ENCLOSURE 1

PROPOSED TECHNICAL SPECIFICATION CHANGE

SEQUOYAH NUCLEAR PLANT UNIT 2

DOCKET NO. 50-328

(TVA-SQN-TS-94-02)

LIST OF AFFECTED PAGES

Unit 2

OPERATING LICENSE, PAGE 11

s. Primary Coolant Outside Containment (Section 22.2, III.D.1.1

Prior to exceeding 5 percent power Level, TVA is required to complete the leak tests on Unit 2, and results are to be submitted within 30 days from the completion of the testing.

(17) Surveillance Interval Extension

The performance interval for those surveillance requirements identified in the licensee's request for surveillance interval extension dated February 8, 1994 ~~September 8, 1993~~, shall be extended to ~~April~~ July 15, 1994, to coincide with the Cycle 6 refueling outage. The extended interval shall not exceed a total of ~~25~~ 28 months for 18-month surveillances and 46 months for 3-year surveillances. R162

D. Exemptions from certain requirements of Appendices G and J to 10 CFR Part 50 are described in the Office of Nuclear Reactor Regulation's Safety Evaluation Report, Supplements No. 1 and No. 5. These exemptions are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest. Therefore, these exemptions are hereby granted. The facility will operate, to the extent authorized herein, in conformity with the application, as amended, the provisions of the Act, and the regulations of the Commission.

A temporary exemption from General Design Criterion 57 found in Appendix A to 10 CFR part 50 is described in the Office of Nuclear Reactor Regulation's Safety Evaluation Report, Supplement No. 5, Section 6.2.4. This exemption is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest. The exemption, therefore, is hereby granted and shall remain in effect through the first refueling outage as discussed in Section 6.2.4 of Supplement 5 to the Safety Evaluation Report. The granting of the exemption is authorized with the issuance of the Facility Operating License. The facility will operate, to the extent authorized herein, in conformity with the application as amended, the provisions of the Act, and the regulations of the Commission. Additional exemptions are listed in attachment 2. AE

E. Physical Protection

The Licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, guard training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revision to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The Safeguards Contingency Plan is incorporated into the Physical Security Plan. The plans, which contain Safeguards Information protected under 10 CFR 73.21, are entitled: "Sequoyah Physical Security Plan," with revisions submitted through November 23, 1987; and "Sequoyah Security Personnel Training and Qualification Plan," with revisions submitted through April 16, 1987. Changes made in accordance with 10 CFR 73.55 shall be implemented in accordance with the schedule set forth therein. R65

ENCLOSURE 2

PROPOSED TECHNICAL SPECIFICATION CHANGE

SEQUOYAH NUCLEAR PLANT UNIT 2

DOCKET NO. 50-328

(TVA-SQN-TS-94-02)

DESCRIPTION AND JUSTIFICATION FOR

EXTENSION OF SURVEILLANCE REQUIREMENT INTERVALS

Description of Change

TVA proposes to modify the Sequoyah Nuclear Plant (SQN) Unit 2 technical specifications (TSs) to revise Operating License Condition 2.C.(17) that extends the surveillance intervals for the surveillance requirements (SRs) listed in Enclosure 4 until July 15, 1994. This extension supports the schedule for the Unit 2 Cycle 6 refueling outage and will result in surveillance intervals that do not exceed 28 months for the affected components with an 18-month interval. For the 3-year SR the surveillance interval will not exceed 46 months.

Reason for Change

SQN Unit 2 entered a forced outage on March 1, 1993, during the sixth fuel cycle. This forced outage lasted approximately eight months and Unit 2 resumed power operation on October 22, 1993. Because of the forced outage duration and the need to optimize fuel burnup, SQN was expected to exceed the allowable 25 percent extension of 4 1/2 months in accordance with TS 4.0.2 for several of the 18-month surveillances. NRC approved a license amendment on November 9, 1993, to extend these SRs to April 15, 1994, to allow power operation up to 2 1/2 months past the TS 4.0.2 allowable extension. However, following this start-up, Unit 2 experienced several forced shutdowns because of reactor coolant letdown, main generator voltage regulator and exciter, reactor coolant pump (RCP) thermal barrier, and centrifugal charging pump problems. These additional forced outages pushed the optimal fuel life out to approximately July 1, 1994. Approximately 5 months of usable fuel exists in the present core load and by further extending the previously identified 18-month SRs and one additional 3-year SR to July 15, 1994, fuel burnup and outage preparation can be optimized. This is based on a scheduled shutdown for the refueling outage on or before July 3, 1994. An additional extension interval to July 15, 1994, is requested to maintain the low-temperature overpressure protection (LTOP) instrumentation in TS compliance. The LTOP instrumentation is required in Modes 4, 5, and 6 with the reactor vessel head in place.

