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

Jack L. Wilson
Vice President, Sequoyah Nuclear Plant

January 14, 1992

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) - GENERIC LETTER (GL) 91-11, RESOLUTION OF GENERIC ISSUES (GI) 48, "LCOs FOR CLASS 1E VITAL INSTRUMENT BUSES," AND 49, "INTERLOCKS AND LCOs FOR CLASS 1E TIE BREAKERS," PURSUANT TO 10 CFR 50.54(f)

This letter provides SQN's response to the subject GL. The attached enclosure provides a brief system description and the administrative controls in place to address the concerns described in the GL.

If you have any questions concerning this issue, please contact W. C. Ludwig at (615) 751-7460.

Sincerely,

J. L. Wilson

Sworn to and subscribed before me
this 14th day of JANUARY 1992

Mary Catherine Nunley
Notary Public
My Commission Expires 8-4-92

Enclosure
cc: See page 2

A048
1/1

cc (Enclosure):
Mr. D. E. LaBarge, Project Manager
U.S. Nuclear Regulatory Commission
One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852

NRC Resident Inspector
Sequoyah Nuclear Plant
2600 Igou Ferry Road
Soddy Daisy, Tennessee 37379

Mr. B. A. Wilson, Project Chief
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

ENCLOSURE

Sequoyah Nuclear Plant (SQN)
Response to NRC Generic Letter 91-11,
Resolution of Generic Issues (GI) 48,
"LCOs For Class 1E Vital Instrument Buses," and 49,
"Interlocks and LCOs for Class 1E Tie Breakers,"
Pursuant to 10 CFR 50.54(f)

ENCLOSURE

The following is SQN's response to the concerns contained in Enclosure 1 of Generic Letter (GL) 91-11. Additional information may be found in Section 8.3 of the SQN Updated Final Safety Analysis Report (UFSAR) and SQN Technical Specifications (TSs).

Description of 120-Volt (V) Vital Instrumentation Power System

SQN's 120-V Vital Power System has four identical channels and eight 120-V vital instrument power boards with uninterruptable inverter power supplies (reference UFSAR Section 8.3.1.2.2, "Analysis for Vital 120-Volt AC Control Power Systems, AC Distribution Boards, and Inverters," and UFSAR Figure 8.1.2-2):

120-V ac Vital Instrument Board 1-I and 120-V ac Vital Inverter 1-I
120-V ac Vital Instrument Board 2-I and 120-V ac Vital Inverter 2-I
120-V ac Vital Instrument Board 1-II and 120-V ac Vital Inverter 1-II
120-V ac Vital Instrument Board 2-II and 120-V ac Vital Inverter 2-II
120-V ac Vital Instrument Board 1-III and 120-V ac Vital Inverter 1-III
120-V ac Vital Instrument Board 2-III and 120-V ac Vital Inverter 2-III
120-V ac Vital Instrument Board 1-IV and 120-V ac Vital Inverter 1-IV
120-V ac Vital Instrument Board 2-IV and 120-V ac Vital Inverter 2-IV

Distribution of 120-V, alternating-current (ac) vital instrument power is performed without automatic transfers between redundant load groups and without automatic load stripping or sequence. Each power channel's equipment is electrically and physically independent from the equipment of other channels. Normal power to the 120-V, ac vital instrument power boards is from an ac, 120-V vital inverter with each board having its own inverter. Alternate 120-V, ac power for the boards is from the 480-V shutdown boards by means of an instrument power transformer. A manual transfer switch, located on the 120-V, ac vital instrument power board, is used to transfer between the normal and alternate power.

The 480-V, ac vital transfer switch supplying this alternate and/or maintenance power to the 120-V, ac vital instrument board also powers the same channel of 120-V, ac vital inverters and 125-V, direct-current (dc) vital battery charger. Train A is the normal 480-V power source for Channels I and III, and Train B is the normal 480-V power source for Channels II and IV. Alternate 480-V, ac power, which is supplied by the opposite train, may be selected by way of a manual transfer switch. Also, two spare battery chargers are provided. One can be substituted for the normal Channel I or II charger and the other for the normal Channel III or IV charger. These spare chargers may be powered from either train by means of their 480-V vital transfer switch.

