Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37379

March 29, 1994

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of	)	Docket Nos. 50-327
Tennessee Valley Authority	)	50-328

SEQUOYAH NUCLEAR PLANT (SQN) - SUPPLEMENTAL INFORMATION FOR TECHNICAL SPECIFICATION (TS) CHANGE REQUEST 93-09

Reference: TVA letter to NRC dated October 1, 1993, "Sequoyah Nuclear Plant (SQN) - Technical Specification (TS) Change 93-09, 'Revised Setpoints and Time Delays for the Loss-of-Power Instrumentation'"

By the above reference, TVA submitted a TS change request to implement new voltage setpoints and time delays associated with the loss-of-power instrumentation for the auxiliary feedwater system and the 6.9-kilovolt shutdown boards. On March 8, 1994, TVA and NRC held a telephone call to discuss four questions raised by the technical reviewer for NRC. TVA provided verbal responses to the questions and was requested to docket these responses along with a copy of the supporting TVA calculation. Enclosure 1 provides the four NRC questions and the associated TVA responses. Enclosure 2 provides TVA Calculation SQN-EEB-MS-T106-0008.

There are no commitments contained in this submittal. Please direct questions concerning this issue to K. C. Weller at (615) 843-7527.

Sincerely,

Ken Powers
Site Vice President
Sequoyah Nuclear Plant

Enclosures
cc: See page 2

A030
1/1

cc (Enclosure 1 only):
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ENCLOSURE 1

SUPPLEMENTAL TECHNICAL SPECIFICATION (TS) CHANGE INFORMATION

SEQUOYAH NUCLEAR PLANT (SQN) UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

(TVA-SQN-TS-93-09)

RESPONSE TO NRC QUESTIONS

Question No. 1:

The normal feeder undervoltage relaying has been deleted from the design to support the use of the alternate feeder breakers and because the existing function has been incorporated into the revised loss-of-power instrumentation scheme.

If the normal feeder is degraded, how long is the time delay before transfer to the alternate feeders? Please explain the above statement.

Answer:

The existing normal feeder undervoltage relaying only provides degraded voltage protection when the normal feeder is in service. The relaying is on the supply side of the normal feeder and would not sense shutdown board voltage with the alternate feeder in service. By moving this voltage protection to the 6.9-kilovolt (kV) shutdown board bus, the degraded voltage protection will be available regardless of the supply source (normal or alternate). This change will allow the use of either feeder without a change in the voltage protection. It will support SQN's use of the alternate feeder, which has not been allowed with the present voltage protection design.

The SQN design does not have an automatic transfer from the normal to alternate 6.9-kV shutdown board feeder or back. This modification to the voltage relaying does not affect the SQN design for transfers between normal and alternate feeders, which are only manually activated. Transfers from the normal feeder to the alternate are initiated by the operator in accordance with plant procedures; no automatic time delays are included in the transfer controls.

Question No. 2:

Has the calculations for the degraded voltage value been taken down to 120-volt (V) level?

Answer: Yes

The safety-related 120-V distribution system is powered from the vital inverters, and Calculation SQN-EEB-MS-T106-0008 ensures that the input voltage to the inverters is within the required range when the safety-related boards are at the minimum allowable steady-state operating voltage (i.e., 6400 V at the 6.9-kV shutdown boards). Design calculations have previously assured proper operating voltages to the 120-V components based on the regulated inverter output voltage. The voltages to the 120-V components, powered from motor control center control power transformers (CPT), are evaluated in SQN-APS-010, "Class 1E Motor Control Center (MCC) Undervoltage Calculation." Calculation SQN-EEB-MS-T106-0008 evaluated the CPT fuses to ensure they could carry the starter inrush current during degraded voltage conditions for the accident time delay limit (i.e., 11.5 seconds).

Question No. 3:

What type of field verification was done to validate the data used for degraded voltage calculation?

Answer:

Calculation data was based on existing "as-constructed" calculations including the SQN electrical calculation database (TVA electrical auxiliary system). This data is generally based on field walkdowns, especially the load and cable data for the safety boards. Where field data was not available, manufacturer's data and/or conservative typical data from TVA design guides was used. The electrical load management system for alternating current software, used to perform the voltage analysis, had been previously validated by test in accordance with NRC Branch Technical Position PSB-1.

Question No. 4:

What controls will be used in the future to update the calculation if bus loads change? How will it be determined if increased bus loading is a concern?

Answer:

SQN Site Standard Practice 9.3, "Plant Modification and Design Change Control," requires that an evaluation be performed for each modification to determine what electrical calculations are affected. The site Electrical Engineering Group reviews the affected electrical calculations. A quality assurance computer program is used to track the revision levels of the calculations and the associated design changes. Any additional loading added by a modification to the plant will be evaluated and the degraded voltage relaying setpoints will be revised, if necessary, to ensure sufficient voltage to all engineered safety features.