March 18, 1993

Docket No. 50-335

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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

Dear Mr. Goldberg:

SUBJECT: ST. LUCIE UNIT 1 - ISSUANCE OF AMENDMENT RE: AUTOMATIC SHUTDOWN COOLING INTERLOCK (TAC NO. M84752)

The Commission has issued the enclosed Amendment No. 120 to Facility Operating License No. DPR-67 for the St. Lucie Plant, Unit No. 1. This amendment consists of changes to the Technical Specifications in response to your application dated October 21, 1992.

This amendment revises Technical Specification 4.5.2.d.1 involving surveillance of the shutdown cooling system automatic closure interlock.

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

Enclosures:
1. Amendment No. 120 to DPR-67
2. Safety Evaluation

cc w/enclosures:
See next page *Previously Concurred

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DATE	:3/17/93	:3/17/93	:3/17/93	:03/05/93	:	:

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

March 18, 1993

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President - Nuclear Division
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See next page

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

St. Lucie Plant

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

DATED: March 18, 1993

AMENDMENT NO. 120 TO FACILITY OPERATING LICENSE NO. DPR-67 - ST. LUCIE, UNIT 1

Docket File
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

FLORIDA POWER & LIGHT COMPANY

DOCKET NO. 50-335

ST. LUCIE PLANT UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 120
License No. DPR-67

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

   A. The application for amendment by Florida Power & Light Company, (the licensee) dated October 21, 1992, 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. DPR-67 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. 120, 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

Herbert N. Berkow

Herbert N. Berkow, 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: March 18, 1993

ATTACHMENT TO LICENSE AMENDMENT NO. 120

TO FACILITY OPERATING LICENSE NO. DPR-67

DOCKET NO. 50-335

Replace the following page of the Appendix "A" Technical Specifications with the enclosed page. The revised page is identified by amendment number and contains a vertical line indicating the area of change. The corresponding overleaf page is also provided to maintain document completeness.

Remove Page	Insert Page
3/4 5-4	3/4 5-4

ECCS SUBSYSTEMS - $T_{avg} \geq 325°F$

LIMITING CONDITION FOR OPERATION

3.5.2 Two independent ECCS subsystems shall be OPERABLE with each subsystem comprised of:

a. One OPERABLE high-pressure safety injection (HPSI) pump (one ECCS subsystem shall include HPSI pump A and the second ECCS subsystem shall include either HPSI pump B or C),

b. One OPERABLE low-pressure safety injection pump, and

c. An independent OPERABLE flow path capable of taking suction from the refueling water tank on a Safety Injection Actuation Signal and automatically transferring suction to the containment sump on a Recirculation Actuation Signal.

APPLICABILITY: MODES 1, 2 and 3*.

ACTION:

a. With one ECCS subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.

b. In the event the ECCS is actuated and injects water into the Reactor Coolant System, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date.

*With pressurizer pressure $\geq$ 1750 psia.

SURVEILLANCE REQUIREMENTS

4.5.2 Each ECCS subsystem shall be demonstrated OPERABLE:

a. At least once per 12 hours by verifying that the following valves are in the indicated positions with power to the valve operators removed:

Valve Number	Valve Function	Valve Position
1. V-3659	1. Mini-flow isolation	1. Open
2. V-3660	2. Mini-flow isolation	2. Open

b. At least once per 31 days by:

1. Verifying that each valve (manual, power operated or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

c. By a visual inspection which verifies that no loose debris (rags, trash, clothing, etc.) is present in the containment which could be transported to the containment sump and cause restriction of the pump suctions during LOCA conditions. This visual inspection shall be performed:

1. For all accessible areas of the containment prior to establishing CONTAINMENT INTEGRITY, and

2. Of the areas affected within containment at the completion of containment entry when CONTAINMENT INTEGRITY is established.

d. At least once per 18 months by:

1. Verifying proper operation of the open permissive interlock (OPI) and the valve open/high SDCS pressure alarms for isolation valves V3651, V3652, V3480, V3481.

