NEXTera ENERGY POINT BEACH

June 19, 2019

NRC 2019-0021
10 CFR 50.55a

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

Point Beach Nuclear Plant Units 1 and 2
Dockets 50-266 and 50-301

Subject: Relief Request 1-RR-13 and 2-RR-13, Proposed Alternative in Accordance with 10 CFR 50.55a(z)(1), Extension of Inspection Interval for Point Beach Unit 1 and Unit 2 Reactor Pressure Vessel Welds from 10 to 20 Years

In accordance with the provisions of 10 CFR 50.55a(z)(1), NextEra Energy Point Beach, LLC (NextEra) requests approval to extend the inservice inspection interval for the Point Beach Units 1 and 2 reactor pressure vessel (RPV) weld examinations from 2020 to 2029.

NextEra proposes to implement an alternative to the requirement of ASME Section XI IWB-2411, Inspection Program, that volumetric examination of RPV Examination categories B-A and B-D be performed once each 10-year ISI interval. The current fifth ISI interval ends on July 31, 2022. NextEra proposes to perform the fifth ASME Section XI Category B-A and B-D examinations in the sixth ISI interval by no later than 2029. The attachments to this letter provide the basis and supporting information for the proposed alternative.

NextEra requests NRC review and approval of the proposed alternative by June 2020 to support the use of the proposed alternative during the refueling outage in the fall of 2021.

This letter contains no new regulatory commitments or revisions to existing regulatory commitments.

If you have any questions regarding this submittal, please contact me at 920-755-7854.

Sincerely,

Eric Schultz
Licensing Manager
NextEra Energy Point Beach, LLC

Attachments

cc: Regional Administrator, Region III, USNRC
Project Manager, Point Beach Nuclear Plant, USNRC
Resident Inspector, Point Beach Nuclear Plant, USNRC

Attachment 1

Relief Request Number 1-RR-13

Proposed Alternative for the Extension of Inspection Interval for Point Beach Unit 1 RPV Welds from 10 to 20 Years

In Accordance with 10 CFR 50.55a(z)(1)

Relief Request Number 1-RR-13
Extension of Point Beach Inspection Interval for Unit 1 RPV Welds from 10 to 20 Years

Proposed Alternative
In Accordance with 10 CFR 50.55a(z)(1)

-Alternative Provides Acceptable Level of Quality and Safety-

1. ASME Code Component(s) Affected

The affected component is the Point Beach Unit 1 reactor vessel (RV), specifically, the following American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (BPV) Code, Section XI (Reference 1) examination categories and item numbers covering examinations of the RV. These examination categories and item numbers are from IWB-2500 and Table IWB-2500-1 of the ASME BPV Code, Section XI.

Category B-A welds are defined as "Pressure Retaining Welds in Reactor Vessel."
Category B-D welds are defined as "Full Penetration Welded Nozzles in Vessels."

Examination Category	Item No.	Description
B-A	B1.10	Shell Welds
B-A	B1.11	Circumferential Shell Welds
B-A	B1.12	Longitudinal Shell Welds
B-A	B1.20	Head Welds
B-A	B1.21	Circumferential Head Welds
B-A	B1.30	Shell-to-Flange Weld
B-D	B3.90	Nozzle-to-Vessel Welds
B-D	B3.100	Nozzle Inside Radius Section

(Throughout this request the above examination categories are referred to as "the subject examinations" and the ASME BPV Code, Section XI, is referred to as "the Code.")

2. Applicable Code Edition and Addenda

ASME Code Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," 2007 Edition though 2008 Addenda (Reference 1).

3. Applicable Code Requirement

IWB-2411, Inspection Program, requires volumetric examination of essentially 100% of reactor vessel pressure-retaining welds identified in Table IWB-2500-1 once each 10-year interval. The Point Beach Unit 1 fifth 10-year inservice inspection (ISI) interval is scheduled to end on July 31, 2022. The applicable Code for the sixth 10-year ISI interval will be selected in accordance with the requirements of 10 CFR 50.55a.

4. Reason for Request

An alternative is requested from the requirement of IWB-2411, Inspection Program, that volumetric examination of essentially 100% of reactor vessel pressure-retaining Examination Category B-A and B-D welds be performed once each 10-year interval. Extension of the interval between examinations of Category B-A and B-D welds from 10 years to up to 20 years will result in a negligible change in risk and will provide a reduction in man-rem exposure and examination costs.

