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

SAFETY EVALUATION REPORT

GENERIC LETTER 83-28, ITEM 4.5.2

REACTOR TRIP SYSTEM RELIABILITY

FERMI-2

DOCKET NO. 50-341

1.0 INTRODUCTION AND SUMMARY

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 attachment. 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 almost coincidentally with the automatic trip.

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, Ref. 1) 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 based on our contractor's evaluation of the response submitted by Detroit Edison, the licensee for Fermi-2, for Item 4.5.2 of Generic Letter 83-28 (Ref. 4). The actual documents reviewed as part of this evaluation are listed in the references at the end of the report.

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 licensee 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 (RTS) that are not on-line testable. If the

entire RTS 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 RTS where the impracticality of the modifications necessary to permit on-line testing exists.

2.0 EVALUATION

Detroit Edison, the licensee for Fermi-2, provided a response to Item 4.5.2 of the Generic Letter on November 3, 1983. In that response, the licensee affirmed that Fermi-2 is designed to permit on-line testing of the Reactor Trip System.

The licensee stated in the response that Fermi-2 does not perform on-line testing of the backup scram logic and valves because testing during operation would cause a plant scram. In lieu of on-line testing, the backup scram logic and valves are independently tested during each refueling outage.

3.0 CONCLUSION

Inasmuch as the Reactor Protection System includes those components necessary to trip the reactor, we find that the licensee's stated position on Item 4.5.2. of the Generic Letter, including the justification for not performing periodic on-line testing of the backup scram valves, meets the requirements and is, therefore, acceptable.

4.0 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. Generic Implications of ATWS Events at the Salem Nuclear Power Plant NUREG-1000, Volume 1, April 1983; Volume 2, July 1983.

3. Detroit Edison letter to NRC, W. H. Jens to Director, Nuclear Reactor Regulation, "Detroit Edison Response to Generic Letter 83-28," November 3, 1983.

4. EGG-NTA-7470, "Technical Evaluation Report Reactor Trip System Reliability Conformance to Item 4.5.2 of Generic Letter 83-28 Arnold, Enrico Fermi-2, Hope Creek, LaSalle County-1 and -2, Limerick-1 and -2, Millstone-1, Monticello, Nine Mile Point-1, Nine Mile Point-2, Oyster Creek, "F. G. Farmer, Idaho National Engineering Laboratory, March, 1987.

Principal Contributors: B. Mozafari, NRR/PDII-1
D. Lasher, NRR/SICB

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