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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 28 TO FACILITY OPERATING LICENSE NO. DPR-67

FLORIDA POWER & LIGHT COMPANY

ST. LUCIE PLANT, UNIT NO. 1

DOCKET NO. 50-335

Introduction

By applications dated February 24 and 27, 1978, Florida Power and Light Company (FPL) requested amendments to the Technical Specifications for the St. Lucie Plant, Unit No. 1. The amendments would change the Technical Specifications to increase the minimum required volume of water in the Refueling Water Tank (RWT) and allow an increase in the coolant temperature at which shutdown cooling is initiated. We have combined these two proposed amendments in this action.

Discussion and Evaluation

Refueling Water Tank Level

This proposed change to the Technical Specifications (Reference 1) consists of increasing the minimum required volume of water in the Refueling Water Tank (RWT) from 371,800 gallons to 401,800 gallons. (The RWT is described in the St. Lucie Unit No. 1 Final Safety Analysis Report (FSAR) (Reference 2)). FPL requests this change in order to assure that, in the event of a Loss-of-Coolant-Accident (LOCA), 305,600 gallons of borated water would be available in the RWT to be delivered to the containment by the emergency core cooling pumps and 66,200 gallons would remain in the tank and would provide adequate net positive suction head (NPSH) for the pumps.

Recently, FPL identified (Reference 3) a portion of the piping between the RWT and charging pumps, downstream from a manually operated valve, as non-seismic Class I piping. Should the line rupture, assuming the valve was aligned in an open position, it was postulated that a portion of the RWT inventory could be lost. FPL has determined that in order to account for the loss of water through the break during a conservatively estimated injection phase (~57 minutes), the minimum volume of the water in the RWT should be increased by approximately 10 percent up to a volume of 401,800 gallons.

We have verified FPL's assertions and conclude that the increased water inventory in the RWT would compensate for the water lost through the postulated break and that the safety injection pumps would be able to deliver the required water volume to the containment. We have also considered the effect of increased borated water inventory on boric acid precipitation during post-LOCA long term cooling and conclude that the required switchover time from cold to hot leg injection would not change significantly.

After reviewing the information provided by FPL and making independent calculations, we have determined that the proposed increase in the minimum RWT water inventory will provide the required improvement in the performance of the emergency core cooling system.

Temperature for Shutdown Cooling

The proposed change in the Technical Specifications (Reference 4) consists of changing the upper temperature limit for the initiation of shutdown cooling from 300°F to 325°F. FPL requests this change in order to be able to satisfy the criteria of FSAR Section 10.3.2 for cooldown to the shutdown cooling window in the event that the offsite power is unavailable for an extended period of time. On April 8, 1977, FPL became aware that the atmospheric steam dump valves are undersized and that the plant cannot be cooled at the rate specified by the FSAR when the offsite power is not available and all the steam, generated by the decay heat, has to be released to the atmosphere. This fact has been reported to the NRC (Reference 5) and a corrective action, consisting of modifying the atmospheric dump valve intervals, was made. FPL found, however, that in order to meet the FSAR criteria, further action was necessary. This action consists of increasing the temperature at which the cooldown of the primary coolant by the shutdown cooling system could be initiated. In justifying the proposed change, FPL has indicated that the shutdown system in the St. Lucie plant is designed to operate at temperatures of up to 350°F (Reference 6), and the change of startup temperature limit from 300°F to 325°F could be accomplished without violating the design criteria. The licensee has also indicated that he has reviewed the FSAR accident analyses and that the proposed change would not adversely affect offsite releases. We have reviewed the licensee's assertion and find that the offsite releases remain unaffected by the change.

We have reviewed FPL's assertions concerning the performance of cooldown systems with the changed temperature limit. We have determined that the increase of this limiting temperature by 25°F will not significantly affect the performance of the shutdown pumps, shutdown heat exchangers or any other components vital to the safe operation of the shutdown cooling system under normal or accident conditions. We conclude therefore that the change of upper temperature limit for the initiation of the shutdown cooling system in the St. Lucie Unit No. 1 plant from 300°F to 325°F will not degrade the performance of the system.

Environmental Consideration

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of enyironmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: December 14, 1978

References

1. Florida Power and Light Company letter L-78-67 to NRC (V. Stello), "Proposed Amendment to Facility Operating License DPR-67", dated February 24, 1978.

2. Florida Power and Light Company FSAR, St. Lucie Plant Unit 1 (Docket No. 50-335), Section 6·3·2·2·1.

3. Florida Power and Light Company letter PRN-LI-77-328 to NRC (J. P. O'Reilly), "Reportable Occurrence 335-77-39, St. Lucie Unit 1; Refueling Water Tank Piping", dated October 24, 1977.

4. Florida Power and Light Company letter L-78-70 (R. E. Uhrig) to NRC (V. Stello), "Proposed Amendment to Facility Operating License DPR-67", dated February 27, 1978.

5. Florida Power and Light Company, Reportable Occurrence Report 335-77-22, St. Lucie Unit 1, dated April 22, 1977.

6. Florida Power and Light Company FSAR, St. Lucie Plant, Unit 1 (Docket No. 50-335), Section 9·3·5·2·2.