February 27, 2002

Mr. J. A. Scalice
Chief Nuclear Officer and
Executive Vice President
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS REGARDING CONTROL ROOM VENTILATION AND AIR CONDITIONING SYSTEMS (TAC NOS. MB1520 AND MB1521)

Dear Mr. Scalice:

The Commission has issued the enclosed Amendment No. 273 to Facility Operating License No. DPR-77 and Amendment No. 262 to Facility Operating License No. DPR-79 for the Sequoyah Nuclear Plant, Units 1 and 2, respectively. These amendments are in response to your application dated March 12, 2001.

The amendments delete Sequoyah Technical Specification (TS) Surveillance Requirement 4.7.7.a from TS 3/4.7.7, “Control Room Emergency Ventilation Systems,” and adds a new Section 3/4.7.15, “Control Room Air-Conditioning System (CRACS),” to the TS. This TS addition will also provide the necessary requirements, consistent with NUREG-1431, to address the condition when main control room chillers and air handling units are inoperable.

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

Sincerely,

/RA/

Ronald W. Hernan, Senior Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-327 and 50-328

Enclosures: 1. Amendment No. 273 to License No. DPR-77
2. Amendment No. 262 to License No. DPR-79
3. Safety Evaluation

cc w/enclosures: See next page

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TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-327

SEQUOYAH NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 273
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 March 12, 2001, 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.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-77 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 273, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance, to be implemented no later than 60 days after issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Richard P. Correia, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: February 27, 2002

ATTACHMENT TO LICENSE AMENDMENT NO. 273

FACILITY OPERATING LICENSE NO. DPR-77

DOCKET NO. 50-327

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain a vertical line(s) indicating the area of change.

REMOVE	INSERT
Index Page IX	Index Page IX
Index Page XIV	Index Page XIV
3/4 7-17	3/4 7-17
---	3/4 7-44 (new page)
B 3/4 7-4	B 3/4 7-4
---	B 3/4 7-16 (new page)
---	B 3/4 7-17 (new page)
---	B 3/4 7-18 (new page)

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-328

SEQUOYAH NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 262
License No. DPR-79

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

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated March 12, 2001, 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.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-79 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 262, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance, to be implemented no later than 60 days after issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Richard P. Correia, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: February 27, 2002

ATTACHMENT TO LICENSE AMENDMENT NO. 262

FACILITY OPERATING LICENSE NO. DPR-79

DOCKET NO. 50-328

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain a vertical line(s) indicating the area of change.

REMOVE	INSERT
Index Page IX	Index Page IX
Index Page XIV	Index Page XIV
3/4 7-17	3/4 7-17
---	3/4 7-55 (new page)
B 3/4 7-4	B 3/4 7-4
---	B 3/4 7-16 (new page)
---	B 3/4 7-17 (new page)
---	B 3/4 7-18 (new page)

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 273 TO FACILITY OPERATING LICENSE NO. DPR-77

AND AMENDMENT NO. 262 TO FACILITY OPERATING LICENSE NO. DPR-79

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

1.0 INTRODUCTION

By application dated March 12, 2001, the Tennessee Valley Authority (TVA) proposed to the U.S. Nuclear Regulatory Commission (NRC), an amendment to the Technical Specifications (TS) for Sequoyah Nuclear Plant (SQN), Units 1 and 2. The requested changes would delete SQN TS Surveillance Requirement (SR) 4.7.7.a from TS 3/4.7.7, "Control Room Emergency Ventilation Systems (CREVS)," to differentiate the control building's main control room (MCR) CREVS from the Control Room Air-Conditioning System (CRACS). As part of this change, TVA proposed a new TS Section 3/4.7.15, "Control Room Air-Conditioning System." This TS addition would also provide the necessary requirements, consistent with NUREG-1431, to address inoperability of the MCR chillers and air handling units. Additionally, TVA proposed expanding the Bases for CRACS to provide consistency with the recommended Westinghouse plant Standard TS (NUREG-1431) and TS Traveler Form 51 (TSTF-51), Revision 2. The proposed TS change provides a long-term resolution for a nonconforming condition with regard to NRC Administrative Letter 98-10, "Dispositioning of Technical Specifications That Are Insufficient to Assure Plant Safety."

