Florida Power & Light Company, 6501 S. Ocean Drive, Jensen Beach, FL 34957

FPL

September 10, 2003

L-2003-227
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
LBLOCA Evaluation Model
30-Day 10 CFR 50.46 Report

Westinghouse Electric (W) 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. W employs an acceptable evaluation model consistent with 10 CFR 50, Appendix K. Model changes/errors in the large break loss-of-coolant accident (LBLOCA) analysis 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 small break loss-of-coolant accident (SBLOCA) analysis PCT remains unchanged from that reported in FPL letter L-2002-196 dated October 15, 2002.

Please contact George Madden at 772-467-7155 if you have any questions regarding this matter.

Very truly yours,

William Jefferson, Jr.
Vice President
St. Lucie Plant

WJ/spt

Attachment

A001

## St. Lucie Unit 2 10 CFR 50.46 LBLOCA 30-Day Report

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### Nature of the Model Changes and Corrective Action

**Error in the Locked-Rotor K-Factor Value**

Description of Deviation

The St. Lucie Unit 2 ECCS performance analyses PCTs applicable to the current operating cycle (Cycle 14) were previously reported in References 1 and 2.

A review of the LBLOCA analysis revealed that the reactor coolant pump locked rotor k-factor used in the analysis was incorrect. The locked-rotor k-factor using the as-built reactor coolant pump test data was found to be approximately 25% greater than the value currently used. The k-factor value was corrected and the impact of the k-factor error on the limiting break was estimated using the updated evaluation model, 1999 EM (Reference 3). This evaluation model (1999 EM) was approved by the NRC in Reference 4 for application to CE PWRs.

Impact of the Code Error

The impact of the model change (1999 EM) on the LBLOCA analysis is estimated to be a reduction in the PCT of $140^0$F. The impact of the k-factor error on the LBLOCA PCT is estimated to be an increase of $110^0$F.

The cumulative change of the PCT changes becomes $266^0$F as provided in the table below. The final LBLOCA PCT becomes $2136^0$F.

### References

1. FPL Letter L-2002-196, St. Lucie Unit 2, Docket No. 50-389, Proposed License Amendment - Reduce the Minimum Reactor Coolant System Flow, dated October 15, 2002.

## St. Lucie Unit 2 10 CFR 50.46 LBLOCA 30-Day Report

2. FPL Letter L-2003-078, 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, dated March 26, 2003.

3. CENPD-132, Supplement 4-P-A, *Calculative Methods for the CE Nuclear Power Large Break LOCA Evaluation Model*, dated March 2001.

4. NRC Letter, S. A. Richards (NRC) to P. W. Richardson (Westinghouse), Safety Evaluation of Topical Report CENPD-132, Supplement 4, Revision 1, Calculative Methods for the CE Nuclear Power Large Break LOCA Evaluation Model, dated December 15, 2000.

| Unit 2 LBLOCA Summary | PCT |
|---|---|
| Current evaluation model calculated LBLOCA PCT | 2150°F |
| Estimated impact of STRIKIN-II errors (previously reported in L-2003-078) | 1°F |
| Estimated impact of RCS flow reduction from 363,000 gpm to 355,000 gpm (previously reported in L-2002-196) | 15°F |
| Estimated impact due to model change from 1985 EM to 1999 EM | -140°F |
| Estimated impact of locked-rotor k-factor error | 110°F |
| | |
| Cumulative Change | 266°F |
| Total PCT Change | -14°F |
| Final LBLOCA PCT | 2136°F |