

April 30, 1998

Mr. T. F. Plunkett
President - Nuclear Division
Florida Power and Light Company
P.O. Box 14000
Juno Beach, Florida 33408-0420

SUBJECT: ST. LUCIE UNIT 1 - ISSUANCE OF AMENDMENT RE: UPDATED FINAL
SAFETY ANALYSIS REPORT EVALUATION OF MAIN STEAM SAFETY
VALVE INADVERTENT OPENING (TAC NO. M99315)

Dear Mr. T. F. Plunkett:

The Commission has issued the enclosed Amendment No. 154 to Facility Operating License No. DPR-67 for the St. Lucie Plant, Unit No. 1. This changes the Updated Final Safety Analysis Report in response to your application dated July 22, 1997. This change incorporates an evaluation of a postulated inadvertent opening of a main steam safety valve into the current licensing basis for St. Lucie Plant Unit 1.

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,

/s/

William C. Gleaves, Project Manager
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-335

Enclosures:

1. Amendment No. 154 to DPR-67
2. Safety Evaluation

cc w/enclosures: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

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President - Nuclear Division
Florida Power and Light Company
P.O. Box 14000
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Sincerely,

A handwritten signature in dark ink, appearing to read "Wm C Gleaves", is positioned above the typed name.

William C. Gleaves, Project Manager
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-335

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cc w/enclosures: See next page

Mr. T. F. Plunkett
Florida Power and Light Company

ST. LUCIE PLANT

cc:
Senior Resident Inspector
St. Lucie Plant
U.S. Nuclear Regulatory Commission
7585 S. Hwy A1A
Jensen Beach, Florida 34957

Regional Administrator
Region II
U.S. Nuclear Regulatory Commission
61 Forsyth Street, SW., Suite 23T85
Atlanta, GA 30303-3415

Joe Myers, Director
Division of Emergency Preparedness
Department of Community Affairs
2740 Centerview Drive
Tallahassee, Florida 32399-2100

H. N. Paduano, Manager
Licensing & Special Programs
Florida Power and Light Company
P.O. Box 14000
Juno Beach, Florida 33408-0420

M. S. Ross, Attorney
Florida Power & Light Company
P.O. Box 14000
Juno Beach, FL 33408-0420

J. A. Stall, Site Vice President
St. Lucie Nuclear Plant
6351 South Ocean Drive
Jensen Beach, Florida 34957

John T. Butler, Esquire
Steel, Hector and Davis
4000 Southeast Financial Center
Miami, Florida 33131-2398

Mr. J. Scarola
Plant General Manager
St. Lucie Nuclear Plant
6351 South Ocean Drive
Jensen Beach, Florida 34957

Mr. Douglas Anderson
County Administrator
St. Lucie County
2300 Virginia Avenue
Fort Pierce, Florida 34982

Mr. Kerry Landis
U.S. Nuclear Regulatory Commission
61 Forsyth Street, SW., Suite 23T85
Atlanta, GA 30303-3415

Mr. Bill Passetti
Office of Radiation Control
Department of Health and
Rehabilitative Services
1317 Winewood Blvd.
Tallahassee, Florida 32399-0700

E. J. Weinkam
Licensing Manager
St. Lucie Nuclear Plant
6351 South Ocean Drive
Jensen Beach, Florida 34957



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

FLORIDA POWER & LIGHT COMPANY

DOCKET NO. 50-335

ST. LUCIE PLANT UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 154
License No. DPR-67

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Florida Power & Light Company (FPL), dated July 22, 1997, 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, a change to the Updated Final Safety Analysis Report (UFSAR) to reflect the evaluation of the effects of a postulated main steam safety valve (MSSV) inadvertent opening as set forth in FPL letter L-97-158, dated July 22, 1997, titled, "UFSAR Evaluation of MSSV Inadvertent Opening," is authorized.
3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in dark ink, appearing to read "Frederick J. Hebdon", with a long horizontal flourish extending to the right.

Frederick J. Hebdon, Director
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Date of Issuance: April 30, 1998



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 154 TO FACILITY OPERATING LICENSE NO. DPR-67

FLORIDA POWER AND LIGHT COMPANY, ET AL.

ST. LUCIE PLANT, UNIT NO. 1

DOCKET NO. 50-335

1.0 INTRODUCTION

An inadvertent opening of a steam generator relief or safety valve is considered in the Standard Review Plan (SRP), Section 15.1.4 as an event with moderate frequency occurrence concerning an increase in heat removal by the secondary system. In the St. Lucie Unit 1 Updated Final Safety Analysis Report (UFSAR), this category of events is included in Section 15.2.11, "Excess Load." In UFSAR Section 15.2.11, a limiting case for this event category was analyzed which bounds the consequences of an inadvertent opening of a steam generator relief or safety valve with respect to the acceptance criteria specified in SRP 15.1.4 including specified acceptable fuel design limits (SAFDL). In addition, the licensee has documented the results of its assessment of the radiological consequences of an inadvertent opening of an atmospheric steam dump valve (ADV) in Section 15.2.11.2.3 of the St. Lucie Unit 1 UFSAR.

