

Docket No. 50-289

APR 10 1981

MEMORANDUM FOR: Thomas Novak, Assistant Director
for Operating Reactors
Division of Licensing

FROM: Stephen H. Hanauer, Director
Division of Human Factors Safety

SUBJECT: SERS FOR TMI-1 RESTART OPEN ITEMS

Enclosed are the SERS for TMI-1 restart open items for which PTRB has review responsibility. The SER for 2.1.3.b, ICC Instrumentation, reflects satisfactory resolution of the item. The SER for 2.1.9.b, Transient and Accident Analysis - ICC, reflects satisfactory progress on a long term item. An SER for item I.C.7 is also enclosed. Although this is an NTOL item not required for operating reactors, we have recommended that portions of the requirements be applied for TMI-1.

Original signed by
Stephen H. Hanauer, Director
Division of Human Factors Safety

Enclosure:
SERS for 2.1.3.b
2.1.9.b
I.C.7

cc w/enclosure:
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2.1.3.b - Instrumentation for Detection of Inadequate Core Cooling - Develop Emergency Procedures

In NUREG-0680 the staff reported that the licensee had not fully complied with the requirements of NUREG-0578, TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations, Item 2.1.3.b, with regard to emergency procedures. Since that time, response to NUREG-0578, the Babcock & Wilcox Company submitted EDS 69-1106U01-00, Small Break Operating Guidelines for Oconee 1, 2, and 3, Three Mile Island 1 and 2, Crystal River 3, and Rancho Seco 1. These guidelines included directions for recognizing and mitigating conditions of Inadequate Core Cooling. The staff has reviewed the B&W guidelines and found that they provide an acceptable basis for preparation of Emergency Procedures. From these guidelines, the licensee developed Emergency Procedure 1202-6B and submitted it for staff review on March 31, 1981. The Inadequate Core Cooling Procedure is included in this Emergency Procedure as Attachment 3. The staff has reviewed Attachment 3 of 1202-6B and found that it adequately incorporates the ICC section of the B&W guidelines, modified to incorporate plant specific information.

The licensee also submitted and the staff has reviewed Emergency Procedure 1202-39, Inadequate Core Cooling (No LOCA). In discussions with the licensee, the staff determined that this procedure was developed from the B&W Guidelines, with assistance of B&W, to account for the possibility of ICC conditions developing without a LOCA event. In our review of 1202-39, the staff has determined that the directions given are generally consistent with the B&W Guidelines. We also concluded that if the operators had failed to diagnose that a LOCA event is in progress and entered 1202-39 when ICC conditions were indicated, the directions in 1202-39 do not contradict the directions in 1202-6B, Attachment 3. The operators could therefore mitigate the ICC condition without having diagnosed the LOCA event.

Based on our review of these two procedures, we conclude that the licensee has fully complied with the requirements for developing emergency procedures in NUREG-0578, Item 2.1.3.b, as clarified in NUREG-0680, Item 2.1.3.b.

Item 2.1.9.b - Transient and Accident Analysis - ICC

A discussion of the development of ICC procedures to meet the short-term Lessons Learned Requirements is included in Item 2.1.3.b of this report. Further work to develop ICC procedures that account for multiple failures and operator errors is being conducted by the licensee through the B&W Owners' Group as part of the effort described in Item 2.1.9.c. Based on these efforts the staff concludes that the licensee has demonstrated reasonable progress on this item.

Item I.C.7 - NSSS Vendor Review of Procedures

This item was identified in NUREG-0660, but was not required for operating reactors. However, the staff will require NSSS vendor review of (a) the special low power test program, (b) the proposed power ascension program after restart, and (c) the emergency procedures.

- (a) The special low power test program has not been performed on any Babcock & Wilcox designed nuclear facilities. Programs proposed by other vendors included conditions that required operation with some automatic protective functions bypassed and operation outside normal technical specification limits. Considering the differences between B&W designs and other PWR designs, the vendor should review the program proposed by the licensee and the test procedures for conducting the proposed test program to ensure that a thorough safety analysis has been conducted before allowing operation under these unusual conditions. This review will provide additional assurance that the program is complete and can be performed safely.

Conclusion:

NSSS vendor review of the special low power test program is required. The licensee should provide a written commitment to completing this review prior to restart.

- (b) As with any plant restart after refueling, some power ascension tests will be conducted to verify proper system performance. GPU Nuclear has had past experience with initial startup and restart programs and therefore the restart program will not represent a unique, new experience. Since in a letter dated April 10, 1981, from H. D. Hukill to John Stolz (Letter No. LIL 111), Met Ed/GPU has committed to establishing Test Working Groups with Babcock & Wilcox representatives for review of low power and power ascension tests, a separate vendor review of startup tests is not required.

Conclusion:

NSSS vendor review of the startup test program is not required.

- (c) Since the issuance of the orders covering restart, the vendor has proceeded with reanalysis of transients and accidents. In light of this additional review, the vendor should review the plant emergency procedure to ensure that the generic guidelines have been adequately reflected. A vendor review provides an independent assessment of any procedures for which guidelines have not been developed to ensure that they are technically correct and adequate.

Because of the potential impact of plant modifications on the emergency procedures, we require that the licensee review the emergency procedures to determine which emergency procedures have been affected by plant modifications. After making this determination, we will require those procedures be submitted to the NSSS vendor for review and comments appropriately incorporated prior to restart.

Conclusion:

The licensee has indicated that B&W has reviewed selected emergency procedures where their input would be meaningful. We therefore conclude that the licensee has met this requirement for review of emergency procedures contingent upon receiving written confirmation that these actions have been completed, including a list of the procedures that were reviewed, and satisfactory completion of an audit of the emergency procedures by the Office of Inspection and Enforcement.