March 8, 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 THE REACTOR COOLANT PUMP FLYWHEEL INSPECTION PROGRAM (TAC NOS. MB3823 AND MB3824)(TS 01-13)

Dear Mr. Scalice:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 274 to Facility Operating License No. DPR-77 and Amendment No. 263 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 January 15, 2001.

The amendments revise Technical Specifications (TS) Section 4.0.5.c to provide an exception to the recommendations of Regulatory Position c.4.b in NRC Regulatory Guide 1.14, Revision 1, "Reactor Coolant Pump Flywheel Integrity," dated August 1975. The exception allows either (a) a qualified in-place ultrasonic volumetric examination over the volume from the inner bore of the flywheel to the circle of one-half the outer radius or (b) a surface examination (magnetic particle testing and/or liquid penetrant testing) of exposed surfaces of the removed flywheel to be conducted at approximately 10-year intervals. The proposed change is in accordance with the NRC approved Improved Standard TS Generic Change Traveler TSTF-237, Revision 1.

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. 274 to License No. DPR-77
2. Amendment No. 263 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. 274
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 January 15, 2002, 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. 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 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: March 8, 2002

ATTACHMENT TO LICENSE AMENDMENT NO. 274

FACILITY OPERATING LICENSE NO. DPR-77

DOCKET NO. 50-327

Replace the following page of the Appendix A Technical Specifications with the attached page. The revised page is identified by amendment number and contains a vertical line indicating the area of change.

REMOVE	INSERT
3/4 0-2	3/4 0-2

APPLICABILITY

SURVEILLANCE REQUIREMENTS

4.0.1 Surveillance Requirements shall be met during the OPERATIONAL MODES or other conditions specified for individual Limiting Conditions for Operation unless otherwise stated in an individual Surveillance Requirement.

4.0.2 Each Surveillance Requirement shall be performed within the specified surveillance interval with a maximum allowable extension not to exceed 25 percent of the specified surveillance interval.

4.0.3 Failure to perform a Surveillance Requirement within the allowed surveillance interval, defined by Specification 4.0.2, shall constitute noncompliance with the OPERABILITY requirements for a Limiting Condition for Operation. The time limits of the ACTION requirements are applicable at the time it is identified that a Surveillance Requirement has not been performed. The ACTION requirements may be delayed for up to 24 hours to permit the completion of the surveillance when the allowable outage time limits of the ACTION requirements are less than 24 hours. Surveillance Requirements do not have to be performed on inoperable equipment.

4.0.4 Entry into an OPERATIONAL MODE or other specified condition shall not be made unless the Surveillance Requirement(s) associated with the Limiting Condition for Operation have been performed within the specified surveillance interval or as otherwise specified. This provision shall not prevent passage through or to OPERATIONAL MODES as required to comply with ACTION requirements.

4.0.5 Surveillance Requirements for inservice inspection and testing of ASME Code Class 1, 2 and 3 components shall be as follows:

Inservice Inspection Program

This program provides controls for inservice inspection of ASME Code Class 1, 2, and 3 components, including applicable supports. The program shall include the following:

a. Provisions that inservice testing of ASME Code Class 1, 2 and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50.55a;

b. The provisions of SR 4.0.2 are applicable to the frequencies for performing inservice inspection activities;

c. Inspection of each reactor coolant pump flywheel per the recommendation of Regulation Position c.4.b of Regulatory Guide 1.14, Revision 1, August 1975 or in lieu of Position c.4.b(1) and c.4.b(2), a qualified in-place ultrasonic examination over the volume from the inner bore of the flywheel to the circle one-half of the outer radius or a surface examination (magnetic particle and/or liquid penetrant) of exposed surfaces of the removed flywheels may be conducted at approximately 10-year intervals coinciding with the Inservice Inspection schedule as required by ASME Section XI; and

d. Nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supersede the requirement of any TS.

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-328

SEQUOYAH NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 263
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 January 15, 2002, 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. 263, 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: March 8, 2002

ATTACHMENT TO LICENSE AMENDMENT NO. 263

FACILITY OPERATING LICENSE NO. DPR-79

DOCKET NO. 50-328

Replace the following page of the Appendix A Technical Specifications with the attached page. The revised page is identified by amendment number and contains a vertical line indicating the area of change.