The SRs for which an extension is required cannot be performed during power operation without risking a unit transient and/or involving significant radiation exposure. Therefore, performance of these SRs under the existing TS requirements would require testing at power or an unnecessary plant shutdown before April 15, 1994.

Justification for Change

The proposed change is temporary and allows a one-time extension of specific 18-month and 3-year SRs for Cycle 6 to allow surveillance testing to coincide with the sixth refueling cycle. The maximum surveillance interval increase during which the plant is operating at power will be less than 5 1/4 months and will not affect the reliability established by surveillance testing performed at normal intervals.

TS 4.0.2 is an administrative control that ensures that surveillance tests are performed periodically and defines a reasonable extension period for such testing. The basis for this specification describes the SRs as "sufficient to ensure that the reliability associated with the surveillance activity is not significantly degraded beyond that obtained

from the nominal specified interval." TVA has concluded that the reliability defined by the normal surveillance intervals (e.g., daily, weekly, monthly) will not be significantly reduced by the extension. This conclusion is based on the following considerations for extending surveillances that primarily involve instrumentation components.

1. The instrument accuracy calculations are based on the random nature of time-based drift. In accordance with the current Instrument Society of America Standards, it is usually expected that those instrument uncertainties that a manufacturer specifies as having a plus or minus magnitude are random uncertainties. Additionally, random uncertainties are defined as zero-centered and are approximated by a normal distribution. Therefore, redundant channels are not expected to drift an equal amount in the same direction. To consider nonrandom drift is inconsistent with industry practice.

2. Current monitoring by channel checks of instrumentation and ongoing TS surveillance tests provides assurance that the equipment involved in the extended surveillance tests will remain in an operable condition until testing is performed at the next refueling outage.

3. Periodic surveillance tests have been performed since the last refueling outage to monitor system and component performances and to detect any significant degradation. Surveillance testing will continue to be performed during the requested extension interval that provides added assurance that the reliability of equipment associated with the extended surveillance will not be significantly degraded by this one-time extension.

4. Historically, the electronic components in the reactor protection system and engineered safety features actuation system have shown a very high degree of reliability. This reliability is further enhanced by the online diagnostics and self-calibration routines provided by the Eagle 21 protection sets installed at SQN.

5. Redundant instrumentation loops are available and indicated on the main control room (MCR) boards. Redundant Class 1E qualified continuous MCR indication is provided for all Category 1 postaccident monitoring channels. Redundant channels would not be expected to drift in the same direction and with the same magnitude because the time-dependent drift is typically a random error.

6. The Eagle 21 System is designed to utilize inputs from three or four instrumentation channels and outputs to two trip-logic trains for each protective function. These redundant channels and trains are electrically isolated and physically separated. Thus, any single failure within a channel or train will not prevent a required protective system action. Furthermore, some of the involved channels also provide additional diversity. For example, RCP under voltage, under frequency, and reactor coolant system (RCS) low-flow reactor trip functions provide diverse means of detecting grid stability problems.

7. A review of the SQN Unit 2 demonstrated accuracy calculations for the safety-related channels concluded that the vast majority of the calculations for TS instrument channels are acceptable. This conclusion was reached considering margin currently within the calculations even when a linearly applied 25 percent addition to the 22 1/2-month drift terms was conservatively utilized. This result is based upon conservative calculations and required existing limits to be maintained. The remaining small number of calculations for safety-related instrument channels shows the potential to predict drift in excess of the limit by small amounts. However, these calculations contain conservative evaluations of the drift by assuming it is a linear function of time (i.e., 6-month vendor drift data is multiplied by 3 if used for a 18-month period and 4 if used for a 24-month period).

