ENCLOSURE 1

PROPOSED TECHNICAL SPECIFICATION CHANGE

SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

(TVA-SQN-TS-91-17)

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Unit 1

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Unit 2

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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 ~~114~~ percent of the initial pretest voltage or ~~8276V~~ 8712V, whichever is less during and following the load rejection. R68 R103

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.

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. R118

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 120 ~~114~~ percent of the initial pretest voltage or ~~8276V~~ 8112V whichever is less during and following the load rejection. R56 R88

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. 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-91-17)

DESCRIPTION AND JUSTIFICATION FOR
REVISION TO VOLTAGE OVERSHOOT LIMITS FOR
DIESEL GENERATOR LOAD REJECTION TEST

Description of Change

TVA proposes to modify the Sequoyah Nuclear Plant (SQN) Units 1 and 2 technical specifications (TSs) to revise Surveillance Requirement (SR) 4.8.1.1.2.d.3 from the 114 percent of initial pretest voltage limit for voltage overshoot on a total load rejection to 120 percent. The voltage limit of 8,276 volts (V) will also be increased to 8,712 V to correspond with the increase to 120 percent described above.

Reason for Change

On October 7, 1991, the testing of the 1A-A diesel generator (D/G) for a full load rejection resulted in approximately 115 percent voltage overshoot from the initial pretest voltage. On October 9, 1991, the same test for the 1B-B D/G resulted in approximately 119 percent voltage overshoot. These results do not comply with the TS 4.8.1.1.2.d.3 requirement to not exceed 114 percent voltage overshoot during a full load rejection. TVA requested and was granted a waiver of compliance by Office of Nuclear Reactor Regulations on October 10, 1991. The reason for requesting emergency processing of this TS change is to allow continued full power operation of Unit 2, to minimize the additional D/G SR testing and associated unnecessary wear and tear because of the inoperability of these D/Gs and to maintain critical path work activities for the Unit 1 Cycle 5 refueling outage after expiration of the waiver.

Justification for Change

TVA processed a TS change request in January 1989 to modify SR 4.8.1.1.2.d.3 to the acceptance voltage values listed above. The voltage limit of 8,276 V was based on 114 percent of the expected maximum plant operating voltage of 7,260 V. The 114 percent of pretest voltage value was based on past test results that indicated approximately 112 percent voltage overshoot and was not based on any criteria associated with equipment damage.

Since the approval and implementation of amendments for Units 1 and 2 that incorporated these values, modifications have been implemented to the transient voltage response of the D/G. The modifications have been to the generator exciter control system that altered the excitation current transformer (CT) tap settings to provide a boost of the field current for a given D/G kilovoltampere (kVA) load and addition of the voltage overshoot reduction device (VORD) that shunts the field current to zero if the transient overshoot during the D/G loading sequence exceeds 103 percent of nominal during isochronous mode of operation. The VORD is not active in the D/G circuit during performance of the load rejection test that is performed in the droop mode. This is because the shutdown board's normal voltage range during plant operation exceeds the 103 percent operating setpoint of the VORD.

In addition, procedural changes have been recently incorporated that require generator loading to the design rating of 4,400 kilowatt and 5,000 kVA. This change in testing was incorporated as a result of industry operating experience information (NRC Information Notice 91-13) and is more

conservative than previous test conditions. This change results in an increase in the internal generator voltage setpoint, which is required to overexcite the generator to be able to obtain a rated kilovoltampere reactive (kVAR) output of approximately 2,375. This change also increases generator field current. Both the higher internal voltage and the additional field current tend to create a higher voltage overshoot when the rated load is suddenly removed.

An additional factor that contributed to identification of the overshoot was the use of high-speed visicorder data to determine voltage overshoot. Previously, voltage overshoot had typically been determined from installed panel gauge data. This panel instrumentation had significantly reduced capability for identifying high-speed, short-duration transients.

The described conditions that identified voltage overshoots in excess of TS limits and previously measured values are believed to have been caused by the combination of the revised procedural requirements to test at rated generator load (resulting from review of IEN 91-13), the CT modification, and the use of more accurate instrumentation capable of identifying short-duration transients. The combined effect of these changes increases the voltage overshoot of the D/G during load rejections. The individual contributions of each change are not known and would require additional D/G testing that is not recommended for reliability considerations. However, it is considered that the changes in test kVA loading are the driving contributor to this condition. The individual changes, as well as the combined effect of these changes, were not applicable or were not expected at the time of the TS change requested in 1989. Additionally, the effect of these changes could not be quantified at the time of initial implementation and therefore was not identified until performance of the subject testing.

There is negligible safety significance associated with the subject voltage overshoot levels. The test deficiencies were of very brief durations (13 and 23 cycles for 1A-A and 1B-B respectively) and of small magnitude relative to equipment considerations. The brief transient overvoltages (8,250 and 8,220 V for 1A-A and 1B-B respectively) would not overstress the generators' insulation system. Insulation life is inversely proportional to voltage stress, but the duration of these transients is so small that the effect on insulation life would be negligible. The generator manufacturer has determined that an acceptance criteria of 8,712 V for a maximum duration of 30 cycles would not significantly reduce the qualified life of the generator. The D/G vendor has determined that the engine and/or generator controls would not experience detrimental effects for transient voltages up to 9,000 V. Accordingly, it is considered that overshoot limits in excess of those provided in either current SQN or standard TSs are technically adequate to prevent equipment damage or degradation following a full-load rejection. In summary, while the testing results exceed the SQN TS overshoot value, the subject voltage levels have not and will not adversely affect D/G equipment or capability to perform the intended function.

Environmental Impact Evaluation

The proposed change request involves testing requirements for D/Gs and will not affect the functions or operation of any equipment such that an unreviewed environmental question would be involved 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 the Staff'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-91-17)

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.

   This request proposes a TS change for the Surveillance Requirement (SR) 4.8.1.1.2.d.3 to allow a voltage overshoot of 120 percent of pretest voltage or 8,712 volts, whichever is less. It has been determined that these increased values would not result in damage to the diesel generator (D/G) and will continue to ensure operability as discussed in the previous justifications. The revised limits will ensure that safety-related functions are adequately verified. Therefore, the D/Gs will continue to be verified to meet safety requirements and the subject changes will not increase the consequences of an accident. In addition, the D/Gs are not postulated to be the source of any design basis accident and therefore cannot increase the probability for an accident.

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

   This request only provides an increase in the allowable voltage overshoot on a total D/G load rejection. This change does not create any new type of accident because alteration of test requirements for the D/G or any other D/G test or operation cannot create an accident. The D/Gs only provide accident mitigation functions.

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

   The revised voltage values will not result in damage to any D/G components and therefore the D/G safety functions will be maintained. Since the D/Gs will continue to provide full accident mitigation capabilities, a margin of safety will not be reduced.