By letter dated July 22, 1997, and in response to a U.S. Nuclear Regulatory Commission (NRC) request for additional information, dated December 8, 1997, the licensee proposed a license amendment to incorporate into the current UFSAR a recent evaluation of a postulated inadvertent opening of a main steam safety valve (MSSV). The licensee indicated that this request for a license amendment is required by 10 CFR 50.59(c) since an assessment of the radiological consequences of the inadvertent opening of an MSSV is not presently contained in the St. Lucie Unit 1 UFSAR.

2.0 EVALUATION

The results of the licensee's analysis of "Excess Load" (rapid increase in steam flow other than a main steam line break) are documented in UFSAR Section 15.2.1. To address the acceptance criteria specified in SRP 15.1.4 concerning minimum departure from nucleate boiling ratio (MDNBR), the simultaneous opening of the steam dump and bypass valves event was analyzed as the limiting case. The calculated transient MDNBR for this event is 1.385 which is above the allowable value at St. Lucie Unit 1. Since the capacity of the steam dump and bypass valves is approximately 40% of rated steam flow, this event clearly bounds the inadvertent opening of the MSSV, which has a steam release capacity

of less than 10% of rated steam flow. Therefore, from a DNBR perspective the results of an inadvertent opening of an ADV or MSSV meet the acceptance criteria of this event.

The radiological consequences were assessed for the inadvertent opening of an ADV. The results of this assessment are contained in UFSAR Section 15.2.11.2.3, and show that the dose to a person at the site boundary for 2 hours would be 0.0878 REM to the thyroid and $4.69\text{E-}5$ REM to the whole body. However, an assessment of the radiological consequences of an inadvertent opening of an MSSV is not included in the current UFSAR. By letter dated July 22, 1997, the licensee submitted its recent assessment of the potential radiological consequences of an inadvertent opening of an MSSV for St. Lucie Unit 1. The assessment shows that for an inadvertent opening of an MSSV at St. Lucie Unit 1, the dose to a person at the site boundary for two hours would be ≤ 2 rem to the thyroid and ≤ 0.01 rem to the whole body. The licensee requested incorporation of this new assessment into the current licensing basis for St. Lucie Unit 1. In order to support the licensee's plans for future safety valve "in-place" set point verification in operational MODE 1, the licensee determined that an assessment should be performed of the consequences of a stuck-open MSSV. Because the licensee determined that the radiological consequences exceeded those of the existing Excess Load event of record (inadvertent opening of an ADV), the postulated stuck-open MSSV scenario represents an unreviewed safety question. Pursuant to 10 CFR 50.59, a license amendment is required to incorporate this analysis into the UFSAR.

The evaluation, performed by the licensee consisted of a comparison of the parameters which would be utilized in an evaluation for St. Lucie Unit 1 with the same parameters in an explicit analysis which had been performed for St. Lucie Unit 2. The licensee's comparison of these parameters concluded that the small differences in initial inlet temperature (1°F) and initial pressurizer pressure (8 psi) in Unit 1 versus Unit 2, were insignificant and would not alter the conclusion reached for Unit 2. In addition, the licensee concluded that although the technical specifications for primary to secondary leakage were in one case 1 gpm for one steam generator and, in the other case, 1 gpm total for both steam generators, the same amount of total radioactivity would be released since it is assumed that the inventory of both steam generators is released. In the comparison, the licensee noted that the steam generator fluid mass was greater for Unit 2 versus Unit 1. Consequently, the consequences of the accident occurring at Unit 2 would be greater than the consequences for an accident at Unit 1. In addition, the atmospheric dispersion factor for the accident occurring at Unit 2 is 33% greater than the value for Unit 1. Based upon the above, the licensee concluded that the offsite dose consequences for Unit 1 would be at least 30% less than the consequences which were calculated for Unit 2.

The staff has reviewed the comparison of these parameters and has concluded that the doses for Unit 1 would be less than those previously calculated for Unit 2. Previously, the staff had approved the assessment for Unit 2, and concluded that the results of the Unit 2 assessment were acceptable. The Unit 2 assessment estimated that the 2-hour site boundary doses are 2 rem Thyroid (dose equivalent I-131) and 10 mrem Whole Body (dose equivalent Xe-133). Based upon this previous conclusion, and the comparative assessment

that has now been performed for Unit 1, the staff has determined that the consequences of the inadvertent opening of an MSSV on Unit 1 are acceptable.

3.0 STAFF CONCLUSION

The staff has reviewed the licensee's assessment and concludes that the licensee has used a conservative approach to estimate the potential radiological consequences of an inadvertent opening of an MSSV at St. Lucie Unit 1 by comparison of the transient parameter data with those for St. Lucie Unit 2. The 2-hour site boundary doses resulting from this event are minimal relative to 10 CFR Part 100 limits and, therefore, are acceptable.

4.0 STATE CONSULTATION

Based upon the written notice of the proposed amendment, the Florida State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

This amendment changes a requirement with respect to the 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 (62 FR 45457). 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

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the 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: C. Y. Liang, SRXB

Date: April 30, 1998

REFERENCES

1. Letter from J. A. Stall, Florida Power and Light Company to NRC, "Proposed License Amendment, UFSAR Evaluation of MSSV Inadvertent Opening," dated July 22, 1997.
2. Letter from J. A. Stall, Florida Power and Light Company to NRC, "Proposed License Amendment, UFSAR Evaluation of MSSV Inadvertent Opening, Request for Additional Information," dated December 8, 1997.