



April 14, 2015

NRC 2015-0021
10 CFR 50.46(a)(3)(ii)

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

Point Beach Nuclear Plant, Units 1 and 2
Dockets 50-266 and 50-301
Renewed License Nos. DPR-24 and DPR-27

10 CFR 50.46 Annual Report

In accordance with 10CFR50.46(a)(3)(ii), NextEra Energy Point Beach, LLC (NextEra) is submitting this annual report of changes to emergency core cooling system (ECCS) evaluation models for Point Beach Nuclear Plant (PBNP), Units 1 and 2. This letter provides a summary of ECCS evaluation model changes and errors identified for the Year 2014.

The Enclosure describes the ECCS evaluation model changes and errors for the large and small break loss of coolant accident (LOCA). Table 1 provides the large break LOCA margin summary sheet for 2014. Table 2 provides the small break LOCA margin summary sheet for 2014.

This submittal contains no new commitments or revisions to existing commitments.

Very truly yours,

NextEra Energy Point Beach, LLC

A handwritten signature in cursive script, appearing to read "Michael Millen".

Michael Millen
Licensing Manager
Point Beach Nuclear Plant

Enclosure

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

ENCLOSURE

NEXTERA ENERGY POINT BEACH, LLC POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

10 CFR 50.46 ANNUAL REPORT

This annual report of changes to, and errors discovered in, emergency core cooling system (ECCS) evaluation models for Point Beach Nuclear Plant (PBNP) Units 1 and 2, for the Year 2014, is provided pursuant to 10 CFR 50.46(a)(3)(ii). The report provides a summary of ECCS evaluation model changes and errors identified since the previous annual report (Reference 1). Westinghouse Electric Company is the analysis of record holder for the Point Beach Units 1 and 2 Large Break and Small Break loss of coolant accident (LOCA) analyses. Large Break LOCA analysis is performed using the Westinghouse Realistic Large Break LOCA Evaluation Model using ASTRUM methodology. Small Break LOCA analysis is performed using the Westinghouse Small Break LOCA Evaluation Model with NOTRUMP.

LARGE BREAK LOCA EVALUATION MODEL

10 CFR 50.46 Year 2014 Annual Report

There were four changes to the LBLOCA as stated below, which were previously reported in 30 day reports (References 1, 2 and 3). These changes, which have been identified since Reference 1 report are described below.

- HOTSPOT Error in Burst Strain Application: This change was addressed and reported in Reference 2. The estimated impact of this error was +50 °F for Unit 1 and 0 °F for Unit 2.
- Grid Heat Transfer Enhancement: This change was addressed and reported in Reference 1. The estimated impact of this error was 0 °F for Unit 1 and 0 °F for Unit 2.
- Changes to Grid Blockage Ratio and Porosity: This change was addressed and reported in Reference 1. The estimated impact of this error was 0 °F for Unit 1 and 0 °F for Unit 2.
- Error in Decay Group Uncertainty Factors: This change was addressed and reported in Reference 3. The estimated impact of this error was 0 °F for Unit 1 and 2 °F for Unit 2.

Table 1 provides a summary of LBLOCA PCT changes for Point Beach Units 1 and 2.

SMALL BREAK LOCA EVALUATION MODEL

The following three errors to the Small Break LOCA have been identified since Reference 1 report and are described below.

- Fuel Rod Gap Conductance: The error is associated with the use of an incorrect temperature in the calculation of the cladding emissivity term in the fuel rod gap conductance model and the effect on PCT using 1985 Westinghouse Small Break LOCA Evaluation Model with NOTRUMP is estimated to be 0 °F.
- Radiation Heat Transfer Model: Two errors in the model are associated with the calculation of the radiation heat transfer coefficient within the fuel rod model of the NOTRUMP computer code. The existing logic did not preclude non-physical negative or large radiation heat transfer coefficients from being calculated and a temperature term incorrectly used degrees Fahrenheit instead of Rankine in the model. The effect on PCT using 1985 Westinghouse Small Break LOCA Evaluation Model with NOTRUMP is estimated to be 0 °F.
- SBLOCTA Pre-DNB Cladding Surface Heat Transfer Coefficient Calculation: One error in this calculation is associated with inconsistent time units (hours vs. seconds) in the parameters used for the calculation of the Reynolds and Prandtl numbers, and another error relates to an incorrect diameter used to develop the area term in the cladding surface heat flux calculation. The effect on PCT using 1985 Westinghouse Small Break LOCA Evaluation Model with NOTRUMP is estimated to be 0 °F.

