

ENCLOSURE

SAFETY EVALUATION FOR GENERIC LETTER 83-28,
ITEMS 3.1.1, 3.1.2, 3.2.1, AND 3.2.2

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT

UNITS 1, 2, AND 3

DOCKET NOS. 50-259, 50-260, AND 50-296

1. Introduction

Generic Letter (GL) 83-28 was issued by the staff on July 8, 1983. It described intermediate-term actions to be taken by the licensees and applicants to address the generic issues raised by the two Anticipated Transients Without Scram (ATWS) Events that occurred at Unit 1 of Salem Nuclear Power Plant. Items 3.1.1, 3.1.2, 3.2.1, and 3.2.2, of the GL required licensees and applicants to submit results of their review of test and maintenance procedures and vendor and engineering recommendations to assure that appropriate test guidance is included in the test and maintenance procedures or the Technical Specifications, where required.

By letters dated November 7, 1983, and March 15, 1984, Tennessee Valley Authority (TVA), the licensee for Browns Ferry Plant, provided information regarding their compliance to Items 3.1.1, 3.1.2, 3.2.1, 3.2.2, and 4.5.1 of GL 83-28. We evaluated the licensee's responses to the above items against the NRC positions described in the GL for completeness and adequacy. We found the licensee's response to be acceptable for Item 4.5.1, but the responses to Items 3.1.1, 3.1.2, 3.2.1, and 3.2.2 were incomplete, thus requiring additional information to determine acceptability.

A Safety Evaluation for the above items and a Request for Additional Information were transmitted to the licensee by NRC letter dated April 14, 1986.

The licensee submitted supplemental responses for Items 3.1.1, 3.1.2, 3.2.1, and 3.2.2, in letters dated August 28, 1986 and December 4, 1986, respectively. Our evaluation of these responses follows.

2. Evaluation

By letter dated November 7, 1983, Tennessee Valley Authority responded to the requested information concerning the status, plans, and schedules for

conformance with the NRC positions contained in GL 83-28. Our evaluations revealed that Items 3.1.1, 3.1.2, 3.2.1, and 3.2.2 were incomplete, thus requiring more information. Subsequent licensee letters dated August 28, 1986 and December 4, 1986, provided sufficient additional information to allow an evaluation to be made against the NRC positions as stated in the GL.

Delineated below are the results of NRC's evaluation of Items 3.1.1, 3.1.2, 3.2.1, and 3.2.2 of GL 83-28.

a. Item 3.1.1 Review of Test and Maintenance Procedures and Technical Specifications (Reactor Trip System Components)

Item 3.1.1 requires licensees and applicants to submit the results of their review of test procedures, maintenance procedures, and Technical Specifications to ensure that post maintenance operability testing of safety-related components in the reactor trip system is required to be conducted and that the testing demonstrates that the equipment is capable of performing its safety functions before being returned to service.

The licensee stated in their initial response dated November 7, 1983, that existing procedures, standard practices, and QA programs requires that all critical systems, structures, or components (CSSC) be tested after maintenance before being returned to service. The licensee stated that the Technical Specifications for Browns Ferry lists the limiting conditions and surveillance requirements for the reactor protection system.

The licensee's supplemental response dated August 28, 1986, stated that post maintenance testing is accomplished for safety-related equipment by testing specified by a standing maintenance procedure, or by performance of appropriate surveillance testing on the affected system, or by additional testing specified in a Maintenance Request (MR). One or more of the above tests may be used depending upon the circumstances.

For the Reactor Protection System, the licensee indicated that maintenance procedures and surveillance instructions are currently being reviewed to ensure that post-maintenance testing adequately demonstrates that the equipment is capable of performing its intended safety function. The licensee indicated that this effort will be completed before restart of any unit.

Although, the licensee has not completed the review of all maintenance and test procedures associated with the reactor protection system, their supplemental response revealed that they intend to complete the review prior to restart. Based on the above, the licensee's response is acceptable.

- b. Item 3.1.2, Check of Vendor and Engineering Recommendations for Testing and Maintenance (Reactor Trip System Components)

Item 3.1.2 requires licensees and applicants to submit the results of their check of vendor and engineering recommendations to ensure that any appropriate test guidance is included in the test and maintenance procedures or the Technical Specifications, where required.

The licensee stated in their initial response dated November 7, 1983, that they had programs in place for the review of technical information received from General Electric Company (GE) and operating experience reports, which include vendor and engineering recommendations. The licensee stated that all GE Service Instruction Letters (SILs) had been reviewed and that Browns Ferry had initiated the recommended actions.

