

February 9, 1995

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Mr. J. H. Goldberg  
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 RE: MAIN FEEDWATER  
ISOLATION VALVES (TAC NO. M90027)

Dear Mr. Goldberg:

The Commission has issued the enclosed Amendment No. 71 to Facility Operating License No. NPF-16 for the St. Lucie Plant, Unit No. 2. This amendment consists of changes to the Technical Specifications in response to your application dated July 25, 1994.

This amendment will upgrade Technical Specification 3/4 4.7.1.6 for the Main Feedwater Line Isolation Valves to be consistent with NUREG-1432, Standard Technical Specifications for Combustion Engineering Plants.

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,

(Original Signed By)

Jan A. Norris, Senior Project Manager  
Project Directorate II-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket No. 50-389

Enclosures:

1. Amendment No. 71 to NPF-16
2. Safety Evaluation

cc w/enclosures:  
See next page

FILENAME - A:\SL90027.AMD

OFFICE	LA:PDII-2	PM:PDII-2	D:PDII-2	OGC	
NAME	Dunnington <sup>ETD</sup>	JNorris	DMatthews	EHoller	
DATE	1/20/95	1/22/95	2/1/95	1/30/95	
COPY	Yes/No	Yes/No	Yes/No	Yes/No	

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Mr. J. H. Goldberg  
Florida Power and Light Company

St. Lucie Plant  
Units 1 and 2

cc:

Jack Shreve, Public Counsel  
Office of the Public Counsel  
c/o The Florida Legislature  
111 West Madison Avenue, Room 812  
Tallahassee, Florida 32399-1400

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

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

Regional Administrator, RII  
U.S. Nuclear Regulatory Commission  
101 Marietta Street N.W., Suite 2900  
Atlanta, Georgia 30323

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

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

Harold F. Reis, Esq.  
Newman & Holtzinger  
1615 L Street, N.W.  
Washington, DC 20036

D. A. Sager, Vice President  
St. Lucie Nuclear Plant  
P.O. Box 128  
Fort Pierce, Florida 34954-0128

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

C. L. Burton  
Plant General Manager  
St. Lucie Nuclear Plant  
P.O. Box 128  
Fort Pierce, Florida 34954-0128

Mr. Thomas R.L. Kindred  
County Administrator  
St. Lucie County  
2300 Virginia Avenue  
Fort Pierce, Florida 34982

Mr. Robert E. Dawson  
Plant Licensing Manager  
St. Lucie Nuclear Plant  
P.O. Box 128  
Fort Pierce, Florida 34954-0128

Mr. Charles B. Brinkman, Manager  
Washington Nuclear Operations  
ABB Combustion Engineering,  
Nuclear Power  
12300 Twinbrook Parkway, Suite 330  
Rockville, Maryland 20852

DATED: February 9, 1995

AMENDMENT NO. 71 TO FACILITY OPERATING LICENSE NO. NPF-16 - ST. LUCIE, UNIT 2

Docket File

NRC & Local PDRs

PDII-2 Reading

S. Varga, 14/E/4

J. Zwolinski

OGC

D. Hagan, TWFN, 4/A/43

G. Hill (2), TWFN 5/C/3

C. Grimes, 11/F/23

ACRS (4)

OPA

OC/LFMB

D. Verelli, RII



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. 71  
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 July 25, 1994, 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. 71, 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



David B. Matthews, Director  
Project Directorate II-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: February 9, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 71  
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 areas of change. The corresponding overleaf pages are also provided to maintain document completeness.

Remove Pages

3/4 7-10  
B 3/4 7-3

Insert Pages

3/4 7-10  
B 3/4 7-3

PLANT SYSTEMS

MAIN STEAM LINE ISOLATION VALVES

LIMITING CONDITION FOR OPERATION  
=====

3.7.1.5 Each main steam line isolation valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

MODE 1 - With one main steam line isolation valve inoperable but open, POWER OPERATION may continue provided the inoperable valve is restored to OPERABLE status within 4 hours; otherwise, be in at least HOT STANDBY within the next 6 hours.

