



April 14, 2022

L-2022-039
10 CFR 50.46

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

Re: Florida Power & Light Company
Turkey Point Units 3 and 4, Docket Nos. 50-250, 50-251

Florida Power & Light Company
St. Lucie Units 1 and 2, Docket Nos. 50-335, 50-389

NextEra Energy Seabrook, LLC
Seabrook Station, Docket No. 50-443

NextEra Energy Point Beach, LLC
Point Beach Units 1 and 2, Docket Nos. 50-266, 50-301

10 CFR 50.46 Annual Reporting of Changes to, or Errors in Emergency Core Cooling
System Models or Applications

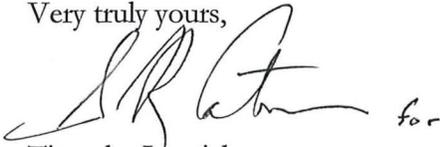
Pursuant to 10 CFR 50.46(a)(3)(ii), the nature of any change to or error discovered in the evaluation models for emergency core cooling systems (ECCS), or in the application of such models, that affect the fuel cladding temperature calculations for Florida Power & Light's (FPL) Turkey Point Nuclear Plant, Units 3 and 4; and St. Lucie Nuclear Plant, Units 1 and 2; NextEra Energy Seabrook Station; and NextEra Energy Point Beach Nuclear Plant, Units 1 and 2 are reported in the attachments to this letter by FPL, on behalf of itself and its affiliates, NextEra Energy Seabrook, LLC and NextEra Energy Point Beach, LLC. The data interval for this report is from January 1, 2021 through December 31, 2021.

Evaluations of each reported error have concluded that re-analysis was not required.

This letter contains no new or revised regulatory commitments.

Should you have any questions regarding this report, please contact Mr. Mike Davis, Fleet Licensing Manager, at (319) 491-5122.

Very truly yours,

Handwritten signature of Timothy Lesniak in black ink, followed by the word "for" in a smaller font.

Timothy Lesniak
General Manager, Regulatory Affairs
Florida Power & Light Company

Attachments (4)

cc: USNRC Regional Administrator, Region I
USNRC Regional Administrator, Region II
USNRC Regional Administrator, Region III

USNRC Project Manager, Seabrook Station
USNRC Project Manager, St. Lucie Nuclear Plant
USNRC Project Manager, Turkey Point Nuclear Plant
USNRC Project Manager, Point Beach Nuclear Plant

USNRC Senior Resident Inspector, Seabrook Station
USNRC Senior Resident Inspector, St. Lucie Nuclear Plant
USNRC Senior Resident Inspector, Turkey Point Nuclear Plant
USNRC Senior Resident Inspector, Point Beach Nuclear Plant

ATTACHMENT 1

**Florida Power & Light Company
Turkey Point Units 3 and 4**

Table 1: Turkey Point Unit 3 & 4 Small Break LOCA PCT 2021 Annual Report

Evaluation Methodology:

Westinghouse, "Westinghouse Small Break ECCS Evaluation Model Using the NOTRUMP Code," WCAP-10054-P-A, August 1985 and Addendum 2, Revision 1, July 1997.

Evaluation Model PCT: 1231 °F (Reference 1)

	Net PCT Effect	Absolute PCT Effect
Prior 10 CFR 50.46 Changes or Error Corrections – up to 12/31/2020 (Reference 2)	0 °F	0 °F
10 CFR 50.46 Changes or Errors Corrections – year 2021		
Reduction in Flow Area to the Bottom of the Barrel/Baffle Region	0 °F	0 °F
Updated Pressurizer Surge Line and Accumulator Line Data	0 °F	0 °F
Sum of 10 CFR 50.46 Changes or Errors Corrections	0 °F	0 °F

<i>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</i>	1231 °F < 2200 °F
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Reduction in Flow Area to the Bottom of the Barrel/Baffle Region:

For plants without holes in the edge of the lower core plate, the flow area from the bottom of the core to the barrel/baffle region has historically been modeled as the gap between the baffle plate and the lower core plate, and this flow area did not consider the reduced flow area due to the presence of the bottom nozzle flow skirt. The impact of reducing the flow area between the core and barrel baffle region due to including the bottom nozzle flow skirt has been evaluated to have a negligible effect on small break LOCA analysis results leading to an estimated PCT impact of 0°F.