   Other methods for evaluating drift data may be used as described in the Instrument Society of America Standards. If one assumes that drift during each period is random and independent, the square root of the sum of the squares of the individual periods between calibration may be used. This approach would lead to evaluating 3 independent 6-month periods for consideration of an 18-month period. A lower overall drift would be predicted than in the linear case. Some vendor data has also suggested that the majority of instrumentation drift will occur in the first several months following a calibration; and that the instrument output will not drift significantly after the "settle in period." In this case, the 6-month value provided by the vendor would also be acceptable for the 18-month calibration interval. Again, a lower overall drift would be predicted than in the linear case.

   Our field experience with channel drifts has been better than that predicted by the linear model. In each case where we have used field data to redefine drift parameters, it has been better than the bounding vendor information. The overall conclusion is that the additional expected drift would not result in unacceptable instrumentation performance for the extension period requested.

For surveillances that primarily involve non-instrumentation-type components, Item 3 above will apply, and the following discussions are provided to further support the acceptability to extend their surveillance intervals.

1. <u>Rod-Drop Timing Measurement (SR 4.1.3.4)</u>

   The shutdown and control rod-drop time ensures that rapid poison addition is available to promptly make the core subcritical when required. The surveillance is most necessary following the reactor disassembly and reassembly for refueling (when the rods are electrically disconnected and mechanically unlatched, the upper internals with rod-drive shafts removed, the fuel assemblies shuffled, the rods relatched, and the upper internals reinstalled and electrically reconnected). The refueling evolution could result in a mechanical frictional interference with the ability to insert rods or electrical problems with the rod-gripper mechanisms, hence the surveillance is essential to ensure that the mechanical alignment is satisfactory.

However, after the surveillance has been completed satisfactorily, there is no logical reason to believe that the rod-drop time has slowed down and would fail to meet the 2.7-second drop time criteria because: (1) during the plant operating fuel cycle, the rods were exercised periodically and satisfactorily in accordance with TS requirements; (2) the rods were tripped into the core on five separate occasions, all rods fell fully into the core, and the reactor was satisfactorily made subcritical; and (3) there have been no indications of any loose foreign objects in the RCS that would be hypothesized to cause an interference problem.

Consequently, there is every reason to believe that rod-drop time testing in July or later would also show satisfactory results. It is the activities and changes to the RCS associated with the refueling process that could cause a problem that requires the reevaluation of the rod-drop timing.

Historically, SQN has not experienced failures of rod-drop times exceeding allowable TS values. In addition, this surveillance will only require an extension beyond the TS 4.0.2 allowance of approximately three months. Testing will be performed before entering an applicable mode following the refueling outage. Therefore, based on the historical dependability of acceptable rod-drop time measurements and the above reasons that drop times have not slowed down, this extension for the rod-drop time measurement SR is acceptable.

2. Hydrogen Mitigation System Igniter Temperature (SR 4.6.4.3.b)

The hydrogen igniters are subjected to a quarterly test to verify that the voltage and current to each igniter are within an acceptable range. Failure to meet these requirements results in the igniter(s) being declared inoperable. For the past five years, no failures to reach an acceptable temperature have been identified for an igniter that passed the quarterly voltage and current SRs. Therefore, the continued performances of the quarterly igniter test will serve to ensure adequate igniter temperatures for the approximately 4 1/2-month extension beyond the TS 4.0.2 allowance. In addition, extending this surveillance will preclude an additional entry into the excess letdown heat exchanger room to verify temperatures on two igniters and eliminate the high-radiation exposures associated with this activity.

3. Lower-Voltage Circuit Breaker Test (SR 4.8.3.1.a.2)

This surveillance requires containment penetration conductor overcurrent protection devices to be demonstrated operable at least once every 18 months by selecting and functionally testing a representative sample of at least 10 percent of each type of lower-voltage circuit breakers. During the last two performances of this surveillance, no failures were identified. In addition, breaker functional tests have been completed within the past 19 months such that molded-case circuit breakers included in this surveillance

(approximately 95 percent of the related breakers) were inspected and exercised. Industry guidance indicates that most circuit breaker failures involve the operating mechanism and that exercising the breakers is probably the most important of all inspections or tests. Also, electrical penetrations are protected by redundant overcurrent devices, typically a fuse, or in some instances, another circuit breaker. Because of the recent inspection and exercising of the molded-case breakers, the existence of redundant penetration protection, and their reliable history, the extension of the surveillance interval such that testing may be deferred for approximately five months is acceptable.