MODES 2, 3 - and 4 - With one or both main steam line isolation valve(s) inoperable, subsequent operation in MODES 2, 3 or 4 may proceed provided the isolation valve(s) is (are) maintained closed. Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 24 hours.

The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS  
=====

4.7.1.5 Each main steam line isolation valve shall be demonstrated OPERABLE by verifying full closure within 6.75 seconds when tested pursuant to Specification 4.0.5.

PLANT SYSTEMS

MAIN FEEDWATER ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

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3.7.1.6 Four main feedwater isolation valves (MFIVs) shall be OPERABLE.

APPLICABILITY:\* MODES 1, 2, and 3, except when the MFIV is closed and deactivated.

- ACTION:
- a. With one MFIV inoperable in one or more main feedwater lines, OPERATION may continue provided each inoperable valve is restored to OPERABLE status, closed, or isolated within 72 hours. Otherwise, be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
  - b. With two MFIVs inoperable in the same flowpath, restore at least one of the inoperable MFIVs to OPERABLE status or close one of the inoperable valves within 4 hours. Otherwise, be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

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- 4.7.1.6.a Each MFIV shall be demonstrated OPERABLE by verifying full closure within 5.15 seconds when tested pursuant to Specification 4.0.5. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3.
- 4.7.1.6.b For each inoperable MFIV, verify that it is closed or isolated once per 7 days.

\* Each MFIV shall be treated independently.



## PLANT SYSTEMS

### BASES

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#### 3/4.7.1.4 ACTIVITY

The limitations on secondary system specific activity ensure that the resultant offsite radiation dose will be limited to a small fraction of 10 CFR Part 100 limits in the event of a steam line rupture. This dose also includes the effects of a coincident 1.0 gpm primary to secondary tube leak in the steam generator of the affected steam line and a concurrent loss of offsite electrical power. These values are consistent with the assumptions used in the safety analyses.

#### 3/4.7.1.5 MAIN STEAM LINE ISOLATION VALVES

The OPERABILITY of the main steam line isolation valves ensures that no more than one steam generator will blow down in the event of a steam line rupture. This restriction is required to (1) minimize the positive reactivity effects of the Reactor Coolant System cooldown associated with the blowdown, and (2) limit the pressure rise within containment in the event the steam line rupture occurs within containment. The OPERABILITY of the main steam isolation valves within the closure times of the Surveillance Requirements is consistent with the assumptions used in the safety analyses.

The specified 6.75 second full closure time represents the addition of the maximum allowable instrument response time of 1.15 seconds and the maximum allowable valve stroke time of 5.6 seconds. These maximum allowable values should not be exceeded because they represent the design basis values for the plant.

#### 3/4.7.1.6 MAIN FEEDWATER LINE ISOLATION VALVES

The main feedwater line isolation valves are required to be OPERABLE to ensure that (1) feedwater is terminated to the affected steam generator following a steam line break and (2) auxiliary feedwater is delivered to the intact steam generator following a feedwater line break. If feedwater is not terminated to a steam generator with a broken main steam line, two serious effects may result: (1) the post-trip return to power due to plant cooldown will be greater with resultant higher fuel failure and (2) the steam released to containment will exceed the design.

When the main feedwater isolation valves (MFIVs) are closed or isolated, they are performing their required safety function, e.g., to isolate the main feedwater line. The 72 hour action completion time for one inoperable MFIV in one or more main feedwater lines takes into account the redundancy afforded by the remaining operable MFIVs, and the low probability of an event occurring during this time period that would require isolation of the main feedwater flow paths. The 4 hour action completion time for two inoperable MFIVs in the same feedwater line is considered reasonable to close or isolate the affected flowpath. It is based on operating experience and the low probability of an event that would require main feedwater isolation during this time period.