2. A visual inspection of the containment sump and verifying that the subsystem suction inlets are not restricted by debris and that the sump components (trash racks, screens, etc.) show no evidence of structural distress or corrosion.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 120

TO FACILITY OPERATING LICENSE NO. DPR-67

FLORIDA POWER & LIGHT COMPANY

ST. LUCIE PLANT, UNIT NO. 1

DOCKET NO. 50-335

1.0 INTRODUCTION

The Florida Power and Light Company submitted a proposal on October 21, 1992 to amend Facility Operating License DPR-67 for St. Lucie Unit 1. The modification involves the removal of the auto-closure interlock (ACI) on the shutdown cooling system (SDCS) to minimize the potential for a loss of shutdown cooling capability during cold shutdown and refueling operations. Currently, the ACI and an open permissive interlock (OPI) exist to prevent overpressurization of the SDCS. These interlocks ensure closure of two isolation valves on each of the two SDCS suction lines when the reactor coolant system (RCS) pressure exceeds an established setpoint. The OPI is unaffected by the proposed changes.

2.0 BACKGROUND

The SDCS is a relatively low pressure system (< 500 psig) designed to remove heat from the RCS at low RCS pressure. During power operation the SDCS is isolated from the RCS via two motor-operated valves in series on each SDCS suction leg (V3480 and V3481 for suction line 1A, V3651 and V3652 for suction line 1B).

To guard against overpressurization resulting from postulated transients under normal operating conditions, relief valves are employed on the suction legs. These valves are not designed to relieve pressure in the event that this system is exposed to RCS pressure during power operation. Inadvertent overpressurization by exposure to RCS pressure during power operation of the SDCS could result in a rupture outside of containment resulting in an interfacing system loss-of-coolant accident (ISLOCA).

However, to minimize the potential for such a scenario, two interlocks are currently employed to ensure SDCS isolation via closure of the two isolation valves on each suction line. The ACI automatically closes the valves when the SDCS is in operation and the RCS pressure exceeds the ACI setpoint pressure of 267 psig. In addition, the OPI prevents opening of these suction line isolation valves when RCS pressure exceeds the design pressure of the SDCS. The proposed changes for the removal of the ACI do not affect the OPI.

The industry has experienced a number of spurious valve closures resulting in a loss of shutdown cooling capability caused at least in part by the presence of ACI. Although the removal of the ACI may increase the potential for an ISLOCA, it can be expected to reduce the potential for a loss of shutdown cooling. The proposed changes stem from a desire to minimize the potential for an ISLOCA and the loss of shutdown cooling.

3.0 SAFETY ASSESSMENT

The NRC has recommended several guidelines for ACI removal [reference 1]. The following is a list of the specific points addressed by the licensee:

1. Means to prevent LOCA outside containment.

2. Alarms to alert the operator of an improperly positioned SDCS suction valve.

3. Verification of the adequacy of relief valve capacity.

4. Means other than ACI to ensure that both isolation valves are closed.

5. Assurance that the OPI is not affected by ACI removal.

6. Assurance that valve position indication will remain available in the control room after ACI removal.

7. Assessment of the effect of ACI removal on interfacing systems loss-of-coolant accident (ISLOCA), SDCS unavailability, and low temperature overpressurization protection (LTOP).

3.1 Means to prevent LOCA outside containment.

The isolation valves on the SDCS suction line provide a double barrier between the SDCS and the RCS thus providing a high probability that at least one barrier can be established to prevent overpressurization of the SDCS. Appropriate training and procedures as well as the installation of alarms will be implemented to decrease the chances that the operator will fail to achieve closure of at least one of the two isolation valves. Once isolation is achieved and the RCS pressure exceeds the OPI setpoint pressure, separation will be maintained by the OPI. The OPI is unaffected by the proposed removal of the ACI.