The licensee's supplemental response of August 28, 1986, indicated that Browns Ferry is currently implementing a program establishing controlled vendor information for the Reactor Protection System and this vendor information will be reviewed to ensure that appropriate test guidance is reflected in plant procedures. The response further indicated that this effort will be completed before restart of any unit. Based on the licensee's continuing implementation of the above programs, the response is acceptable.

- c. Item 3.2.1, Review of Test and Maintenance Procedures (All Other Safety-Related Components)

Item 3.2.1 requires licensees and applicants to submit a report documenting the extending of test and maintenance procedures and Technical Specifications review to ensure that post-maintenance operability testing of all safety-related equipment is required to be conducted and that the testing demonstrates that the equipment is capable of performing its safety functions before being returned to service.

The licensee stated in their initial response dated November 7, 1983, that existing Quality Assurance Manual procedures required maintenance instructions to contain requirements for post-maintenance operational testing of CSSC after maintenance before being returned to service.

The licensee stated in supplemental response dated December 4, 1986, that post-maintenance testing is accomplished for safety-related equipment by testing specified by standard maintenance procedures, by appropriate surveillance procedures, or by additional testing specified in maintenance requests. The licensee further indicated that surveillance and maintenance procedures are currently being reviewed and upgraded under the procedure upgrade program as described in the Browns Ferry Nuclear Performance Plan. The upgrading effort will be in two phases (pre-startup and post-startup) and includes the review of test guidance from vendors, engineering, General Electric Service Information Letters (SILs), INPO information, Licensee Event Reports (LERs), and other technical information

received from vendors to ensure that appropriate guidance is included in plant procedures. The licensee states that this upgrade program will ensure that post-maintenance testing adequately demonstrates that the equipment is capable of performing its safety function. Based on the above, the licensee's response to this item is acceptable.

- d. Item 3.2.2, Check of Vendor and Engineering Recommendations for Testing and Maintenance Procedures (All Other Safety-Related Components)

Items 3.2.2 requires licensees and applicants to submit the results of their check of vendor and engineering recommendations to ensure that any appropriate test guidance is included in the test and maintenance procedures or the Technical Specifications, where required.

The licensee's initial response of November 7, 1983, stated that standard practices had been established to control and review vendor manuals, vendor and engineering recommendations, and other industry information to ensure that vendor's guidance is appropriately incorporated into plant procedures.

The licensee's supplemental response dated December 4, 1986, stated that maintenance and surveillance procedures were being reviewed and upgraded to ensure that vendor and engineering recommendations are reviewed and incorporated into test and maintenance procedures, where applicable. As discussed in Items 3.1.2 and 3.2.1 above, the licensee's review is a two phase program where certain reviews will be performed prior to Browns Ferry startup and others after plant startup. Although, the licensee has not completed the review of vendor and engineering recommendations for applicability to test and maintenance procedures, the response revealed that a program has been started to accomplish the review. Based on the above, the licensee's response to Item 3.2.2 is acceptable.

3. Conclusions

Based on the above statements, the staff finds that the licensee's responses to be acceptable and meeting the intent of GL 83-28. The licensee stated that procedures have been established which require post-maintenance testing of the safety-related components, which includes the Reactor Protection System components. The licensee also indicated that they have a continuous program in operation to ensure that vendor and engineering information and recommendations are reviewed and incorporated into test and maintenance procedures. Although, the licensee's reviews are not all complete, the staff considers the licensee's responses to Items 3.1.1, 3.1.2, 3.2.1, and 3.2.2 of GL 83-28 to be acceptable.

4. Reference Documents

- a. NRC letter, D. G. Eisenhut to all Licensees of Operating Reactors, GL 83-28, Required Actions Based on Generic Implications of Salem ATWS Events, dated July 8, 1983.
- b. NRC memorandum, F. J. Miraglia to Directors, dated February 11, 1985, Licensee Action Review Schedule for GL 83-28, Enclosure 3, Review Criteria for Regional Licensing Review of GL 83-28.
- c. NRC Inspection Report Nos. 50-259/84-50, 50-260/84-50, and 50-296/84-50 dated January 16, 1985.
- d. Tennessee Valley Authority letter dated November 7, 1983, Response to GL 83-28, Browns Ferry Nuclear Plant.
- e. NRC letter dated April 14, 1986 to Tennessee Valley Authority, transmittal of Safety Evaluation and Request for Additional Information, Browns Ferry Nuclear Plant.
- f. Tennessee Valley Authority letter dated August 28, 1986, Response to Items 3.1.1 and 3.1.2 of NRC Request for Additional Information.
- g. Tennessee Valley Authority letter dated December 4, 1986, Response to Items 3.2.1 and 3.2.2 of NRC Request for Additional Information.

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Dated: