



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 144 AND 84

TO FACILITY OPERATING LICENSE NO. DPR-67 AND NO. NPF-16

FLORIDA POWER AND LIGHT COMPANY, ET AL.

ST. LUCIE PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-335 AND 50-389

1.0 INTRODUCTION

By application dated November 22, 1995, the Florida Power and Light Company (the licensee) proposed amendments to the Technical Specifications (TS) for St. Lucie Unit 1 and 2, respectively. The requested changes would modify the existing TS 3/4.4.6.1 for the Reactor Coolant System Leakage Detection Instrumentation by adapting the Standard Technical Specifications for Combustion Engineering Plants (NUREG-1432), Specification 3.4.15, to both St. Lucie units. The amendments support increased operational flexibility while preserving adequate monitoring of the reactor coolant pressure boundary, and provide consistent requirements for the two St. Lucie units.

2.0 BACKGROUND

The requirements for systems to detect Reactor Coolant System (RCS) leakage are contained in General Design Criteria 30 of Appendix A to 10 CFR 50, which requires means for detecting and, to the extent practical, identifying the location of the source of RCS leakage. Regulatory Guide 1.45 describes acceptable methods for selecting leakage detection systems. In addition to monitoring flow rate changes to sumps for liquid collection, other methods should be selected to indicate when coolant is released to the containment atmosphere.

The leakage detection requirements for the two St. Lucie units are:

St. Lucie Unit 1

Currently, Specification 3.4.6.1 requires that the following RCS leakage detection systems be operable:

- a. A containment atmosphere particulate radioactivity monitoring system,
- b. The reactor cavity sump level and flow monitoring system, and
- c. A containment atmosphere gaseous radioactivity monitoring system.

ENCLOSURE 3

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The action statement for this limiting condition for operation (LCO) allows continued operation for up to 30 days with one of the required radioactivity monitoring systems inoperable provided the other two required leakage detection systems are operable and appropriate grab samples are obtained and analyzed at least once per 24 hours. Both of the required radioactivity monitoring systems may be inoperable for up to 30 days provided that the reactor cavity sump level and flow monitoring system is operable, appropriate grab samples are obtained and sampled at least once per 24 hours, and a reactor coolant system water inventory balance is performed at least once per 8 hours. If the containment sump level and flow monitoring system becomes inoperable, operation can continue for 7 days. For each condition, if the required systems are not restored to operable within the allowed time, the unit must be placed in hot standby within the next 6 hours and in cold shutdown within the following 30 hours.

#### St. Lucie Unit 2

Currently, Specification 3.4.6.1 requires that the following Reactor Coolant System leakage detection systems be operable:

- a. A containment atmosphere particulate radioactivity monitoring system,
- b. The reactor cavity sump level and flow monitoring system, and
- c. A containment atmosphere gaseous radioactivity monitoring system.

The action statement for this limiting condition for operation states that with only two of the three RCS leakage detection systems operable, operation may continue for up to 30 days provided grab samples of the containment atmosphere are taken and analyzed at least once per 24 hours when the required gaseous and/or particulate radioactivity monitoring system is inoperable; otherwise be in at least hot standby within the next 6 hours and in cold shutdown with the following 30 hours.

The equivalent Standard Technical Specifications requires two of the following RCS leakage detection instruments to be operable:

- a. One containment sump monitor,
- b. One containment atmosphere radioactivity monitor (gaseous or particulate), and, (if installed),
- c. One containment air cooler condensate flow rate monitor. (This monitor is not installed at St. Lucie Unit 1 or 2).

When the required containment sump monitor is inoperable, the action statements for this limiting condition for operation requires a RCS water inventory balance be performed once per 24 hours and the containment sump monitor be restored to operable status within 30 days. If the required containment atmosphere radioactivity monitor is inoperable, a containment atmosphere grab sample must be analyzed once per 24 hours or a RCS water inventory balance must be performed once per 24 hours and the required

atmosphere monitor must be restored to operable within 30 days. If the required action and associated completion times are not met, then the plant must be placed in Mode 3 within 6 days and in Mode 5 within 36 days. If all required monitors are inoperable, LCO 3.0.3 must be entered immediately. The surveillance requirements in the standard technical specifications require a channel check of the containment atmosphere radioactivity monitor at appropriate intervals (typically 12 hours), a channel functional test of this monitor every 92 days, and a channel calibration of the containment sump monitor and the atmosphere radioactivity monitor at an appropriate frequency (typically on a refueling cycle).

