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William J. Muesler
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MAY 28 1993

U.S. Nuclear Regulatory Commission
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Gentlemen:

In the Matter of the Application of ) Docket No. 50-390
Tennessee Valley Authority )

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 - RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION ON THE DRAFT TECHNICAL SPECIFICATIONS

By letter dated March 15, 1993, the staff asked for additional information on the disposition of eight Safety Evaluation Report (SER) issues relative to the proposed WBN Technical Specifications. TVA responded to five of the eight questions by letter dated April 20, 1993. The response to two of the remaining three questions is provided in the enclosure. TVA is continuing to review the staff's question 4 related to unidentified leakage. The response to question 4 will be provided by June 18, 1993.

If you have any questions, please telephone Tom Porter at (615) 365-3854.

Very truly yours,

W. J. Museler

William J. Museler

Enclosure
cc: See page 2



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cc (Enclosure):
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ENCLOSURE

NRC Question 5:

SER Section 8.3.2.5 states that the DC Distribution System batteries have the capacity to supply all connected loads (Class 1E and Non-Class 1E) for a minimum of 2 hours and that the batteries will be tested periodically in accordance with the TS to ensure this capacity. Surveillance Requirement (SR) 3.8.4.12 verifies that the battery has sufficient capacity for the required emergency loads. It is not clear from the Bases discussion of this SR that the emergency loads include the Non-Class 1E loads connected to the battery. Either modify the SR to include both emergency (Class 1E) and Non-Class 1E loads or define in the Bases that emergency loads includes both Class 1E and Non-Class 1E loads.

Response:

TVA is proposing to modify SR 3.8.4.12 and the Bases Background discussion to include any connected non-safety loads in the performance of the surveillance requirement. The proposed modifications (attached) resolve the SER concern.

NRC Question 7:

SSER 7 Section 15.4.2.1 describes the staff analysis of the zero-power uncontrolled rod cluster assembly withdrawal event. The analysis assumed that the TS requires two reactor coolant pumps (RCPs) to be OPERABLE and in operation in MODES 3 and 4 when rod withdrawal is possible. The August 27 marked-up RSTS for LCO 3.4.6, "RCS Loops-Mode 4" does not require any RCPs to be running; it only requires two loops consisting of any combination of RCS loops and residual heat removal (RHR) loops be OPERABLE and only one loop shall be in operation. This does not meet the requirements specified in the analysis of the rod withdrawal event. Provide the appropriate changes for LCO 3.4.6 to meet the SSER assumption.

Response:

Note: The actual SSER section which describes this event is Section 15.2.4.1 rather than 15.4.2.1.

The Watts Bar licensing basis Uncontrolled RCCA Bank Withdrawal from Subcritical (RWFS) analysis assumes operation in Mode 2. An occurrence in Mode 3, 4, or 5, with two or more RCPs in operation, is bounded by the licensing basis RWFS analysis. This is based on the analysis assumption that reactor trip does not occur until the Power Range High Neutron Flux (low setting) setpoint is reached, and the simultaneous withdrawal of the combination of two sequential RCCA banks having the maximum combined worth at the maximum speed (72 steps/min). These conservative assumptions result in the core returning to criticality and generating some heat prior to trip. Therefore, the primary system flow rate becomes an important consideration as a factor in the DNB evaluation. For the licensing basis RWFS analysis, only two out of four reactor coolant pumps are assumed to be operating in order to bound the Mode 3 Technical Specification requirement that at least two reactor coolant pumps remain in operation whenever the reactor trip breakers are closed.

Consideration of typical plant conditions in Modes 3, 4, and 5 for the RWFS event results in a much less severe transient than would be expected in Mode 2 with two or more reactor coolant pumps in operation. In these Modes, the rod control system is manually controlled. If a single failure were to occur in the rod control system, only one RCCA bank could withdraw at a speed less than the automatic rod withdrawal speed. Although not assumed in the analysis, in Modes 3, 4 and 5 with the rods capable of withdrawal, the Source Range High Neutron Flux Trip is required operable and would terminate the event by tripping any withdrawn and withdrawing rods before any significant power level could be attained. The slower reactivity insertion rate and earlier trip will prevent the generation of any significant amount of power and subsequent reduction of thermal margin.

In view of the proceeding, TVA believes that the statements made in the SSER should be amended and that the current wording of the LCO 3.4.6 can justifiably stand as written.

SURVEILLANCE REQUIREMENTS (continued)

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.8.4.12 | ----------NOTES----------<br>1. SR 3.8.4.13 may be performed in lieu of SR 3.8.4.12 once per 60 months.<br>2. This Surveillance shall not be performed in MODE 1, 2, 3, or 4.<br>3. Credit may be taken for unplanned events that satisfy this SR.<br>----------<br>Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads and any connected non-safety loads for the design duty cycle when subjected to a battery service test. | 18 months |
| SR 3.8.4.13 | ----------NOTES----------<br>1. This Surveillance shall not be performed in MODE 1, 2, 3, or 4.<br>2. Credit may be taken for unplanned events that satisfy this SR.<br>----------<br>Verify battery capacity is $\geq$ 80% of the manufacturer's rating when subjected to a performance discharge test. | 60 months<br><br>AND<br><br>-----NOTE------<br>Only applicable when battery shows degradation or has reached [85]% of expected life<br>----------<br><br>12 months |

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.4 DC Sources – Operating

BASES

BACKGROUND The station DC electrical power system provides the AC emergency power system with control power. It also provides both motive and control power to selected safety related equipment and preferred AC vital bus power (via inverters). As required by 10 CFR 50, Appendix A, GDC 17 (Ref. 1), the DC electrical power system is designed to have sufficient independence, redundancy, and testability to perform its safety functions, assuming a single failure. The DC electrical power system also conforms to the recommendations of Regulatory Guide 1.6 (Ref. 2) and IEEE-308 (Ref. 3).

125 V Vital DC Electrical Power Subsystem

The vital 125 VDC electrical power system is a Class IE system whose safety function is to provide control power for engineered safety features equipment, emergency lighting, vital inverters, and other safety-related DC powered equipment for the entire unit. The system capacity is sufficient to supply these loads and any connected non safety loads during normal operation and to permit safe shutdown and isolation of the reactor for the "loss of all AC power" condition. The system is designed to perform its safety function subject to a single failure.

The 125V DC vital power system is composed of the four redundant channels (Channels I and III are associated with Train A and Channels II and IV are associated with Train B) and consists of four lead-acid-calcium batteries, six battery chargers (including two spare chargers), four distribution boards, battery racks, and the required cabling, instrumentation and protective features. Each channel is electrically and physically independent from the equipment of all other channels so that a single failure in one channel will not cause a failure in another channel. Each channel consists of a battery charger which supplies normal DC power, a battery for emergency DC power, and a battery board which facilitates load grouping and provides circuit protection. These four channels are used to provide emergency power to the 120V AC vital power system which furnishes control power to the reactor protection system. No automatic connections are used between the four redundant channels.

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