2.0 BACKGROUND

The proposed TS change addresses concerns about the treatment of CRACS which includes the MCR chillers and air handling units. Presently, the CREVS specification is considered nonconservative with respect to the temperature SR. Specifically, this SR determines equipment operability for CREVS by surveillance of the air temperature (i.e., the function of CRACS). The proposed TS 3/4.7.15 provides a more conservative means for determining operability and increases SQN TS consistency with the improved Standard TS. The proposed surveillance deletion provides inoperability clarification by differentiating the control building's MCR emergency air cleanup system (i.e., CREVS) from the MCR air-conditioning system (i.e., CRACS), coincident with the specification addition.

3.0 EVALUATION

The control building heating, ventilating, air-conditioning, and air cleanup systems are designed to maintain the temperature and humidity conditions throughout the building for the protection, operation, maintenance, and testing of plant controls; and for the safe, uninterrupted occupancy of the MCR by plant operators during an accident and the subsequent recovery period. These systems include the following:

1. MCR air-conditioning system and electrical board rooms air-conditioning system.

2. MCR emergency air cleanup system.

3. MCR emergency pressurizing system.

4. Battery room ventilating system.

5. Miscellaneous ventilating systems.

During normal plant operation the MCR is maintained at approximately 75 °F and 50 percent relative humidity for the protection of instruments and for the comfort and safety of the operators. Fresh air flow is induced to replace that which is being mechanically exhausted. The control building outside air intakes are provided with radiation monitors, high temperature alarms, and smoke detectors that annunciate in the MCR. Isolation of the MCR occurs automatically upon the actuation of a safety injection signal from either unit or upon indication of high radiation or high temperature in the outside air supply stream to the building. The MCR can also be isolated manually by the operators from the MCR. During MCR isolation, CREVS initiates to recirculate a portion of the CRACS return air through the cleanup trains and to supply an alternate stream of outside air to the CRACS for related pressurization requirements.

TVA proposes to delete SR 4.7.7.a as part of the separation of the ventilation and cooling functions in the TS. This surveillance action is to verify that main control room air ambient temperature is less than or equal to 104 °F every 12 hours. Section 9.4.1.3, “Safety Evaluation,” of the SQN Updated Final Safety Analysis Report contains the following discussion:

> All main control room equipment will operate normally within the rated temperature range of 50 °F to 104 °F. At temperatures above 104 °F, failure rates for this control room equipment may tend to rise somewhat and some instrumentation inaccuracies may arise. The full-capacity air-conditioning system redundancy discussed above, however, reduces the probability of overtemperature operations to acceptably small values.

The proposed action statement if one CRACS train is inoperable is to restore it to operable status within 30 days. The staff notes that the corresponding action statement for CREVS requires restoration to operable status within 7 days. In this condition, the remaining operable CRACS train is adequate to maintain the control room temperature within limits. However, the overall reliability is reduced because a single failure in the operable CRACS train could result in loss of CRACS function. The 30-day Completion Time is based on the low probability of an

event requiring control room isolation, the consideration that the remaining train can provide the required protection, and that alternate safety or nonsafety related cooling means are available.

If both CRACS trains become inoperable, the proposed new TS 3.7.13 requires initiation of a plant shutdown within 1 hour. The NRC staff believes that, long before ambient control room temperatures rise to a level affecting plant equipment, the control room operators will experience discomfort and will take prompt action to resolve a loss of cooling situation. For example, absent a control room isolation signal, the CREVS can be aligned to take in 100 percent of its air from outside the building (outside air at the plant site rarely reaches 100 °F).

The proposed new TS, TS 3/4.7.15, will also require the performance of CRACS heat removal test on an 18-month frequency. The performance of testing the CRACS trains to remove the assumed heat load is a new requirement and is considered a more restrictive change.

The purpose of the control room temperature limit of 104 °F is to provide for equipment qualification. The control room temperature is controlled to a lower value than specified for operator comfort. Any changes would be quickly identified by licensed operation personnel that occupy the control room area at all times. The NRC staff believes that SR 4.7.7.a is not needed to assure that the necessary quality of the system is maintained or that the facility will be within safety limits or that the Limiting Conditions for Operation will be met. Therefore, there is no need for the SR to be included in the TS. The staff also notes that there is no such requirement in NUREG-1431.

