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SUBJECT: Application for amend to license DPR-67, requesting deletion of footnote re TS 2.1.1, "Reactor Core Safety Limits."

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**FPL**

Florida Power & Light Company, P.O. Box 128, Fort Pierce, FL 34954-0128

L-96-333

December 20, 1996

10 CFR 50.90

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

Re: St. Lucie Unit 1  
Docket No. 50-335  
Proposed License Amendment .  
Reactor Core Safety Limit

Pursuant to 10 CFR 50.90, Florida Power & Light Company (FPL) requests to amend Facility Operating License DPR-67 for St. Lucie Unit 1 by incorporating the attached Technical Specifications (TS) revision. The amendment will delete a footnote associated with TS 2.1.1, "Reactor Core Safety Limits," which requires reactor thermal power to be limited to 90% of 2700 Megawatts thermal for Cycle 14 operation beyond 7000 Effective Full Power Hours. It is requested that the proposed amendment, if approved, be issued prior to May 15, 1997 to permit continued operation of St. Lucie Unit 1 at full power.

Attachment 1 is an evaluation of the proposed TS change. Attachment 2 is the "Determination of No Significant Hazards Consideration." Attachment 3 contains a copy of the affected TS page marked-up to show the proposed changes. Enclosed with this submittal is a copy of report EMF-96-176, "St. Lucie Unit 1 Small Break LOCA Analysis with 30% Steam Generator Tube Plugging," Siemens Power Corporation, Revision 1, December 1996.

The proposed amendment has been reviewed by the St. Lucie Facility Review Group and the Florida Power & Light Company Nuclear Review Board. In accordance with 10 CFR 50.91 (b)(1), a copy of the proposed amendment is being forwarded to the State Designee for the State of Florida.

Please contact us if there are any questions about this submittal.

Very truly yours,

J. A. Stall  
Vice President  
St. Lucie Plant

JAS/RLD

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Attachments

cc: Stewart D. Ebnetor, Regional Administrator, Region II, USNRC.  
Senior Resident Inspector, USNRC, St. Lucie Plant.  
Mr. W.A. Passetti, Florida Department of Health and Rehabilitative Services.

an FPL Group company



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St. Lucie Unit 1  
Docket No. 50-335  
Proposed License Amendment  
Reactor Core Safety Limit

STATE OF FLORIDA     )  
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COUNTY OF ST. LUCIE )

J. A. Stall being first duly sworn, deposes and says:

That he is Vice President, St. Lucie Plant, for the Nuclear Division of Florida Power & Light Company, the Licensee herein;

That he has executed the foregoing document; that the statements made in this document are true and correct to the best of his knowledge, information and belief, and that he is authorized to execute the document on behalf of said Licensee.

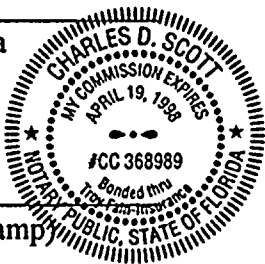
  
\_\_\_\_\_  
J. A. Stall

STATE OF FLORIDA  
COUNTY OF ST. LUCIE

Sworn to and subscribed before me  
this 20<sup>TH</sup> day of DECEMBER, 1996  
by J. A. Stall, who is personally known to me.

  
\_\_\_\_\_  
Signature of Notary Public-State of Florida

Charles D. Scott  
Name of Notary Public (Print, Type, or Stamp)





St. Lucie Unit 1  
Docket No. 50-335  
Proposed License Amendment  
Reactor Core Safety Limit

ATTACHMENT 1

**EVALUATION OF PROPOSED CHANGES**



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## EVALUATION OF PROPOSED TS CHANGES

### Introduction

The proposed amendment to Facility Operating License DPR-67 for St. Lucie Unit 1 will delete a footnote associated with Technical Specification (TS) 2.1.1, "Reactor Core Safety Limits," which requires thermal power to be limited to less than or equal to 90% of 2700 Megawatts thermal (MWth) for Cycle 14 operation beyond 7000 Effective Full Power Hours (EFPH). The thermal power constraint was imposed in lieu of performing a Small Break Loss of Coolant Accident (SBLOCA) re-analysis for full power operation that demonstrates acceptable results using input assumptions corresponding to 30% (average) of all steam generator tubes plugged (SGTP). That analysis has been completed, and a report of analysis results is enclosed with this submittal.