5. Proposed Alternative and Basis for Use

NextEra proposes not to perform the ASME Code required volumetric examination of the Point Beach Unit 1 reactor vessel full penetration pressure-retaining Examination Category B-A and B-D welds for the fifth inservice inspection, currently scheduled for 2020. NextEra will perform the fifth ASME Code required volumetric examination of the Point Beach Unit 1 reactor vessel full penetration pressure-retaining Examination Category B-A and B-D welds in the sixth inservice inspection interval in 2029. The proposed inspection date is a slight deviation from the latest revised implementation plan, OG-10-238 (Reference 2), since the implementation plan reflects the next inspection being performed in 2030 for Point Beach Unit 1. The impact to the implementation plan in PWROG letter OG-10-238 would increase the number of inspections in 2029 from five to six, and decrease the number of inspections in 2030 from five to four. Based on Figures 3 and 4 of OG-10-238, this proposed inspection schedule is considered to have a minor impact on the future inspection plan and the distribution of inspections over time.

In accordance with 10 CFR 50.55a(z)(1), an alternate inspection interval is requested on the basis that the current interval can be revised with negligible change in risk by satisfying the risk criteria specified in Regulatory Guide 1.174 (Reference 3).

The basis for the methodology used to conduct this analysis is defined in the study WCAP-16168-NP-A, Revision 3, "Risk-Informed Extension of the Reactor Vessel In-service Inspection Interval" (Reference 4). This study focuses on risk assessments of materials within the beltline region of the RV wall. The results of the calculations for Point Beach Unit 1 were compared to those obtained from the Westinghouse pilot plant evaluated in WCAP-16168-NP-A, Revision 3. Appendix A of the WCAP identifies the parameters to be compared. Demonstrating that the parameters for Point Beach Unit 1 are bounded by the results of the Westinghouse pilot plant qualifies Point Beach Unit 1 for an ISI interval extension.

Table 1 below lists the critical parameters investigated in the WCAP and compares the results of the Westinghouse pilot plant to those of Point Beach Unit 1. Tables 2 and 3 provide additional information that was requested by the NRC and included in Appendix A of Reference 4.

Table 1
Critical Parameters for the Application of Bounding Analysis for Point Beach Unit 1

Parameter	Pilot Plant Basis	Plant-Specific Basis	Additional Evaluation Required?
Dominant Pressurized Thermal Shock (PTS) Transients in the NRC PTS Risk Study are Applicable	NRC PTS Risk Study (Reference 5)	PTS Generalization Study (Reference 6)	No
Through-Wall Cracking Frequency (TWCF)	1.76E-08 Events per year (Reference 4)	1.38E-11 Events per year (Calculated per Reference 4)	No
Frequency and Severity of Design Basis Transients	7 heatup/cooldown cycles per year (Reference 4)	Bounded by 7 heatup/cooldown cycles per year	No
Cladding Layers (Single/Multiple)	Single Layer (Reference 4)	Single Layer	No

Table 2 below provides a summary of the latest reactor vessel inspection for Point Beach Unit 1 and an evaluation of the recorded indications. This information confirms that satisfactory examinations have been performed on the Point Beach Unit 1 reactor vessel.

Table 2
Additional Information Pertaining to Reactor Vessel Inspection for Point Beach Unit 1

<table>
<tr><td>Inspection methodology:</td><td>The latest ISI for Point Beach Unit 1 was conducted in accordance with the ASME Code, Section XI, 1998 Edition, with 2000 Addenda. Examinations of Category B-A and B-D welds were performed to ASME Section XI, Appendix VIII, 1998 Edition with 2000 Addenda as modified by 10 CFR 50.55a(b)(2)(xiv, xv, and xvi). Future inservice inspections will continue to be performed to ASME Section XI, Appendix VIII methodology.</td></tr>
<tr><td>Number of past inspections:</td><td>Four 10-year inservice inspections and a preservice inspection have been performed.</td></tr>
<tr><td>Number of indications found:</td><td>There were 3 indications identified in the beltline region of the RV during the last ISI. The subsurface indications are located in the intermediate to lower shell circumferential weld seam, and are acceptable per Table IWB-3510-1 of Section XI of the ASME Code. Two of these indications are within the inner 1/10th or 1 inch of the reactor vessel thickness and required further evaluation. These indications are acceptable per the requirements of the Alternate PTS Rule, 10 CFR 50.61a (Reference 7).

