

October 1997

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 2 - ISSUANCE OF AMENDMENT ESFAS SUBGROUP RELAY
SURVEILLANCE INTERVAL EXTENSION (TAC NO. M99375)

Dear Mr. Plunkett:

The Commission has issued the enclosed Amendment No. 90 to Facility Operating License No. NPF-16 for the St. Lucie Plant, Unit No. 2. The amendment consists of changes to the Technical Specifications in response to your application dated August 1, 1997, regarding extending the surveillance interval for the Engineered Safety Features Actuation System to a refueling interval on a staggered test basis.

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/

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

Docket No. 50-389

Enclosures: 1. Amendment No. 90 to NPF-16
2. Safety Evaluation

cc w/enclosure: See next page

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

October 2, 1997

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

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Sincerely,

A handwritten signature in black ink, appearing to read "L. A. Wiens".

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

Docket No. 50-389

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cc w/enclosure: See next page

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

ST. LUCIE PLANT

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

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. 90
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 August 1, 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.

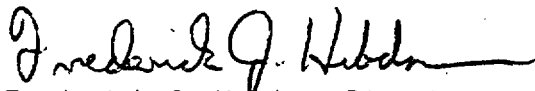
2. Accordingly, Facility Operating License No. NPF-16 is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and by amending paragraph 2.C.2 to read as follows:

2. Technical Specifications

- The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 90, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



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

Attachment:
Changes to the Technical
Specifications

Date of Issuance: October 2, 1997

ATTACHMENT TO LICENSE AMENDMENT NO. 90

TO FACILITY OPERATING LICENSE NO. NPF-16

DOCKET NO. 50-389

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change.

Remove Pages

3/4 3-22
3/4 3-23
B 3/4 3-1

Insert Pages

3/4 3-22
3/4 3-23
B 3/4 3-1

TABLE 4.3-2

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. SAFETY INJECTION (SIAS)				
a. Manual (Trip Buttons)	N.A.	N.A.	R	1, 2, 3, 4
b. Containment Pressure - High	S	R	M	1, 2, 3
c. Pressurizer Pressure - Low	S	R	M	1, 2, 3
d. Automatic Actuation Logic	N.A.	N.A.	M(1), R(3)	1, 2, 3, 4
2. CONTAINMENT SPRAY (CSAS)				
a. Manual (Trip Buttons)	N.A.	N.A.	R	1, 2, 3, 4
b. Containment Pressure - High-High	S	R	M	1, 2, 3
c. Automatic Actuation Logic	N.A.	N.A.	M(1), R(3)	1, 2, 3, 4
3. CONTAINMENT ISOLATION (CIAS)				
a. Manual CIAS (Trip Buttons)	N.A.	N.A.	R	1, 2, 3, 4
b. Safety Injection SIAS	N.A.	N.A.	R	1, 2, 3, 4
c. Containment Pressure - High	S	R	M	1, 2, 3
d. Containment Radiation - High	S	R	M	1, 2, 3
e. Automatic Actuation Logic	N.A.	N.A.	M(1), R(3)	1, 2, 3, 4
4. MAIN STEAM LINE ISOLATION				
a. Manual (Trip Buttons)	N.A.	N.A.	R	1, 2, 3
b. Steam Generator Pressure - Low	S	R	M	1, 2, 3
c. Containment Pressure - High	S	R	M	1, 2, 3
d. Automatic Actuation Logic	N.A.	N.A.	M(1), R(3)	1, 2, 3, 4
5. CONTAINMENT SUMP RECIRCULATION (RAS)				
a. Manual RAS (Trip Buttons)	N.A.	N.A.	R	N.A.
b. Refueling Water Storage Tank - Low	S	R	M	1, 2, 3
c. Automatic Actuation Logic	N.A.	N.A.	M(1), R(3)	1, 2, 3

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
6. LOSS OF POWER (LOV)				
a. 4.16 kV and 480 V Emergency Bus Undervoltage (Loss of Voltage)	S	R	R	1, 2, 3, 4
b.. 4.16 kV and 480 V Emergency Bus Undervoltage (Degraded Voltage)	S	R	R	1, 2, 3, 4
7. AUXILIARY FEEDWATER (AFAS)				
a. Manual (Trip Buttons)	N.A.	N.A.	R	1, 2, 3
b. SG Level (A/B) - Low	S	R	M	1, 2, 3
c. Automatic Actuation Logic	N.A.	N.A.	M(1), SA(2)	1, 2, 3
8. AUXILIARY FEEDWATER ISOLATION				
a. SG Level (A/B) - Low and SG Differential Pressure (B to A/A to B) - High	N.A.	R	M	1, 2, 3
b. SG Level (A/B) - Low and Feedwater Header Differential Pressure (B to A/A to B) - High	N.A.	R	M	1, 2, 3

