

May 22, 2003

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 LIMITED POSITIVE REACTIVITY CHANGES,
TECHNICAL SPECIFICATION CHANGE NO. 01-09 (TAC NOS. MB5620 AND
MB5621)

Dear Mr. Scalice:

The Commission has issued the enclosed Amendment No. 285 to Facility Operating License No. DPR-77 and Amendment No. 274 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 July 10, 2002, as supplemented by letter dated May 9, 2003. The amendments requested to remove the requirement to not make positive reactivity changes during certain conditions and replace it with requirements to maintain shutdown margin or boron concentration. The changes will permit limited positive reactivity changes that are necessitated by plant operations.

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

Sincerely,

/RA/

Michael L. Marshall, Jr. 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. 285
to License No. DPR-77
2. Amendment No. 274
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. 285
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 July 10, 2002, as supplemented by letter dated May 9, 2003, 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. 285, 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 45 days after issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Allen G. Howe, 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: May 22, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 285

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 vertical lines indicating the area of change.

REMOVE

3/4 4-1a
3/4 4-2
3/4 4-2b
3/4 4-3
3/4 8-8
3/4 9-2
3/4 9-8
B 3/4 8-1a
B 3/4 8-1b

INSERT

3/4 4-1a
3/4 4-2
3/4 4-2b
3/4 4-3
3/4 8-8
3/4 9-2
3/4 9-8
B 3/4 8-1a
B 3/4 8-1b

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-328

SEQUOYAH NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 274
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 July 10, 2002, as supplemented by letter dated May 9, 2003, 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. 274, 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 45 days after issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Allen G. Howe, 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: May 22, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 274

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

3/4 4-2
3/4 4-3
3/4 4-5
3/4 4-6
3/4 8-9
3/4 9-3
3/4 9-9
B 3/4 8-1a
B 3/4 8-1b

INSERT

3/4 4-2
3/4 4-3
3/4 4-5
3/4 4-6
3/4 8-9
3/4 9-3
3/4 9-9
B 3/4 8-1a
B 3/4 8-1b

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 285 TO FACILITY OPERATING LICENSE NO. DPR-77
AND AMENDMENT NO. 274 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 July 10, 2002, as supplemented by letter dated May 9, 2003, the Tennessee Valley Authority (TVA) proposed to the U.S. Nuclear Regulatory Commission (NRC), amendments to the Technical Specifications (TSs) for Sequoyah Nuclear Plant (SQN), Units 1 and 2. The requested changes would modify the requirements applicable when actions or other requirements direct suspension of activities that involve a positive reactivity change for the SQN Units 1 and 2 TSs. The proposed changes would remove the requirement prohibiting positive reactivity changes during certain conditions. The changes would permit limited positive reactivity changes that are necessitated by plant operations. These changes would limit the amount of reactivity changes to those which will continue to assure compliance with appropriate reactivity limits, namely, shutdown margin or refueling boron concentration, as appropriate.

The proposed changes are needed for operational flexibility, during conditions in which these "ACTIONS" may be required, to continue various unit operations. One such action is that reactor coolant system (RCS) inventory must be maintained and RCS temperature must be controlled. These activities make it necessary to add water, which may be cooler, to the RCS (a positive reactivity change in most cases) and may involve inventory makeup from sources that are at a boron concentration less than that in the RCS.

Specifically, operational considerations may make it necessary or prudent to use a shutdown cooling loop different from the one in operation. For example, if the newly selected shutdown cooling loop is sampled and the boron concentration is slightly lower than that of the RCS, but meets or exceeds the applicable shutdown margin or refueling boron concentration limits, the switch to a different loop would be acceptable with the proposed changes. Alternatively, if the shutdown cooling loop is at a lower or higher temperature than the RCS average temperature, but the reactivity effects are small enough to assure that shutdown margin or refueling boron concentration limits will continue to be met, again the change to an alternate loop may be performed.

Another example of the type of activity that would be acceptable if the proposed changes are in effect is the addition of inventory to the RCS from the Refueling Water Storage Tank (RWST). Boron concentration in the RWST is controlled between 2500 and 2700 parts per million. Provided that the RWST boron concentration is sufficiently high to assure shutdown margin or

refueling boron concentration limits will continue to be met, an alternate supply of makeup to the RCS will be available from the RWST. These activities should not be precluded as long as the required shutdown margin or refueling boron concentration is maintained. The Bases revision for the A.C. Sources and Onsite Power Distribution Systems is needed to clarify the scope of the action for Limiting Condition for Operation (LCO) 3.8.1.2.