Updated Pressurizer Surge Line and Accumulator Line Data:

Pressurizer surge and accumulator line inputs were discovered to be different than those used for the small break LOCA (SBLOCA) analysis. The impact of updates to the pressurizer surge line and accumulator line inputs to the SBLOCA analysis was qualitatively evaluated. This change represents a Change in Plant Configuration or Set Points, distinguished from an evaluation model change in Section 4 of WCAP-13451. The updates to the pressurizer surge line and accumulator line inputs have a negligible effect on the SBLOCA analysis results, leading to an estimated peak cladding impact of 0 °F.

References:

1. Letter from M. Kiley to U.S. Nuclear Regulatory Commission, "License Amendment Request for Expedited Power Uprate (LAR 205)," L-2010-113, October 21, 2010.
2. Letter from W. Parks to U.S. Nuclear Regulatory Commission, "10 CFR 50.46 Annual Reporting of Changes to, or Errors in Emergency Core Cooling System Models or Applications," L-2021-066, April 14, 2021.

Table 2: Turkey Point Unit 3 & 4 Large Break LOCA PCT 2021 Annual Report

Evaluation Methodology:

Westinghouse, “Realistic Large-Break LOCA Evaluation Methodology Using the Automated Statistical Treatment Of Uncertainty Method (ASTRUM),” WCAP-16009-P-A, Revision 0, January 2005.

Evaluation Model PCT: 2152 °F (Reference 1)

		Net PCT Effect	Absolute PCT Effect
Prior 10 CFR 50.46 Changes or Error Corrections – up to 12/31/2020 (Reference 2)		-28 °F	80 °F
10 CFR 50.46 Changes or Errors Corrections – year 2021			
	Updated Pressurizer Surge Line and Accumulator Line Data (Reference 3)	0 °F	0 °F
Sum of 10 CFR 50.46 Changes or Errors Corrections		-28 °F	80 °F

<i>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</i>	2124 °F < 2200 °F
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References:

1. Letter from M. Kiley to U.S. Nuclear Regulatory Commission, “Response to NRC Reactor Systems Branch Request for Additional Information Regarding Extended Power Uprate License Amendment Request No. 205 and Thermal Conductivity Degradation,” L-2012-019, January 16, 2012.
2. Letter from W. Parks to U.S. Nuclear Regulatory Commission, “10 CFR 50.46 Annual Reporting of Changes to, or Errors in Emergency Core Cooling System Models or Applications,” L-2021-066, April 14, 2021.
3. Letter from W. Parks to U.S. Nuclear Regulatory Commission, “10 CFR 50.46 – Emergency Core Cooling System LBLOCA 30-Day Report,” L-2021-018, February 16, 2021.

ATTACHMENT 2

**Florida Power & Light Company
St. Lucie Units 1 and 2**

Table 1: St. Lucie Unit 1 Small Break LOCA PCT 2021 Annual Report

Evaluation Methodology:

Framatome, “PWR Small Break LOCA Evaluation Model, S-RELAP5 Based,” EMF-2328(P)(A) Revision 0 as supplemented by ANP-3000(P), Revision 0.

Evaluation Model PCT: 1828°F

	Net PCT Effect	Absolute PCT Effect
Prior 10 CFR 50.46 Changes or Error Corrections – up to Year 2020 (Reference 1)	+24 °F	84 °F
10 CFR 50.46 Changes or Error Corrections – Year 2021	None	None
Sum of 10 CFR 50.46 Changes or Error Corrections	+24 °F	84 °F

<i>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</i>	1852 °F < 2200 °F
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References:

1. Letter L-2021-066, “10 CFR 50.46 Annual Reporting of Changes to, or Errors in Emergency Core Cooling System Models or Applications,” 4/14/2021 (ML21105A488).

Table 2: St. Lucie Unit 1 Large Break LOCA PCT 2021 Annual Report

Evaluation Methodology:

Framatome, “Realistic Large Break LOCA Methodology for Pressurized Water Reactors,” EMF-2103(P)(A) Revision 0 as supplemented by ANP-2903(P), Revision 1.

