

July 26, 1994

Docket Nos. 50-327
and 50-328

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

Dear Mr. Kingsley:

SUBJECT: ISSUANCE OF AMENDMENTS (TAC NOS. M86795 AND M86796) (TS 93-08)

The Commission has issued the enclosed Amendment No. 185 to Facility Operating License No. DPR-77 and Amendment No. 177 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 June 17, 1993.

The amendments revise the allowable values for the intermediate and source range neutron flux reactor trip setpoints.

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

Enclosures:

1. Amendment No. 185 to License No. DPR-77
2. Amendment No. 177 to License No. DPR-79
3. Safety Evaluation

cc w/enclosures:
See next page

NAME:	PDII-4/LA	PDII-4/PM	OGC	PDII-4/D
OFFICE:	Boston	DLaBarge	R. Bachmann	FHebdon
DATE:	7/16/94	7/16/94	7/18/94	7/24/94

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Tennessee Valley Authority

cc:

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SEQUOYAH NUCLEAR PLANT

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AMENDMENT NO. 185 FOR SEQUOYAH UNIT NO. 1 - DOCKET NO. 50-327 and
AMENDMENT NO. 177 FOR SEQUOYAH UNIT NO. 2 - DOCKET NO. 50-328
DATED: July 26, 1994

DISTRIBUTION:

Docket Files

NRC & Local PDRs

SQN Reading File

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OC/LFDCB T-9-E10



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. 185
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 June 17, 1993, 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.

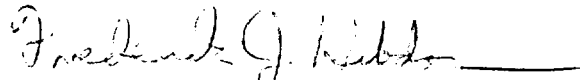
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-77 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 185, 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 within 45 days.

FOR THE NUCLEAR REGULATORY COMMISSION



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

Attachment:
Changes to the Technical
Specifications

Date of Issuance: July 26, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 185

FACILITY OPERATING LICENSE NO. DPR-77

DOCKET NO. 50-327

Revise the Appendix A Technical Specifications by removing the page identified below and inserting the enclosed page. The revised page is identified by the captioned amendment number and contains a marginal line indicating the area of change.

REMOVE

2-5

INSERT

2-5

TABLE 2.2-1

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
1. Manual Reactor Trip	Not Applicable	Not Applicable
2. Power Range, Neutron Flux	Low Setpoint - $\leq 25\%$ of RATED THERMAL POWER	Low Setpoint - $\leq 27.4\%$ of RATED THERMAL POWER
	High Setpoint - $\leq 109\%$ of RATED THERMAL POWER	High Setpoint - $\leq 111.4\%$ of RATED THERMAL POWER
3. Power Range, Neutron Flux, High Positive Rate	$\leq 5\%$ of RATED THERMAL POWER with a time constant ≥ 2 second	$\leq 6.3\%$ of RATED THERMAL POWER with a time constant ≥ 2 second
4. Power Range, Neutron Flux, High Negative Rate	$\leq 5\%$ of RATED THERMAL POWER with a time constant ≥ 2 second	$\leq 6.3\%$ of RATED THERMAL POWER with a time constant ≥ 2 second
5. Intermediate Range, Neutron Flux	$\leq 25\%$ of RATED THERMAL POWER	$\leq 45.20\%$ of RATED THERMAL POWER
6. Source Range, Neutron Flux	$\leq 10^5$ counts per second	$\leq 1.45 \times 10^5$ counts per second
7. Overtemperature ΔT	See Note 1	See Note 3
8. Overpower ΔT	See Note 2	See Note 4
9. Pressurizer Pressure--Low	≥ 1970 psig	≥ 1964.8 psig
10. Pressurizer Pressure--High	≤ 2385 psig	≤ 2390.2 psig
11. Pressurizer Water Level--High	$\leq 92\%$ of instrument span	$\leq 92.7\%$ of instrument span
12. Loss of Flow	$\geq 90\%$ of design flow per loop*	$\geq 89.4\%$ of design flow per loop*

*Design flow is 91,400 gpm per loop.



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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-328

SEQUOYAH NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 177
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 June 17, 1993, 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. 177, 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 within 45 days.

FOR THE NUCLEAR REGULATORY COMMISSION


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

Attachment:
Changes to the Technical
Specifications

Date of Issuance: July 26, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 177

FACILITY OPERATING LICENSE NO. DPR-79

DOCKET NO. 50-328

Revise the Appendix A Technical Specifications by removing the page identified below and inserting the enclosed page. The revised page is identified by the captioned amendment number and contains a marginal line indicating the area of change.