The specified 5.15 second full closure time represents the addition of the maximum allowable instrument response time of 1.15 seconds and the maximum allowable valve stroke time of 4.0 seconds. These maximum allowable values should not be exceeded because they represent the design basis values for the plant.

## PLANT SYSTEMS

### BASES

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#### 3/4.7.1.7 ATMOSPHERIC DUMP VALVES

The limitation on maintaining the atmospheric dump valves in the manual mode of operation is to ensure the atmospheric dump valves will be closed in the event of a steam line break. For the steam line break with atmospheric dump valve control failure event, the failure of the atmospheric dump valves to close would be a valid concern were the system to be in the automatic mode during power operations.

#### 3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

The limitation on steam generator pressure and temperature ensures that the pressure-induced stresses in the steam generators do not exceed the maximum allowable fracture toughness stress limits. The limitations to 100°F and 200 psig are based on a steam generator  $RT_{NDT}$  of 20°F and are sufficient to prevent brittle fracture.

#### 3/4.7.3 COMPONENT COOLING WATER SYSTEM

The OPERABILITY of the Component Cooling Water System ensures that sufficient cooling capacity is available for continued operation of safety-related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the safety analyses.

#### 3/4.7.4 INTAKE COOLING WATER SYSTEM

The OPERABILITY of the Intake Cooling Water System ensures that sufficient cooling capacity is available for continued operation of equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the safety analyses.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 71

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 July 25, 1994, Florida Power & Light Company (the licensee) proposed changes to the St. Lucie, Unit 2, plant Technical Specifications (TS) for the main feedwater isolation valves (MFIVs). Specifically, the licensee proposed to revise TS 3/4.7.1.6, "Main Feedwater Line Isolation Valves" to be consistent with NUREG-1432, "Standard Technical Specifications for Combustion Engineering Plants." The major technical impact of the proposed change is to increase the action completion times to take advantage of the redundancy afforded by the existing main feedwater system design. The proposed change includes all related requirements of NUREG-1432. Consequently, we have concluded that this change satisfies the requirements of the Commission's Final Policy Statement on Technical Specification Improvement (58 FR 391320).

The main feedwater (MFW) system at St. Lucie feeds two steam generators via two MFW headers, one for each steam generator. Each MFW header contains two MFIVs in series outside containment. Closure of either one of these two valves performs the safety function of isolating the nonsafety-related portion of the main feedwater header from its associated steam generator. Inside containment each header contains a check valve to prevent backflow from the associated steam generator. These check valves are not affected by this proposed TS change. The MFIVs will automatically close when actuated by the engineered safety features actuation system (ESFAS) main steam isolation signal (MSIS), or the auxiliary feedwater actuation system (AFAS). Automatic closure of the MFIVs is assumed in the success paths identified for mitigation of various accidents and transients, including certain steam line breaks, feedwater line breaks, loss of coolant accidents, and steam generator tube rupture.

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## 2.0 EVALUATION

The existing TS 3/4.7.1.6 requires each of the four MFIVs to be operable in Modes 1, 2, 3, and 4. With one inoperable (but open) MFIV in Mode 1 power operation is allowed to continue for up to 4 hours after which the plant must be brought to hot standby. In Modes 2, 3, and 4, operation may continue if an inoperable valve (or valves) is maintained in the closed position. Otherwise the plant must be brought to cold shutdown. The proposed changes to TS 3/4.7.1.6 still require all 4 MFIVs to be operable but only applies while in Modes 1, 2, and 3. Also, the limiting condition for operation (LCO) would not apply to a closed and deactivated MFIV. The revised TS would provide an allowed outage time (AOT) of 72 hours in lieu of 4 hours with one MFIV inoperable in one or more main feedwater lines. The inoperable MFIV would have to be closed within the AOT or the plant would have to be placed in hot shutdown. With two MFIVs in the same flowpath inoperable, the AOT would be 4 hours (to restore the operability or close the valve) before proceeding to hot shutdown.