REMOVE	INSERT
3/4 0-2	3/4 0-2

4.0.1 Surveillance Requirements shall be met during the OPERATIONAL MODES or other conditions specified for individual Limiting Conditions for Operation unless otherwise stated in an individual Surveillance Requirement.

4.0.2 Each Surveillance Requirement shall be performed within the specified surveillance interval with a maximum allowable extension not to exceed 25 percent of the specified surveillance interval.

4.0.3 Failure to perform a Surveillance Requirement within the allowed surveillance interval, defined by Specification 4.0.2, shall constitute noncompliance with the OPERABILITY requirements for a Limiting Condition for Operation. The time limits of the ACTION requirements are applicable at the time it is identified that a Surveillance Requirement has not been performed. The ACTION requirements may be delayed for up to 24 hours to permit the completion of the surveillance when the allowable outage time limits of the ACTION requirements are less than 24 hours. Surveillance Requirements do not have to be performed on inoperable equipment.

4.0.4 Entry into an OPERATIONAL MODE or other specified condition shall not be made unless the Surveillance Requirement(s) associated with the Limiting Condition for Operation have been performed within the specified surveillance interval or as otherwise specified. This provision shall not prevent passage through or to OPERATIONAL MODES as required to comply with ACTION requirements.

4.0.5 Surveillance Requirements for inservice inspection and testing of ASME Code Class 1, 2 and 3 components shall be applicable as follows:

Inservice Inspection Program

This program provides controls for inservice inspection of ASME Code Class 1, 2, and 3 components, including applicable supports. The program shall include the following:

a. Provisions that inservice testing of ASME Code Class 1, 2 and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50.55a;

b. The provisions of SR 4.0.2 are applicable to the frequencies for performing inservice inspection activities;

c. Inspection of each reactor coolant pump flywheel per the recommendation of Regulation Position c.4.b of Regulatory Guide 1.14, Revision 1, August 1975 or in lieu of Position c.4.b(1) and c.4.b(2), a qualified in-place ultrasonic examination over the volume from the inner bore of the flywheel to the circle one-half of the outer radius or a surface examination (magnetic particle and/or liquid penetrant) of exposed surfaces of the removed flywheels may be conducted at approximately 10-year intervals coinciding with the Inservice Inspection schedule as required by ASME Section XI; and

d. Nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supersede the requirement of any TS.

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 274 TO FACILITY OPERATING LICENSE NO. DPR-77

AND AMENDMENT NO. 263 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 proposed amendments consist of revising TS 4.0.5 to provide an exception to the recommendations of Regulatory Position c.4.b of NRC Regulatory uide (RG) 1.14, Revision 1, "Reactor Coolant Pump Flywheel Integrity," dated August 1975. The staff has reviewed the proposed changes to the TS and evaluated the licensee's justifications for these changes.

2.0 BACKGROUND

An integral part of the reactor coolant system (RCS) in a pressurized water reactor is the reactor coolant pump (RCP). The RCP ensures an adequate cooling flow rate by circulating large volumes of the primary coolant water at high temperature and pressure through the RCS. Following an assumed loss of power to the RCP motor, the flywheel, in conjunction with the impeller and motor assembly, provide sufficient rotational inertia to assure adequate core cooling flow during RCP coastdown.

During normal power operation, the RCP flywheel possesses sufficient kinetic energy to produce high-energy missiles in the event of failure. Conditions which may result in overspeed of the RCP increase both the potential for failure and the kinetic energy of the flywheel. This led to the issuance of RG 1.14, which was published in 1971 and revised in 1975. RCP flywheel inspections were implemented as a result of RG 1.14, which describes a range of actions to ensure flywheel integrity. One of the recommendations of RG 1.14 is regular inservice volumetric inspection of flywheels.

TS 4.0.5 states:

> Inservice Inspection Program

This program provides controls for inservice inspection of ASME Code Class 1, 2, and 3 components, including applicable supports. The program shall include the following:

a. Provisions that inservice testing of ASME Code Class 1, 2 and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50.55a;

b. The provisions of SR 4.0.2 are applicable to the frequencies for performing inservice inspection activities;

c. Inspection of each reactor coolant pump flywheel per the recommendation of Regulation Position c.4.b of Regulatory Guide 1.14, Revision 1, August 19 75; and

d. Nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supersede the requirement of any TS.