4. Non-1E Load Circuit Breaker Test (SR 4.8.3.3.a)

This surveillance requires that the circuit breakers actuated by fault currents, which are used as isolation devices protecting 1E busses from nonqualified loads, shall be demonstrated operable at least once every 18 months by selecting and functionally testing a representative sample of at least 10 percent of each type of circuit breaker.

During the last two performances of this surveillance, only two failures were recorded. One of the failures involved a Westinghouse Electric Corporation, Type KB molded-case breaker. Only three of this type breaker are included in the surveillance, and all three breakers have been tested during the past two performances. Like the breakers covered in the item above, molded-case breakers included in this surveillance have been inspected and exercised within the past 19 months. The other breaker that failed to meet its acceptance criteria was a Westinghouse Type DS metal-enclosed circuit breaker. Numerous Westinghouse Type DS breakers that are not included in the TS testing program have been tested over the past 3 1/2 years. Any generic problem with the breakers would have been detected during this testing. In addition, 6 out of the 16 Type DS breakers included in the surveillance have been tested within the past 3 1/2 years. Since (1) Type KB molded-case breakers in the surveillance have been tested within the past 3 1/2 years, (2) molded-case breakers have been inspected and exercised within 19 months, and (3) no adverse trend has been identified related to Type DS breakers, extending the surveillance to allow testing to be deferred for approximately five months is acceptable.

5. Boron Injection, Emergency Core Cooling System, and Normal Charging Flow Path Automatic Valve Actuation on Safety Injection Signal (SRs 4.1.2.2.c, 4.5.2.e.1, 4.5.3, and 4.6.3.2.e)

The safety injection automatic valve actuations required by the SRs listed above are satisfied by a single test instruction that integrates these verifications. The performance of these verifications requires the disabling of RCP seal flow, both trains of normal charging, and residual heat removal. The impact of placing the plant in these required configurations will result in undesirable conditions that could result in equipment damage or the

loss-of-cooling capability to the core while in Modes 1 through 6. In the case of the residual heat removal system, performing these SRs would violate TS and could require a unit shutdown when removing both trains of cooling during any mode of operation.

For these reasons, the verifications are performed during refueling outages with the core unloaded. Under this condition, the TS requirements are not applicable; and there is not a potential heat source in the reactor vessel that requires a cooling source. Since Unit 2 would require an outage, the radiation exposure, shutdown delay, and cost associated with offloading the core are not justified in lieu of extending these SRs for approximately five months. In addition, no failures have been identified during the previous performances of these SRs. Therefore, extending these SRs to allow testing to be deferred for approximately five months is acceptable.

6. Fire Hose Service Hydrostatic Test (SR 4.7.11.4.c.2)

This surveillance requires the hydrostatic testing of fire hose stations at least once every three years. These hose stations are listed in TS Table 3.7-5. All stations in this table will be maintained within the 3-year plus 25 percent allowable extension in accordance with TS 4.0.2 with the exception of the Item b stations. Item b contains six hose stations inside the reactor building crane wall that would require significant radiation exposure to perform during power operation. The last performance of this surveillance for the six stations inside containment was met by installing new hoses in each station that have been hydrostatic tested by the manufacturer. The requested extension to July 15, 1994, will only exceed the allowable extension of 45 months in accordance with TS 4.0.2 by one month. Because of the short extension needed to continue power operation for maximum fuel burnup, the radiation exposure involved with performing this SR online, the extension only applying to six stations, and the last SR performance installed new hoses in these stations, adequate justification exists for an extension of one month for this three-year SR.

Following the sixth refueling outage, the plant will continue to comply with the surveillance intervals for future operating cycles. The proposed changes do not affect the Updated Final Safety Analysis Report since the changes are temporary and only apply for Cycle 6. Therefore, based on the above, this change will not reduce the safety of the plant.

