ENCLOSURE 1

PROPOSED TECHNICAL SPECIFICATION CHANGE

SEQUOYAH NUCLEAR PLANT UNIT 1

DOCKET NO. 50-327

(TVA-SQN-TS-94-17)

LIST OF AFFECTED PAGES

Unit 1

OPERATING LICENSE, PAGE 12

(2) TVA shall maintain interim emergency support facilities (Technical Support Center, Operations Support Center and the Emergency Operations Facility) until the final facilities are complete.

1. Relief and Safety Valve Test Requirements (Section 22.3, II.D.1)

TVA shall conform to the results of the EPRI test program. TVA shall provide documentation for qualifying (a) reactor coolant system relief and safety valves, (b) piping and supports, and (c) block valves in accordance with the review schedule given in SECY-81-491 as approved by the Commission.

(24) Compliance with Regulatory Guide 1.97

TVA shall implement modifications necessary to comply with Revision 2 of Regulatory Guide 1.97, "Instrumentation for Light Water Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident," dated December 1980 by startup from the Unit 2 Cycle 4 refueling outage.

→ ADD INSERT

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, Supplement No. 1. 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. The exemptions are, therefore, hereby granted. The granting of these exemptions are authorized with the issuance of the License for Fuel Loading and Low Power Testing, dated February 29, 1980. The facility will operate, to the extent authorized herein, Act, and the regulations of the Commission. Additional exemptions are listed in attachment 1. | 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 revisions 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. | R77

F. This license is subject to the following additional condition for the protection of the environment:

Before engaging in additional construction or operational activities which may result in an environmental impact that was not evaluated by the Commission, Tennessee Valley Authority will prepare and record

INSERT

(25) Surveillance Interval Extension

The performance interval for those surveillance requirements identified in the licensee's request for surveillance interval extension dated November 2, 1994, shall be extended to October 1, 1995, to coincide with the Cycle 7 refueling outage. The extended interval shall not exceed a total of 29.5 months for 18-month surveillances, 48 months for 36-month surveillances, and 71.5 months for 54-month surveillances.

ENCLOSURE 2

PROPOSED TECHNICAL SPECIFICATION CHANGE

SEQUOYAH NUCLEAR PLANT UNIT 1

DOCKET NO. 50-327

(TVA-SQN-TS-94-17)

DESCRIPTION AND JUSTIFICATION FOR

EXTENSION OF SURVEILLANCE REQUIREMENT INTERVALS

Description of Change

TVA proposes to modify the Sequoyah Nuclear Plant (SQN) Unit 1 technical specifications (TSs) to add Operating License Condition 2.C.(25) that extends the surveillance intervals for the surveillance requirements (SRs) listed in Enclosure 4 until October 1, 1995. This extension supports the schedule for the Unit 1 Cycle 7 refueling outage and will result in surveillance intervals that do not exceed 29.5 months for the affected components with an 18-month interval. For the 36-month SRs the surveillance interval will not exceed 48 months. For the 54-month SRs the surveillance interval will not exceed 71.5 months.

Reason for Change

SQN Unit 1 entered a forced outage on March 2, 1993, during the sixth fuel cycle. The forced outage duration was increased because of expanded outage scope and as a result of the decision to proceed with refueling. This forced outage with refueling lasted approximately 13 months and Unit 1 resumed power operation on April 20, 1994. Several of the surveillances that were performed during the outage will not remain within TS required intervals for the present 18-month fuel cycle. Usable fuel exists in the present core load to continue operation beyond October 1, 1995, and by extending the identified SRs, SQN will be able to continue power operation through the summertime peak period. This is based on a scheduled shutdown for the refueling outage on or before October 1, 1995.

During the extended dual unit shutdown that began in March 1993, with the Unit 2 through-wall steam leak, Unit 1 was refueled and refueling frequency surveillances were performed. Because of numerous reasons, the restart date of Unit 1 was postponed several times. At the time, TVA's best estimate of the date for the Unit 1 Cycle 7 refueling outage was April 1995. Many of the surveillances that were performed during the earlier stages of the Unit 1 outage would have expired before the proposed April 1995, Cycle 7 outage start date. A decision was made at that time to reperform as many surveillances as practical before the Unit 1 restart to extend the reperformance dates past April 1995. The surveillances that would expire before April 1995 (approximately 90) were reperformed with two exceptions. It was not practical to reperform the surveillances involving the divider barrier seal test and the safety-injection actuation of emergency core cooling system components. TVA encountered additional obstacles in the successful return of Unit 1 to power. These problems, and our anticipated grid condition in the summertime, have caused TVA to reschedule the start of the Cycle 7 refueling outage to early to mid-September 1995. This forecast is based upon an assumed operating capacity of 90 percent. To allow for unforeseen impacts on this operating capacity factor, TVA is asking to extend the proposed surveillances to October 1, 1995.

