

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

85 SEP 18 All: 39

September 11, 1985

U.S. Nuclear Regulatory Commission
Region II
Attn: Dr. J. Nelson Grace, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Dear Dr. Grace:

WATTS BAR NUCLEAR PLANT UNIT 1 - SECOND SUPPLEMENTAL RESPONSE TO DEVIATION 390/85-33-01 - FAILURE TO MAINTAIN 480 VOLT SHUTDOWN BOARD CIRCUIT BREAKER OPEN AND ALARMED IN CONTROL ROOM WHEN THIS CONDITION IS NOT MET

TVA responded to D. M. Verrelli's letter dated May 7, 1985, report numbers 50-390/85-33 and 50-391/85-28 concerning the subject deviation, by letter dated June 14, 1985. The first supplemental response was submitted on August 7, 1985. Below is our second supplemental response.

In our June 14, 1985 response to the subject deviation, TVA indicated that in order to address the potential for similar deviations, a complete review of the SER was being accomplished in accordance with special engineering procedure (SEP) 85-04, "Verification of Watts Bar Nuclear Plant Safety Evaluation Report Commitments."

The SEP review of the SER commitments has now been completed. TVA has reviewed 332 SER commitments and determined that 325 of these commitments would have been met for Watts Bar unit 1 without this review. Seven commitments identified by this review appear as though they would not have been fully implemented without the review. This indicates that 98 percent of the WBN SER commitments for unit 1 would have been fully met. The basic conclusion from this review is that TVA's methods of complying with commitments (as identified from the SER) have provided reasonable assurance that most commitments are being implemented.

The seven SER commitments which have been categorized as missed are discussed in detail in the enclosure. The causes of the missed commitments contain no common denominator. Additionally, the effect of these missed commitments on plant safety has been evaluated (see enclosure) and TVA concludes that none of those items evaluated would have adversely affected the safe shutdown capability of the plant if they had remained undetected.

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U.S. Nuclear Regulatory Commission

September 11, 1985

If you have any questions, please get in touch with R. H. Shell at FTS 858-2688.

To the best of my knowledge, I declare the statements contained herein are complete and true.

Very truly yours,

TENNESSEE VALLEY AUTHORITY



J. A. Domer, Chief
Nuclear Licensing Branch

Enclosure

cc (Enclosure):

Mr. James Taylor, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Records Center
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
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ENCLOSURE

WATTS BAR NUCLEAR PLANT
DEVIATION 390/85-33-01
SECOND SUPPLEMENTAL RESPONSE
SUMMARY OF "MISSED COMMITMENTS" IDENTIFIED DURING SER REVIEW

TVA Commitment Numbers 8.012 and 8.024

SER References: SER Section 8.3.1.7, page 8-9
SER Section 8.3.3.2.4
SSER3 Section 8.3.3.2.4, page 8-4 and 8-5

SER Statement: "It is, therefore, the staff position that (1) the circuit breaker at the 480V shutdown board for the alternate feed to the battery charger be kept open and be alarmed in the control room when it is closed. . . . Because the power source for the pump is from two different units versus redundant divisions, the staff finds this exception for the spent fuel pump acceptable." SER 8.3.3.2.4: "The subject interconnection between dc divisions is, however, not identified in FSAR Table 8.3-10 . . . with the imposition of this requirement, the staff considers this item resolved."

SSER 3-8.3.3.2.4: "In the SER, the staff required. . . By letter dated January 17, 1984, the applicant documented that all interconnections are identified in Table 8.3.9 and 8.3.10 of the FSAR and meet the staff position, except as noted and accepted in Section 8.3.3.2.4 of the SER."

Action Taken: TVA did not provide control room indicators for monitoring the position of the alternate feed breaker. This had been previously identified by the NRC (Inspection Report 390/85-33). TVA revised this commitment by FSAR revision submitted to the NRC by letter dated May 3, 1985. Subsequent to this FSAR revision, TVA prepared an additional change to section 8.3 as a result of TVA's response to NRC OIE Inspection Report 390/85-33. TVA will submit this change with Amendment 56.

Cause of Missed Commitment: This missed commitment resulted from inadequate design change control by OE. The original SER commitment had been implemented; and a subsequent design change was approved and implemented, which caused noncompliance with the SER commitment.

Safety Implications: TVA has evaluated the design which existed at the time this condition was identified. From this evaluation it has been determined that if the alternate breaker was closed while the preferred breaker was also closed the transfer switch (mechanically linked, double-breaker type) would keep the two power supplies separated. Based on this, it was concluded that the safety of operation of the plant could not have been adversely affected.

TVA Commitment Number 9.010

SER References: SER Section 9.2.5, page 9-12

SER Statement: "The intake channel, which extends from the IPS to the original river bed, is periodically dredged to provide clean access to the river under low flow conditions.

Action Taken: TVA has a program to routinely (every 2 years) inspect the river channel. However, a specific criteria statement for evaluation of acceptability of channel silt buildup had not been established. We have now established the necessary criteria. This criteria will be documented in our inspection procedure by November 1, 1985. The present silt level is acceptable.

Cause of Missed Commitment:

This resulted from a failure in TVA's Office of Engineering (OE) to specify an acceptance criteria for river channel silt buildup and a failure in the Office of Nuclear Power (Operations) to request the acceptance criteria as input for their bi-annual inspection.