Regulatory Position c.4.b of Regulatory Guide 1.14, Revision 1, recommends inservice inspections to be performed for each RCP flywheel as follows:

1. An in-place ultrasonic test (UT) of the areas of higher stress concentration at the bore and keyway at approximately 3-year intervals, during the refueling or maintenance shutdown coinciding with the inservice inspection schedule as required by American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (B&PV) Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components."

2. A surface examination of all exposed surfaces and complete UT at approximately 10-year intervals, during the plant shutdown coinciding with the inservice inspection schedule as required by Section XI of the ASME B&PV Code.

Specifically, the change would add the following insertion to Units 1 and 2 TS Section 4.0.5.c:

> or in lieu of Position c.4.b(1) and c.4.b(2), a qualified in-place ultrasonic examination over the volume from the inner bore of the flywheel to the circle one-half of the outer radius or a surface examination (magnetic particle and/or liquid penetrant) of exposed surfaces of the removed flywheels may be conducted at approximately 10-year intervals coinciding with the Inservice Inspection schedule as required by ASME Section XI

3.0 EVALUATION

TS 4.0.5.c requires that inspection of each RCP flywheel be in general conformance with the recommendations of Regulatory Position c.4.b of NRC RG 1.14, Revision 1, “Reactor Coolant Pump Flywheel Integrity,” dated August 1975. The proposed change would revise TS 4.0.5 to provide an exception to the recommendations of Regulatory Position c.4.b that would allow either (a) a qualified in-place volumetric examination (i.e., ultrasonic examination) over the volume from the inner bore of the flywheel to the circle of one-half the outer radius, or (b) a surface examination (i.e., magnetic particle testing and/or liquid penetrant testing) of

exposed surfaces of the removed flywheel to be conducted at approximately 10-year intervals. The proposed change is in accordance with the evaluation performed by the NRC staff of the Westinghouse Electric Corporation Topical Report WCAP-14535A, "Topical Report on Reactor Coolant Pump Flywheel Inspection Elimination." The staff issued its safety evaluation (SE) of WCAP-14535A with the following provisions:

- Inspections need only be done on a 10-year interval instead of the current 40-month interval.

- Acceptable inspection methods are either ultrasonic examination or surface examination.

- Ultrasonic examination coverage is required only on the inner half of the flywheel radius.

- Surface examination coverage is the exposed surfaces of the flywheel when the pump is disassembled for maintenance.

Licensees can reference the SE for WCAP-14535A in license applications and detailed technical reviews of the submittals will not be required unless new technical information is presented. The SE for WCAP-14535A was incorporated into the staff-approved Improved Standard TS Generic Change Traveler TSTF-237, Revision 1, Westinghouse Electric Corporation Topical Report WCAP-14535A, "Topical Report on Reactor Coolant Pump Flywheel Inspection Elimination."

The SE also stated that licensees who planned to submit a plant-specific application of the topical report for flywheels made of SA 533 Grade B material needed to confirm that their flywheels are made of SA 533 Grade B material. Further, licensees having Group-15 flywheels needed to demonstrate that material properties of their A516 material is equivalent to SA 533 Grade B material, and that its reference temperature, $RT_{NDT,}$ is not less than 30 °F.

TVA has confirmed that all nine flywheels, including the one spare RCP motor at SQN, are identified as Group 4 flywheels in WCAP-14535A and are identified in the SQN Updated Final Safety Analysis Report, Revision 16, Section 5.2.6, "Pump Flywheel," as being made of SA 533 Grade B material. Since these flywheels do not belong to Group 10 or Group 15 flywheels, no additional analyses are required. Therefore, the plant-specific applicability of WCAP-14535A to SQN is confirmed and the 10-year inspection requirement stated above is 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 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 (67 FR 5339). 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: Pat Patniak, NRR

Date: March 8, 2002

Mr. J. A. Scalice
Tennessee Valley Authority

SEQUOYAH NUCLEAR PLANT

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