January 3, 1995

Mr. Oliver D. Kingsley, Jr.
President, TVA Nuclear and
Chief Nuclear Officer
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: ISSUANCE OF AMENDMENT (TAC NO. M90781) (TS 94-17)

Dear Mr. Kingsley:

The Commission has issued the enclosed Amendment No. 193 to Facility Operating License No. DPR-77 for the Sequoyah Nuclear Plant Unit 1. This amendment is in response to your application dated November 2, 1994.

The amendment adds Operating License Condition 2.C.(25) to provide a limited extension of the surveillance test intervals for certain specified instrumentation on Unit 1 to coincide with the Cycle 7 refueling outage. The surveillance intervals that are affected are specified in the attached safety evaluation and are for tests that would be extended to October 1, 1995, and would result in extension of the specified 18-month, 36-month and 54-month surveillances to 29.5, 48 and 71.5 months, respectively.

A copy of the Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

ORIGINAL SIGNED BY:

David E. LaBarge, Sr. Project Manager
Project Directorate II-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-327

Enclosures: 1. Amendment No. 193 to License No. DPR-77
2. Safety Evaluation

cc w/enclosures: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-327

SEQUOYAH NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 193
License No. DPR-77

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated November 2, 1994, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

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2. Accordingly, the license is hereby amended by adding Paragraph 2.C.(25) to Facility Operating License No. DPR-77 to read as follows:

   (25) Surveillance Interval Extension

   The performance intervals for those surveillance requirements identified in the licensee's request for surveillance interval extensions 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.

3. This license amendment is effective as of its date of issuance, to be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Peter S. Tam for

Frederick J. Hebdon, Director
Project Directorate II-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Date of Issuance: January 3, 1995

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 193 TO FACILITY OPERATING LICENSE NO. DPR-77

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT, UNIT 1

DOCKET NO. 50-327

1.0 INTRODUCTION

By application dated November 2, 1994, the Tennessee Valley Authority (TVA or the licensee) proposed an amendment to the Facility Operating License for Sequoyah Nuclear Plant (SQN) Unit 1. The requested changes would add Operating License Condition 2.C.(25) to provide limited extension of the performance interval for certain specified surveillance tests on Unit 1 to coincide with the Cycle 7 refueling outage (RFO). The surveillance tests that are affected are instrumentation tests that are presently required to be performed at 18-, 36- and 54-month intervals and are listed herein. As a result of the proposed extension, the surveillance intervals for the specified 18-month surveillances will not exceed 29.5 months, the 36-month surveillance intervals will not exceed 48 months, and the 54-month surveillance intervals will not exceed 71.5 months.

2.0 DISCUSSION

The Unit 1 forced shutdown that started on March 2, 1993, lasted approximately 13 months. During this time the Cycle 6 RFO activities were performed, including the surveillance tests normally scheduled for a refueling outage. The tests were scheduled early in the outage and were reperformed when the date for the next outage was scheduled for April 1995. However, due to many problems encountered during startup, the length of the outage, and in consideration of the grid condition during the upcoming 1995 summer season, TVA has decided to reschedule the start of the Cycle 7 RFO to mid-September. The impact of this rescheduling is that certain surveillance tests that are performed during a refueling outage will fall due (including the extensions permitted by TS 4.0.2) before the start of the outage, unless the surveillance intervals are extended. To allow for unforeseen impacts on the schedule, TVA has requested extension of these surveillances to October 1, 1995.

Listed below are the surveillances affected by the extensions, the reference TS section, description of the surveillance, the date when the surveillance interval expires when 25 percent allowed by the TS is taken into account, and the extension in months that has been requested.

ENCLOSURE 2

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18-MONTH SURVEILLANCES

TS SECTION	DESCRIPTION	18-MO. PLUS 25% EXP. DATE (EXT. IN MONTHS)
4.1.2.2.c	Boron Injection Flow Path Automatic Valve Actuation on Safety Injection Signal	3/9/95 (7)
4.2.5.3	Channel Calibration of Reactor Coolant System Flow Instrumentation	7/25/95 (2.5)
4.3.1.1.1 Items 5,7,8, 9,10,11,12, 13,14.D,22.A	Channel Calibration of Reactor Trip System Instrumentation	4/18/95 (5.5)
4.3.1.1.2	Reactor Trip System Instrumentation Interlocks	8/16/95 (1.5)
4.3.1.1.3 Items 7,8,9, 10,12,13	Response Time of Reactor Trip System Instrumentation	4/18/95 (5.5)
4.3.2.1.1 Items 1,2, 3,4,6,8,9	Engineered Safety Feature Actuation System Instrumentation Channel Calibrations	3/9/95 (7)
4.3.2.1.2	Engineered Safety Feature Actuation System Instrumentation Interlocks Channel Calibrations	5/30/95 (4)
4.3.2.1.3 Items 2,3,5, 6,7,13	Engineered Safety Feature Actuation System Instrumentation Response Time Measurement	5/29/95 (4)
4.3.3.1, Item 2.a	Channel Calibration of Containment Purge Air Exhaust Radiation Monitors	5/18/95 (4.5)
4.3.3.5 Items 1,4, 5,7,12,13	Channel Calibration of Remote Shutdown Instrumentation	4/19/95 (5.5)
4.3.3.7.b	Channel Calibration of Accident Monitoring Instrumentation	6/17/95 (3.5)

