June 19, 2001

Mr. J. A. Stall
Senior Vice President, Nuclear and
Chief Nuclear Officer
Florida Power and Light Company
P.O. Box 14000
Juno Beach, Florida 33408-0420

SUBJECT: ST. LUCIE PLANT, UNIT NO. 2 — ISSUANCE OF AMENDMENT REGARDING REVISED POST-TRIP STEAM LINE BREAK ANALYSIS (TAC NO. MB0616)

Dear Mr. Stall:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 116 to Facility Operating License No. NPF-16 for the St. Lucie Plant, Unit No. 2. This amendment revises the design basis for the post-trip steam line break analysis, as discussed in the Updated Final Safety Analysis Report, in response to your application dated November 28, 2000, as supplemented June 12, 2001.

This amendment revises the fuel-failure criterion for the post-trip steam line break analysis to limit fuel failure to less than or equal to 2%, as compared to the current analysis limit of no fuel failure. The analysis continues to meet the 10 CFR Part 100 dose criteria. There are no changes to the St. Lucie Unit 2 Technical Specifications as a result of the change to the analysis.

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

/RA/

Brendan T. Moroney, Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-389

Enclosures:
1. Amendment No. 116 to NPF-16
2. Safety Evaluation

cc w/enclosures: See next page

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ENCLOSURE 1

FLORIDA POWER & LIGHT COMPANY

ORLANDO UTILITIES COMMISSION OF

THE CITY OF ORLANDO, FLORIDA

AND

FLORIDA MUNICIPAL POWER AGENCY

DOCKET NO. 50-389

ST. LUCIE PLANT UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 116
License No. NPF-16

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Florida Power & Light Company, et al. (the licensee), dated November 28, 2001, as supplemented June 12, 2001, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, changes to the St. Lucie Unit 2 Updated Final Safety Analysis Report (UFSAR) to reflect a revised fuel-failure criterion for the post-trip steam line break analysis, as set forth in the application for amendment dated November 28, 2000, as supplemented June 12, 2001, are authorized. The licensee shall submit the revised description authorized by this amendment with the next update of the UFSAR, in accordance with 10 CFR 50.71(e).

3. This license amendment is effective as of its date of issuance and shall be implemented as specified in 2 above.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Patrick M. Madden, Acting Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Date of Issuance: June 19, 2001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 116 TO FACILITY OPERATING LICENSES NO. NPF-16

FLORIDA POWER AND LIGHT COMPANY, ET AL.

ST. LUCIE PLANT, UNIT NO. 2

DOCKET NO. 50-389

1.0 INTRODUCTION

By letter dated November 28, 2000, as supplemented June 12, 2001, Florida Power and Light Company, et al. (the licensee), requested to amend Facility Operating License No. NFP-16 for St. Lucie Plant, Unit No. 2. The proposed license amendment would revise the design basis for the post-trip steam line break (SLB) analysis, as discussed in the St. Lucie Unit 2 Updated Final Safety Analysis Report. The design basis for the current analysis of record ensures that no fuel failure will occur for all post-trip SLB cases. The new analysis supports a change to the fuel failure criterion, to limit fuel failures to less than or equal to 2%. The change in allowed fuel failure fraction results in a shutdown margin benefit and provides additional flexibility in the core design. Limits for the physics parameters that most affect the post-trip results will be established on a core-specific basis and included in the Core Operating Limits Report (COLR) for each cycle. The revised analysis, with the limit of 2% fuel failure, continues to meet 10 CFR Part 100 dose criteria.

The licensee's supplementary submittal dated June 12, 2001, did not affect the original proposed no significant hazards determination, or expand the scope of the request as noticed in the *Federal Register* on February 7, 2001 (66 FR 9384).

2.0 BACKGROUND

The current analysis of record was reviewed and approved by the U.S. Nuclear Regulatory Commission (NRC) staff as part of its evaluation supporting the issuance of License Amendment No. 105 for St. Lucie Unit 2 regarding the Cycle 12 Reload Process Improvement. The current analysis of record ensures that no fuel failure will occur for all post-trip SLB cases. The licensee proposes to modify the St. Lucie Unit 2 post-trip SLB analysis to allow fuel failures of less than or equal to 2%. The results of the new analysis show that the dose criteria of 10 CFR Part 100 continue to be met with the assumed fuel failure. Therefore, the proposed change continues to support the current cycle (Cycle 12) operation of St. Lucie Unit 2.

The purpose of the proposed change is to allow additional flexibility in the core design. There are no changes to the St. Lucie Unit 2 Technical Specifications due to the proposed change to the post-trip SLB analysis.

3.0 EVALUATION

The licensee analyzed the post-trip SLB accident using methodologies consistent with the current analysis, which the staff has previously reviewed and approved. The licensee-analyzed scenarios include a postulated SLB from hot full power and hot zero power conditions with and without loss of off-site power (LOOP). The most limiting single failure considered in these analyses is the failure of one high pressure safety injection pump to start. When LOOP was assumed to occur, it was assumed to be simultaneous with the main steam isolation signal. This assumption is consistent with assumptions in the current analysis of record. The moderator temperature coefficient (MTC) of reactivity assumed in the SLB analysis corresponds to the most negative value allowed by the COLR. This negative MTC and scram reactivity are the physics parameters determined by the cycle core design that most affect the results of the post-trip SLB accident with respect to post-trip return to power and fuel failure.

The licensee calculated the maximum allowable amount of fuel failure that could result from a postulated post-trip SLB and not exceed 10 CFR Part 100 dose limits. Releases were calculated based on fuel that violates centerline-melt (CTM) criteria. The calculated maximum allowable fuel failures are 13.5% for an inside containment SLB event, and 3.4% fuel failure for an outside containment SLB event. These fuel failure values represent an upper bound limit corresponding to the 10 CFR Part 100 dose criteria.

The licensee's new post-trip SLB accident analysis supports a fuel failure limit of 2% from violation of CTM and/or Departure from Nucleate Boiling Ratio (DNBR), which is well below the above licensee-established upper bound limits of 13.5% and 3.4% fuel failure for the inside and outside containment SLB, respectively. With the placement of the MTC and scram reactivity requirements into the COLR, the licensee limits these parameters on a cycle-specific basis such that less than 2% of the fuel is predicted to exceed either the CTM or DNBR criteria during the post-trip SLB event. The limit on fuel failure, in conjunction with the 30kw/ft limit on peak power density, ensures that a coolable geometry is maintained during an SLB accident.

The staff has reviewed the assumptions and the results of the licensee's revised post-trip SLB analysis and concluded that the assumptions used in the analysis are conservative and the results of the analysis meet the acceptance criteria of the SLB accident. Therefore, the licensee's analysis is acceptable.

4.0 STATE CONSULTATION

Based upon a letter dated March 8, 1991, from Mary E. Clark of the State of Florida, Department of Health and Rehabilitative Services, to Deborah A. Miller, Licensing Assistant, NRC, the State of Florida does not desire notification of issuance of license amendments.

5.0 ENVIRONMENTAL CONSIDERATION

This amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The

Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding (66 FR 9384). Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

6.0 CONCLUSION

Based on our evaluation discussed in Section 3.0 above, the staff has concluded that: 1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and 2) such activities will be conducted in compliance with the Commission's regulations, and issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Chu-Yu Liang, NRR

Date: June 19, 2001

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