A disposition of the two flaws against the limits of the Alternate PTS Rule is shown in the table below. Both flaws are located within the plate material of the reactor vessel.
<table>
<tr><th colspan="2">Through-Wall Extent, TWE (in)</th><th rowspan="2">Scaled Maximum number of flaws per 3628 square-inches of inside surface area in the inspection volume that are greater than or equal to TWE_{MIN} and less than TWE_{MAX}. This flaw density does not include underclad cracks in forgings.</th><th rowspan="2">Number of Point Beach Unit 1 Flaws Evaluated (Axial/Circ.)</th></tr>
<tr><th>TWE_{MIN}</th><th>TWE_{MAX}</th></tr>
<tr><td>0</td><td>0.075</td><td>No Limit</td><td>0</td></tr>
<tr><td>0.075</td><td>0.375</td><td>30</td><td>2 (2/0)</td></tr>
<tr><td>0.125</td><td>0.375</td><td>12</td><td>2 (2/0)</td></tr>
<tr><td>0.175</td><td>0.375</td><td>4</td><td>1 (1/0)</td></tr>
<tr><td>0.225</td><td>0.375</td><td>2</td><td>0</td></tr>
<tr><td>0.275</td><td>0.375</td><td>1</td><td>0</td></tr>
<tr><td>0.325</td><td>0.375</td><td>1</td><td>0</td></tr>
<tr><td>0.375</td><td>Infinite</td><td>0</td><td>0</td></tr>
</table></td></tr>
<tr><td>Proposed inspection schedule for balance of plant life:</td><td>The fifth inservice inspection is currently scheduled for 2020. This inspection will instead be performed during the 2029 refueling outage. The proposed inspection date is a slight deviation from the latest revised implementation plan, OG-10-238 (Reference 2), since the implementation plan reflects the next inspection being performed in 2030 for Point Beach Unit 1. The impact to the implementation plan in OG-10-238 would increase the number of inspections in 2029 from five to six, and decrease the number of inspections in 2030 from five to four. Based on Figures 3 and 4 of OG-10-238, this proposed inspection schedule is considered to have a minor impact on the future inspection plan and the distribution of inspections over time.</td></tr>
</table>

Table 3 below summarizes the inputs and outputs for the calculation of through-wall cracking frequency (TWCF).

Table 3
Details of TWCF Calculation for Point Beach Unit 1 at 50 Effective Full Power Years (EFPY)

Inputs[1]

								T_{wall} [inches]:	**6.656**
No.	**Region and Component Description**	**Material Identification**	**Material Heat No.**	**Copper [weight %]**	**Nickel [weight %]**	**R.G. 1.99 Position**	**Chemistry Factor [°F]**	**$RT_{NDT(u)}$ [°F]**	**Fluence [n/cm^2, E > 1.0 MeV]**
1	Nozzle Belt Forging	122P237	122P237	0.11	0.82	1.1	77.0	50	3.580E+18
2	Intermediate Shell Plate	A9811-1	A9811-1	0.20	0.06	2.1	79.3	1	4.900E+19
3	Lower Shell Plate	C1423-1	C1423-1	0.12	0.07	2.1	35.8	1	4.550E+19
4	Nozzle Belt to Intermediate Shell Circumferential Weld (100%)	SA-1426	8T1762	0.19	0.57	1.1	167.0	-47.6	3.580E+18
5	Intermediate to Lower Shell Circumferential Weld (100%)	SA-1101	71249	0.23	0.59	1.1	167.6	-47.4	4.430E+19
6	Intermediate Shell Longitudinal Weld (Inner Diameter 27%)	SA-812	1P0815	0.17	0.52	1.1	167.0	-47.6	3.190E+19
7	Intermediate Shell Longitudinal Weld (Outer Diameter 73%)	SA-775	1P0661	0.17	0.64	1.1	167.0	-47.6	3.190E+19
8	Lower Shell Longitudinal Weld	SA-847	61782	0.23	0.52	1.1	167.0	-47.6	3.050E+19

Outputs

Methodology Used to Calculate ΔT_{30}: Regulatory Guide 1.99, Revision 2 (Reference **Error! Reference source not found.**)

