ENCLOSURE 1

PROPOSED TECHNICAL SPECIFICATION CHANGE

SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

(TVA-SQN-TS-93-03)

LIST OF AFFECTED PAGES

Unit 1

3/4 8-4

Unit 2

3/4 8/4

SURVEILLANCE REQUIREMENTS (Continued)

d. At least once per 18 months during shutdown by:

1. Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service,

2. Verifying the generator capability to reject a load of greater than or equal to 600 kw while maintaining voltage within ± 10 percent of the initial pretest voltage and frequency at 60 ± 1.2 Hz. At no time shall the transient voltage exceed 8276V. R103

3. Verifying the generator capability to reject a load ~~of 4400 kw without tripping. The generator voltage shall not exceed 120 percent of the initial pretest voltage or 8712V, whichever is less~~ 8880V during and following the load rejection. R68 R158

4. Simulating a loss of offsite power by itself, and:

a) Verifying de-energization of the shutdown boards and load shedding from the shutdown boards.

b) Verifying the diesel starts on the auto-start signal, energizes the shutdown boards with permanently connected loads within 10 seconds, energizes the auto-connected shutdown loads through the load sequencers and operates for greater than or equal to 5 minutes while its generator is loaded with the shutdown loads. After energization, the steady state voltage and frequency of the shutdown boards shall be maintained at 6900 ± 690 volts and 60 ± 1.2 Hz during this test.

5. Verifying that on a ESF actuation test signal (without loss of offsite power) the diesel generator starts on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The generator voltage and frequency shall be 6900 ± 690 volts and 60 ± 1.2 Hz within 10 seconds after the auto-start signal; the steady state generator voltage and frequency shall be maintained within these limits during this test. R53

6. Simulating a loss of offsite power in conjunction with an ESF actuation test signal, and

a) Verifying de-energization of the shutdown boards and load shedding from the shutdown boards. R118

b) Verifying the diesel starts on the auto-start signal, energizes the shutdown boards with permanently connected loads within 10 seconds, energizes the auto-connected emergency (accident) loads through the load sequencers and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After energization, the steady state voltage and frequency of the emergency busses shall be maintained at 6900 ± 690 volts and 60 ± 1.2 Hz during this test.

SURVEILLANCE REQUIREMENTS (Continued)

d. At least once per 18 months during shutdown by:

1. Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service,

2. Verifying the generator capability to reject a load of greater than or equal to 600 kw while maintaining voltage at within ± 10 percent of the initial pretest voltage and frequency at 60 + 1.2 Hz. At no time shall the transient voltage exceed 8276V. R88

3. Verifying the generator capability to reject a load of 4400 kw without tripping. The generator voltage shall not exceed 8880V, ~~120 percent of the initial pretest voltage or 8712V, whichever is less~~ during and following the load rejection. R56 R14

4. Simulating a loss of offsite power by itself, and:

   a) Verifying de-energization of the shutdown boards and load shedding from the shutdown boards.

   b) Verifying the diesel starts on the auto-start signal, energizes the shutdown boards with permanently connected loads within 10 seconds, energizes the auto-connected shutdown loads through the load sequencers and operates for greater than or equal to 5 minutes while its generator is loaded with the shutdown loads. After energization, the steady state voltage and frequency of the shutdown boards shall be maintained at 6900 ± 690 volts and 60 ± 1.2 Hz during this test.

5. Verifying that on a ESF actuation test signal, without loss of offsite power, the diesel generator starts on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The generator voltage and frequency shall be 6900 ± 690 volts and 60 ± 1.2 Hz within [illegible] seconds after the auto-start signal; the steady state generator voltage and frequency shall be maintained within these limits during this test. R41

6. Simulating a loss of offsite power in conjunction with an ESF actuation test signal, and

   a) Verifying de-energization of the shutdown boards and load shedding from the shutdown boards.

   b) Verifying the diesel starts on the auto-start signal, energizes the shutdown boards with permanently connected loads within 10 seconds, energizes the auto-connected emergency (accident) loads through the load sequencers and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After energization, the steady state voltage and frequency of the emergency busses shall be maintained at 6900 ± 690 volts and 60 ± 1.2 Hz during this test.

ENCLOSURE 2

PROPOSED TECHNICAL SPECIFICATION CHANGE

SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

(TVA-SQN-TS-93-03)

DESCRIPTION AND JUSTIFICATION FOR

DIESEL GENERATOR VOLTAGE OVERSHOOT LIMIT REVISION

Description of Change

TVA proposes to modify the Sequoyah Nuclear Plant (SQN) Units 1 and 2 technical specifications (TSs) to increase the maximum voltage limit during and following a full-load rejection of 4400 kilowatts (kW) for the diesel generator (D/G) set. TS Surveillance Requirement (SR) 4.8.1.1.2.d.3 will be revised to replace the present requirement to ensure voltage does not exceed 120 percent of initial pretest voltage or 8712 volts (V), whichever is less, with a requirement to ensure voltage does not exceed 8880 V. The revised requirement will read as follows:

> "Verifying the generator capability to reject a load of 4400 kw without tripping. The generator voltage shall not exceed 8880V during and following the load rejection."

Reason for Change

On October 18, 1991, NRC approved emergency TS Amendments 154 and 144 for SQN Units 1 and 2, respectively, to revise the D/G voltage overshoot limits. TVA has continued to evaluate this limit to ensure the appropriate requirements are utilized. This evaluation involved a more detailed study of potential component damage because of voltage transients. The results indicate that the proposed 8880-V limit will not result in component damage and will provide an acceptable limit that will minimize the need for future waivers of compliance or emergency TS changes. This limit will also allow more flexibility in the adjustment of droop settings to provide stable D/G operation in the droop mode. In addition, the percentage of initial pretest voltage limit for D/G voltage overshoot has been removed based on a review of standard TS Revision 4A and NUREG 1431. The limit proposed in this request for D/G voltage overshoot is consistent with standard TSs and NUREG 1431 and the intent as defined in the associated bases.

Justification for Change

TVA evaluated appropriate regulatory and industry documents to determine the intent of D/G voltage overshoot limits during a full-load rejection condition. These documents include Regulatory Guide 1.108, Revision 1, dated 1977, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants"; Institute of Electrical and Electronics Engineers (IEEE) Standard 387-1984, "IEEE Standard Criteria for Diesel-Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations"; draft IEEE Standard P-387, Revision 5, by the same title; and NUREG 1431, dated September 1992, "Standard Technical Specifications Westinghouse Plants." This evaluation determined that the full-load rejection test for D/G sets was designed to demonstrate that the D/G would not trip on overspeed and that the resulting voltages will not exceed a level that will cause component damage during a full-load rejection. The requirement to verify that the D/G does not trip is not affected by the proposed TS change.

TVA evaluated the components potentially impacted by the voltage overshoot on a full-load rejection. Generator "high potential" voltage tests at the factory are recommended at 14.8 kilovolts (kV). Testing at 75 percent of the factory test voltage is recommended for initial testing

of new machines after installation. After initial testing and generator service, a high potential test at 60 percent of the factory test voltage (8880 V) is recommended. The D/G manufacturer has determined that the engine and/or generator controls would not experience detrimental effects for transient voltages up to 9000 V. The medium voltage cables from the D/G to the 6900 V shutdown board switchgear are 8000 V rated and have a recommended high-potential test voltage for maintenance of 30.0-kV direct current and 17.6-kV alternating current. Therefore, the proposed limit of 8880 V is within recommended test voltages and manufacturer determinations of acceptable voltage levels to prevent component damage.

The voltage overshoot values seen during the surveillance test are larger than the associated values during a design-basis event when the D/G is in the isochronous mode of operation. This is because the voltage overshoot reduction device (VORD) is only active in the isochronous mode and the droop effect is not present. The VORD limits D/G voltage by shunting the field current when the voltage exceeds 103 percent of nominal voltage (7107 V). The droop effect increases internal generator voltage to obtain rated D/G reactive power when parallel with the grid, which results in higher D/G voltage overshoot during surveillance testing. This effect, along with the VORD not being active, results in test voltages in excess of those that would be experienced during a full-load rejection in the isochronous mode. Therefore, the actual voltage levels expected during a full-load rejection on the D/G during accident conditions are bounded by the surveillance test.

The present 120 percent limit in TSs is not relevant because this condition is not associated with the potential to create D/G trips or represent a condition that would result in component damage. The true limit for component damage is based on a maximum voltage, not a voltage increase percentage.

In conclusion, the proposed D/G voltage overshoot limit of 8880 V is acceptable based on the ability of components to withstand this transient voltage level without damage. Surveillance test conditions used are conservative compared with expected response under accident conditions. The removal of the 120 percent of initial pretest voltage does not affect component survivability and is consistent with the latest standard TSs.

Environmental Impact Evaluation

The proposed change request does not involve an unreviewed environmental question because operation of SQN Units 1 and 2 in accordance with this change would not:

1. Result in a significant increase in any adverse environmental impact previously evaluated in the Final Environmental Statement (FES) as modified by NRC's testimony to the Atomic Safety and Licensing Board, supplements to the FES, environmental impact appraisals, or decisions of the Atomic Safety and Licensing Board.

2. Result in a significant change in effluents or power levels.

3. Result in matters not previously reviewed in the licensing basis for SQN that may have a significant environmental impact.

Enclosure 3

PROPOSED TECHNICAL SPECIFICATION CHANGE

SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

(TVA-SQN-TS-93-03)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

## Significant Hazards Evaluation

TVA has evaluated the proposed technical specification (TS) change and has determined that it does not represent a significant hazards consideration based on criteria established in 10 CFR 50.92(c). Operation of Sequoyah Nuclear Plant (SQN) in accordance with the proposed amendment will not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated.

   The proposed change revises TS 4.8.1.1.2.d.3 to provide a new voltage limit of 8880 volts (V) for a full-load rejection test of the diesel generator (D/G). This increase in the voltage requirement has been verified not to result in component damage. Safety-related functions will not be affected by this change, and D/G operability and availability for accident mitigation will remain unchanged. Therefore, the D/G will still be capable of performing required safety functions, and there will be no increase in the consequences of an accident.

   The D/Gs provide a safety-related source of alternating-current power to mitigate the consequences of an accident. Since the D/G is not postulated to be the source of any design basis accident, based on only providing accident mitigation functions, this change in the surveillance test requirements for D/G voltage overshoot will not increase the probability of an accident.

2. Create the possibility of a new or different kind of accident from any previously analyzed.

   As discussed above, the D/G only provides accident mitigation functions and is not postulated to create an accident. Allowing test voltages of 8880 V during a full-load rejection test has been verified not to damage connected D/G generating, control, and distribution components. Other components that are connected to the D/G before the surveillance testing or accident conditions are not affected because their disconnection creates the full-load rejection before the voltage overshoot occurs. Therefore, the proposed change will not create the possibility of a new or different accident because plant functions have not been affected.

3. Involve a significant reduction in a margin of safety.

   Increasing the D/G voltage overshoot limit for surveillance testing does not adversely affect any component. Plant functions remain unchanged to mitigate design basis accidents. The D/G will remain operable and available as required by TSs without degradation of D/G safety functions. Therefore, the margin of safety provided by the D/G and the shutdown power distribution system is unchanged by the purposed TS change.