

September 22, 1988

Docket Nos. 50-327/328

Mr. S. A. White
Manager of Nuclear Power
Tennessee Valley Authority
6N 38A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

Dear Mr. White:

SUBJECT: REACTOR COOLANT UNDER VOLTAGE REACTOR TRIP (TAC R00130/R00131)
(TS 87-18) SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

The Commission has issued the enclosed Amendment No. 85 to Facility Operating License No. DPR-77 and Amendment No. 76 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 May 22, 1987.

These amendments revise the reactor trip limits for reactor coolant pump undervoltage in Table 2.2-1, Reactor Trip System Instrumentation Trip Setpoints, of the Sequoyah Units 1 and 2, Technical Specifications (TS). The minimum reactor trip setpoint is being increased for each bus from 4830 volts to 5022 volts. The minimum allowable value is being decreased for each bus from 4761 volts to 4739 volts.

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

Sincerely,

Suzanne Black, Assistant Director
for Projects
TVA Projects Division
Office of Special Projects

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PDR ADDCK 05000327
P PNU

Enclosures:

1. Amendment No. 85 to License No. DPR-77
2. Amendment No. 76 to License No. DPR-79
3. Safety Evaluation

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See next page

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September 22, 1988

Docket Nos. 50-327/328

Mr. S. A. White
Senior Vice President, Nuclear Power
Tennessee Valley Authority
6N 38A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

Dear Mr. White:

SUBJECT: REACTOR COOLANT LOOPS REQUIRED FOR MODE 3 (TAC R00106/R00107)
(TS 82) SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

The Commission has issued the enclosed Amendment No. 84 to Facility Operating License No. DPR-77 and Amendment No. 75 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 February 27, 1987.

These amendments revise Specification 3/4.4.1.2, Reactor Coolant System, Hot Standby, in the Sequoyah Units 1 and 2 Technical Specifications (TS). The changes are to increase the number of reactor coolant system loops required to be in operation during Mode 3, Hot Standby, to two loops. The TS limiting condition for operation, action statement and surveillance requirement are being revised. The Bases for the Specification 3/4.4.1.2 are also being changed.

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

Sincerely,

Original Signed by

Suzanne Black, Assistant Director
for Projects
TVA Projects Division
Office of Special Projects

Enclosures:

1. Amendment No. 84 to License No. DPR-77
2. Amendment No. 75 to License No. DPR-79
3. Safety Evaluation

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

TENNESSEE VALLEY AUTHORITY
DOCKET NO. 50-327
SEQUOYAH NUCLEAR PLANT, UNIT 1
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.85
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 May 22, 1987, 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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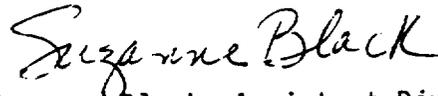
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-77 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 85, 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.

FOR THE NUCLEAR REGULATORY COMMISSION



Suzanne Black, Assistant Director
for Projects
TVA Projects Division
Office of Special Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance: September 22, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 85

FACILITY OPERATING LICENSE NO. DPR-77

DOCKET NO. 50-327

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change. Overleaf pages* are provided to maintain document completeness.

REMOVE

2-6

INSERT

2-6

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
13. Steam Generator Water Level--Low-Low	\geq 18% of narrow range instrument span--each steam generator	\geq 17% of narrow range instrument span--each steam generator
14. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	$<$ 40% of full steam flow at RATED THERMAL POWER coincident with steam generator water level \geq 25% of narrow range instrument span--each steam generator	$<$ 42.5% of full steam flow at RATED THERMAL POWER coincident with steam generator water level \geq 24.0% of narrow range instrument span--each steam generator
15. Undervoltage-Reactor Coolant Pumps	\geq 5022 volts--each bus	\geq 4739 volts--each bus
16. Underfrequency-Reactor Coolant Pumps	\geq 56.0 Hz - each bus	\geq 55.9 Hz - each bus
17. Turbine Trip A. Low Trip System Pressure B. Turbine Stop Valve Closure	\geq 45 psig \geq 1% open	\geq 43 psig \geq 1% open
18. Safety Injection Input from ESF	Not Applicable	Not Applicable
19. Intermediate Range Neutron Flux - (P-6) Enable Block Source Range Reactor Trip	\geq 1×10^{-10} amps	\geq 6×10^{-11} amps
20. Power Range Neutron Flux (not P-10) Input to Low Power Reactor Trips Block P-7	$<$ 10% of RATED THERMAL POWER	$<$ 11% of RATED THERMAL POWER



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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-328

SEQUOYAH NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 76
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 May 22, 1987, 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. 76, 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.

FOR THE NUCLEAR REGULATORY COMMISSION



Suzanne Black, Assistant Director
for Projects
TVA Projects Division
Office of Special Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance: September 22, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 76

FACILITY OPERATING LICENSE NO. DPR-79

DOCKET NO. 50-328

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change. Overleaf pages* are provided to maintain document completeness.

REMOVE

2-6

INSERT

2-6

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
13. Steam Generator Water Level--Low-Low	\geq 18% of narrow range instrument span--each steam generator	\geq 17% of narrow range instrument span--each steam generator
14. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	$<$ 40% of full steam flow at RATED THERMAL POWER coincident with steam generator water level \geq 25% of narrow range instrument span--each steam generator	$<$ 42.5% of full steam flow at RATED THERMAL POWER coincident with steam generator water level \geq 24% of narrow range instrument span--each steam generator
15. Undervoltage-Reactor Coolant Pumps	\geq 5022 volts--each bus	\geq 4739 volts--each bus
16. Underfrequency-Reactor Coolant Pumps	\geq 56 Hz - each bus	\geq 55.9 Hz - each bus
17. Turbine Trip A. Low Trip System Pressure B. Turbine Stop Valve Closure	\geq 45 psig \geq 1% open	\geq 43 psig $>$ 1% open
18. Safety Injection Input from ESF	Not Applicable	Not Applicable
19. Intermediate Range Neutron Flux, P-6, Enable Block Source Range Reactor Trip	\geq 1×10^{-10} amps	\geq 6×10^{-11} amps
20. Power Range Neutron Flux (not P-10) Input to Low Power Reactor Trips Block P-7	$<$ 10% of RATED THERMAL POWER	\leq 11% of RATED THERMAL POWER



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

SAFETY EVALUATION BY THE OFFICE OF SPECIAL PROJECTS

SUPPORTING AMENDMENT NO. 85 TO FACILITY OPERATING LICENSE NO. DPR-77

AND AMENDMENT NO. 76 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 letter dated May 22, 1987, the Tennessee Valley Authority (TVA) proposed changes to the Sequoyah Units 1 and 2 Technical Specifications (TS). This is TS change 87-18. These changes would revise the reactor trip limits for reactor coolant pump (RCP) undervoltage in Table 2.2-1, Reactor Trip System Instrumentation Trip Setpoints, of the TS. The minimum reactor trip setpoint would be increased for each bus from 4830 volts to 5022 volts. The minimum allowable values would be decreased for each bus from 4761 to 4739 volts.

The reactor trip setpoint limits specified in Table 2.2-1 are the values at which the reactor trips are set for each functional unit. One functional unit is the reactor coolant pump undervoltage. The trip setpoints have been selected to ensure that the reactor core and reactor coolant system are prevented from exceeding their safety limits during normal operation and design basis anticipated operational occurrences and to assist the Engineered Safety Features Actuation System in mitigating the consequences of accidents. Operation with a trip set less conservative than its trip setpoint but within its specified allowable value is acceptable on the basis that the difference between each trip setpoint and the allowable value is equal to or less than the drift allowance assumed for each trip in the safety analyses.

2.0 EVALUATION

The proposed change brings the TS Table 2.2-1 for RCP undervoltage-reactor trip into conformance with current channel accuracy calculations. The calculations were revised to specifically address measurement and test equipment inaccuracies and to correct the rack temperature effects. Changes are proposed in functional Unit 15 of Table 2.2-1, increasing the minimum trip setpoint to 5022 volts-each bus from 4830 volts-each bus and the minimum allowable value to 4739 volts-each bus from 4761 volts-each bus.

There are three reactor coolant flow related reactor trips to prevent low coolant flow at power: reactor coolant flow-low (90% of loop design flow), underfrequency-reactor coolant pumps (56.0 Hz-each bus) and undervoltage-reactor coolant pumps (proposed 5022 volts-each bus from nominal 6900 volts-each bus).

The power level, number of reactor coolant pumps in operation and time delays all enter into these reactor protection considerations, but generally the staff considers flow-low and underfrequency as principal protective features and the undervoltage as an anticipatory feature. The RCP undervoltage reactor trip has been removed from some Westinghouse plants to reduce unnecessary reactor trips.

The staff has reviewed the TVA's proposal and setpoint methodology calculation package and determined that the calculations used essentially the same setpoint methodology as that used for V. C. Summer, which had been previously reviewed and approved by the NRC in NUREG-0717, Supplement 4.

The staff concludes that the proposed TS change 87-18 is acceptable on the basis that it is conservative and that the overall channel statistical allowance and safety margins were calculated using methodology which had previously been reviewed and approved by the staff. The changes add to the consistency of the TS and postulated events are not expected to be adversely affected by this change.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The 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 this amendment involves no significant hazards consideration and there has been public comment on such finding. 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 nor environmental assessment need be prepared in connection with the issuance of the amendment.

4.0 CONCLUSION

We have 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, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of the amendment will not be inimical to the common defense and security nor to the health and safety of the public.

Principal Contributor: J. Watt

Dated: September 22, 1988

Mr. S. A. White

-2-

Sequoyah Nuclear Plant

cc:

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