	Controlling Material Region No. (From Above)	**α_{XX}**	**RT_{MAX-XX} [°R]**	**Fluence [n/cm^2, E >1.0 MeV]**	**FF (Fluence Factor)**	**ΔT_{30} [°F]**	**$TWCF_{95-XX}$**
Limiting Axial Weld - AW	6, 7	2.4698	630.04	3.190E+19	1.3052	217.97	5.323E-12
Limiting Plate - PL	2	2.5000	571.56	4.900E+19	1.3984	110.89	1.786E-13
Limiting Circumferential Weld - CW	5	2.3908	643.20	4.430E+19	1.3779	230.93	7.064E-16
Limiting Forging - FO	1	2.5000	564.84	3.580E+18	0.7164	55.17	9.851E-14
						$TWCF_{95-TOTAL} = (\alpha_{AW}TWCF_{95-AW} + \alpha_{PL}TWCF_{95-PL} + \alpha_{CW}TWCF_{95-CW} + \alpha_{FO}TWCF_{95-FO})$:	**1.38E-11**

(1) Material properties and fluence inputs are based on WCAP-16669-NP (Reference 9).

6. Duration of Proposed Alternative

This request is applicable to the Point Beach Unit 1 inservice inspection program for the fifth and sixth 10-year inspection intervals.

7. Precedents

- "Surry Power Station Units 1 and 2 – Relief Implementing Extended Reactor Vessel Inspection Interval (TAC Nos. ME8573 and ME8574)," dated April 30, 2013, Agency wide Document Access and Management System (ADAMS) Accession Number ML13106A140.

- "Vogtle Electric Generating Plant, Units 1 and 2 – Request for Alternatives VEGP-ISI-ALT-05 and VEGP-ISI-ALT-06 (TAC Nos. MF2596 and MF2597)," dated March 20, 2014, ADAMS Accession Number ML14030A570.

- "Catawba Nuclear Station Units 1 and 2: Proposed Relief Request 13-CN-003, Request for Alternative to the Requirement of IWB-2500, Table IWB-2500-1, Category B-A and Category B-D for Reactor Pressure Vessel Welds (TAC Nos. MF1922 and MF1923)," dated March 26, 2014, ADAMS Accession Number ML14079A546.

- "Sequoyah Nuclear Plant, Units 1 and 2 – Requests for Alternatives 13-ISI-1 and 13-ISI-2 to Extend the Reactor Vessel Weld Inservice Inspection Interval (TAC Nos. MF2900 and MF2901)," dated August 1, 2014, ADAMS Accession Number ML14188B920.

- "Byron Station, Unit No. 1 – Relief from Requirements of the ASME Code to Extend the Reactor Vessel Inservice Inspection Interval (TAC No. MF3596)," dated December 10, 2014, ADAMS Accession Number ML14303A506.

- "Wolf Creek Generating Station – Request for Relief Nos. I3R-08 and I3R-09 for the Third 10-Year Inservice Inspection Program Interval (TAC Nos. MF3321 and MF3322)," dated December 10, 2014, ADAMS Accession Number ML14321A864.

- "Callaway Plant, Unit 1 – Request for Relief I3R-17, Alternative to ASME Code Requirements Which Extends the Reactor Vessel Inspection Interval from 10 to 20 Years (TAC No. MF3876)," dated February 10, 2015, ADAMS Accession Number ML15035A148.

- "Braidwood Station, Units 1 and 2 – Request for Relief from the Requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) (CAC Nos. MF8191 and MF8192)," dated March 15, 2017, ADAMS Accession Number ML17054C255.

- "South Texas Project, Units 1 and 2 – Relief from the Requirements of the ASME Code Regarding the Third 10-Year Inservice Inspection Program Interval (EPID L-2018-LLR-0010)," dated July 24, 2018, ADAMS Accession Number ML18177A425.

8. References

1. ASME Boiler and Pressure Vessel Code, Section XI, 2007 Edition through 2008 Addenda, American Society of Mechanical Engineers, New York.

2. PWROG Letter OG-10-238, "Revision to the Revised Plan for Plant Specific Implementation of Extended Inservice Inspection Interval per WCAP-16168-NP, Revision 1, "Risk-Informed Extension of the Reactor Vessel In-Service Inspection Interval." PA-MSC-0120," July 12, 2010 (ADAMS Accession Number ML11153A033).