### Description of Proposed Change

TS 2.1.1, Page 2-1: Delete the asterisk following "THERMAL POWER," and delete footnote "\*" shown at the bottom of page 2-1.

A copy of TS Page 2-1, marked-up to show the proposed changes, is contained in Attachment 3.

### Background

Amendment No. 145 to Facility Operating License No. DPR-67 (L.A. Wiens (NRC) to T.F. Plunkett (FPL): ST. LUCIE UNIT 1 - ISSUANCE OF AMENDMENT RE: THERMAL MARGIN AND REACTOR COOLANT SYSTEM FLOW LIMITS (TAC NO. M95472), July 9, 1996) was issued to permit plant operation with up to 30% (average) SGTP and 345,000 gpm minimum Reactor Coolant System (RCS) flow. In support of this amendment, FPL had determined that conservatism in the existing SBLOCA analysis, which had previously been performed for conditions corresponding to 25% SGTP and 355,000 gpm RCS flow, would offset any adverse effects due to the increased SGTP and decreased reactor coolant system flow for full power operation up to 7000 EFPH. To offset any adverse effects for operation beyond 7000 EFPH, it was determined that limiting core thermal power to 90% of rated thermal power would provide sufficient margin to ensure 10 CFR 50.46 conformity for the remainder of operating Cycle 14.

Subsequent to issuance of Amendment No. 145, a re-analysis of the SBLOCA has been completed using input assumptions corresponding to 30% (average) SGTP and 345,000 gpm RCS flow. The results of that analysis are briefly discussed in this evaluation, and data is provided in greater detail in the enclosed Siemens Power Corporation-Nuclear Division Report EMF-96-176, "St. Lucie Unit 1 Small Break LOCA Analysis with 30% Steam Generator Tube Plugging," Revision 1, December 1996.

### Bases for TS Change

By Amendment No. 145, the NRC approved a license amendment to reduce the RCS flow from 355,000 gpm to 345,000 gpm and the low flow trip setpoint from 95% to 93% of design RCS flow. This amendment supported a SGTP level of  $30\% \pm 7\%$ , with a requirement to derate to 90% of 2700 MWth prior to exceeding 7000 EFPH of Cycle 14 operation. The requirement to derate was based on the SBLOCA analysis, which supported a full power operation up to 7000 EFPH and 90% power level beyond 7000 EFPH.

Except for the SBLOCA, acceptable results were shown within the applicable safety limits for all the safety and setpoint analyses at 100% power operation at the amended conditions and a SGTP level of  $30\% \pm 7\%$ . The SBLOCA was evaluated at 100% of rated power up to 7000 EFPH and at 90% power level beyond 7000 EFPH. To support Cycle 14 operation at 2700 MWth to end-of-cycle required a reanalysis of SBLOCA with the limiting end-of-cycle conditions.

The SBLOCA has been reanalyzed to support Cycle 14 operation at 100% power for the entire operating cycle. The analysis, included as the enclosure to this proposed license amendment, demonstrates acceptable results in compliance with 10 CFR 50.46 criteria. The peak cladding temperature (PCT) was calculated to be 1804°F, well below the acceptance criteria of 2200°F. This analysis was performed by Siemens Power Corporation (SPC), using an NRC-approved SBLOCA evaluation model. The reanalysis was done with changes to input assumptions with respect to the loop seal clearing and the location of cold leg injection point. The loop seals in the broken loop and one of the intact loops were biased to remain plugged. In the current analysis of record, the loop seal in the broken loop did not stay plugged. Also the safety injection point was moved a node away from the reactor coolant pump to represent a more realistic configuration. Overall these changes remove some of the conservatism as compared to the analysis of record for 25% tube plugging level (EMF-92-148, "St. Lucie Unit 1 Small Break LOCA Analysis," Siemens Power Corporation, May 1994).