The proposed amendments to the TS request changes to TS 3.4.6.1 for both St. Lucie Units 1 and 2 such that the specification is consistent between the two units and with the equivalent requirement of the Improved Standard Technical Specifications. The respective surveillance and TS bases for each unit are revised to reflect the change in the specification.

### 3.0 EVALUATION

#### 3.1 LCO for TS 3.4.6.1

The licensee proposes to reduce the number of leakage detection systems required to be operable from the current three systems to two systems. Instead of requiring both the containment particulate and gaseous radioactivity monitoring systems to be operable, the proposed specification would require either of the two to be operable. The other required system would be the reactor cavity sump inlet flow monitoring system, whereas the current specification includes both sump level and flow monitoring as part of this system.

The containment atmosphere radioactivity monitors both perform similar functions in identifying an RCS leak by detecting an increase in containment radioactivity. Similarly, monitoring sump level and sump inlet flow both provide indications of a RCS leak by detecting a change in the liquid content of the sump. Monitoring the containment atmosphere radioactivity and cavity sump flow rate provides two diverse methods of rapidly detecting small RCS leaks. This provides an acceptable minimum level of monitoring, is consistent with the standard technical specifications, and will not result in a reduction in the margin of safety. Therefore, the staff finds this change to be acceptable.

#### 3.2 Action Statements for TS 3.4.6.1

Proposed Action a. would allow continued operation for 30 days with the reactor cavity sump flow monitoring system inoperable, provided that a RCS water inventory balance was performed at least once per 24 hours and the containment atmosphere radioactivity monitoring system is operable. The atmosphere monitor is adequate to provide early detection of increased RCS leakage and the performance of the RCS inventory balance at the increased frequency provides a diverse means of leakage detection and verification. Operation for 30 days is acceptable since other leakage detection are available and the time should be adequate to restore the reactor cavity sump



flow monitoring system to operability. The staff finds this action statement acceptable.

Proposed Action b. would allow continued operation for 30 days with both the particulate and gaseous containment atmosphere radioactivity monitor inoperable, provided that, at least once every 24 hours, grab samples of the containment atmosphere are taken and analyzed or a RCS water inventory balance is performed. This action would continue to provide diverse indication of RCS leakage, and the 30 day completion time should be adequate to restore at least one radioactivity monitor to service. The proposed action is also consistent with the standard technical specifications. The staff finds this action statement acceptable.

For both proposed action a. and b., if the required actions cannot be met within the required action time, the plant would be brought to a mode in which the LCO did not apply. This would be accomplished by placing the plant in hot standby within the next 6 hours and in cold shutdown within the following 30 hours. These completion times are reasonable to reach the required power conditions in an orderly manner without challenging plant systems, and are consistent with the standard technical specifications. The staff finds these actions acceptable.