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

October 1, 1995. Note also that additional surveillances are being evaluated that will exceed the 25 percent allowable extension in September 1995. These surveillances require more extensive evaluations to support an extension and will be addressed separately. Should the Unit 1 Cycle 7 operation maintain the present high-capacity factor, the refueling outage could occur before their required performance date and eliminate the need for an extension.

Justification for Change

The proposed change is temporary and allows a one-time extension of specific 18-month, 36-month, and 54-month SRs for Cycle 7 to allow surveillance testing to coincide with the seventh refueling outage. The maximum surveillance interval increase during which the plant is operating at power will be less than seven 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 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 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, reactor coolant pump (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 SQN Unit 1 demonstrated accuracy calculations for the safety-related channels concluded that the majority of the calculations for TS instrument channels stay within limits. This conclusion was reached considering margin currently within the calculations even when a linearly applied 33 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 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 an 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.

Response time tests are performed on instrumentation loops from the sensor to the final actuating device. These tests involve timing of the sensor, Eagle 21 components, solid state protection system (SSPS) logic and relays, and the final actuating device to determine an overall instrumentation loop response time. For the Eagle 21 components, the major contributor to response time is loop cycle time, which is verified by each quarterly functional test performed within that rack . The SSPS logic is tested on a bi-monthly interval to verify functionality and suppor cceptable response time capability. The required response time intervals for the Eagle 21 and SSPS logic are 309 and 6 milliseconds, respectively, and are not a significant contributor to overall loop response time. The sensors, SSPS relays, and final actuating devices are tested at refueling outages to assess the acceptability of their response times.

The sensors involved in the response time tests include resistance temperature detectors (RTDs), pressure transmitters, and differential pressure transmitters. A review of the past three surveillance performances for these devices did not indicate time-based trends that would result in exceeding response time requirements considering the proposed extension. Industry positions support the consideration of eliminating response time testing for transmitters and switches. This consideration is based on extensive evidence that these devices do not exhibit response time drift over a period of time. In general, the testing for response times of these devices in the industry has not detected response time failures that would not be identified by calibrations, functional testing, or channel checks. Therefore, channel checks, that will continue to be performed during the remainder of the fuel cycle, will provide reasonable confidence that the sensors are functional and that expected response times will remain within acceptable response time limits. For RTDs, past testing has not indicated response time failures except for one postinstallation test resulting from installation damage. This type of damage would not be postulated during power operation and supports the extension of RTD response time testing as proposed.

The SSPS relays that would require the proposed extension for response time considerations have not exhibited response time drift. Review of past response time tests have verified this position and do not indicate changes in tested values as a result of test intervals. The repeatability of response times associated with the operation of relays and the historical data supports the proposed change to extend the response time surveillances.

The majority of the final actuation devices for response time testing are valves. The affected valves for the proposed extension primarily involve those that are also tested by the Section XI program. Approximately 12 percent of the affected valves are not included in the Section XI program at SQN. Of the valves not in the Section XI program, a review of recent tests did not indicate a failure to meet the response time requirements. The historical results of past response time tests, along with most valves also being tested in the Section XI program, provide adequate confidence that response times will remain within acceptable values for the proposed extension interval.

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. 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 1 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 seven 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 seven months is acceptable.

2. Divider Barrier Seal Test (SR 4.6.5.9)

   This test verifies the capability of the divider barrier seal on a 18-month surveillance interval. This barrier is a pliable rubber covered cloth membrane and its purpose is to prevent steam and hot air from bypassing the ice condenser in

the event of a loss-of-coolant accident or high energy line break. This membrane was last inspected in April 1993 and is considered acceptable to extend the surveillance interval by approximately seven months until the Cycle 7 refueling outage based on the following discussions:

a. The divider barrier is located in areas where it is unlikely to be damaged by mechanical agitation except near the access through the operating deck from upper to lower compartment.

b. Past inspections have found only one instance where barrier integrity was compromised. This was a small puncture located near the access through the operating deck from the upper to lower compartment.

c. Unit 1 was primarily in Modes 5 and 6 during the extended outage and no degradation of the barrier due to elevated temperatures or radiation effects that are present during power operation would have occurred until the Cycle 7 start-up.

The proposed extension of the divider barrier seal inspection for seven months does not increase the length of time that the barrier has been exposed to adverse environments that would cause degradation. Physical activities during power operation would be limited and the past failure data indicates that a failure during the remainder of Cycle 7 operation is unlikely. For these reasons, the proposed extension is considered acceptable.

3. Remote Valve Position Indication Verification (SR 4.3.3.7.b)

This surveillance verifies the capability of the position indication devices to accurately monitor the actual position of the valve. The last surveillance instruction that performed this verification was started on September 30, 1993. The next performance would then be required by August 18, 1995, to meet the 18-month interval with a 25 percent allowable extension. However, the valves in the associated test that apply to this SR were not tested until November 11, 1993, and later. With this performance date, these valves would only require an extension of two days to reach the October 1, 1995, proposed refueling outage start date. There are 24 valves that require an extension of 1 or 2 days to reach the October 1, 1995, date and of these valves only 4 are not capable of being cycled during power operation. The remaining 20 valves are controlled by the Section XI program that cycles the valves on a quarterly basis and provides a functional verification that the position indication devices are working. The Section XI requirements are based on a two-year interval and will not require an extension for the proposed October 1, 1995, refueling outage.

