March 10, 2025

L-2025-024
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 Turkey Point Nuclear Plant, Units 3 and 4; and St. Lucie Nuclear Plant, Units 1 and 2; Seabrook Station; and Point Beach Nuclear Plant, Units 1 and 2 are reported in the attachments to this letter by Florida Power & Light Company (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, 2024 through December 31, 2024.

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 Maribel Valdez, Fleet Licensing Manager, at (561) 904-5164.

Very truly yours,

Kenneth A. Mack
Director, Licensing and Regulatory Compliance
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 and 4 Small Break LOCA PCT
2024 Annual Report

Evaluation Methodology:

Westinghouse, "Engineering Summary Report of the Turkey Point Units 3 and 4 Loss-of-Coolant Accident (LOCA) Analysis with the FULL SPECTRUM LOCA (FSLOCA) Methodology," WCAP-18597-P, Revision 0, November 2020.

Evaluation Model PCT: 1475 °F

	Net PCT Effect	Absolute PCT Effect
Prior 10 CFR 50.46 Changes or Error Corrections – up to Year 2023 (Reference 1)	0 °F	0 °F
10 CFR 50.46 Changes or Error Corrections – Year 2024		
Superheated Steam Thermal Conductivity	0 °F	0 °F
Sum of 10 CFR 50.46 Changes or Error Corrections	0 °F	0 °F

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*	**1475 °F < 2200 °F**

Superheated Steam Thermal Conductivity

An error was identified in WCOBRA/TRAC-TF2 related to an incorrect specific heat value used in the calculation of superheated steam thermal conductivity as part of the post-burst pellet-to-cladding gap heat transfer calculation. The incorrect specific heat value results in the superheated steam thermal conductivity being slightly under-predicted at the burst node after rupture is predicted. This leads to a minimal reduction in the gap conductance and slight over-prediction of the fuel average temperatures at the rod burst location after burst is predicted. The deficiency was qualitatively evaluated, and the nature of the error leads to an estimated peak cladding temperature impact of 0°F.

References:

1. Letter from Steve Catron 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-2024-011, March 13, 2024 (ML24073A190).

Table 2:
Turkey Point Unit 3 and 4 Large Break LOCA PCT
2024 Annual Report

Evaluation Methodology:

Westinghouse, "Engineering Summary Report of the Turkey Point Units 3 and 4 Loss-of-Coolant Accident (LOCA) Analysis with the FULL SPECTRUM LOCA (FSLOCA) Methodology," WCAP-18597-P, Revision 0, November 2020.

Evaluation Model PCT: 1981 °F

	Net PCT Effect	Absolute PCT Effect
Prior 10 CFR 50.46 Changes or Error Corrections – up to Year 2023 (Reference 1)	0 °F	0 °F
10 CFR 50.46 Changes or Error Corrections – Year 2024		
Superheated Steam Thermal Conductivity	0 °F	0 °F
Sum of 10 CFR 50.46 Changes or Error Corrections	0 °F	0 °F

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*	**1981 °F < 2200 °F**

Superheated Steam Thermal Conductivity

An error was identified in WCOBRA/TRAC-TF2 related to an incorrect specific heat value used in the calculation of superheated steam thermal conductivity as part of the post-burst pellet-to-cladding gap heat transfer calculation. The incorrect specific heat value results in the superheated steam thermal conductivity being slightly under-predicted at the burst node after rupture is predicted. This leads to a minimal reduction in the gap conductance and slight over-prediction of the fuel average temperatures at the rod burst location after burst is predicted. The deficiency was qualitatively evaluated, and the nature of the error leads to an estimated peak cladding temperature impact of 0°F.

References:

1. Letter from Steve Catron 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-2024-011, March 13, 2024 (ML24073A190).

ATTACHMENT 2

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

Table 1:
St. Lucie Unit 1 Small Break LOCA PCT
2024 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 2023 (Reference 1)	+24 °F	84 °F
10 CFR 50.46 Changes or Error Corrections – Year 2024	None	None
Sum of 10 CFR 50.46 Changes or Error Corrections	+24 °F	84 °F

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*	**1852 °F < 2200 °F**

References:

1. Letter from Steve Catron 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-2024-011, March 13, 2024 (ML24073A190).

Table 2:
St. Lucie Unit 1 Large Break LOCA PCT
2024 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 2023 (Reference 1)	+6 °F	6°F
10 CFR 50.46 Changes or Error Corrections – Year 2024	None	None
Sum of 10 CFR 50.46 Changes or Error Corrections	+6 °F	6°F

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*	**1794 °F < 2200 °F**

References:

1. Letter from Steve Catron 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-2024-011, March 13, 2024 (ML24073A190).

Table 3:
St. Lucie Unit 2 Small Break LOCA PCT
2024 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 2023 (Reference 1)	-279 °F	393 °F
10 CFR 50.46 Changes or Error Corrections – Year 2024		
RCP Homologous Curve (Reference 2)	0 °F	0 °F
Sum of 10 CFR 50.46 Changes or Error Corrections	-279 °F	393 °F

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*	**1778 °F < 2200 °F**

References:

1. Letter from Steve Catron 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-2024-011, March 13, 2024 (ML24073A190).

