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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 39 TO LICENSE NO. DPR-16

JERSEY CENTRAL POWER & LIGHT COMPANY

OYSTER CREEK NUCLEAR GENERATING STATION

DOCKET NO. 50-219

Introduction

By letter dated May 23, 1979 (Addendum 1 to Change Request No. 72 dated May 19. 1979), Jersey Central Power & Light Company (the licensee) requested an amendment to the Technical Specifications of License No. DPR-16 for the Oyster Creek Nuclear Generating Station. The proposed changes would revise the Appendix A Technical Specifications to add a limiting safety system setting for the automatic initiation of the Isolation Condenser on a reactor low-low water level to Section 2.3. Table 3.1.1 would also be revised to reflect this change.

Discussion

On May 2, 1979, a loss of feedwater transient occurred at the Oyster Creek Nuclear Generating Station which resulted in a low-low-low (triple low) water level alarm. The NRC evaluated the event and corrective actions proposed to prevent recurrence (Reference 1). Three changes to the Technical Specifications were proposed as a result of the event: 1) the triple low water level was defined as a Safety Limit for all modes of reactor operation, 2) a new Safety Limit was defined which requires two recirculation loops to have the pump suction and discharge valves open at all times, and 3) a limiting safety system setting for automatic initiation of the Isolation Condenser on a reactor low-low water level signal was proposed.

License Amendment No. 36, dated May 30, 1979 (Reference 2), approved changes 1) and 2) above. This proposed amendment would incorporate the remaining proposed change, change 3) above, into the Technical Specifications.

Prior to the May 2, 1979 loss of feedwater transient, the NRC was reviewing the licensee's operation of Oyster Creek, using previously approved restrictions of Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) limits (originally authorized by Amendment No. 30, dated March 14, 1978). Since Oyster Creek was operating with only 4 of the five recirculation loops and with MAPLHGR limits

approved by Amendment No. 33, dated November 11, 1978, which did not consider 4-loop operation, we concluded that a Technical Specification change to Section 3.10 was necessary. The licensee agreed. As a result license Amendment No. 35 was issued. However, Amendment No. 35 referenced incorrect MAPLHGR associated curves even though the proper limits were incorporated into the Technical Specifications. This license amendment would correct this administrative error, but the conclusions and results of Amendment No. 35 and its related Safety Evaluation Report (Reference 3) are not affected.

Evaluation

Limiting Safety System Settings

To assure that the triple-low water level safety limit will not be violated during any transient, the licensee has analyzed the transient which results in the largest loss of coolant system inventory. The licensee states (Reference 4) that a loss of feedwater (LOFW) starting from full power, results in the most severe reduction in reactor vessel water level.

We have reviewed the licensee's analysis including: 1) codes and methods, 2) coolant inventory loss assumptions, 3) coolant inventory distribution assumptions, and 4) the results.

In our Safety Evaluation Report dated May 30, 1979 (Reference 1), we concluded that: 1) the licensee's assumptions provide an adequately conservative basis upon which to calculate the minimum core water level attained during the limiting loss of coolant inventory transient, 2) with only one recirculation loop assured unisolated, recirculation flow is sufficient to prevent boiloff from reducing core water level below 6'7" above the top of the active fuel, and 3) the triple-low water level fuel cladding integrity safety limit would not be violated; therefore, the results of the limiting loss of coolant inventory transient are acceptable. However, because of the importance of automatic actuation of the Isolation Condenser at low-low level, both the low-low level and the maximum time delay before Isolation Condenser valve opening should be included as limiting safety system settings.