By extending the remote position indication verification surveillance, the testing for Section XI can be achieved simultaneously and reduce testing activities. In addition, most of these valves are located in radiation areas during power operation and deferring testing to the outage will decrease radiation exposures. A review of valve maintenance histories indicates that the affected valves have not had maintenance performed on them during the Cycle 7 operation. Therefore, the potential for activities that could impact the capabilities of the position indication devices are greatly reduced. The proposed extension, that effectively results in a two-day extension, is acceptable based on the Section XI testing and the reduction in radiation exposure and resources to perform multiple tests.

Following the seventh 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 7. 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 1

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(TVA-SQN-TS-94-17)

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.

   The proposed change is temporary and allows a one-time extension of specific surveillance requirements (SRs) for Cycle 7 to allow surveillance testing to coincide with the seventh refueling outage. The proposed surveillance interval extension 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 1

DOCKET NO. 50-327

(TVA-SQN-TS-94-17)

AFFECTED SURVEILLANCE REQUIREMENTS

SURVEILLANCE REQUIREMENTS (SRs) TO BE EXTENDED

18-Month Surveillances

	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	03/09/95	7 Months
TS SR 4.2.5.3 Channel Calibration of Reactor Coolant System Flow Instrumentation	07/25/95	2.5 Months
TS SR 4.3.1.1.1 Items: 5, 7, 8, 9, 10, 11, 12, 13, 14.D, and 22.A; Channel Calibration of Reactor Trip System Instrumentation	04/18/95	5.5 Months
TS SR 4.3.1.1.2 Reactor Trip System Instrumentation Interlocks	08/16/95	1.5 Months
TS SR 4.3.1.1.3 Items: 7, 8, 9, 10, 12, and 13; Response Time of Reactor Trip System Instrumentation	04/18/95	5.5 Months
TS SR 4.3.2.1.1 Items: 1, 2, 3, 4, 6, 8, and 9; Engineered Safety Feature Actuation System Instrumentation Channel Calibrations	03/09/95	7 Months
TS SR 4.3.2.1.2 Engineered Safety Feature Actuation System Instrumentation Interlocks Channel Calibrations	05/30/95	4 Months
TS SR 4.3.2.1.3 Items: 2, 3, 5, 6, 7, and 13; Engineered Safety Feature Actuation System Instrumentation Response Time Measurement	05/29/95	4 Months
TS SR 4.3.3.1 Item 2.a Channel Calibration of Containment Purge Air Exhaust Radiation Monitors	05/18/95	4.5 Months

18-Month Surveillances

	18-Month Plus 25% Allowance Expires On	Requested Interval Extension
TS SR 4.3.3.5 Items 1, 4, 5, 7, 12, and 13; Channel Calibration of Remote Shutdown Instrumentation	04/19/95	5.5 Months
TS SR 4.3.3.7.b Channel Calibration of Accident Monitoring Instrumentation	06/17/95	3.5 Months
TS SR 4.3.3.7.b Remote Valve Position Indication Verification	08/18/95	1.5 Months
TS SR 4.4.3.2.1.a and .b Channel Calibration of Power Operated Relief Valves	04/18/95	5.5 Months
TS SR 4.4.6.1.b Channel Calibration of Reactor Building Floor and Equipment Drain Sump Level	07/14/95	2.5 Months
TS SR 4.4.12.1.b Channel Calibration of Low-Temperature Overpressure Protection System	07/09/95	3 Months
TS SR 4.5.1.1.2.b Channel Calibration of Cold Leg Injection Accumulator Pressure and Level Instrumentation	04/15/95	5.5 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	03/09/95	7 Months
TS SR 4.6.3.2.e Normal Charging Isolation Valve Actuation on Safety-Injection Signal	03/09/95	7 Months
TS SR 4.6.5.9 Divider Barrier Seal	03/01/95	7 Months

36-Month Surveillances

	36-Month Plus 25% Allowance Expires On	Requested Interval Extension
TS SR 4.3.1.1.3 Items: 2, 4, 7, 8, 9, 10, 12, 13, 14, 16, and 17; Response Time of Reactor Trip Functions	09/10/95	1 Month
TS SR 4.3.2.1.3 Items: 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, and 14; Engineered Safety Feature Response Time Measurement	07/12/95	3 Months

54-Month Surveillances

	54-Month Plus 25% Allowance Expires On	Requested Interval Extension
TS SR 4.3.1.1.3 Items: 2, 4, 7, 8, 9, 10, 12, 13, and 14; Response Time of Reactor Trip Functions	06/02/95	4 Months
TS SR 4.3.2.1.3 Items: 2, 3, 5, 6, 7, 8, 9, and 13; Engineered Safety Feature Response Time Measurement	06/02/95	4 Months