3.2 Alarms to alert the operator of an improperly positioned SDCS suction valve.

Annunciator type alarms in the control room, training, and procedural controls will be implemented to minimize the potential of RCS heatup and pressurization above the SDCS design pressure while the suction line isolation valves are in the open position. The alarms will sound in the event that isolation is not achieved and the RCS pressure exceeds the alarm setpoint. Upon activation of these alarms, operating procedures will instruct the operators to halt RCS heatup and close the isolation valves. These alarms will be tested every 18 months as per Technical Specification 4.5.2.d.1 surveillance requirements.

3.3 Verification of the adequacy of relief valve capacity.

A review of the postulated events challenging the SDCS relief devices as described in FSAR section 6.3.2.2.6.d indicates that the ACI was not credited in the selection of limiting events or mitigating the ensuing transients. Therefore, this proposed change has no bearing on the results of the analysis.

3.4 Means other than ACI to ensure that both isolation valves are closed.

In addition to the means to ensure isolation valve closure described in section 3.2, the circuitry will be modified to alarm for valve position independent of the valve controls and position indication. Procedures will instruct operators to verify valve position and take appropriate actions in the event of alarm activation. Cautions will be provided to direct the operator to not pressurize the RCS above the SDCS design pressure prior to closure of both isolation valves.

3.5 Assurance that the OPI is not affected by ACI removal.

The OPI function will be unaffected by these proposed changes. This interlock will be tested at least once per 18 months to verify operability according to TS 4.5.2.d.1.

3.6 Assurance that valve position indication will remain available in the control room after ACI removal.

Valve position indicators within the control room will be powered via a safety grade power supply. Position indication will be available even during power operation.

3.7 Assessment of the effect of ACI removal on interfacing systems loss-of-coolant accident (ISLOCA), SDCS unavailability, and low temperature overpressurization protection (LTOP).

An analysis to determine the impact of ACI removal was completed to quantify the changes in: 1) ISLOCA frequency, 2) the change in SDCS unavailability, and 3) the impact on mitigating LTOP events due to the removal of the ACI.

The ISLOCA frequency is governed by catastrophic failure of both isolation valves. Therefore, removal of the ACI results in only a negligible increase (0.098%) in ISLOCA frequency.

The analysis of SDCS unavailability includes a comparison based on both the failure to start the system and failure to operate given that the system has started. Removal of the ACI results in a 39% decrease in shutdown cooling unavailability during refueling operations.

In order to mitigate LTOP events that may occur during low RCS temperature operation, St. Lucie Unit No. 1 employs two pressurizer power-operated relief valves (PORVs). Although the SDCS suction relief valves would be available during such an event, these valves are not credited in the LTOP analysis. Consequently, LTOP mitigation is unaffected by removal of the ACI. Inadvertantant closure of the SDCS suction valves has been identified to be a source for a potential LTOP challenging event under some conditions. However, since ACI removal increases the availability of the SDCS, the probability of LTOP challenges subsequently decreases.

4.0 TECHNICAL FINDING

In addressing the removal of the ACI, the licensee considered all staff guidelines outlined in reference 1 and instituted appropriate compensatory measures. Although the proposed changes result in a slight increase in ISLOCA frequency (0.098%), this is offset by the large decrease in SDCS unavailability (39%). The staff finds the licensee's proposal to remove the ACI and take compensatory actions to be acceptable.

5.0 STATE CONSULTATION

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

6.0 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 and changes surveillance requirements. 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 this amendment involves no significant hazards consideration and there has been no public comment on such finding (57 FR 55580). 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.

7.0 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.

8.0 REFERENCES

1. "NRC Safety Evaluation Relating to Removal of Autoclosure Interlock Function at Diablo Canyon," February 17, 1988, Docket No. 05-000275/323.

Principal Contributor: Phillip Rush

Date: March 18, 1993