REMOVE

2-5

INSERT

2-5

TABLE 2.2-1

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
1. Manual Reactor Trip	Not Applicable	Not Applicable
2. Power Range, Neutron Flux	Low Setpoint - $\leq 25\%$ of RATED THERMAL POWER High Setpoint - $\leq 109\%$ of RATED THERMAL POWER	Low Setpoint - $\leq 27.4\%$ of RATED THERMAL POWER High Setpoint - $\leq 111.4\%$ of RATED THERMAL POWER
3. Power Range, Neutron Flux, High Positive Rate	$\leq 5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds	$\leq 6.3\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds
4. Power Range, Neutron Flux, High Negative Rate	$\leq 5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds	$\leq 6.3\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds
5. Intermediate Range, Neutron Flux	$\leq 25\%$ of RATED THERMAL POWER	$\leq 45.20\%$ of RATED THERMAL POWER
6. Source Range, Neutron Flux	$\leq 10^5$ counts per second	$\leq 1.45 \times 10^5$ counts per second
7. Overtemperature ΔT	See Note 1	See Note 3
8. Overpower ΔT	See Note 2	See Note 4
9. Pressurizer Pressure--Low	≥ 1970 psig	≥ 1964.8 psig
10. Pressurizer Pressure--High	< 2385 psig	≤ 2390.2 psig
11. Pressurizer Water Level--High	$\leq 92\%$ of instrument span	$\leq 92.7\%$ of instrument span
12. Loss of Flow	$\geq 90\%$ of design flow per loop*	$\geq 89.4\%$ of design flow per loop*

*Design flow is 91,400 gpm per loop.



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

ENCLOSURE 3

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 185 TO FACILITY OPERATING LICENSE NO. DPR-77
AND AMENDMENT NO. 177 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 June 17, 1993, the Tennessee Valley Authority (the licensee) proposed amendments to the Technical Specifications (TS) for Sequoyah Nuclear Plant (SQN) Units 1 and 2. The requested changes would increase the allowable values of the intermediate-range (IR) neutron flux and source-range (SR) neutron flux reactor trip setpoints.

2.0 BACKGROUND

The reactor overpower protection is provided by out-of-core nuclear instrumentation that consists of three discrete but overlapping levels. These levels are SR, IR and power range (PR). Continuous power increases require a permissive signal from the higher-range instrumentation channels before the lower-range level trips can be manually blocked by the operator.

2.1 Source Range High Neutron Flux Trip

The SR neutron flux trip circuit causes the reactor to trip when either of two independent SR channels exceed the trip setpoint and provides protection during reactor startup and shutdown. The SR trip can be manually bypassed when either of two IR channels reads above the P-6 permissive setpoint value; i.e., greater than or equal to 1/100,000 percent rated thermal power (RTP). It is automatically reinstated when both IR channels decrease below the P-6 value. The trip is automatically bypassed by two-of-four logic from the P-10 permissive (10 percent RTP). The SR trip can also be reinstated below P-10 by an administrative action requiring manual actuation of two control board mounted switches.

The SR trip setpoint is set between the P-6 setpoint and the maximum SR level (1,000,000 counts per second [CPS]). The SR trip setpoint is equal to or less than 100,000 CPS with an allowable value of equal to or less than 130,000 CPS.

2.2 Intermediate Range High Neutron Flux Trip

The IR neutron flux trip circuit trips the reactor when either of two independent IR channels exceed the trip setpoint and provides protection during reactor startup. The IR trip can be blocked if two of four PR channels are above the P-10 permissive. Three-of-four PR channels below this value automatically reinstates the trip.

The IR trip setpoint is equal to or less than 25 percent of RTP with an allowable value of equal to or less than 30 percent of RTP.

3.0 EVALUATION

The licensee has requested an amendment to change the allowable values of both the SR and IR reactor trips in the TS Table 2.2-1, Items 5 and 6. The SR trip setpoint remains equal to or less than 100,000 CPS, while the allowable value would be changed from equal to or less than 130,000 CPS, to equal or less than 145,000 CPS.

The IR trip setpoint remains at equal to or less than 25 percent RTP while the allowable value would be changed from equal to or less than 30 percent RTP, to equal to or less than 45.20 percent RTP.

The licensee has requested that the allowable values for neutron flux trip be increased because new detectors have been installed that have a wider detection range of ten-decades as compared to the eight-decade range of the original detectors. The new detectors are Gamma Metrics and were installed during the cycle 4 refueling outage to replace the original Westinghouse Electric Corporation detectors. The new detectors were installed to meet environmental qualification requirements for accident monitoring instrumentation. The increase in range of the new detectors has resulted in a slight decrease in accuracy because the instrumentation errors are applied to a larger span, thus necessitating an increase in the allowable TS values to account for the decrease in accuracy.

The licensee has reevaluated the accuracies for the IR and SR channels using a more conservative technique. This technique uses a summing of loop component inaccuracies (the square root of the sum of each accuracy squared). The staff finds this method appropriate for establishing the margin between the setpoint and allowable value.

Based on our review of TVA's proposal to amend SQN's TS to increase the SR and IR allowable values for trip of the reactor on neutron flux, the staff concludes that an appropriate method was used to establish the operating margin based on the instrument accuracy. Therefore, the proposed change 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 amendments. 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 located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve 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 amendments involve no significant hazards consideration, and there has been no public comment on such finding (58 FR 41514). 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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Frederick P. Paulitz

Dated: July 26, 1994