Table 2 provides a summary of PCT changes for Point Beach Units 1 and 2.

References:

1. NRC 2014-0029, M. Millen (NextEra Energy) to US NRC Document Control Desk, "Point Beach Nuclear Plant, Units 1 and 2, Dockets 50-266 and 50-301, Renewed License Nos. DPR-24 and DPR-27, 10 CFR 50.46 Annual Report/30-Day report," April 18, 2014.
2. NRC 2014-0012, M. Millen (NextEra Energy) to US NRC Document Control Desk, "Point Beach Nuclear Plant, Units 1 and 2, Dockets 50-266 and 50-301, Renewed License Nos. DPR-24 and DPR-27, Large Break Loss-of-Coolant Accident Margin Summary Sheet – 30-Day Report," February 13, 2014.
3. NRC 2014-0086, M. Millen (NextEra Energy) to US NRC Document Control Desk, "Point Beach Nuclear Plant, Units 1 and 2, Dockets 50-266 and 50-301, Renewed License Nos. DPR-24 and DPR-27, 10 CFR 50.46 30-Day Report," December 11, 2014.

TABLE 1

LARGE BREAK LOCA MARGIN SUMMARY SHEET – 2014 ANNUAL REPORT

Plant Name: Point Beach Units 1 and 2
Utility name: NextEra Energy
Evaluation Model: Westinghouse Best Estimate Large Break LOCA Evaluation Model using ASTRUM

Evaluation Model PCT (Unit 1/Unit 2): **1975°F/1810°F**

			Net PCT Effect Unit 1/Unit 2	Absolute PCT Effect Unit 1/Unit 2
A	Prior 10 CFR 50.46 Changes or Error Corrections – up to Year 2013	ΔPCT	+160°F/+246°F	160°F/338°F
B	Prior 10 CFR 50.46 Changes or Errors Corrections – Year 2014			
	HOTSPOT Error in Burst Strain Application (Reference 2)	ΔPCT	+50°F/0°F	50°F/0°F
	Grid Heat Transfer Enhancement (Reference 1)	ΔPCT	0°F/0°F	0°F/0°F
	Changes to Grid Blockage Ratio and Porosity (Reference 1)	ΔPCT	0°F/0°F	0°F/0°F
	Error in Decay Group Uncertainty Factors (Reference 3)	ΔPCT	0°F/+2°F	0°F/2°F
C	10 CFR 50.46 Changes in Year 2014 Since Item B	ΔPCT	None	None
D	Absolute Sum of 10 CFR 50.46 Changes	ΔPCT		210°F/340°F
<p>The sum of the PCT from the most recent analysis using an acceptable evaluation model and the estimates of PCT impact for changes and errors identified since this analysis</p>			<p>2185°F/2058°F < 2200°F</p>	

TABLE 2

SMALL BREAK LOCA MARGIN SUMMARY SHEET – 2014 ANNUAL REPORT

Plant Name: Point Beach Units 1 and 2
 Utility name: NextEra Energy
 Evaluation Model: Westinghouse Small Break LOCA Evaluation Model with NOTRUMP

Evaluation Model PCT (Unit 1/Unit 2): **1049°F/1103°F**

			Net PCT Effect Unit 1/Unit 2	Absolute PCT Effect Unit 1/Unit 2
A	Prior 10 CFR 50.46 Changes or Error Corrections – up to Year 2013	ΔPCT	0°F/0°F	0°F/0°F
B	Prior 10 CFR 50.46 Changes or Errors Corrections – Year 2014			
	Fuel Rod Gap Conductance	ΔPCT	0°F/0°F	0°F/0°F
	Radiation Heat Transfer Model	ΔPCT	0°F/0°F	0°F/0°F
	SBLOCTA Pre-DNB Cladding Surface Heat Transfer Coefficient Calculation	ΔPCT	0°F/0°F	0°F/0°F
C	10 CFR 50.46 Changes in Year 2014 Since Item B	ΔPCT	None	None
D	Absolute Sum of 10 CFR 50.46 Changes	ΔPCT		0°F/0°F
<p>The sum of the PCT from the most recent analysis using an acceptable evaluation model and the estimates of PCT impact for changes and errors identified since this analysis</p>			<p>1049°F/1103°F < 2200 °F</p>	