



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 185 TO FACILITY OPERATING LICENSE NO. DPR-31
AND AMENDMENT NO. 179 TO FACILITY OPERATING LICENSE NO. DPR-41
FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT UNIT NOS. 3 AND 4
DOCKET NOS. 50-250 AND 50-251

1.0 INTRODUCTION

By letters dated March 20, 1996, and April 23, 1996, Florida Power and Light (FPL or the licensee) proposed a change to the Technical Specifications (TS) for Turkey Point Units 3 and 4. The proposed changes would (1) relocate the surveillance requirements associated with the accumulator water level and pressure channel instrumentation from TS to other licensee documents as discussed in GL 93-05, (2) revise the ACTION statements regarding the accumulators in accordance with the standard technical specifications (STS) NUREG-1431 and (3) change the requirement for accumulator volume and nitrogen cover pressure surveillance to be verified by any valid means, not just instrumentation. The April 23, 1996 letter was necessary to revise the submittal to include the surveillance requirement for accumulator check valve operability which was inadvertently omitted in the March 20, 1996 submittal.

2.0 BACKGROUND

The functions of the emergency core cooling system (ECCS) accumulators are to supply water to the reactor vessel during the blowdown phase of a loss-of-coolant accident (LOCA), to provide inventory to help accomplish the refill phase that follows thereafter, and to provide Reactor Coolant System (RCS) makeup for a small break LOCA.

The Limiting Condition for Operation establishes the minimum conditions required to ensure that the accumulators are available to accomplish their core cooling safety function following a LOCA. Three accumulators are required to ensure that 100% of the contents of two of the accumulators will reach the core during a LOCA. This is consistent with the assumption that the contents of one accumulator spill through the break. If less than two accumulators are injected during the blowdown phase of a LOCA, the ECCS acceptance criteria of 10 CFR 50.46 could be violated.

For an accumulator to be considered operable, the isolation valve must be fully open, power removed above 1000 psig, and the limits established in the surveillance requirements for contained volume, boron concentration, and nitrogen cover pressure must be met.

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3.0 EVALUATION

3.1 Relocation of Water Level and Pressure Channel Surveillance Requirements

The licensee proposed to revise the TS by removing the requirements for basing the operability of the accumulators on the operability of the water level and pressure channel instruments. This will also remove the surveillance requirements for the water level and pressure channels from the TS and move them to appropriate plant procedures. Adequate accumulator water level and pressure are still required for accumulator operability per the revised TS surveillance requirements, section 4.5.1.1.

This TS change implements GL 93-05, Item 7.4, Accumulator Water Level and Pressure Channel Surveillance Requirements (PWR) and is consistent with industry recognition that accumulator instrumentation operability is not directly related to the capability of the accumulators to perform their safety function.

The proposed changes in this area are consistent with the guidance provided in GL 93-05. This guidance is based on the NRC staff findings and recommendations stated in NUREG-1366. NUREG-1366 recognized that testing is important to periodically verify that systems, structures, and components are available to perform their safety functions. Testing is especially critical to reveal degradation and failures that occur while equipment is in standby mode. The study did find that, while most testing at power is important, safety can be improved, equipment degradation decreased, and an unnecessary burden on personnel resources eliminated by reducing the amount of testing that TS required during power operation. In addition, the licensee stated that the proposed TS changes are compatible with plant operating experience. The staff concludes that the proposed TS changes do not adversely affect plant safety and will result in a net benefit to the safe operation of the facility, and, therefore, are acceptable.

3.2 Changes to Accumulator Action Statements

The licensee proposed to amend the action statements of TS 3.5.1 to reflect the requirements of NUREG-1431 STS 3.5.1 by requiring a 72-hour period to restore boron concentration if it is not within the limits, and a 1-hour period to restore any other condition which makes the accumulator inoperable. Current TS specify that, if an accumulator is inoperable due to a closed isolation valve, action must be taken immediately to open the valve and, if the accumulator is inoperable for any other reason, a 4-hour period is specified to restore the accumulator to operability.

If the boron concentration of one accumulator is not within limits, the ability to maintain subcriticality or minimum boron precipitation time may be reduced. The boron in the accumulators contributes to the assumption that the combined ECCS water in the partially recovered core



during the early reflooding phase of a large break LOCA is sufficient to keep that portion of the core subcritical. One accumulator below the minimum boron concentration limit, however, will have no effect on available ECCS water and an insignificant effect on core subcriticality during reflood. Boiling of ECCS water in the core during reflood concentrates boron in the saturated liquid that remains in the core. In addition, current analysis techniques demonstrate that the accumulators do not discharge following a large main steam line break for the majority of plants. Even if they do discharge, their impact is minor and not a design limiting event. Thus, 72 hours is an acceptable allowable time to return the boron concentration to within limits.