Safety

Implications:

Silt buildup in the intake channel was originally estimated to occur at a rate of less than 2-1/2 inches per year. Measurements taken over the last five years in accordance with FSAR commitments have revealed very little silt buildup and in some locations in the channel, no buildup has occurred.

TVA calculations have shown that a silt buildup of up to 25 percent of the distance from the bottom of the channel to the normal water level could occur and the water supply could be maintained to all safety-related equipment even in the event of a loss of the downstream dam. It is deemed highly unlikely that inspection personnel would have allowed an approximate 25 percent buildup of silt under normal conditions without mandating dredging or identifying the concern to the appropriate organization.

In the event that significant levels of silt did build up near the intake structure such that waterflow was carrying the silt into the pump suction areas, the gradual degradation of safety component performance would be observed. This degradation would first be identified in system heat exchangers. Identification of the cause for component degradation would then result in cleaning of the intake channel as needed. Therefore, we conclude that even without documented acceptance criteria, identification of the need for dredging would have occurred prior to an unsafe condition existing at the plant.

TVA Commitment Number 9.047

SER References: SER Section 9.5.7, page 9-58

SER Statement: "The staff requires lubrication of these parts (of diesel engine) during standby, either on a continuous or intermittent basis. . . ."

Action Taken: TVA agreed to make the appropriate modifications to satisfy the Staff's concern. At the time of this SER review, all physical work was complete. Minor differences between the as-designed and as-built physical arrangement existed which had not been reviewed by the vendor for acceptability to seismic qualifications. This item had been in contract negotiations between TVA and the vendor. TVA had been unable to obtain the vendor's review of the as-built condition.

Cause of Missed Commitment: This resulted from a failure to recognize an incomplete diesel generator seismic qualification issue.

Safety Implications: OE has now seismically qualified this equipment. The equipment was acceptable as installed. Consequently, the condition documented by this finding did not have any adverse safety implications.

TVA Commitment Number 10.008

SER References: SER Section 10.4.5, page 10-10

SER Statement: "All penetrations (doorways, mechanical piping and electrical penetrations) from the turbine or service buildings to the auxiliary or control buildings are sealed up to elevation 729 ft msl (1 ft above grade level)."

Action Taken: TVA verified this commitment as clarified by FSAR Section 10.4.5.3 to be satisfied except for two doors. Door A57 was in the process of being modified at the time of this review (refer to workplan 4978). Door C20 was found to be incorrectly installed (refer to NCR W-241-P). Work on door C20 is being repaired by mechanical maintenance (MR No. A538236) and will be completed by September 30, 1985. The nonconforming condition associated with door C20 was discovered as a result of this SER review.

Cause of Missed Commitment: This resulted from a failure to install a door per design drawings.

Safety

Implication: A condenser circulating water system rupture would result in the flooding of the auxiliary instrument room due to its flood barrier door seal being unable to provide its intended function. This would necessitate the evacuation of the control building due to multiple failures of safety-related control functions. A safe shutdown could be performed from the auxiliary control room in the event control functions were lost in the control building.

TVA Commitment Numbers 12.002 and 12.005

SER References: SER Section 12.2, page 12-2 and SER Section 12.4, page 12-4

SER Statement: "Finally, design reviews are performed by radiation protection personnel to ensure that occupational radiation exposures will be ALARA."

"The areas that will have to be occupied on a predictable basis during normal operations and anticipated occurrences are zoned so that exposures will be below the limits 10CFR20 and will be ALARA, taking into account expected use and occupancy of the space."

Action Taken: A recent Watts Bar unit 2 Institute of Nuclear Power Operations (INPO) Construction Project Evaluation conducted May 13-June 7, 1985, identified that TVA's ALARA design review program needs to be expanded (Finding DC-2-1). INPO stated that "the radiation protection section is not reviewing all appropriate project drawings to ensure that ALARA considerations are addressed. This has resulted in some equipment being located unnecessarily in high radiation areas."

TVA has agreed that improvement in this area is needed. TVA will formally define the types of design outputs which involve ALARA considerations and therefore must be reviewed by the Radiation Protection Section. This definition will be issued for implementation by September 30, 1985.

A plant walkdown review of unit 1 was performed by TVA personnel from design and site ALARA engineering to ensure that ALARA problems during operation are minimized. This walkdown was completed on August 8, 1985. Results of this walkdown are under review to determine if further actions are warranted. This review will be completed by October 1, 1985. The plant walkdown should provide assurance that ALARA considerations have been addressed.

While incomplete documentation exists to provide assurance that the Radiation Protection Section has reviewed all design drawings that should be reviewed for ALARA, TVA believes that the plant design meets 10 CFR 20 requirements for normal operation. The 10 CFR 20 reviews were performed prior to existence of the formalized document control and quality assurance programs that exist today.

Cause of Missed
Commitment:

This resulted from inadequate reviews of ALARA concerns and inadequate documentation of 10CFR20 reviews within OE.

Safety
Implications:

Although design enhancements were not instituted in some cases to ensure adherence to the ALARA philosophy, plant design continues to be in compliance with 10 CFR 20 requirements. While increased personnel exposure could be the result of design deficiencies, their exposure would still be within acceptable limits and additional people would have to be assigned to a particular task resulting in economic loss to TVA. In addition, if unusually high dose rates were identified by the site ALARA engineer, design enhancements would likely be requested to eliminate the economic disadvantage.