest that primary water stress corrosion cracking (PWSCC) at U-bends, top of the tube sheet locations and locations within the tubesheet are potential degradation mechanisms for thermally treated Alloy 600 (A600TT). End-to-end bobbin inspections were performed on all accessible tubes in the PBN Unit 1 Steam Generators A and B during the refueling outage in 2016. In 2019, rotating +POINT™ probe inspections were performed. Additional eddy current techniques including rotating +POINT™ probes, were used to further investigate bobbin indications and other suspected regions. The results showed no tubes had any reportable crack-like indications.

- Industry operating experiences suggest that outer diameter stress corrosion cracking (ODSCC) is another potential degradation mechanism for A600TT tubing. In 2004, Westinghouse performed an analysis to determine and rank high stress tubes, tubes more susceptible to ODSCC at Point Beach Unit 1. During the Spring 2019 refueling outage, a 75 percent sample of the high stress tubes were inspected at support locations. This completed 100 percent of the support locations in high stress tubes for the period of 72 effective full power months. Axial ODSCC at tube support plate (TSP) intersections has not been previously reported at PBN Unit 1; this test supplemented the bobbin inspection program to gain additional confidence that no such indications are present.

- In May 2017, Salem Unit 1 experienced low-level primary-to-secondary leakage. This OE demonstrated the impact that foreign material can have on site operations in response to primary to secondary leakage and significant contingency planning on a plant level. The foreign material and subsequent tube leak required unplanned steam generator inspections during an outage where no eddy current was planned.

SLRA Section B.2.3.20, page B-152, is revised as follows:

B.2.3.20 One-Time Inspection

Program Description

The PBN One-Time Inspection AMP is an existing AMP, previously known as the One-Time Inspection Program, that consists of a one-time inspection of selected components to verify: (a) the system-wide effectiveness of an AMP that is designed to prevent or minimize aging to the extent that it will not cause the loss of intended function during the SPEO; (b) the insignificance of an aging effect; and (c) that long-term loss of material will not cause a loss of intended function for steel components exposed to environments that do not include corrosion inhibitors as a preventive action.

The elements of the program include: (a) determination of the sample size of components to be inspected based on an assessment of materials of fabrication, environment, plausible aging effects, and operating experience, (b) identification of the inspection locations in the system or component based on the potential for the aging effect to occur, (c) determination of the examination technique, including acceptance criteria that would be effective in managing the aging effect for which the component is examined, and (d) an evaluation of the need for follow-up examinations to monitor the progression of aging if age-related degradation is found that could jeopardize an intended function before the end of the SPEO. The inspection sample includes locations where the most severe aging effect(s) would be expected to occur. Inspection methods may include visual (or remote visual), surface or volumetric examinations, or other established NDE techniques.

The inspection includes a representative sample of each population (defined as components having the same material, environment, and aging effect combination) and, where practical, focuses on the bounding or lead components most susceptible to aging due to time in service, and severity of operating conditions. A representative sample size is 20 percent of the population or a maximum of 25 components at each unit. Otherwise, a technical justification of the methodology and sample size used for selecting components for one-time inspection is included as part of the program documentation. Factors that will be considered when choosing components for inspection are time in service, severity of operating conditions, and OE.

The PBN One-Time Inspection AMP will also perform inspections on the ~~Unit 1 steam generator divider plate assemblies and the~~ steam generator circumferential transition cone field welds on both units in order to verify the effectiveness of the PBN Water Chemistry AMP (Section B.2.3.2). The one-time volumetric inspection on each steam generator transition cone field weld is intended to cover essentially 100 percent of the total weld length.~~The inspections on each Unit 1 steam generator divider plate assembly will be capable of detecting primary water stress corrosion cracking in the divider plate assemblies and associated welds.~~

SLRA Section B.2.3.20, page B-154, is revised as follows:

Element Affected	Enhancement
1. Scope of Program	• Include verification of the effectiveness of the PBN Lubricating Oil Analysis AMP for managing the effects of aging of various components in systems containing lubricating oil. • For steel components exposed to water environments that do not include corrosion inhibitors as a preventive action (e.g., treated water, treated borated water, raw water, waste water), include verification that long-term loss of material due to general corrosion will not cause a loss of intended function [e.g., pressure boundary, leakage boundary (spatial), structural integrity (attached)]. Long-term loss of material due to general corrosion for steel components need not be managed if one of the following two conditions is met: (i) the environment for the steel components includes corrosion inhibitors as a preventive action; or (ii) wall thickness measurements on a representative sample of each environment will be conducted between the 50th and 60th year of operation. • Perform one-time volumetric inspections on each of the steam generator transition cone field welds on both units. This one-time volumetric inspection on each steam generator transition cone field weld is intended to cover essentially 100% of the total weld length. ~~• Perform one-time inspections of the Unit 1 steam generator divider plate assemblies. The inspections will be capable of detecting primary water stress corrosion cracking in the divider plate assemblies and associated welds~~ ~~**and confirm the effectiveness of the Water Chemistry and Steam Generator AMPs**.~~
3. Parameters Monitored or Inspected	• For verification of the effectiveness of the PBN Lubricating Oil Analysis AMP, a visual examination or other appropriate NDE methodology will be used to verify that degradation due to the applicable aging effects is not occurring.
4. Detection of Aging Effects	• The inspection includes a representative sample of each population (defined as components having the same material, environment, and aging effect combination) and, where practical, focuses on the bounding or lead components most susceptible to aging due to time in service, and severity of operating conditions. A representative sample size is 20 percent of the population or a maximum of 25 components at each unit. Otherwise, a technical justification of the methodology and sample size used for selecting components for one-time inspection is included as part of the program documentation. Factors that will be considered when choosing components for inspection are time in service, severity of operating conditions, and OE.