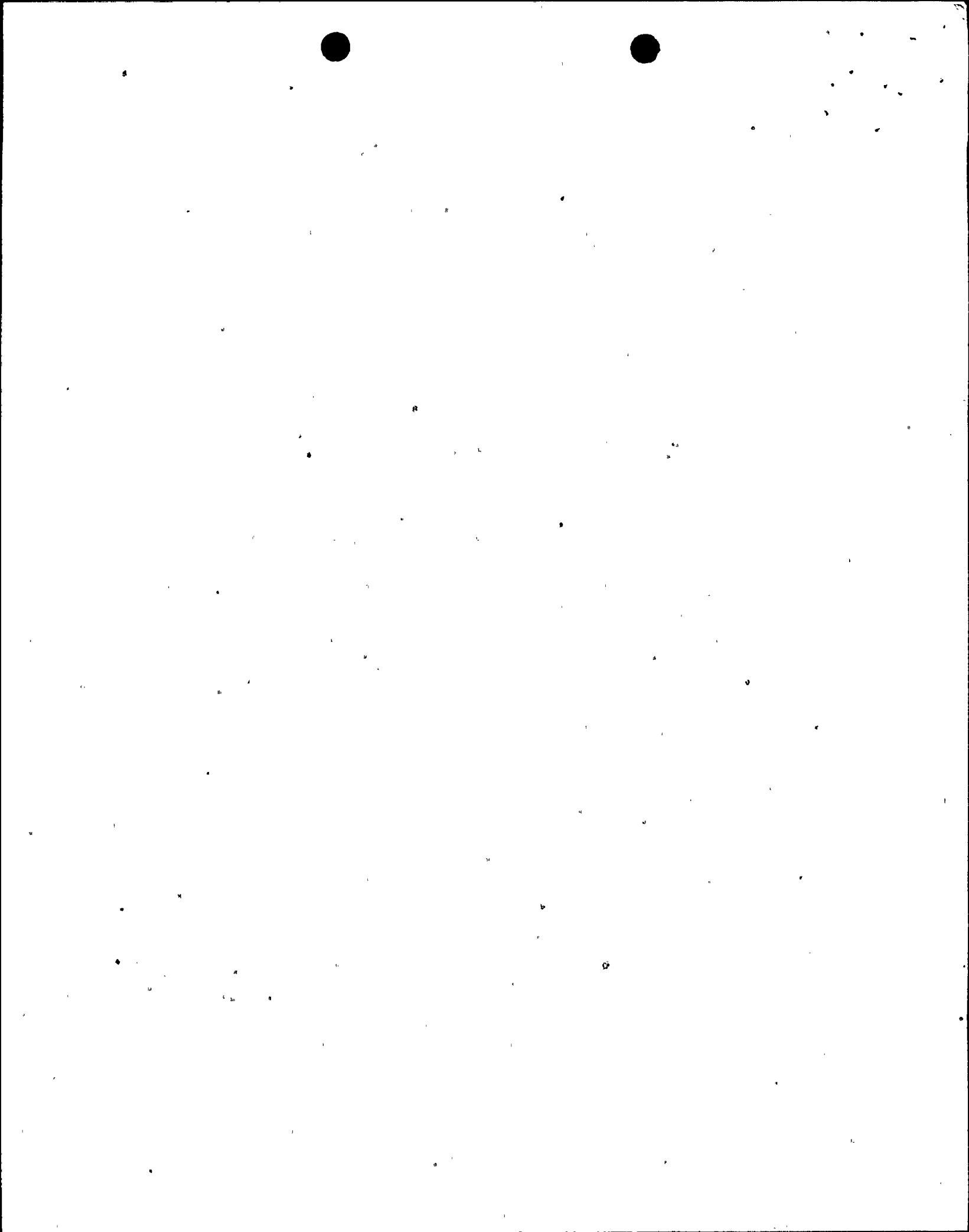
Proposed Action c. would require immediate entry into LCO 3.0.3 if all required monitors were inoperable. Since no automatic means of monitoring RCS leakage would be available in this situation, immediate plant shutdown in accordance with LCO 3.0.3 is appropriate and consistent with the standard technical specifications. The staff finds this action acceptable.

Proposed Action d. states that the provisions of TS 3.0.4 are not applicable if at least one of the required monitors is operable. Since other methods are available to monitor RCS leakage, assuring that leakage from the RCS will be promptly detected, this action is acceptable to the staff and is consistent with the standard technical specifications.

### 3.3 Surveillance 4.4.6.1

The proposed change to surveillance 4.4.6.1 deletes reference to those specific systems that were deleted from the LCO 3.4.6.1. The required tests and test frequencies were unchanged from the current surveillance. Since the proposed surveillance 4.4.6.1 will continue to require testing of those systems necessary to detect and identify RCS leakage, the staff finds this change acceptable.

The staff concludes, based on its review of the licensee's submittal, that St. Lucie, Units 1 and 2, can be operated safely without undue risk to the health and safety of the public and there is reasonable assurance that the minimum required reactor coolant system leakage detection systems will be adequate to promptly identify the occurrence of RCS leakage in time to allow actions to place the plant in a safe condition. Therefore, we conclude that this change to TS 3/4.4.6.1 is 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 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 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 (61 FR 1629). 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: L. Wiens

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