The 120-V, ac vital inverters contain an auctioneering circuit that accepts dc power from either the inverter rectifier (rectifies 480-V ac to 125-V dc) or a 125-V, dc vital battery board. Power for the 125-V, dc vital battery boards is normally from its 125-V, dc vital battery charger with the 125-V, dc vital battery being the emergency backup. Each 125-V, dc vital battery board supplies a Unit 1 and Unit 2 120-V, ac vital inverter.

Channel loads are assigned according to the divisional requirements. Train A divisional loads, primarily associated with Units 1 and 2, are assigned to Channels I and III respectively. In addition, Train B divisional loads, primarily associated with Units 1 and 2, are assigned to Channels II and IV respectively.

Response

As stated in the description, each power channel is electrically and physically independent of other channels up to their 480-V, ac vital transfer switches. Additionally, the SQN TSs are consistent with the Westinghouse standard TSs. Therefore, only three potential areas of concern were identified:

1. The 480-V, ac vital transfer switches for the four channels could be placed in an arrangement such that redundant Class 1E equipment is supplied by the same power source.

2. When a spare battery charger is substituted for one of the normal chargers, it could be powered by the opposite train 480-V, ac power.

3. The transfer switch on the 120-V, ac vital instrument power board could be left in the "alternate" position. While alternate power is from the same train, it does not have battery backup as does "normal" power.

Surveillance Requirements 4.8.2.1 and 4.8.2.2 for TSs 3.8.2.1 and 3.8.2.2, respectively, require verification of correct breaker alignment for specified ac boards and inverters at least once every seven days. This is met by performance of Surveillance Instruction (SI) 1-SI-OPS-000-003.W, "Weekly Shift Log," for Unit 1 and 2-SI-000.003.W, "Weekly Shift Log," for Unit 2.

System Operating Instruction, O-SO-250-1, "125 Volt DC Vital Power System," is the plant instruction for normal operation of the 125-V, dc vital power system. Further, as stated above, these transfer switches are verified every seven days by SIs to be in their "normal" position. Therefore, sufficient administrative controls exist to ensure these switches are not placed in an arrangement such that redundant Class 1E equipment is supplied by the same power.

The identified SIs also verify that, when either of the spare battery chargers is substituted for a normal charger, they are powered from the same division of 480-V power as the charger they replaced. Since the alignment is verified by these SIs every seven days, sufficient administrative controls exist to ensure an arrangement such that redundant Class 1E equipment is not supplied by the same power. Additionally, should breaker alignment be found not to be in compliance with TSs 3.8.2.1 or 3.8.2.2, the required actions will be taken and their time limits met.

System Operating Instruction, O-SO-250-2, "120 Volt AC Vital Instrument Power System," is the plant instruction for normal operation of the 120-V, ac vital instrument power system. It ensures each 120-V, ac vital instrument power board transfer switch is in the normal position as required by TS 3.8.2.1. Should the transfer switch be placed in the alternate position, the actions of TS 3.8.2.1 would apply. Additionally, these transfer switches are verified to be in the normal position once every seven days by performance of 1-SI-OPS-000-003.W and 2-SI-OPS-000-003.W for Units 1 and 2, respectively.

In conclusion, the SQN Class 1E vital ac instrument power system is designed to be an independent system and surveillances exist to ensure continued TS compliance. Based upon the above discussion, SQN has appropriate administrative controls to fulfill the following requirements:

1. Limit the time that a plant is in possible violation of the single-failure criterion with regard to the Class 1E vital instrument buses and tie breakers,

2. Require surveillances of these components, and

3. Ensure that, except for the times covered in Item (1), the plant is operating in an electrical configuration consistent with the regulations and its design bases.