SLRA Section B.2.3.20, page B-156, is revised as follows:

with detection of aging effects should be adequate to demonstrate that the program is capable of detecting the presence or noting the absence of aging effects in the components, materials, and environments where one-time inspection is used to confirm system-wide effectiveness of another preventive or mitigative AMP.

Recent industry operating experience was reviewed from the SLR Safety Evaluation Reports for the first three submitted SLRAs (Turkey Point, Peach Bottom, and Surry). Two main points of interest are ensuring that the One-Time Inspection AMP is not used for managing aging of systems or components with known age-related degradation issues and ensuring that one-time inspections are completed on steam generator components, as necessary. The steam generator inspection locations of interest for the One-Time Inspection AMP are ~~the divider plate assemblies and~~ any circumferential transition cone welds (if replacement activities resulted in a circumferential field weld).

<u>Plant Specific Operating Experience</u>

Inspections Performed Prior to the PEO for First License Renewal

- A total of 174 one-time inspections were completed prior to the PEO, not including additional inspections performed due to scope expansions. Operating experience related to scope expansions initiated due to inspection findings is provided below.
  - The stainless steel in borated primary water <140°F group included a scope expansion due to erosion/cavitation damage found in the flange area immediately downstream of a valve used for throttling. While not an applicable aging effect (improper design/use of system), similar erosion was found on the same valve for the opposite unit. Preventive maintenance activities were generated to periodically inspect these locations.
  - The carbon/low alloy steel in treated secondary water >120°F group included a scope expansion to inspect a valve when some minor erosion was found in the adjacent piping. The piping was conservatively replaced and added to the FAC program for ongoing aging management.
  - The carbon/low alloy steel in air/gas wetted group included a scope expansion to inspect the component cooling water surge tanks after an initial inspection found recordable indications on adjacent carbon steel piping to these tanks. Ultrasonic testing (UT) to confirm wall thickness was performed on both tanks, with both results indicating wall thicknesses above nominal and substantially above minimum wall thickness.

SLRA Section B.2.3.30, page B-220, is revised as follows:

B.2.3.30 ASME Section XI, Subsection IWL

Program Description

The PBN ASME Section XI, Subsection IWL AMP is an existing AMP that was formerly part of the ASME Section XI, Subsections IWE and IWL Inservice Inspection Program. This AMP manages aging of the reinforced concrete containments and unbonded post-tensioning systems and is performed in accordance with ASME Code Section XI, Subsection IWL, and consistent with 10 CFR 50.55a "Codes and Standards," with supplemental recommendations. This program will use the edition and addenda of ASME Section XI required by 10 CFR 50.55a, as reviewed and approved by the NRC staff for aging management under 10 CFR 54. Alternatives to these requirements that are aging management related will be submitted to the NRC in accordance with 10 CFR 50.55a prior to implementation.

The primary inspection methods specified in this program are visual examinations. General visual exams are employed for the concrete surfaces and tendon anchorage inspections. Selected sample tendon wires are tested for yield strength, ultimate tensile strength, and elongation. Tendon grease is analyzed for alkalinity, water content, and soluble ion concentrations. Pre-stressing forces are measured in select sample tendons under the Concrete Containment Unbonded Tendon Prestress AMP. The Subsection IWL requirements are supplemented to include quantitative acceptance criteria for evaluation of concrete surfaces based on the "Evaluation Criteria" provided in Chapter 5 of ACI 349.3R. Acceptability of inaccessible areas is evaluated when conditions found in accessible areas indicate the presence of, or could result in, flaws or degradation in inaccessible areas.

Inspection and testing of the steel containment liner and its integral attachments; containment hatches and air locks, seals, gaskets and moisture barriers; and containment pressure retaining bolting are performed by the PBN ASME Section XI, Subsection IWE AMP (Section B.2.3.29) and the PBN 10 CFR Part 50 Appendix J AMP (Section B.2.3.32). Containment tendon prestressing forces are measured and trended as outlined in the Concrete Containment Unbonded Tendon Prestress AMP (Section B.2.2.3).

Final reports are generated for engineering evaluations in accordance with IWL-3300. Inspections that reveal evidence of degradation exceeding the acceptance standards may be subjected to additional inspections to determine the nature and extent of the condition. The degraded condition will be addressed through an engineering evaluation, repair, replacement, or an analytical evaluation in accordance with IWL-3212 and IWL-3213 for concrete and IWL-3222~~,~~ **and** IWL-3223~~, and RG 1.35~~ for post-tensioning systems.

Repair/Replacement Activities are performed in accordance with approved procedures or instructions in accordance with 10 CFR 50.55a, IWA-4000, IWL-4000.