SAFETY EVALUATION REPORT

IPSAR SECTION 4.25, APPENDIX K - ELECTRICAL INSTRUMENTATION AND CONTROL RE-REVIEWS

OYSTER CREEK NUCLEAR GENERATING STATION

I. INTRODUCTION

The final Integrated Plant Safety Assessment Report (IPSAR) for Oyster Creek (NUREG-0822) concluded that the licensee would perform a coordinated load and circuit breaker analysis to establish the corrective actions necessary to preclude automatic transfer of faults. The Oyster Creek ac system has seven automatic transfers of load or load groups between redundant sources.

II. EVALUATION

A. Evaluation Criteria

1. General Design Criterion 17
2. General Design Criterion 21
3. IEEE Std. 279-1971
4. IEEE Std. 308-1974
5. Regulatory Guide 1.6

These requirements and guidelines provide that redundant systems should be independent of each other and that provisions should not exist for automatically transferring one load group to another load group or loads between redundant power sources. Where automatic load transfer exists, the transfer design should satisfy the single failure criterion to the extent that a fault in one division will not adversely affect its redundant counterpart.

B. Information Provided by the Licensee

In a letter dated September 1, 1983, the licensee submitted an evaluation which concluded that the circuit breakers in the ac system are properly coordinated and no corrective action would be necessary. After reviewing the submittal, the staff notified the licensee that certain time response characteristics accompanying their submittal showed an overlap in the protective relaying during which faulted loads could transfer to the redundant division.

Consequently, the licensee performed additional analyses and submitted a revised evaluation in a letter dated July 30, 1984. That evaluation included design information from the equipment

manufacturers, updated circuit design information, revised engineering calculations, and an evaluation of relay coordination. As a result of this evaluation, the licensee proposed to replace the trip units in two feeder breakers with relays having improved time characteristics. The licensee also proposed that these modifications would be completed during the next refueling outage (Cycle XI).

In a letter dated October 25, 1984, the licensee amended the schedule to provide for installation of the new relays at the first outage of five or more days after receipt of the necessary parts. These parts are expected on site after approximately the first week in January 1985.

C. Results of the Staff Review

The staff has reviewed the licensee's analyses and concluded that the relay coordination (i.e., time response characteristics) provides sufficient independence between redundant electrical divisions to preclude the automatic transfer of faulted loads between those divisions. Therefore, the staff finds the licensee's proposal to replace the two relays with overlapping time response characteristics acceptable.

III. CONCLUSIONS

The staff concludes that relay coordination provides sufficient independence between redundant electrical divisions and, therefore, the licensee's proposed corrective action is acceptable. Moreover, in view of the potentially severe consequences of a transfer of faults between redundant electrical divisions, the staff believes that its appropriate to replace the affected relays at the earliest possible opportunity consistent with the licensee's October 25, 1984, commitment. The staff does not believe that the likelihood of such an event, in the interim, is so large that a plant shutdown to install these relays sooner is warranted and the commitment of October 25, 1984 is acceptable.