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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING GENERIC LETTER 83-28, ITEM 4.5.2

REACTOR TRIP SYSTEM RELIABILITY

COMMONWEALTH EDISON COMPANY

DRESDEN NUCLEAR POWER STATION UNIT NOS. 2 AND 3

DOCKET NOS. 50-237, 249

1.0 INTRODUCTION

On February 25, 1983, both of the scram circuit breakers at Unit 1 of the Salem Nuclear Power Plant failed to open upon an automatic reactor trip signal from the reactor protection system. This incident was terminated manually by the operator about 30 seconds after the initiation of the automatic trip signal. The failure of the circuit breakers was determined to be related to the sticking of the undervoltage trip coil. Prior to this incident, on February 22, 1983, at Unit 1 of the Salem Nuclear Power Plant, an automatic trip signal was generated based on steam generator low-low level during plant start-up. In this case, the reactor was tripped manually by the operator.

Following these incidents, on February 28, 1983, the NRC Executive Director for Operations (EDO), directed the staff to investigate and report on the generic implications of these occurrences at Unit 1 of the Salem Nuclear Power Plant. The results of the staff's inquiry into the generic implications of the Salem unit incidents are reported in NUREG-1000, "Generic Implications of the ATWS Events at the Salem Nuclear Power Plant." As a result of this investigation, the Commission (NRC) requested, by Generic Letter 83-28 dated July 8, 1983, all licensees of operating reactors, applicants for an operating license, and holders of construction permits to respond to generic issues raised by the analyses of these two ATWS events. This report is an evaluation of the response submitted by Commonwealth Edison, the licensee for Dresden 2 & 3, for Item 4.5.2 of Generic Letter 83-28. The actual documents reviewed as part of this evaluation are listed in the references at the end of this report.

2.0 REVIEW CRITERIA

Item 4.5.2 requires licensees with plants not currently designed to permit on-line testing to justify not making provisions for such testing. Alternatives to on-line testing proposed by the licensees will be considered if the objectives of high reliability can be met in another way. This review will:

1. Confirm that the licensee has identified those portions of the Reactor Trip System that are not on-line testable. If the entire Reactor Trip System is verified to be on-line testable, with those exceptions addressed above, no further review is required.

2. Evaluate modifications proposed by the licensee to permit on-line testing against the existing criteria for the design of the protection systems for the plant being modified.

3. Evaluate proposed alternatives to on-line testing of the Reactor Trip System where the impracticality of the modifications necessary to permit on-line testing exists.

3.0 EVALUATION

The licensee for Dresden 2 & 3 responded to the requirements of 4.5.2 with submittals dated November 5, 1983 and June 1, 1984. In the responses, the licensee stated that the Dresden reactor trip system, with the exception of the backup scram valves, is designed to allow on-line testing and that such tests are performed at the frequencies defined in the Technical Specifications. Except for the backup scram valves, this meets the requirements of Item 4.5.2.

On-line testing of the backup scram valves will not be performed during plant operation because there is only one pair of backup scram solenoid valves and the logic arranged is such that the repositioning (energizing) of either backup scram solenoid will cause a plant scram. However, the valves will be independently tested during each refueling outage. We conclude that this is acceptable.

4.0 CONCLUSION

Based on our review of the licensee's responses, we find that the Dresden reactor trip system with the exception of backup scram valves permits on-line testing. The licensee has justified not performing on-line testing of the backup scram valves. This meets the requirements of Item 4.5.2 of the GL 83-28 and is, therefore, acceptable.

5.0 REFERENCES

1. NRC Letter, D. G. Eisenhut to all Licensees of Operating Reactors, Applicants for Operating License, and Holders of Construction Permits, "Required Actions Based on Generic Implications of Salem ATWS Events (Generic Letter 83-28)," July 8, 1983.

2. Letter, P. L. Barnes, Commonwealth Edison to Harold R. Denton, NRC, November 5, 1983.

3. Letter, P. L. Barnes, Commonwealth Edison to Harold R. Denton, NRC, June 1, 1984.

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