4.3.3.7.b Table 3.3-10 Items 11.b. and 19.	Remote Valve Position Indication Verification	8/18/95 (1.5)
4.4.3.2.1.a and .b	Channel Calibration of Power Operated Relief Valves	4/18/95 (5.5)
4.4.6.1.b	Channel Calibration of Reactor Building Floor and Equipment Drain Sump Level	7/14/95 (2.5)
4.4.12.1.b	Channel Calibration of Low-Temperature Overpressure Protection System	7/9/95 (3)
4.5.1.1.2.b	Channel Calibration of Cold Leg Injection Accumulator Pressure and Level Instrumentation	4/15/95 (5.5)
4.5.2.e.1 and 4.5.3	Emergency Core Cooling System Flow Path Automatic Valve Actuation on Safety Injection Signal	3/9/95 (7)
4.6.3.2.e	Normal Charging Isolation Valve Actuation on Safety-Injection Signal	3/9/95 (7)
4.6.5.9	Divider Barrier Seal	3/1/95 (7)

36-MONTH SURVEILLANCES

TS SECTION	DESCRIPTION	36-MO. PLUS 25% EXP. DATE (EXT. IN MONTHS)
4.3.1.1.3 Items 2,4,7, 8,9,10,12, 13,14,16,17	Response Time of Reactor Trip Functions	9/10/95 (1)
4.3.2.1.3 Items 2,3,5, 6,7,8,9,10, 11,12,13,14	Engineered Safety Feature Response Time Measurement	7/12/95 (3)

54-MONTH SURVEILLANCES

TS SECTION	DESCRIPTION	54-MO. PLUS 25% EXP. DATE (EXT. IN MONTHS)
4.3.1.1.3 Items 2,4,7, 8,9,10,12, 13,14	Response Time of Reactor Trip Functions	6/2/95 (4)
4.3.2.1.3 Items 2,3,5, 6,7,8,9,13	Engineered Safety Feature Response Time Measurement	6/2/95 (4)

The surveillances listed above cannot be performed during power operation without risking a unit transient and/or involving significant radiation exposure to personnel. Their performance under the existing TS requirements would require testing at power or an unnecessary shutdown before October 1, 1995. As shown above, the surveillance interval increase for any instrument would be between 1.5 months and 7 months beyond the present maximum extension allowed by the TS (including the 25 percent allowed by TS 4.0.2). The proposed extensions are temporary and all tests will be performed during the Cycle 7 RFO.

TVA 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 the time-based drift. Current industry standard practice indicates that redundant channels are not expected to drift an equal amount in the same direction. Therefore, drift would be expected to be detected readily by comparing redundant channels that measure the same parameter.

2. Current monitoring of instrumentation and ongoing TS surveillance tests provide 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 performance 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 routine provided by the Eagle-21 protection sets installed at Sequoyah.

5. A review by TVA of the Unit 1 demonstrated accuracy calculations for the safety-related channels concluded that the majority of the calculations for TS instrument channels stay within limits. Field experience with channel drifts has led to the conclusion that any additional drift would not result in unacceptable instrumentation performance for the extension period.

6. Sensors involved in response time tests associated with the Eagle-21 system include resistance temperature detectors, pressure transmitters, and differential pressure transmitters. The licensee has indicated that a review of the past three surveillances performed for these devices did not indicate time-based trends that would result in exceeding the response time requirements during the proposed extension period. 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 limits.

7. The majority of the final actuation devices associated with response time test are valves. The historical results of past response time tests and the fact that most of the valves are in the Section IX program, provide confidence that the response times will remain within acceptable values for the proposed extension interval.

TVA also supplied additional discussions related to the following specific instrument tests to justify extending their testing interval:

Boron Injection, Emergency Core Cooling System, and Normal Charging Flow Path Automatic Valve Actuation on Safety Injection Signal (TS 4.1.2.2.c)
Divider Barrier Seal Test (TS 4.6.5.9)
Remote Valve Position Indication Verification (TS 4.3.3.7.b, Table 3.3-10, Items 11.b. and 19)

3.0 EVALUATION

Periodic surveillance requirements were not intended to adversely affect safe plant operation simply because a specified surveillance interval does not coincide with plant operating schedules. Normally, variations in schedules can be accommodated through the existing technical specifications. Specifically, TS 4.0.2 is an administrative control that ensures surveillance tests are performed within the specified interval, since it provides for an allowable tolerance (25 percent) for performing surveillances beyond the normal surveillance interval. This tolerance provides operational flexibility to allow for scheduling and performance considerations while still ensuring that the reliability of the equipment or system associated with the surveillance is not significantly degraded beyond that obtained from the nominal specified surveillance interval. However, circumstances can develop

wherein the relief provided by TS 4.0.2 is inadequate, but good cause for additional relief can be demonstrated by the licensee.

Such is the case here. TVA has provided compelling evidence that the change in the refueling schedule was not undertaken for a reason or in a manner adverse to safety, that reasonable assurance exists that equipment associated with the subject surveillances will not be degraded significantly by the requested interval extensions, and that good cause exists for granting the extensions. The surveillance interval extensions proposed by TVA would result in a slightly diminished confidence in the reliability that would be provided by TS 4.0.2, but TVA has satisfactorily addressed this concern.

The proposed license condition would extend the allowable surveillance intervals for certain instruments from 18-month, 36-month and 54-month surveillances to 29.5, 48 and 71.5 months, respectively. The staff believes that the additional extensions of the surveillance intervals between 1.5 months and 7 months beyond the present maximum extension allowed by the TS (including the 25 percent allowed by TS 4.0.2) are not significant for the particular instruments listed herein. Therefore, the staff finds the proposed license condition acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Tennessee State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (FR). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: David E. LaBarge

Dated: January 3, 1995

Mr. Oliver D. Kingsley, Jr.
Tennessee Valley Authority

SEQUOYAH NUCLEAR PLANT

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AMENDMENT NO. 193 FOR SEQUOYAH UNIT NO. - DOCKET NO. 50-327
DATED: January 3, 1995

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