

August 6, 1997

Mr. Thomas F. Plunkett  
President, Nuclear Division  
Florida Power and Light Company  
Post Office Box 14000  
Juno Beach, Florida 33408-0420

SUBJECT: ENVIRONMENTAL ASSESSMENT OF REQUEST FOR EXEMPTION FROM 10 CFR 70.24  
CRITICALITY ACCIDENT REQUIREMENTS - ST. LUCIE PLANT, UNIT NOS. 1  
AND 2 (TAC NOS. M97997 AND M97998)

Dear Mr. Plunkett:

Enclosed for your information is a copy of an "Environmental Assessment and Finding of No Significant Impact." This assessment relates to your application dated February 19, 1997, which requested an exemption from certain requirements of 10 CFR 70.24, "Criticality Accident Requirements."

The assessment is being forwarded to the Office of the Federal Register for publication.

Sincerely,

Original signed by  
L. A. Wiens, Senior Project Manager  
Project Directorate II-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket Nos. 50-335  
and 50-389

Enclosure: Environmental Assessment

cc w/enclosure: See next page

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Mr. T. F. Plunkett  
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**ST. LUCIE PLANT**

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UNITED STATES NUCLEAR REGULATORY COMMISSION

FLORIDA POWER AND LIGHT COMPANY

DOCKET NOS. 50-335 AND 50-389

ST. LUCIE PLANT, UNIT NOS. 1 AND 2

ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an exemption from certain requirements of its regulations for Facility Operating License Nos. DPR-67 and NPF-16, issued to Florida Power and Light Company, et. al. (the licensee), for operation of the St. Lucie Plant, Unit Nos. 1 and 2, located in St. Lucie County, Florida.

ENVIRONMENTAL ASSESSMENT

Identification of Proposed Action:

The proposed action would exempt the licensee from the requirements of 10 CFR 70.24, which requires a monitoring system that will energize clear audible alarms if accidental criticality occurs in each area in which special nuclear material (SNM) is handled, used, or stored. The proposed action would also exempt the licensee from the requirements to maintain emergency procedures for each area in which this licensed SNM is handled, used, or stored to ensure that all personnel withdraw to an area of safety upon the sounding of the alarm, to familiarize personnel with the evacuation plan, and to designate responsible individuals for determining the cause of the alarm, and to place radiation survey instruments in accessible locations for use in such an emergency.

The proposed action is in accordance with the licensee's application for exemption dated February 19, 1997, and supplemented July 10, 1997.

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The Need for the Proposed Action:

The purpose of 10 CFR 70.24 is to ensure that if a criticality were to occur during the handling of SNM, personnel would be alerted to that fact and would take appropriate action. At a commercial nuclear power plant the inadvertent criticality with which 10 CFR 70.24 is concerned could occur during fuel handling operations. The SNM that could be assembled into a critical mass at a commercial nuclear power plant is in the form of nuclear fuel; the quantity of other forms of SNM that is stored on site is small enough to preclude achieving a critical mass. Because the fuel is not enriched beyond 5.0 weight percent Uranium-235 and because commercial nuclear plant licensees have procedures and features designed to prevent inadvertent criticality, the staff has determined that it is unlikely that an inadvertent criticality could occur due to the handling of SNM at a commercial power reactor. The requirements of 10 CFR 70.24, therefore, are not necessary to ensure the safety of personnel during the handling of SNM at commercial power reactors.

Environmental Impacts of the Proposed Action:

The Commission has completed its evaluation of the proposed action and concludes that there is no significant environmental impact if the exemption is granted. Inadvertent or accidental criticality will be precluded through compliance with the St. Lucie, Units 1 and 2 Technical Specifications (TS), the design of the fuel storage racks providing geometric spacing of fuel assemblies in their storage locations, and administrative controls imposed on fuel handling procedures. TS requirements specify reactivity limits for the fuel storage racks and minimum spacing between the fuel assemblies in the storage racks.

Appendix A of 10 CFR Part 50, "General Design Criteria for Nuclear Power Plants," Criterion 62, requires the criticality in the fuel storage and handling system shall be prevented by physical systems or processes, preferably by use of geometrically-safe configurations. This is met at St. Lucie, Units 1 and 2, as identified in the TS and the Updated Final Safety Analysis Report (UFSAR). St. Lucie TS Section 5.6.1.c (Unit 1) and 5.6.1.b (Unit 2), state that the new fuel storage racks are designed for dry storage of unirradiated fuel assemblies having a U-235 enrichment less than or equal to 4.5 weight percent, while maintaining a k-effective of less than or equal to 0.98 under the most reactive condition. UFSAR Section 9.1.1, New Fuel Storage, for both Units 1 and 2 specify that the fuel racks are designed to provide sufficient spacing between fuel assemblies to maintain a subcritical (k-effective less than or equal to 0.98) array assuming the most reactive condition, and under all design loadings including the safe shutdown earthquake. The UFSAR also specifies that the new fuel racks are designed to preclude the insertion of a new fuel assembly between cavities.

The proposed exemption would not result in any significant radiological impacts. The proposed exemption would not affect radiological plant effluent nor cause any significant occupational exposures since the TS design controls (including geometric spacing of fuel assembly storage spaces) and administrative controls preclude inadvertent criticality. The amount of radioactive waste would not be changed by the proposed exemption.

The proposed exemption does not result in any significant non-radiological environmental impacts. The proposed exemption involves features located entirely within the restricted area as defined in 10 CFR Part 20. It does not affect non-radiological plant effluents and has no other

environmental impact. Accordingly, the Commission concludes that there are no significant non-radiological environmental impacts associated with the proposed action.

Alternatives to the Proposed Action:

Since the Commission has concluded that there is no measurable environmental impact associated with the proposed action, any alternatives with equal or greater environmental impact need not be evaluated. As an alternative to the proposed exemption, the staff considered denial of the requested exemption. Denial of the request would result in no change in current environmental impacts. The environmental impacts of the proposed action and the alternative action are similar.

Alternative Use of Resources:

This action does not involve the use of any resources not previously considered in the "Final Environmental Statement Related to the St. Lucie Plant Unit No. 1," dated June 1973, and "Final Environmental Statement Related to the Construction of St. Lucie Plant Unit No. 2," dated May 1974.

Agencies and Persons Consulted:

In accordance with its stated policy, on July 16, 1997, the Commission staff consulted with Mr. William Passetti, Acting Chief of the Bureau of Radiation Control, Florida Department of Health and Rehabilitative Services, regarding the environmental impact of the proposed action. The State official had no comments.

FINDING OF NO SIGNIFICANT IMPACT

Based upon the environmental assessment, the Commission concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the Commission has determined not to prepare an environmental impact statement for the proposed action.

For further details with respect to the proposed action, see the licensee's letter dated February 19, 1997, and supplement dated July 10, 1997, which is available for public inspection at the Commission's Public Document Room, which is located at The Gelman Building, 2120 L Street, NW., Washington, D. C., and at the local public document room located at the Indian River College Library, 3209 Virginia Avenue, Fort Pierce, Florida 34981-5599.

Dated at Rockville, Maryland, this 6th day of August 1997.

FOR THE NUCLEAR REGULATORY COMMISSION



L. A. Wiens, Senior Project Manager  
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Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation