



March 27, 2002

L-2002-062
10 CFR 50.46

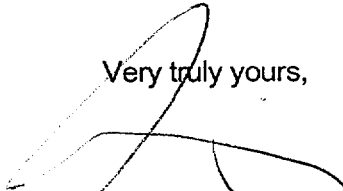
U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

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, 2001 through December 31, 2001.

Should there be any questions, please contact us.

Very truly yours,



Donald E. Jernigan
Vice President
St. Lucie Plant

DEJ/GRM

Attachment

A001

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 Framatome ANP, Inc. (FRA-ANP) 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 Table 1. The data interval for this report is from January 1, 2001 through December 31, 2001.

1.0 ST LUCIE UNIT 1

- 1.1 One error/issue was identified related to the SBLOCA ECCS performance analysis. This error/issue, not previously reported in Reference 3.1, is described below. Table 1 summarizes the estimated impact of this error/issue on the St. Lucie Unit 1 SBLOCA PCT. The limiting PCT with the estimated effect of the change remains at 1767⁰F.

Errors Discovered During RODEX2 V&V

While performing RODEX2 V&V, FRA-ANP identified code and documentation errors in codes RODEX2/RODX2LSE related to the value of pellet dish volume available to accommodate gaseous swelling. The pellet dish volume assumed available to accommodate for swelling was corrected to be 57 percent instead of 75 percent. The corrected code showed negligible impact on the analysis results.

The impact of correcting this error on the limiting SBLOCA PCT is estimated to be 0⁰F.

- 1.2 Several errors/issues were identified impacting the LBLOCA PCT. The errors not previously reported in References 3.1 and 3.2 are described below. Table 1 summarizes the estimated impact of these errors/issues on the St. Lucie Unit 1 LBLOCA PCT. The limiting PCT with the estimated effect of the changes is 2010⁰F.

Errors Discovered During RODEX2 V&V

The description of this error is provided in Section 1.1 above. The impact of this error correction on the St. Lucie Unit 1 limiting LBLOCA PCT is estimated to be +0°F.

Error in Broken Loop SG Tube Exit Junction Inertia

An error was identified in not setting a flag specifying the use of the user input for the junction inertia instead of a value calculated by the code. The flag should have been set to specify using the user input inertia, as the code will not calculate the correct inertia due to the artificially large volume flow area of the steam generator outlet plenum.

The impact of correcting this error on the limiting LBLOCA PCT is estimated to be 0°F.

Incorrect Junction Inertia Multipliers

The FRA-ANP large break LOCA methodology (EMF-2087(A)) requires that the junction inertia for the RELAP4 code junctions which are associated with stagnant volumes be calculated manually and entered as input to the code. The manually calculated junction inertia for the stagnant volumes should be representative of the actual geometry. The code will calculate the junction inertia based on the artificially large areas if no junction inertia is input and thus the junction inertia will be incorrect. The estimate of the impact of this error was made from a scoping calculation performed for a similar plant by manually calculating the junction inertia based on the actual geometry and recalculating the PCT.

The impact of correcting this error on the limiting LBLOCA PCT is estimated to be +1°F.

Error in Fast Flux Input to RODEX2

An error was identified in that the fast flux value was not input for the first time step while it was input for all the other time steps. As a result, the fuel performance code ignored the input values for fast flux and calculated the fast flux based on the power level and a fast flux conversion constant.

The impact of correcting this error on the limiting LBLOCA PCT is estimated to be +4°F.

2.0 ST. LUCIE UNIT 2

- 2.1 No errors were found in W's SBLOCA analysis impacting the PCT previously reported in Reference 3.3. The limiting PCT for SBLOCA remains at 2125°F.
- 2.2 No errors were found in W's LBLOCA analysis impacting the PCT previously reported in Reference 3.1. The limiting PCT for LBLOCA remains at 2150°F.

3.0 REFERENCES

- 3.1 FPL Letter L-2001-048, R. S. Kundalkar to USNRC (DCD), 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 21, 2001.
- 3.2 FPL Letter L-2001-99, R. S. Kundalkar to USNRC (DCD), St. Lucie Unit 1, Docket Number 50-335, LBLOCA Evaluation Model, 30-Day 10 CFR 50.46 Report; April 25, 2001
- 3.3 FPL Letter L-2001-275, D. E. Jernigan to USNRC (DCD), St. Lucie Unit 2, Docket No. 50-389, SBLOCA Evaluation Model, 30-Day 10 CFR 50.46 Report; December 21, 2001

Table 1: 2001 St. Lucie Units 1 and 2 SBLOCA and LBLOCA PCT Summary

Unit 1 SBLOCA Summary	PCT
2000 10 CFR 50.46 Annual Report (L-2001-048)	1767°F
Change from Errors Discovered During RODEX2 V&V	0°F
2001 10 CFR 50.46 Annual Report	1767°F

Unit 1 LBLOCA Summary	PCT
2000 10 CFR 50.46 Annual Report (L-2001-048)	1933°F
30-Day 10 CFR 50.46 Report (L-2001-99) (New Evaluation Model PCT)	2005°F
Change From Errors Discovered During RODEX2 V&V	0°F
Error in Broken Loop SG Tube Exit Junction Inertia	0°F
Incorrect Junction Inertia Multipliers	+1°F
Error in Fast Flux Input to RODEX2	+4°F
2001 10 CFR 50.46 Annual Report	2010°F

Unit 2 SBLOCA Summary	PCT
2000 10 CFR 50.46 Annual Report (L-2001-048)	2055°F
30-Day 10 CFR 50.46 Report (L-2001-275)	2125°F
Changes During 2001 Since L-2001-275	0°F
2001 10 CFR 50.46 Annual Report	2125°F

Unit 2 LBLOCA Summary	PCT
2000 10 CFR 50.46 Annual Report (L-2001-048)	2150°F
Changes During 2001	0°F
2001 10 CFR 50.46 Annual Report	2150°F