TABLE NOTATION

- (1) Testing of Automatic Actuation Logic shall include energization/de-energization of each initiation relay (solid-state component) and verification of the OPERABILITY of each initiation relay (solid-state component).
- (2) An actuation relay test shall be performed which shall include the energization/de-energization of each actuation relay and verification of the OPERABILITY of each actuation relay.
- (3) A subgroup relay test shall be performed which shall include the energization/de-energization of each subgroup relay and verification of the OPERABILITY of each subgroup relay. Testing of the ESFAS subgroup relays shall be performed on a STAGGERED TEST BASIS at subintervals of 6 months, such that each subgroup relay is tested at least once per 18 months.

BASES

3/4.3.1 and 3/4.3.2 REACTOR PROTECTIVE AND ENGINEERED SAFETY FEATURES ACTUATION SYSTEMS INSTRUMENTATION

The OPERABILITY of the reactor protective and Engineered Safety Features Actuation Systems instrumentation and bypasses ensure that (1) the associated Engineered Safety Features Actuation action and/or reactor trip will be initiated when the parameter monitored by each channel or combination thereof reaches its setpoint, (2) the specified coincidence logic is maintained, (3) sufficient redundancy is maintained to permit a channel to be out of service for testing or maintenance, and (4) sufficient system functional capability is available from diverse parameters.

The OPERABILITY of these systems is required to provide the overall reliability, redundancy, and diversity assumed available in the facility design for the protection and mitigation of accident and transient conditions. The integrated operation of each of these systems is consistent with the assumptions used in the safety analyses.

The Surveillance Requirements specified for these systems ensure that the overall system functional capability is maintained comparable to the original design standards. The periodic surveillance tests performed at the minimum frequencies are sufficient to demonstrate this capability.

CE Owners Group topical report CEN-403, Revision 1-A, March 1996, provides the basis to allow ESFAS subgroup relay testing on a STAGGERED TEST BASIS. Such testing requires each subgroup relay to be tested at least once per 18 months (refueling cycle), with approximately equal numbers of relays being tested at 6 month subintervals. Subgroup relays which cannot be tested with the unit at power should be scheduled for testing during plant shutdowns. If two or more ESFAS subgroup relays fail in a 12-month period, the design, maintenance, and testing of all ESFAS subgroup relays should be considered to evaluate the adequacy of the surveillance interval. If it is determined that the surveillance interval is inadequate for detecting a single relay failure, the surveillance interval should be decreased such that an ESFAS subgroup relay failure prior to occurrence of a second failure can be detected.

The measurement of response time at the specified frequencies provides assurance that the protective and ESF action function associated with each channel is completed within the time limit assumed in the safety analyses. No credit was taken in the analyses for those channels with response times indicated as not applicable.

Response time may be demonstrated by any series of sequential, overlapping, or total channel test measurements provided that such tests demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either (1) in place, onsite, or offsite test measurements or (2) utilizing replacement sensors with certified response times.

The Safety Injection Actuation Signal (SIAS) provides direct actuation of the Containment Isolation Signal (CIS) to ensure containment isolation in the event of a small break LOCA.

3/4.3.3 MONITORING INSTRUMENTATION

3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION

The OPERABILITY of the radiation monitoring channels ensures that: (1) the radiation levels are continually measured in the areas served by the



UNITED STATES
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 90 TO FACILITY OPERATING LICENSE NO. NPF-16

FLORIDA POWER AND LIGHT COMPANY

ST. LUCIE PLANT, UNIT NO. 2

DOCKET NO. 50-389

1.0 INTRODUCTION

By letter dated August 1, 1997, Florida Power and Light Company (FPL or licensee) requested changes to the St. Lucie Unit 2 Technical Specifications (TS) to modify the surveillance interval for certain Engineered Safety Features Actuation System (ESFAS) subgroup relays. Specifically, the semi-annual surveillance interval specified in Table 4.3-2 for testing the ESFAS subgroup relays would be extended to a refueling interval consistent with Combustion Engineering Owners Group (CEOG) Report CEN-403, Revision 1-A, March, 1996. The Bases would also be revised to include guidance for evaluating the adequacy of the ESFAS relay surveillance interval.