2.0 REGULATORY EVALUATION

The licensee proposes to change the following TSs and TS Bases: 3/4.4.1.2 "Reactor Coolant System - Hot Standby," Action c and note*; 3/4.4.1.3 "Reactor Coolant System - Hot Shutdown," Action b and note*; 3/4.4.1.4 "Reactor Coolant System - Cold Shutdown - Loops Filled," Action b and note*; 3/4.4.2 "Reactor Coolant System - Safety Valves - Shutdown," Action; 3/4.8.1.2 "Electrical Power Systems - Shutdown," Action; 3/4.9.2 "Refueling Operations - instrumentation," Action a; 3/4.9.8.1 "Refueling Operations - Residual Heat Removal and Coolant Circulation - All Water Levels," Action a; Bases 3/4.8.1 and 3/4.8.2 "A.C. Sources and Onsite Power Distribution Systems." These specifications would be modified to permit addition of positive reactivity and changes to the boron concentration as long as the change does not result in a power increase and preserves the margin to core criticality as defined by the shutdown margin.

The proposed changes adopt NRC-approved generic changes in industry Technical Specification Task Force traveler (TSTF) 286, Revision 2, which the NRC staff approved as a revision to the Standard Technical Specifications (i.e., NUREG-1431, "Standard Technical Specifications for Westinghouse-Designed Plants") in a letter dated July 6, 2000. This TSTF revises Required Actions to suspend operations involving positive reactivity additions and LCO Notes to prevent operations involving a reduction in RCS boron concentration. The revisions limit the introduction into the RCS of reactivity more positive than that required to meet the required SDM or refueling boron concentration, as applicable. TSTF-286 provides guidance to licensees who seek to revise their plant TS and clarify limits on the introduction of reactivity such that the required SDM or refueling boron concentration will be maintained. The licensee provided plant-specific differences in the TSs for TSTF-286.

The NRC has previously approved the subject change on a plant-specific basis. These previous approvals include but are not limited to H.B. Robinson, Unit 2, dated March 14, 2001 (ADAMS Accession Number ML010810282), Callaway, Unit 1, dated May 1, 2002 (ADAMS Accession Number ML020220051), and Wolf Creek, dated July 29, 2002 (ADAMS Accession Number ML021290254).

3.0 TECHNICAL EVALUATION

As described in the SQN TS Bases for shutdown margin limits, a sufficient shutdown margin ensures that: (1) the reactor can be made subcritical from all operating conditions, (2) the reactivity transients associated with postulated accident conditions are controllable within acceptable limits, and (3) the reactor will be maintained sufficiently subcritical to preclude inadvertent criticality while in the shutdown condition. The Bases for the refueling boron concentration similarly indicate that the limitations on reactivity conditions during refueling ensure that the reactor will remain subcritical during core alterations. Shutdown margin and refueling boron concentration limits are established in TS LCO 3.1.1.1, "Boration Control - Shutdown Margin - T_{avg} , Greater Than or Equal to 200°F," LCO 3.1.1.2, "Shutdown Margin -

T_{avg}, Less Than or Equal to 200°F,” and LCO 3.9.1, “Refueling Operations - Boron Concentration.” No changes are proposed to these limits.

The specifications that the licensee proposes to change, however, do not establish margins of minimum RCS boron concentrations. Since the proposed changes will not alter the limits established in TS LCO 3.1.1.1, LCO 3.1.1.2, and LCO 3.9.1, there will be no effect on the ability to shut down and maintain the reactor in a subcritical condition. During certain conditions that are addressed in this proposed change, addition of water with a reduced boron concentration compared to the RCS and temperature changes will be allowed when forced circulation is not occurring. The proposed changes would permit the addition of inventory from sources whose boron concentration is sufficient to maintain the required boron concentration if the entire RCS inventory were replaced from the selected source. That is, the source of the water being added must be of high enough boron concentration that effects of stratification, and subsequent mixing upon restoration of forced flow, cannot result in failure to meet the required boron concentration limits. This limitation addresses potential concern with stratification and subsequent introduction of the “reduced” concentration boric acid water into the reactor vessel when forced circulation is re-established.

Because the requested changes would not reduce shutdown margin or RCS boron concentration below the minimum necessary to control reactivity transients and achieve or maintain subcriticality, as explained above, the staff concludes that the changes are acceptable. In addition, the changes proposed by TVA are consistent with NRC-approved changes to NUREG-1431 as evaluated by the NRC staff in TSTF-286, Revision 2, and incorporated into NUREG-1431, Revision 2. It should be noted that the wording in the licensee’s original submittal for the proposed revisions to the TSs was consistent with the wording suggested in TSTF-286, Revision 2. However, subsequent NRC staff review of TSTF-286, Revision 2, identified that the suggested wording needed to be changed. Accordingly, the licensee provided a supplement with TS pages that corrected the wording suggested in TSTF-286, Revision 2. The corrected wording accomplishes the intended goal of TSTF-286. The technical reasoning supporting adoption of TSTF-286, which is set forth above, also supports the corrected wording.

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 amendments change a requirement with respect to installation or use of a facility component within the restricted area as defined in Title 10, *Code of Federal Regulations* (10 CFR) Part 20. 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 (67 FR 50961). Accordingly, the amendments meet 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 amendments.

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.

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Date: May 22, 2003

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SEQUOYAH NUCLEAR PLANT

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