2. Letter from Paul Rasmus to U.S. Nuclear Regulatory Commission, "10 CFR 50.46 – Emergency Core Cooling System SBLOCA 30-Day Report," L-2024-064, April 17, 2024 (ML24109A010).

Table 4:
St. Lucie Unit 2 Large Break LOCA PCT
2024 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 2023 (Reference 1)	0 °F	0 °F
10 CFR 50.46 Changes or Error Corrections – Year 2024		
RCP Homologous Curve (Reference 2)	0 °F	0 °F
Sum of 10 CFR 50.46 Changes or Error Corrections	0 °F	0 °F

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*	**1732 °F < 2200 °F**

References:

1. Letter from Steve Catron 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-2024-011, March 13, 2024 (ML24073A190).

2. Letter from Paul Rasmus to U.S. Nuclear Regulatory Commission, "10 CFR 50.46 – Emergency Core Cooling System SBLOCA 30-Day Report," L-2024-064, April 17, 2024 (ML24109A010).

ATTACHMENT 3

NextEra Energy Seabrook, LLC
Seabrook Station

Table 1:
Seabrook Unit 1 Small Break LOCA PCT
2024 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

	Net PCT Effect	Absolute PCT Effect
Prior 10 CFR 50.46 Changes or Error Corrections – up to Year 2023 (Reference 1)	0 °F	0 °F
10 CFR 50.46 Changes or Error Corrections – Year 2024	None	None
Sum of 10 CFR 50.46 Changes or Error Corrections	0 °F	0 °F

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*	**1373 °F < 2200 °F**

References:

1. Letter from Steve Catron 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-2024-011, March 13, 2024 (ML24073A190).

Table 2:
Seabrook Unit 1 Large Break LOCA PCT
2024 Annual Report

Evaluation Methodology:

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

Evaluation Model PCT: 1784 °F

	Net PCT Effect	Absolute PCT Effect
Prior 10 CFR 50.46 Changes or Error Corrections – up to Year 2023 (Reference 1)	155 °F	155 °F
10 CFR 50.46 Changes or Error Corrections – Year 2024		
Volume of the Barrel-Baffle Channel	0 °F	0 °F
Sum of 10 CFR 50.46 Changes or Error Corrections	155 °F	155 °F

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*	**1939 °F < 2200 °F**

Volume of the Barrel-Baffle Channel

An error was identified during the course of a recent Best Estimate Large Break LOCA analysis in which the volume between the core barrel and the baffle plates within the active fuel length was modeled incorrectly. The corrected values have been evaluated for impact on the current licensing-basis analysis results. The error was evaluated to have a negligible impact on the calculated results, leading to an estimated peak cladding temperature (PCT) impact of 0°F.

References:

1. Letter from Steve Catron 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-2024-011, March 13, 2024 (ML24073A190).

ATTACHMENT 4

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

Table 1:
Point Beach Unit 1 Small Break LOCA PCT
2024 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: 1049°F

	Net PCT Effect	Absolute PCT Effect
Prior 10 CFR 50.46 Changes or Error Corrections – up to Year 2023 (Reference 1)	0°F	0°F
10 CFR 50.46 Changes or Error Corrections – Year 2024	None	None
Sum of 10 CFR 50.46 Changes or Error Corrections	0°F	0°F

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*	**1049°F < 2200°F**

Reference:

1. Letter from Steve Catron 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-2024-011, March 13, 2024 (ML24073A190).

Table 2:
Point Beach Unit 1 Large Break LOCA PCT
2024 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: 1975°F

	Net PCT Effect	Absolute PCT Effect
Prior 10 CFR 50.46 Changes or Error Corrections – up to Year 2023 (Reference 1)	+210°F	210°F
10 CFR 50.46 Changes or Error Corrections – Year 2024	None	None
Sum of 10 CFR 50.46 Changes or Error Corrections	+210°F	210°F

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*	**2185°F < 2200°F**

Reference:

1. Letter from Steve Catron 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-2024-011, March 13, 2024 (ML24073A190).

Table 3:
Point Beach Unit 2 Small Break LOCA PCT
2024 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: 1103°F

	Net PCT Effect	Absolute PCT Effect
Prior 10 CFR 50.46 Changes or Error Corrections – up to Year 2023 (Reference 1)	0°F	0°F
10 CFR 50.46 Changes or Error Corrections – Year 2024	None	None
Sum of 10 CFR 50.46 Changes or Error Corrections	0°F	0°F

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*	**1103°F < 2200°F**

Reference:

1. Letter from Steve Catron 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-2024-011, March 13, 2024 (ML24073A190).

Table 4:
Point Beach Unit 2 Large Break LOCA PCT
2024 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: 1810°F

	Net PCT Effect	Absolute PCT Effect
Prior 10 CFR 50.46 Changes or Error Corrections – up to Year 2023 (Reference 1)	+248°F	340°F
10 CFR 50.46 Changes or Error Corrections – Year 2024	None	None
Sum of 10 CFR 50.46 Changes or Error Corrections	+248°F	340°F

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*	**2058°F < 2200°F**

Reference:

1. Letter from Steve Catron 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-2024-011, March 13, 2024 (ML24073A190).