If one accumulator is inoperable for a reason other than boron concentration, such as a closed isolation valve, the accumulator must be returned to operable status within 1 hour. In this condition, the required contents of two accumulators cannot be assumed to reach the core during a LOCA. Due to the severity of the consequences should a LOCA occur in these conditions, the 1-hour completion time to open the valve, remove power to the valve, or restore the proper water volume or nitrogen cover pressure ensures that prompt action will be taken to return the inoperable accumulator to operable status. The completion time minimizes the potential for exposure of the plant to a LOCA under these conditions. Specifying 1 hour rather than immediately better defines the expectations in this case since immediately may be misinterpreted to mean a period of longer than 1 hour if actions are underway to reopen the valve. Thus, 1 hour is an acceptable allowable time to reopen the valve.

For the reasons specified above, the staff finds the proposed allowable times acceptable.

3.3 Change to Verification of Accumulator Volume and Nitrogen Cover Pressure

The licensee proposed changing the requirement for the accumulator volume and nitrogen cover pressure surveillance to be verified by any valid means, not just instrumentation, once every 12 hours.

Every 12 hours, borated water volume and nitrogen cover pressure are verified for each accumulator. This frequency is sufficient to ensure adequate injection during a LOCA. Because of the static design of the accumulator, a 12-hour frequency usually allows the operator to identify changes before limits are reached. This frequency is appropriate for early detection and correction of off normal trends. The primary consideration is that the water volume and nitrogen cover pressure are adequate to respond to a LOCA and not what means are used to determine the values. Therefore, the staff finds the proposed 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

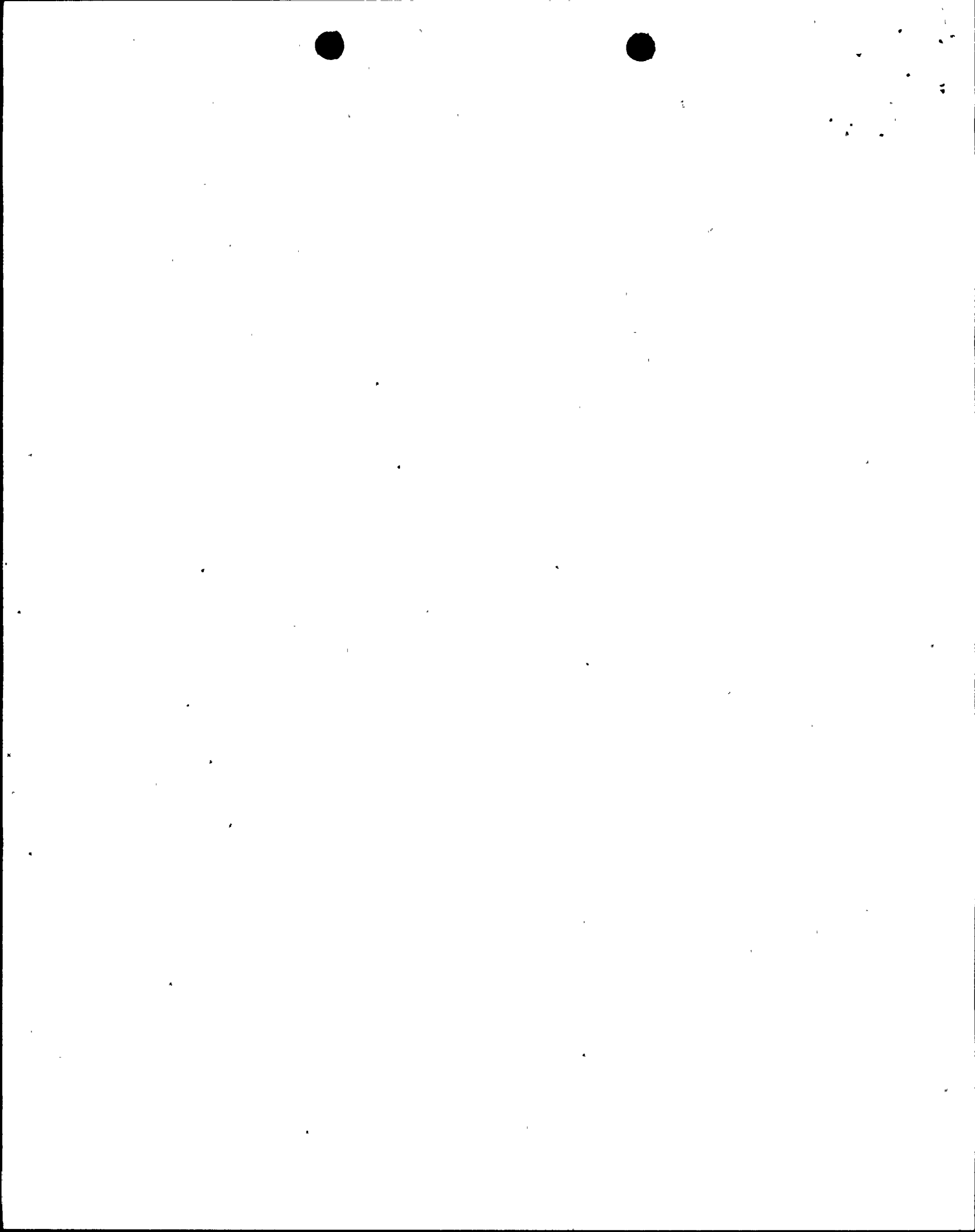
These amendments involve a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents 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 25707). 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 the 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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

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