



March 31, 2014

L-2014-095
10 CFR 50.46

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

Re: St. Lucie Units 1 and 2
Docket Nos. 50-335 and 50-389
Acceptance Criteria for Emergency Core Cooling
Systems for Light Water Nuclear Power Reactors
10 CFR 50.46 Annual Report

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 St. Lucie Units 1 and 2 is reported in the attachment to this letter. The estimated effect from any such change or error on the limiting ECCS analysis for each unit is also addressed. The data interval for the report is from January 1, 2013 through December 31, 2013.

Please contact us should you have any questions regarding this submittal.

Sincerely,

A handwritten signature in black ink that reads 'ES Katzman'.

Eric S. Katzman
Licensing Manager
St. Lucie Plant

ESK/KWF

Attachment

A002
NRR

St. Lucie Units 1 and 2
10 CFR 50.46 Annual Report

Emergency core cooling system (ECCS) analyses for St. Lucie Unit 1 and St. Lucie Unit 2 are performed by AREVA and Westinghouse Electric Company (W), respectively. The following information pertaining to the evaluation models for small break loss of coolant accidents (SBLOCA) and large break loss of coolant accidents (LBLOCA), and the application of such models to each St. Lucie Unit, is provided pursuant to 10 CFR 50.46(a)(3)(ii). A summary of calculated peak cladding temperature (PCT) changes is provided in Tables 1 and 2 (for St. Lucie Units 1 and 2, respectively). The data interval for this report is from January 1, 2013 through December 31, 2013. A discussion of the changes follows.

1.0 ST LUCIE UNIT 1

1.1 Changes to SBLOCA

No errors were found in the SBLOCA ECCS performance analysis since the previous report of Reference 3.1. The limiting SBLOCA PCT remains at 1780 °F and is documented in Table 1.

1.2 Changes to LBLOCA

There was one change/error to the evaluation model PCT since the previous report of Reference 3.1.

The trapped stack model in a subroutine associated with RODEX3a fuel rod model used in the S-RELAP5 analysis had erroneous coding. The erroneous coding deactivated the trapped stack model, which resulted in an estimated impact of +6 °F to the PCT.

The limiting LBLOCA PCT with the above estimated impact is 1672 °F and is documented in Table 1.

2.0 ST. LUCIE UNIT 2

2.1 Changes to SBLOCA

No errors were found in the SBLOCA ECCS performance analysis since the previous report of Reference 3.1. The limiting SBLOCA PCT remains at 1903 °F and is documented in Table 1.

2.2 Changes to LBLOCA

No errors were found in the LBLOCA ECCS performance analysis since the previous report of Reference 3.1. The limiting LBLOCA PCT remains at 2087 °F and is documented in Table 1.

3.0 REFERENCES

- 3.1 FPL Letter L-2013-092, Eric Katzman to U.S. Nuclear Regulatory Commission Document Control Desk, "St. Lucie Units 1 and 2 Docket Nos. 50-335 and 50-389 Acceptance Criteria for Emergency Core Cooling Systems for Light Water Nuclear Power Reactors 10 CFR 50.46 Annual Report," March 18, 2013.

Table 1: 2013 St. Lucie Unit 1 SBLOCA and LBLOCA PCT Summary

Unit 1 SBLOCA Summary

Evaluation Model: EMF-2328(P)(A) Rev. 0 as supplemented by ANP-3000(P), Revision 0

Evaluation Model PCT: 1807°F

| | | | Net PCT Effect | Absolute PCT Effect | PCT |
|---|--|------|----------------|---------------------|---------|
| A | Prior 10 CFR 50.46 Changes or Error Corrections – Previous Years | | -27 °F | 27 °F | 1780 °F |
| B | Prior 10 CFR 50.46 Changes or Errors Corrections – Current Year | | 0 °F | 0 °F | 1780 °F |
| C | 10 CFR 50.46 Changes in Current Year Since Item B | | 0 °F | 0 °F | 1780 °F |
| | | | | | |
| D | Absolute Sum of 10 CFR 50.46 Changes | ΔPCT | | 27 °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

1780 °F < 2200 °F

Unit 1 LBLOCA Summary

Evaluation Model: EMF-2103(P)(A) Rev. 0 as supplemented by ANP-2903(P), Revision 1

Evaluation Model PCT: 1667°F

| | | | Net PCT Effect | Absolute PCT Effect | PCT |
|---|--|------|----------------|---------------------|---------|
| A | Prior 10 CFR 50.46 Changes or Error Corrections – Previous Years | | -1 °F | 17 °F | 1666 °F |
| B | Prior 10 CFR 50.46 Changes or Errors Corrections – Current Year | | See below | See below | |
| | S-RELAP5 RODEX3a Trapped Stack coding error | | +6 °F | 6 °F | 1672 °F |
| C | 10 CFR 50.46 Changes in Current Year Since Item B | | 0 °F | 0 °F | 1672 °F |
| | | | | | |
| D | Absolute Sum of 10 CFR 50.46 Changes | ΔPCT | | 23°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

1672 °F < 2200 °F

Table 2: 2013 St. Lucie Unit 2 SBLOCA and LBLOCA PCT Summary

Unit 2 SBLOCA Summary

Evaluation Model: CENPD-137, Supplement 2-P-A (S2M)

Evaluation Model PCT: 1903°F

| | | | Net PCT Effect | Absolute PCT Effect | PCT |
|---|--|--------------|----------------|---------------------|---------|
| A | Prior 10 CFR 50.46 Changes or Error Corrections – Previous Years | | 0 °F | 0 °F | 1903 °F |
| B | Prior 10 CFR 50.46 Changes or Errors Corrections – Current Year | | 0 °F | 0 °F | 1903 °F |
| C | 10 CFR 50.46 Changes in Current Year Since Item B | | 0 °F | 0 °F | 1903 °F |
| | | | | | |
| D | Absolute Sum of 10 CFR 50.46 Changes | Δ PCT | | 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

1903 °F < 2200 °F

Unit 2 LBLOCA Summary

Evaluation Model: CENPD-132, Supplement 4-P-A (1999 EM)

Evaluation Model PCT: 2087°F

| | | | Net PCT Effect | Absolute PCT Effect | PCT |
|---|--|--------------|----------------|---------------------|---------|
| A | Prior 10 CFR 50.46 Changes or Error Corrections – Previous Years | | 0 °F | 0 °F | 2087 °F |
| B | Prior 10 CFR 50.46 Changes or Errors Corrections – Current Year | | 0 °F | 0 °F | 2087 °F |
| C | 10 CFR 50.46 Changes in Current Year Since Item B | | 0 °F | 0 °F | 2087 °F |
| | | | | | |
| D | Absolute Sum of 10 CFR 50.46 Changes | Δ PCT | | 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

2087 °F < 2200 °F