To assure the proper initiation and operation of the Isolation Condenser on low-low water level in the annulus in accordance with the bounding analysis assumptions, the licensee has proposed to add a limiting safety system requirement to Section 2.3 of the Oyster Creek plant Technical Specifications. The Specification states that the limiting safety system setting is the low-low water level setpoint which was assumed in the bounding analysis, i.e., 7'2" above the top of the active fuel. The limiting safety system setting incorporates a maximum three second time delay (Reference 4) to assure that the system will not fail to initiate because the core low-low water level momentarily clears as a result of the water level swell in the annulus caused by a simultaneous recirculation pump trip. Additionally, based on our review of actual plant operating data of isolation condenser initiations and possible isolation, a time delay of three seconds or less will not cause the isolation condensers to re-isolate on high flow conditions caused by recirculation pump coastdown effects. This time delay is also adequate for recirculation flow coastdown effects

applicable to four loop operation. The limiting conditions of operation and surveillance requirements for the isolation condenser will not be changed. Based on the above, we find the proposed Technical Specification change acceptable.

APLHGR Limits

We have reviewed operation of Oyster Creek with 4 recirculation loops using the MAPLHGR limits approved with License Amendment No. 16 and based on combined General Electric and Exxon analyses. Although these limits were previously approved for 4 loop operation, we have reevaluated the limits using current criteria. Based on this reassessment we have concluded that: 1) the ECCS evaluation for operation with one loop out of service approved in License Amendment No. 16 is fully applicable to the present core configuration, 2) with the present restriction of Technical Specification 3.3.F.2, idle loop startup and the cold water reactivity addition accident is not a concern, 3) the manner of accounting for backflow through the inactive loop is acceptable, 4) the locked rotor event while operating with four recirculation pumps is bounded by the previously reviewed transient analysis and remains acceptable, and 5) the newly proposed MAPLHGR limits are based on calculational methods previously accepted, they do not change MAPLHGR limits previously found acceptable, but, only extend the previous calculations to higher fuel exposures and are therefore acceptable.

Based on the above conclusions, the staff issued License Amendment No. 35 (Reference 3). However, the Technical Specification changes incorporated with License Amendment No. 35 were incomplete. Although the proper limits had been incorporated some of the text material still referred to the limits established by License Amendment No. 33, dated November 11, 1978. To correct these inconsistencies, the following changes should be made. The licensee agrees with these changes: 1) reinstating the Assembly Averaged Power Void Relationship for all fuel types on page 3.10-2 which was removed by Amendment No. 33, 2) delete the word Interim from the title of Figure 3.10-1. which was on the copy submitted by the licensee and inadvertently not removed, 3) remove Figure 3.10-2 and delete the reference to Figure 3.10-2 from page 3.10-1 since the axial multiplier was derived for the less restrictive MAPLHGR limits approved by License Amendment No. 33.

These three changes correct the inconsistencies between the use of the limits approved by License Amendment No. 35 and License Amendment No. 33. Since the changes are administrative and establish the more restrictive limits approved by License Amendment No. 16 and 35 they are acceptable.

Summary

The changes to the Technical Specifications to include the automatic initiation of the Isolation Condenser as a limiting safety system setting was evaluated and found acceptable in our Safety Evaluation Report dated May 30, 1979 (Reference 1), the change in the Technical Specifications to use the more restrictive MAPLHGR limits for 4-loop operation were evaluated and found

acceptable in the Safety Evaluation Report issued with License Amendment No. 35 dated May 30, 1979. This amendment would incorporate the Limiting Safety System Settings for automatic initiation of the Isolation Condenser and correct administrative errors in License Amendment No. 35. For the reasons stated in this evaluation we find the proposed Technical Specification changes acceptable.

Environmental Considerations

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 environmental 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 this 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.

Date: July 23, 1979

REFERENCES

1. Safety Evaluation Report dated May 30, 1979, Review of the May 2, 1979 Transient at the Oyster Creek Nuclear Generating Station.

2. License Amendment No. 36 dated May 30, 1979, Modification of Section 2.1.D to extend the applicability of the minimum water level Safety Limit to all Modes of Operation and Addition of a new Safety Limit in Section 2.1.F to Require that Two Recirculation Loops Remain Open During All Modes of Operation.

3. License Amendment No. 35 dated May 30, 1979, for the Oyster Creek Nuclear Generating Station.

4. Letter dated May 19, 1979 from I. R. Finfrock (JCP&L) to NRC enclosing an analysis titled "Bounding Loss of Coolant Inventory Transient for the Oyster Creek Plant."