



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
OMAHA PUBLIC POWER DISTRICT
FT. CALHOUN STATION UNIT NO. 1
DOCKET NO. 50-285
GENERIC LETTER 83-28, ITEM 4.5.1, REACTOR TRIP SYSTEM RELIABILITY

I. 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 occurred during the plant startup and the reactor was tripped manually by the operator about 30 seconds after the initiation of the automatic trip signal. The failure of the circuit breakers has been 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 Plant, an automatic trip signal was generated based on steam generator low-low level during plant startup. 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 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 certain generic concerns. These concerns are categorized into four areas: (1) Post-Trip Review, (2) Equipment Classification and Vendor Interface, (3) Postmaintenance Testing, and (4) Reactor Trip System Reliability Improvements.

The fourth action item, Reactor Trip Reliability Improvements, consists of Action Item 4.1 "Reactor Trip System Reliability (Vendor-Related Modifications)," Action Item 4.2, "Reactor Trip System Reliability (Preventative Maintenance and Surveillance Program for Reactor Trip Breakers)," Action Item 4.3, "Reactor Trip System Reliability (Automatic Actuation of Shunt Trip Attachments for Westinghouse and B&W Plants)," Action Item 4.4, "Reactor Trip System Reliability (Improvements in Maintenance and Test Procedures for B&W Plants)," and Action Item 4.5, "Reactor Trip Reliability (System Functional Testing)." This safety evaluation (SE) addresses Action Item 4.5.1 only.

II. REVIEW GUIDELINES

The following review guideline was developed after initial evaluation of the various utility responses to Item 3.2 of Generic Letter 83-28 and incorporates the best features of these submittals. As such, this review guideline in effect represents a "good practices" approach to postmaintenance testing verification review. The staff has reviewed the licensee's response to Item 4.5.1 against this guideline:

- A. The licensee or applicant shall submit a statement committing to independent, online functional testing of the diverse trip features.

III. EVALUATION AND CONCLUSION

By letters dated November 4, 1983, the licensee of the Ft. Calhoun Station provided information regarding online functional testing of the reactor trip system. The staff has reviewed the licensee's response against the review guideline as described in Section II. A brief description of the licensee's response and the staff's evaluation of the response against the review guideline is provided below:

- A. The licensee stated that the Reactor Protective System automatic trip does not have a diverse trip feature. The contactor coil is de-energized on a reactor trip and the contactors drop out. The contactors are tested one at a time, monthly on-line. Manual trips are accomplished either by de-energizing the contactors or dropping out an undervoltage trip device on the breakers. This test is performed during each startup (unless tested within the preceding 5 days). The staff finds this statement acceptable.

Based on this review, the staff concludes that the licensee's response to online functional testing of the reactor trip system for the Ft. Calhoun Station is acceptable.

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Principal Contributor: J. Bess