The proposed change to no longer require the valves to be operable in Mode 4 is consistent with the existing TS for the MSIS and the AFAS, the systems which automatically close the valves. In Mode 4 the steam generator and feedwater energy is low and the MFIVs are normally closed since the startups and shutdowns are performed using the AFW system. Additionally under these conditions there is no accident analysis that would require automatic valve closure. The proposed change is, therefore, acceptable and is consistent with NUREG-1432 and with the plant safety analyses.

The increase in AOT for one inoperable MFIV from 4 to 72 hours is based on system redundancy and the fact that it will make the AOT consistent with most other systems required to respond in the event of an accident or transient. The existing TS for other redundant safety-related engineered safety features (ESF) equipment have an AOT of 72 hours. Because the MFIVs are relied upon to respond to some of the same accidents the AOTs should be consistent. The 72-hour time is based on operating experience and the low probability of an event that would require system function coupled with a single failure in that 72-hour period. The proposed 72-hour outage time is, therefore, acceptable and is also consistent with NUREG-1432.

Because the safety function of the MFIVs has already been performed when the valves are closed the LCO should not be applicable whenever the valves are closed and deactivated, regardless of the plant mode. Therefore, this applicability change is acceptable. A 7-day surveillance requirement to verify that an inoperable MFIV remains closed and deactivated has also been proposed. These changes are also consistent with NUREG-1432.

The proposed TS provides an AOT of 4 hours when both MFIVs in one flow path are inoperable. Under these conditions there is no automatic isolation capability and the AOT should be the same as the AOT for the main steam isolation valves (MSIVs) which basically serve the same safety function to isolate the steam generator for certain accident scenarios. The AOT for the MSIVs at St. Lucie is 4 hours. This outage time is also based on operating experience and the low probability of an event requiring steam generator

isolation during this short time period. The 4-hour AOT is more conservative than NUREG-1432 which allows 8 hours to return at least one valve to an operable status. Based on the above evaluation the proposed change is acceptable.

The proposed action statements for the proposed TS changes also only require the plant to be brought to hot shutdown in lieu of cold shutdown. This is acceptable because it is consistent with the new applicability requirements and still places the plant in a mode where the LCO is no longer applicable. It is also consistent with NUREG-1432.

The proposed TS retains a provision that the performance of the surveillance requirement for testing the valve is not required for entry into Mode 3. This is not consistent with NUREG-1432. However, it is consistent with the existing TS and with the existing plant procedures for performing the test when returning the unit to operation. Until the test, the MFIVs are maintained closed and feedwater is added to the steam generators, as necessary, using the AFW system. Since the procedure for performing this test already exists and the MFIVs are usually closed until the time of the test, the staff concludes that the provision is acceptable.

The proposed changes include a number of minor changes to the wording and format to make the TS more consistent with NUREG-1432. The staff reviewed these changes and concluded they are an improvement in clarity and less ambiguous than the existing TS and are, therefore, acceptable. The revised Bases for TS 3/4.7.1.6 adequately reflect the proposed changes and are, therefore, also acceptable.

### 3.0 TECHNICAL FINDING

Based on its review as described above, the staff concludes that the proposed changes to TS 3/4.7.1.6, and its associated Bases, are supported by the plant safety analyses, provide greater operational flexibility without compromising plant safety, and are more concise with less ambiguity than the existing TS. The staff further concludes that the proposed changes include all the related requirements of the corresponding TS in NUREG-1432 except for testing prior to entry into Mode 3. As noted above, the staff finds this exception acceptable. The staff, therefore, concludes that the proposed changes are acceptable and should be approved.

### 4.0 STATE CONSULTATION

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

### 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 (59 FR 45024). 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 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: W. LeFave

Date: February 9, 1995