Evaluation Model PCT: 1788°F

	Net PCT Effect	Absolute PCT Effect
Prior 10 CFR 50.46 Changes or Error Corrections – up to Year 2020 (Reference 1)	+6 °F	6°F
10 CFR 50.46 Changes or Error Corrections – Year 2021	None	None
Sum of 10 CFR 50.46 Changes or Error Corrections	+6 °F	6°F

<i>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</i>	1794 °F < 2200 °F
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References:

1. Letter L-2021-066, “10 CFR 50.46 Annual Reporting of Changes to, or Errors in Emergency Core Cooling System Models or Applications,” 4/14/2021 (ML21105A488).

Table 3: St. Lucie Unit 2 Small Break LOCA PCT 2021 Annual Report

Evaluation Methodology:

Framatome, “PWR Small Break LOCA Evaluation Model, S-RELAP5 Based,” EMF-2328(P)(A) Revision.0.

Evaluation Model PCT: 2057°F

	Net PCT Effect	Absolute PCT Effect
Prior 10 CFR 50.46 Changes or Error Corrections – up to Year 2020 (Reference 1)	-279°F	393 °F
10 CFR 50.46 Changes or Error Corrections – Year 2021	None	None
Sum of 10 CFR 50.46 Changes or Error Corrections	-279°F	393 °F

<i>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</i>	1778 °F < 2200 °F
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References:

1. Letter L-2021-066, “10 CFR 50.46 Annual Reporting of Changes to, or Errors in Emergency Core Cooling System Models or Applications,” 4/14/2021 (ML21105A488).

Table 4: St. Lucie Unit 2 Large Break LOCA PCT 2021 Annual Report

Evaluation Methodology:

Framatome, “Realistic Large Break LOCA Methodology for Pressurized Water Reactors,” EMF-2103(P)(A) Revision 0.

Evaluation Model PCT: 1732°F

	Net PCT Effect	Absolute PCT Effect
Prior 10 CFR 50.46 Changes or Error Corrections – up to Year 2020 (Reference 1)	0 °F	0 °F
10 CFR 50.46 Changes or Error Corrections – Year 2021	None	None
Sum of 10 CFR 50.46 Changes or Error Corrections	0 °F	0 °F

<i>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</i>	1732 °F < 2200 °F
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References:

1. Letter L-2021-066, “10 CFR 50.46 Annual Reporting of Changes to, or Errors in Emergency Core Cooling System Models or Applications,” 4/14/2021 (ML21105A488).

ATTACHMENT 3

**NextEra Energy Seabrook, LLC
Seabrook Station**

Table 1: Seabrook Unit 1 Small Break LOCA PCT 2021 Annual Report

Evaluation Methodology:

Westinghouse, "Westinghouse Small Break ECCS Evaluation Model Using the NOTRUMP Code," WCAP-10054-P-A, August 1985 and Addendum 2, Revision 1, July 1997

Evaluation Model PCT: 1373 °F (Reference 1)

	Net PCT Effect	Absolute PCT Effect
Prior 10 CFR 50.46 Changes or Error Corrections – up to 12/31/2020 (Reference 2)	0 °F	0 °F
10 CFR 50.46 Changes or Errors Corrections – year 2021		
Reduction in Flow Area to the Bottom of the Barrel/Baffle Region	0 °F	0 °F
Sum of 10 CFR 50.46 Changes or Errors Corrections	0 °F	0 °F

<i>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</i>	1373 °F < 2200 °F
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Reduction in Flow Area to the Bottom of the Barrel/Baffle Region:

For plants without holes in the edge of the lower core plate, the flow area from the bottom of the core to the barrel/baffle region has historically been modeled as the gap between the baffle plate and the lower core plate, and this flow area did not consider the reduced flow area due to the presence of the bottom nozzle flow skirt. The impact of reducing the flow area between the core and barrel baffle region due to including the bottom nozzle flow skirt has been evaluated to have a negligible effect on small break LOCA analysis results leading to an estimated PCT impact of 0°F.

References:

1. Letter from M. Warner to U.S. Nuclear Regulatory Commission, "License Amendment Request 04-03, Application for Stretch Power Uprate," NYN-04016, March 17, 2004.
2. Letter from W. Parks to U.S. Nuclear Regulatory Commission, "10 CFR 50.46 Annual Reporting of Changes to, or Errors in Emergency Core Cooling System Models or Applications," L-2021-066, April 14, 2021.