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 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 UNIT 2

DOCKET NO. 50-328

(TVA-SQN-TS-94-02)

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 is temporary and allows a one-time extension of specific surveillance requirements (SRs) for Cycle 6 to allow surveillance testing to coincide with the sixth refueling outage. The proposed surveillance interval extension is short and will not cause a significant reduction in system reliability nor affect the ability of the systems to perform their design function. Current monitoring of plant conditions and continuation of the surveillance testing required during normal plant operation will continue to be performed to ensure conformance with TS operability requirements. Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

   Extending the surveillance interval for the performance of specific testing will not create the possibility of any new or different kind of accidents. No changes are required to any system configurations, plant equipment, or analyses. Therefore, this change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

   Surveillance interval extensions will not impact any plant safety analyses since the assumptions used will remain unchanged. The safety limits assumed in the accident analyses and the design function of the equipment required to mitigate the consequences of any postulated accidents will not be changed since only the surveillance test interval is being extended. Historical performance generally indicates a high degree of reliability, and surveillance testing performed during normal plant operation will continue to be performed to verify proper performance. Therefore, the plant will be maintained within the analyzed limits, and the proposed extension will not significantly reduce the margin of safety.

ENCLOSURE 4

PROPOSED TECHNICAL SPECIFICATION CHANGE

SEQUOYAH NUCLEAR PLANT UNIT 2

DOCKET NO. 50-328

(TVA-SQN-TS-94-02)

AFFECTED SURVEILLANCE REQUIREMENTS

SURVEILLANCE REQUIREMENTS (SRs) TO BE EXTENDED

	18-Month Plus 25% Allowance Expires On	Requested Interval Extension
Technical Specification (TS) SR 4.1.2.2.c Boron Injection Flow Path Automatic Valve Actuation on Safety Injection Signal	2/14/94	5 Months
TS SR 4.1.3.4 Rod-Drop Timing Measurement	3/31/94	3.5 Months
TS SR 4.2.5.3 Channel Calibration of Reactor Coolant System Flow Instrumentation	2/23/94	4.5 Months
TS SR 4.3.1.1.1 Items: 2, 3, 4, 7, 8, 9, 10, 11, 12, 13, 14, 17, and 22; Channel Calibration of Reactor Trip System Instrumentation	2/3/94	5.5 Months
TS SR 4.3.1.1.2 Reactor Trip System Instrumentation Interlocks	2/3/94	5.5 Months
TS SR 4.3.1.1.3 Items: 7, 8, 9, 10, 12, and 13; Response Time of Reactor Trip System Instrumentation	2/9/94	5.5 Months
TS SR 4.3.2.1.1 Items: 1, 2, 3, 4, 5, 6, 7, 8, and 9 Engineered Safety Feature Actuation System Instrumentation Channel Calibrations	1/30/94	5.5 Months
TS SR 4.3.2.1.2 Engineered Safety Feature Actuation System Instrumentation Interlocks	2/9/94	5.5 Months
TS SR 4.3.2.1.3 Items: 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, and 13 Engineered Safety Feature Actuation System Instrumentation Response Time Measurement	1/31/94	5.5 Months
TS SR 4.3.3.5 Items 3, 4, 5, 6, 7, 9, 11, 12, and 13 Channel Calibration of Remote Shutdown Instrumentation	2/1/94	5.5 Months
TS SR 4.3.3.7.b Channel Calibration of Accident Monitoring Instrumentation	2/1/94	5.5 Months

	18-Month Plus 25% Allowance Expires On	Requested Interval Extension
TS SR 4.4.3.2.1.a Channel Calibration of Power Operated Relief Valves	2/9/94	5.5 Months
TS SR 4.4.12.1.b Channel Calibration of Low-Temperature Overpressure Protection System	2/8/94	5.5 Months
TS SR 4.5.1.1.2.b Channel Calibration of Cold Leg Injection Accumulator Pressure and Level Instrumentation	2/18/94	5 Months
TS SRs 4.5.2.e.1 and 4.5.3 Emergency Core Cooling System Flow Path Automatic Valve Actuation on Safety Injection Signal	2/14/94	5 Months
TS SR 4.6.3.2.e Normal Charging Isolation Valve Actuation on Safety Injection Signal	2/14/94	5 Months
TS SR 4.6.4.3.b Temperature Verification of Hydrogen Mitigation System Igniters	2/17/94	5 Months
TS SR 4.8.3.1.a.2 Lower-Voltage Circuit Breaker Test for Containment Penetration Conductor Overcurrent Protective Devices	2/1/94	5.5 Months
TS SR 4.8.3.3.a Non-1E Load Circuit Breaker Test for Isolation Devices	2/3/94	5.5 Months

	3-Year Plus 25% Allowance Expires On	Requested Interval Extension
TS SR 4.7.11.4.c.2 Fire Hose Service Hydrostatic Test in Containment	6/23/94	1 Month