The proposed new TS for the CRACS addresses the condition when part or all of the CRACS is inoperable. The new CRACS specification addresses this issue by providing actions for inoperability and an SR to confirm system operability (or detect a decrease in system function) on a once- per-operating-cycle basis, consistent with Standard TS. SQN does not currently have adequate TS requirements for the MCR chillers that support the air temperature requirement. Consistent with NRC Administrative Letter 98-10, TVA proposes to add a more conservative requirement in this request that will ensure the availability of this system. TVA test procedures will verify the operability of CRACS consistent with the proposed TS change and the design basis function. TVA also complies with the expectations of 10 CFR 50.36 by adding this requirement to the SQN TS. This change meets the intent of the latest version of Standard TS (NUREG-1431). Therefore, the addition of a limiting condition for operation to the SQN TS for CRACS will require action to shut the plant down when the system is inoperable and to verify operability on a periodic basis. This proposed TS change provides a long-term resolution to a nonconforming condition and is considered conservative for plant safety. This revision to the TS does not involve design changes to the control building heating, ventilating, air-conditioning, and air cleanup systems.

Modifications and revisions of the new specification differing from NUREG-1431 includes: (a) section numbering to establish location in SQN TS (i.e., 3/4.7.15), and (b) modification of the title by replacing “Emergency Air Temperature Control” with “Air-Conditioning.” These revisions are considered editorial and do not alter the intent of, or change the technical content of, the specification.

Relevant revisions to proposed TS 3/4.7.15 would be applied that are consistent with the NRC approved TSTF-51, Revision 2. These revisions include the deletion of the words “During

CORE ALTERATIONS" from the applicability statement and, under the appropriate actions section, deletion of the words "or during CORE ALTERATIONS" and "Suspend CORE ALTERATIONS." The NRC evaluated the proposed changes on a generic basis prior to approving TSTF-51, Revision 2, as indicated in its July 6, 2000, letter to the Nuclear Energy Institute. The staff evaluation for the TSTF included the following justification:

> To support this change in requirements during the handling of irradiated fuel, the OPERABILITY requirements during CORE ALTERATIONS for ESF [engineered safety feature] mitigation features are deleted. The accidents postulated to occur during core alterations, in addition to fuel handling accidents [FHAs], are: inadvertent criticality (due to a control rod removal error or continuous control rod withdrawal error during refueling or boron dilution) and the inadvertent loading of, and subsequent operation with, a fuel assembly in an improper location. These events are not postulated to result in fuel cladding integrity damage. Since the only accident postulated to occur during CORE ALTERATIONS that results in a significant radioactive release is the fuel handling accident, the proposed Technical Specification requirements omitting CORE ALTERATIONS is justified.
>
> Also, the Technical Specifications only allow the handling of irradiated fuel in the reactor vessel when the water level in the reactor cavity is at the high water level. Therefore, the proposed changes only affect containment requirements during periods of relatively low shutdown risk during refueling outages. Therefore, the proposed changes do not significantly increase the shutdown risk.

The NRC staff has determined that the deletion of the core alterations term as proposed by TVA for SQN is acceptable for the reasons discussed above, namely that an FHA is the only event during core alterations that is postulated to result in fuel damage and radiological release, and the action statements would still address the movement of irradiated fuel assemblies.

Revision to the Bases Section 3/4.7.7 would be made to reflect the deletion of the operability of CREVS to ensure, "the ambient air temperature does not exceed the allowable temperature for continuous duty rating for the equipment and instrumentation cooled by this system." Expanded Bases for TS 3/4.7.15 would be added to complete this effort to improve consistency with NUREG-1431 and NRC-approved revisions (i.e., TSTF-51, Revision 2).

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 a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and 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 (66 FR 20011). 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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Ronald W. Hernan, NRR

Date: February 27, 2002

Mr. J. A. Scalice
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SEQUOYAH NUCLEAR PLANT

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