



December 21, 2001

L-2001-275
10 CFR 50.46

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

Re: St. Lucie Unit 2
Docket No. 50-389
SBLOCA Evaluation Model
30-Day 10 CFR 50.46 Report

Westinghouse Electric (Westinghouse) is the current fuel vendor for St. Lucie Unit 2, and performs the calculations to demonstrate that the Unit 2 emergency core cooling system (ECCS) performance conforms to 10 CFR 50.46. Westinghouse employs an acceptable evaluation model consistent with 10 CFR 50, Appendix K. Re-analysis of the small break loss-of-coolant accident (SBLOCA), in combination with an error in the CEFLAS-4AS code, has resulted in a significant change to the calculated peak cladding temperature (PCT), and is hereby reported pursuant to 10 CFR 50.46(a)(3)(ii). The large break loss of coolant accident analysis PCT remains unchanged from that reported in FPL Letter L-2001-048 dated March 21, 2001.

Please contact George Madden at 561-467-7155 if you have any questions about this matter.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Donald E. Jernigan', written over a horizontal line.

Donald E. Jernigan
Vice President
St. Lucie Plant

DEJ/GRM

Attachment

A-001

St. Lucie Unit 2 10CFR50.46 SBLOCA 30-Day Report

Westinghouse Electric (Westinghouse) is the current fuel vendor for St. Lucie Unit 2, and performs the calculations to demonstrate that the Unit 2 emergency core cooling system (ECCS) performance conforms to 10 CFR 50.46. Westinghouse employs an acceptable evaluation model consistent with 10 CFR 50, Appendix K. Re-analysis of the small break loss-of-coolant accident (SBLOCA), in combination with an error in the CEFLAS-4AS code, has resulted in a significant change to the calculated peak cladding temperature (PCT), and is hereby reported pursuant to 10 CFR 50.46(a)(3)(ii). The large break loss of coolant accident analysis PCT remains unchanged from that reported in FPL Letter L-2001-048 dated March 21, 2001.

Nature of the Model Changes and Corrective Action

1) Cycle 13 Reload Analysis

The St. Lucie Unit 2 ECCS performance analyses PCTs applicable to the last operating cycle (Cycle 12) were previously reported in FPL Letter L-2001-048 dated March 21, 2001 (Reference 1). The SBLOCA analysis PCT was 2055⁰F.

SBLOCA has been re-analyzed as part of the Cycle 13 reload analysis using a reduced charging pump flow. The reduction in the analysis value for charging pump flow (from 40 gpm to 35 gpm) was made to provide additional margin to the measured flow to account for the measurement uncertainties. The re-analysis is performed with the acceptable evaluation model methodology, documented in Reference 2.

Impact of the Model Change

Re-analysis of the SBLOCA has resulted in a new PCT of 2087⁰F (0.045 ft² break). This PCT is an increase of 32⁰F over the PCT of 2055⁰F, reported in Reference 1, and becomes the limiting SBLOCA acceptable evaluation model PCT for St. Lucie Unit 2.

2) Coding Error in CEFLASH-4AS Computer Code

Description of Deviation

The CEFLASH-4AS computer code simulates the blowdown phase of the SBLOCA event analyzed for the emergency core cooling system (ECCS) performance analysis. The break flow calculation subroutine of the CEFLASH-4AS was identified to contain coding that performs operations which exceed the range of arrays in the subroutine, which in turn results in over-writing of code data used by other code calculations. This inconsistency between the required size of the break flow arrays and what was actually allowed by the code produced abnormal results observed in some calculations. This error does not affect other related computer codes.

The coding error was corrected by simply changing the bounds of the arrays as required for each of the indices.

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Impact of the Code Error

The PCT impact of this error correction is estimated to be +38°F for St. Lucie Unit 2. The final SBLOCA PCT becomes 2125°F.

References

1. FPL Letter L-2001-048, R. S. Kundalkar (FPL) to USNRC (DCD), St. Lucie Units 1 and 2, 10 CFR 50.46 Annual Report, March 21, 2001.
2. EMF-2087(P)(A), Revision 0, *SEMIPWR-98: ECCS Evaluation Model for PWR LBLOCA Applications*, Siemens Power Corporation, June 1999.

Unit 2 SBLOCA Summary	PCT
Current evaluation model calculated PCT	2055°F
Change in PCT due to re-analysis for reduction in charging pump flow	+32°F
Estimated impact due to small break LOCA ECCS performance computer code (CEFLASH-4AS) error	+38°F
Cumulative change based on the current evaluation model PCT	70°F
New evaluation model calculated PCT	2087°F
Cumulative change based on the new evaluation model PCT	38°F
Final SBLOCA PCT	2125°F