### Conclusion

The SBLOCA reanalysis, along with the analyses addressed in Amendment No. 145, support operation of St. Lucie Unit 1 at 100% of RATED THERMAL POWER for the entire Cycle 14. The proposed change supports the reduced RCS flow of 345,000 gpm corresponding to a SGTP level of  $30\% \pm 7\%$  approved in Amendment No. 145.

ATTACHMENT 2

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION**

## DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

*Description of amendment request:* The proposed amendment will delete a footnote associated with Technical Specification 2.1.1, "Reactor Core Safety Limits," which requires thermal power to be limited to 90% of 2700 Megawatts thermal (MWth) for Cycle 14 operation beyond 7000 Effective Full Power Hours.

Pursuant to 10 CFR 50.92, a determination may be made that a proposed license amendment involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety. Each standard is discussed as follows:

- (1) **Operation of the facility in accordance with the proposed amendment would not involve a significant increase in the probability or consequences of an accident previously evaluated.**

The proposed change will allow full Cycle 14 operation at 100% of rated power (2700 MWth), by deleting the requirement to derate to 90% of rated power prior to exceeding 7000 EFP. This restriction was imposed in the NRC transmittal letter for License Amendment 145 for SBLOCA considerations when considering the increased SGTP level of  $30\% \pm 7\%$ . All Final Safety Analysis Report (FSAR) events, other than SBLOCA were evaluated at 100% of rated thermal power and showed no significant increases in the probability or consequences of accidents previously evaluated.

The SBLOCA was reanalyzed to demonstrate continued compliance with 10 CFR 50.46 criteria. There is no impact of the proposed change on any FSAR accident initiator. The plant configuration and systems remain unchanged.

Therefore, operation of the facility in accordance with the proposed amendment would not involve a significant increase in the probability or consequences of an accident previously evaluated.

- (2) **Operation of the facility in accordance with the proposed amendment would not create the possibility of a new or different kind of accident from any accident previously evaluated.**

This proposed amendment removes the requirement in the Technical Specifications to derate to 90% of 2700 MWth for Cycle 14 operation beyond 7000 EFP. There will be

no change to the modes of operation of the plant. The plant configuration and the design functions of all the safety systems remain unchanged.

The proposed amendment will not change the physical plant or the modes of operation defined in the facility license. The changes do not involve the addition of new equipment or the modification of existing equipment, nor do they alter the design of St. Lucie plant systems. Therefore, operation of the facility in accordance with the proposed amendment would not create the possibility of a new or different kind of accident from any accident previously evaluated.

- (3) Operation of the facility in accordance with the proposed amendment would not involve a significant reduction in a margin of safety.**

The impact of the proposed change on available margin to the acceptance criteria for Specified Acceptable Fuel Design Limits (SAFDL), primary and secondary over-pressurization, peak containment pressure, potential radioactive releases, 10 CFR 50.46 requirements for the large break LOCA, and existing limiting conditions for operation has been evaluated and addressed in the reduced RCS flow operating license Amendment No. 145. A requirement to derate to 90% of 2700 MWth was imposed based on the SBLOCA analysis. The small break LOCA analysis with 30%  $\pm$  7% SGTP supported operation up to 7000 EFPH at 100% of rated thermal power. A reanalysis of SBLOCA with the limiting end-of-cycle conditions at 100% of rated power, demonstrates continued compliance with 10 CFR 50.46 criteria.

Therefore, operation of the facility in accordance with the proposed amendment would not involve a significant reduction in a margin of safety.

Based on the discussion presented above and on the supporting Evaluation of Proposed TS Changes, FPL has concluded that this proposed license amendment involves no significant hazards consideration.