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

September 22, 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) - UNITS 1 AND 2 - SUPPLEMENTAL INFORMATION FOR IMPLEMENTATION OF THE STATION BLACKOUT (SBO) RULE (10 CFR 50.63) (TAC NOS. M68603 AND M68604)

Reference: TVA letter to NRC dated June 7, 1994, "Sequoyah Nuclear Plant (SQN) - Units 1 and 2 - Commitment Status and Justification for Implementation of the Station Blackout (SBO) Rule (10 CFR 50.63) (TAC Nos. M68603 and M68604)"

The purpose of this letter is to provide NRC with additional information regarding the implementation of the SBO rule in accordance with 10 CFR 50.63, as requested during a telephone call on June 16, 1994. By the referenced letter, TVA informed NRC of the latest schedule for implementing the SBO rule-required modifications during the Unit 1 Cycle 7 refueling outage in late 1995. NRC requested additional information on the environmental considerations associated with the local operation of Unit 1 turbine-driven, auxiliary feedwater (AFW) level control valves (LCVs) during an SBO event. This information is needed to evaluate lighting, communication, and habitability considerations during ingress, egress, and operation of the valves.

Lighting is provided for ingress, egress, and LCV manual operation by permanent and portable lighting. SQN Procedure EA-3-2, "Local Control of Turbine Driven AFW LCVs," addresses the use of hand-held lighting to assist performance. In addition, there are three 10 CFR 50, Appendix R emergency lights located in the west valve vault rooms for each unit. These lights are designed to operate for eight hours upon loss of alternating-current (ac) power to support safe shutdown actions. Two of the lights provide general area illumination (e.g., doors, ladders, and walkways), and the third light is provided to illuminate the AFW LCVs.

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These lights support manual operation of these valves during SBO. Similar lightpacks are available for the operation of AFW LCVs located outside of the west valve vault. The route to the west valve vaults is sufficiently illuminated by the installed Appendix R lighting and code safety lighting.

Communication to support operation of the LCVs is available by the in-plant, very high frequency, portable radio system, with a sound-powered phone as backup. SQN Procedure EA-3-2 addresses communication with the main control room via hand-held radios. Communication is necessary to coordinate manual control of the turbine-driven AFW pump before manual opening of the LCVs. The use of the in-plant, very high frequency, portable radio system has been evaluated and is considered acceptable to support manual LCV operation. The very high frequency radio repeaters are powered from the vital inverters and will be available during the SBO event. In addition to the very high frequency portable radios, a sound-powered phone is available at the top of the stairwell that leads to the west valve vault entrance.

The environment in the west valve vaults during an SBO event is not expected to be more severe than those experienced during normal power operation. Routine inspections and maintenance are conducted during power operation in these locations with similar or longer durations than anticipated for local LCV operation. For the SBO event, normal ventilation within the valve vault will not be in operation; however, heat loads present during power operation will decrease over time for SBO conditions. TVA has documented a worst-case, bulk room temperature of 163 degrees Fahrenheit (F) with a 97-degree-F outside ambient temperature, no ventilation in service, and the unit in Mode 1. This room temperature is considered to be the maximum value that would be experienced during an SBO event considering reduced heat loads. Lower valve vault temperatures would be expected with lower outside ambient temperatures. The operator will not remain in the west valve vault for the entire duration of the SBO event; however, an operator is dedicated to operate the turbine-driven, AFW pump LCVs as directed from the main control room.

The west valve vaults at SQN typically run between 10 and 20 percent relative humidity during power operation with temperatures typically in the 110- to 160-degree-F range. Short duration maintenance and inspection activities have been performed in localized areas of the valve vault at temperatures above 170 degrees F with typical humidity values. Because the SBO event does not require the postulation of additional plant failures, such as steam line faults, with the loss of all ac power

sources, the humidity values in the valve vaults should remain unchanged. The expected maximum temperature at the typical humidity levels will result in an environment that will support the ability to manually operate the LCVs. These manual actions have been evaluated and are expected to involve less than a 15-minute duration inside the valve vault. Procedure EA-3-2 addresses the need to obtain gloves and no other protective gear would be required for this environment. For the two LCVs located outside the valve vault, there are no habitability concerns because there are no significant heat or humidity sources.

TVA has performed an informal evaluation of the expected boil-off rate for the steam generators (S/Gs) during an SBO event. This evaluation roughly indicates that the S/Gs would boil dry in approximately 40 minutes. Operations' staff has performed timed runs for dispatching operators to perform manual LCV operation. These runs assumed the worst-case starting location for the operator, and the results indicated that opening of Loop 1 LCV could be achieved within 30 minutes. Loop 1 is considered the most critical S/G because it provides the motive steam supply for the turbine-driven AFW pump. Therefore, Operations' personnel can manually operate the LCVs within the time limits required to maintain turbine-driven, AFW pump operation and reactor coolant system heat sink capability during an SBO event. The lighting, communication, and habitability conditions support the performance of local LCV operation as described above.

SQN Unit 2 will complete modifications to provide remote LCV operation before start-up from the present Cycle 6 refueling outage. Therefore, the provisions described above will not apply to Unit 2 for an SBO event. However, the Unit 1 modifications will not be completed until the Cycle 7 refueling outage scheduled for late 1995. The provisions for lighting, communication, and habitability described in this letter provide SQN's basis for meeting the SBO rule until the planned Unit 1 LCV modifications.

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

Sincerely,

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cc: See page 4

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