3. NRC Regulatory Guide 1.174, Revision 1, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," U.S. Nuclear Regulatory Commission, November 2002, (ADAMS Accession Number ML023240437).

4. Westinghouse Report, WCAP-16168-NP-A, Revision 3, "Risk-Informed Extension of the Reactor Vessel In-service Inspection Interval," October 2011 (ADAMS Accession Number ML11306A084).

5. NUREG-1874, "Recommended Screening Limits for Pressurized Thermal Shock (PTS)," U.S. Nuclear Regulatory Commission, March 2010, (ADAMS Accession Number ML15222A848).

6. NRC Letter Report, "Generalization of Plant-Specific Pressurized Thermal Shock (PTS) Risk Results to Additional Plants," U.S. Nuclear Regulatory Commission, December 14, 2004 (ADAMS Accession Number ML042880482).

7. Code of Federal Regulations, 10 CFR Part 50.61a, "Alternate Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock Events," U.S. Nuclear Regulatory Commission, Washington D. C., Federal Register, Volume 75, No. 1, dated January 4, 2010 and No. 22 with corrections to part (g) dated February 3, 2010, March 8, 2010, and November 26, 2010.

8. NRC Regulatory Guide 1.99, Revision 2, "Radiation Embrittlement of Reactor Vessel Materials," U.S. Nuclear Regulatory Commission, May 1988, (ADAMS Accession Number ML003740284).

9. Westinghouse Report, WCAP-16669-NP, Revision 1, "Point Beach Units 1 and 2 Heatup and Cooldown Limit Curves for Normal Operation," January 2009.

Attachment 2

Relief Request Number 2-RR-13

Proposed Alternative for the Extension of Inspection Interval for Point Beach Unit 2 RPV Welds from 10 to 20 Years

In Accordance with 10 CFR 50.55a(z)(1)

Relief Request Number 2-RR-13
Extension of Point Beach Inspection Interval for Unit 2 RPV Welds from 10 to 20 Years

Proposed Alternative
In Accordance with 10 CFR 50.55a(z)(1)

-Alternative Provides Acceptable Level of Quality and Safety-

1. ASME Code Component(s) Affected

The affected component is the Point Beach Unit 2 reactor vessel (RV), specifically, the following American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (BPV) Code, Section XI (Reference 1) examination categories and item numbers covering examinations of the RV. These examination categories and item numbers are from IWB-2500 and Table IWB-2500-1 of the ASME BPV Code, Section XI.

Category B-A welds are defined as "Pressure Retaining Welds in Reactor Vessel."
Category B-D welds are defined as "Full Penetration Welded Nozzles in Vessels."

Examination Category	Item No.	Description
B-A	B1.10	Shell Welds
B-A	B1.11	Circumferential Shell Welds
B-A	B1.20	Head Welds
B-A	B1.21	Circumferential Head Welds
B-A	B1.30	Shell-to-Flange Weld
B-D	B3.90	Nozzle-to-Vessel Welds
B-D	B3.100	Nozzle Inside Radius Section

(Throughout this request the above examination categories are referred to as "the subject examinations" and the ASME BPV Code, Section XI, is referred to as "the Code.")

2. Applicable Code Edition and Addenda

ASME Code Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," 2007 Edition though 2008 Addenda (Reference 1).

3. Applicable Code Requirement

IWB-2411, Inspection Program, requires volumetric examination of essentially 100% of reactor vessel pressure-retaining welds identified in Table IWB-2500-1 once each 10-year interval. The Point Beach Unit 2 fifth 10-year inservice inspection (ISI) interval is scheduled to end on July 31, 2022. The applicable Code for the sixth 10-year ISI interval will be selected in accordance with the requirements of 10 CFR 50.55a.

4. Reason for Request

An alternative is requested from the requirement of IWB-2411, Inspection Program, that volumetric examination of essentially 100% of reactor vessel pressure-retaining Examination Category B-A and B-D welds be performed once each 10-year interval. Extension of the interval between examinations of Category B-A and B-D welds from 10 years to up to 20 years will result in a negligible change in risk and will provide a reduction in man-rem exposure and examination costs.