Table 2: Seabrook Unit 1 Large Break LOCA PCT 2021 Annual Report

Evaluation Methodology:

Westinghouse, “Code Qualification Document for Best Estimate LOCA Analysis,” WCAP-12945-P-A, March 1998.

Evaluation Model PCT: **1784 °F (Reference 1)**

	Net PCT Effect	Absolute PCT Effect
Prior 10 CFR 50.46 Changes or Error Corrections – up to 12/31/2020 (Reference 2)	155 °F	155 °F
10 CFR 50.46 Changes or Errors Corrections – year 2021	None	None
Sum of 10 CFR 50.46 Changes or Errors Corrections	155 °F	155 °F

<i>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</i>	1939 °F < 2200 °F
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References:

1. Letter from M. Warner to U.S. Nuclear Regulatory Commission, “License Amendment Request 04-03, Application for Stretch Power Uprate,” NYN-04016, March 17, 2004.
2. Letter from W. Parks to U.S. Nuclear Regulatory Commission, “10 CFR 50.46 Annual Reporting of Changes to, or Errors in Emergency Core Cooling System Models or Applications,” L-2021-066, April 14, 2021.

ATTACHMENT 4

**NextEra Energy Point Beach, LLC
Point Beach Units 1 and 2**

Table 1: Point Beach Units 1 and 2 Small Break LOCA PCT 2021 Annual Report

Evaluation Methodology:

Westinghouse, “Westinghouse Small Break ECCS Evaluation Model Using the NOTRUMP Code,” WCAP-10054-P-A, August 1985 and Addendum 2, Revision 1, July 1997.

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

	Net PCT Effect	Absolute PCT Effect
Prior 10 CFR 50.46 Changes or Error Corrections – up to Year 2020 (Reference 1)	0°F/0°F	0°F/0°F
10 CFR 50.46 Changes or Error Corrections – Year 2021		
Reduction in Flow Area to the Bottom of the Barrel/Baffle Region	0°F/0°F	0°F/0°F
Sum of 10 CFR 50.46 Changes or Error Corrections	0°F/0°F	0°F/0°F
<i>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</i>	1049°F/1103°F < 2200 °F	

Reduction in Flow Area to the Bottom of the Barrel/Baffle Region

For plants without holes in the edge of the lower core plate, the flow area from the bottom of the core to the barrel/baffle region has historically been modeled as the gap between the baffle plate and the lower core plate, and this flow area did not consider the reduced flow area due to the presence of the bottom nozzle flow skirt. The impact of reducing the flow area between the core and barrel baffle region due to including the bottom nozzle flow skirt has been evaluated to have a negligible effect on small break LOCA analysis results leading to an estimated PCT impact of 0°F.

References:

1. Letter L-2021-066, “10 CFR 50.46 Annual Reporting of Changes to, or Errors in in Emergency Core Cooling System Models or Applications,” 4/14/2021 (ML21105A488).

Table 2: Point Beach Units 1 and 2 Large Break LOCA PCT 2021 Annual Report

Evaluation Methodology:

Westinghouse, "Realistic Large-Break LOCA Evaluation Methodology Using the Automated Statistical Treatment of Uncertainty Method (ASTRUM)," WCAP-16009-P-A, January 2005.

Westinghouse, "Application of Best Estimate Large Break LOCA Methodology to Westinghouse PWRs with Upper Plenum Injection," WCAP-14449-P-A Revision 1, October 1999.

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
Prior 10 CFR 50.46 Changes or Error Corrections – up to Year 2020 (Reference 1)	+210°F/+248°F	210°F/340°F
10 CFR 50.46 Changes or Error Corrections – Year 2021	None	None
Sum of 10 CFR 50.46 Changes or Error Corrections	+210°F/+248°F	210°F/340°F

<i>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</i>	2185°F/2058°F < 2200 °F
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References:

1. Letter L-2021-066, "10 CFR 50.46 Annual Reporting of Changes to, or Errors in in Emergency Core Cooling System Models or Applications," 4/14/2021 (ML21105A488).