2.0 BACKGROUND

The Nuclear Regulatory Commission (NRC) staff formed a Task Group in August 1983 to investigate problems concerning surveillance testing required by TS, and to recommend approaches to effect improvements. As a result of the recommendations of this Task Group, the Technical Specifications Improvement Program (TSIP) was established in December 1984. As an element of the TSIP, TS surveillance requirements were comprehensively examined. The study found that, while some testing at power is essential, safety can be improved, equipment degradation decreased, and unnecessary personnel burden prevented by reducing the amount of testing at power.

The CEOG requested ABB-CE to perform generic comparative analyses of ESFAS subgroup relay performance in Combustion Engineering (CE) Nuclear Steam Supply System (NSSS) plants. The CEOG Topical Report, CEN-403, Revision 1-A, was prepared to justify extending the surveillance test interval for ESFAS subgroup relays used in CE plants, and documents an analysis of subgroup relay performance which included the St. Lucie Unit 2 ESFAS. This effort resulted in the CEOG recommendation that the applicable subgroup relays be tested at a minimum required frequency of once per fuel cycle. The type of relays employed in the St. Lucie Unit 2 Auxiliary Feedwater Actuation System (AFAS), which is a separate system performing the ESFAS functions for auxiliary feedwater, was not included in the relay failure analysis reported in CEN-403.

In a Safety Evaluation (SE) dated February 27, 1996, the NRC staff found the CEOG topical report acceptable, and further concluded that licensees referencing the report as a basis for proposed TS changes should: (1) confirm applicability of the CEN-403, Rev. 1, analyses for their plant, and

(2) confirm that the applicable setpoint calculations account for any increase in instrument drift caused by the extended test interval. In addition, the staff determined that if two or more ESFAS subgroup relays fail in a 12-month period, the licensee should consider the design, maintenance, and testing of all ESFAS subgroup relays to evaluate the adequacy of the surveillance interval. If the licensee determines that the surveillance interval is inadequate for detecting a single relay failure, the surveillance interval should be decreased such that the licensee can detect an ESFAS subgroup relay failure prior to occurrence of a second failure.

3.0 EVALUATION

The licensee's proposed changes to the TS are in accordance with the recommendations contained in CEN-403, Rev. 1 and the guidance contained in the February 27, 1996, SE. The specific changes are addressed below.

Revisions to TABLE 4.3-2, ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS, were proposed as follows:

- (1) The surveillance frequency notation shown for the Automatic Actuation Logic CHANNEL FUNCTIONAL TEST applicable to Safety Injection (SIAS), Containment Spray (CSAS), Containment Isolation (CIAS), Main Steam Isolation, and Containment Sump Recirculation (RAS), is to be changed to read "R(3)."
- (2) Footnote (3) is to be added to describe the ESFAS subgroup relay test, which "shall be performed on a STAGGERED TEST BASIS at subintervals of 6 months, such that each subgroup relay is tested at least once per 18 months."
- (3) Footnote (2), which will continue to apply to the Auxiliary Feedwater (AFAS) Automatic Actuation Logic, is to be revised to more accurately reflect terminology associated with AFAS.

Bases 3/4.3.1 and 3/4.3.2, REACTOR PROTECTIVE AND ENGINEERED SAFETY FEATURES ACTUATION SYSTEMS INSTRUMENTATION, is to be revised to include a new paragraph which provides additional information relative to evaluating the adequacy of ESFAS subgroup relay testing.

In the August 1, 1997, submittal, the licensee confirmed that the relay data presented in CEN-403, Revision 1-A, was applicable to St. Lucie Unit 2. Two minor discrepancies were identified in the data contained in the report. The NRC staff reviewed these discrepancies and confirmed that they did not affect the conclusions of the SE. The licensee also confirmed that setpoint uncertainty calculations would not be affected by the surveillance interval extension. Finally, in accordance with the guidance in the staff's SE, the Bases was revised to include information relative to evaluating the adequacy of ESFAS subgroup relay testing.

On the basis of our review of the above items, the staff concludes that the proposed changes are in accordance with the guidance in CEOG Report CEN-403,

Revision 1-A and the associated NRC SE. Therefore, the staff finds these changes acceptable.

4.0 STATE CONSULTATION

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

5.0 ENVIRONMENTAL CONSIDERATION

These amendments change surveillance requirements. The NRC staff has determined that the amendments involve 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 amendments involve no significant hazards consideration and there has been no public comment on such finding (62 FR 45457). Accordingly, these amendments meet 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 these amendments.

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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Len Wiens

Date: October 2, 1997