5. Proposed Alternative and Basis for Use

NextEra proposes not to perform the ASME Code required volumetric examination of the Point Beach Unit 2 reactor vessel full penetration pressure-retaining Examination Category B-A and B-D welds for the fifth inservice inspection, currently scheduled for 2020. NextEra will perform the fifth ASME Code required volumetric examination of the Point Beach Unit 2 reactor vessel full penetration pressure-retaining Examination Category B-A and B-D welds in the sixth inservice inspection interval in 2029. The proposed inspection date is consistent with the latest revised implementation plan in PWROG letter OG-10-238 (Reference 2).

In accordance with 10 CFR 50.55a(z)(1), an alternate inspection interval is requested on the basis that the current interval can be revised with negligible change in risk by satisfying the risk criteria specified in Regulatory Guide 1.174 (Reference 3).

The basis for the methodology used to conduct this analysis is defined in the study WCAP-16168-NP-A, Revision 3, "Risk-Informed Extension of the Reactor Vessel In-service Inspection Interval" (Reference 4). This study focuses on risk assessments of materials within the beltline region of the RV wall. The results of the calculations for Point Beach Unit 2 were compared to those obtained from the Westinghouse pilot plant evaluated in WCAP-16168-NP-A, Revision 3. Appendix A of the WCAP identifies the parameters to be compared. Demonstrating that the parameters for Point Beach Unit 2 are bounded by the results of the Westinghouse pilot plant qualifies Point Beach Unit 2 for an ISI interval extension.

Table 1 below lists the critical parameters investigated in the WCAP and compares the results of the Westinghouse pilot plant to those of Point Beach Unit 2. Tables 2 and 3 provide additional information that was requested by the NRC and included in Appendix A of Reference 4.

Table 1
Critical Parameters for the Application of Bounding Analysis for Point Beach Unit 2

Parameter	Pilot Plant Basis	Plant-Specific Basis	Additional Evaluation Required?
Dominant Pressurized Thermal Shock (PTS) Transients in the NRC PTS Risk Study are Applicable	NRC PTS Risk Study (Reference 5)	PTS Generalization Study (Reference 6)	No
Through-Wall Cracking Frequency (TWCF)	1.76E-08 Events per year (Reference 4)	4.55E-12 Events per year (Calculated per Reference 4)	No
Frequency and Severity of Design Basis Transients	7 heatup/cooldown cycles per year (Reference 4)	Bounded by 7 heatup/cooldown cycles per year	No
Cladding Layers (Single/Multiple)	Single Layer (Reference 4)	Single Layer	No

Table 2 below provides a summary of the latest reactor vessel inspection for Point Beach Unit 1 and an evaluation of the recorded indications. This information confirms that satisfactory examinations have been performed on the Point Beach Unit 2 reactor vessel.

Table 2
Additional Information Pertaining to Reactor Vessel Inspection for Point Beach Unit 2

Inspection methodology:	The latest ISI for Point Beach Unit 2 was conducted in accordance with the ASME Code, Section XI, 1998 Edition, with 2000 Addenda. Examinations of Category B-A and B-D welds were performed to ASME Section XI, Appendix VIII, 1998 Edition with 2000 Addenda as modified by 10 CFR 50.55a(b)(2)(xiv, xv, and xvi). Future inservice inspections will continue to be performed to ASME Section XI, Appendix VIII methodology.
Number of past inspections:	Four 10-year inservice inspections and a preservice inspection have been performed.
Number of indications found:	No indications were identified in the beltline region of the RV during the last inservice inspection. Therefore, the inservice inspection results inherently satisfy the requirements of the Alternate PTS Rule, 10 CFR 50.61a (Reference 7).
Proposed inspection schedule for balance of plant life:	The fifth inservice inspection is currently scheduled for 2020. This inspection is proposed to be performed during the 2029 refueling outage. The proposed inspection date is consistent with the latest revised implementation plan, OG-10-238 (Reference 2).

Table 3 below summarizes the inputs and outputs for the calculation of through-wall cracking frequency (TWCF).

Table 3
Details of TWCF Calculation for Point Beach Unit 2 at 50 Effective Full Power Years (EFPY)

Inputs[1]

								T_{wall} [inches]:	6.656
No.	**Region and Component Description**	**Material Identification**	**Material Heat No.**	**Copper [weight %]**	**Nickel [weight %]**	**R.G. 1.99 Position**	**Chemistry Factor [°F]**	**$RT_{NDT(u)}$ [°F]**	**Fluence [n/cm^2, E > 1.0 MeV]**
1	Nozzle Belt Forging	123V352	123V352	0.11	0.73	1.1	76.0	40	5.040E+18
2	Intermediate Shell Forging	123V500	123V500	0.09	0.70	1.1	58.0	40	5.050E+19
3	Lower Shell Forging	122W195	122W195	0.05	0.72	2.1	42.8	40	4.900E+19
4	Nozzle Belt to Intermediate Shell Circumferential Weld (100%)	21935	21935	0.18	0.70	1.1	170.5	-56	5.040E+18
5	Intermediate to Lower Shell Circumferential Weld (100%)	SA-1484	72442	0.26	0.60	1.1	180.0	-30	4.650E+19

Outputs

Methodology Used to Calculate ΔT_{30}: Regulatory Guide 1.99, Revision 2 (Reference **Error! Reference source not found.**)

	Controlling Material Region No. (From Above)	**α_{XX}**	**RT_{MAX-XX} [°R]**	**Fluence [n/cm^2, E >1.0 MeV]**	**FF (Fluence Factor)**	**ΔT_{30} [°F]**	**$TWCF_{95-XX}$**
Limiting Circumferential Weld - CW	5	2.1731	679.48	4.650E+19	1.3878	249.81	1.628E-12
Limiting Forging - FO	2	2.5000	581.12	5.050E+19	1.4043	81.45	4.061E-13
$TWCF_{95-TOTAL} = (\alpha_{AW}TWCF_{95-AW} + \alpha_{PL}TWCF_{95-PL} + \alpha_{CW}TWCF_{95-CW} + \alpha_{FO}TWCF_{95-FO})$:							**4.55E-12**

(1) Material properties and fluence inputs are based on WCAP-16669-NP (Reference 9).

6. Duration of Proposed Alternative

This request is applicable to the Point Beach Unit 2 inservice inspection program for the fifth and sixth 10-year inspection intervals.

7. Precedents

- "Surry Power Station Units 1 and 2 – Relief Implementing Extended Reactor Vessel Inspection Interval (TAC Nos. ME8573 and ME8574)," dated April 30, 2013, Agency wide Document Access and Management System (ADAMS) Accession Number ML13106A140.

- "Vogtle Electric Generating Plant, Units 1 and 2 – Request for Alternatives VEGP-ISI-ALT-05 and VEGP-ISI-ALT-06 (TAC Nos. MF2596 and MF2597)," dated March 20, 2014, ADAMS Accession Number ML14030A570.

- "Catawba Nuclear Station Units 1 and 2: Proposed Relief Request 13-CN-003, Request for Alternative to the Requirement of IWB-2500, Table IWB-2500-1, Category B-A and Category B-D for Reactor Pressure Vessel Welds (TAC Nos. MF1922 and MF1923)," dated March 26, 2014, ADAMS Accession Number ML14079A546.

- "Sequoyah Nuclear Plant, Units 1 and 2 – Requests for Alternatives 13-ISI-1 and 13-ISI-2 to Extend the Reactor Vessel Weld Inservice Inspection Interval (TAC Nos. MF2900 and MF2901)," dated August 1, 2014, ADAMS Accession Number ML14188B920.

- "Byron Station, Unit No. 1 – Relief from Requirements of the ASME Code to Extend the Reactor Vessel Inservice Inspection Interval (TAC No. MF3596)," dated December 10, 2014, ADAMS Accession Number ML14303A506.

- "Wolf Creek Generating Station – Request for Relief Nos. I3R-08 and I3R-09 for the Third 10-Year Inservice Inspection Program Interval (TAC Nos. MF3321 and MF3322)," dated December 10, 2014, ADAMS Accession Number ML14321A864.

- "Callaway Plant, Unit 1 – Request for Relief I3R-17, Alternative to ASME Code Requirements Which Extends the Reactor Vessel Inspection Interval from 10 to 20 Years (TAC No. MF3876)," dated February 10, 2015, ADAMS Accession Number ML15035A148.

- "Braidwood Station, Units 1 and 2 – Request for Relief from the Requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) (CAC Nos. MF8191 and MF8192)," dated March 15, 2017, ADAMS Accession Number ML17054C255.

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