

July 20, 1987

Docket Nos. 50-327/328

Posted

Amdt. 56

to DPR-77  
(See collection letter  
of 8-24-87)

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 TRIP SYSTEM INSTRUMENTATION (TSC 87-21) (TAC 00046, 00047)

Re: Sequoyah Nuclear Plant, Units 1 and 2

The Commission has issued the enclosed Amendment No. 56 to Facility Operating License No. DPR-77 and Amendment No. 48 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 April 16, 1987.

The amendments correct the line items alignment for functional units 20, reactor trip breakers, and 21, automatic trip logic, of Table 3.3-1, "Reactor Trip System Instrumentation." Additionally, the channels to trip, minimum channels operable, and applicable mode requirements for the same functional units are revised to be consistent with the Standard Technical Specifications (NUREG 0452).

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,

John A. Zwolinski, Assistant Director  
for Projects  
TVA Projects Division  
Office of Special Projects

Enclosures:

- 1. Amendment No. 56 to License No. DPR-77
- 2. Amendment No. 48 to License No. DPR-79
- 3. Safety Evaluation

cc w/enclosures:  
See next page

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Mr. S. A. White  
Tennessee Valley Authority

Sequoyah Nuclear Plant

cc:

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County Judge  
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Chattanooga, Tennessee 37402



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. 56  
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 April 16, 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.

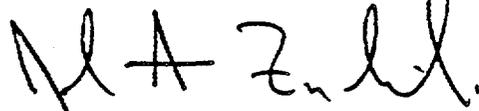
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-77 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 56, 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



John A. Zwolinski, Assistant Director  
for Projects  
TVA Projects Division  
Office of Special Projects

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: July 20, 1987

ATTACHMENT TO LICENSE AMENDMENT NO. 56

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

3/4 3-3

3/4 3-4

INSERT

3/4 3-3\*

3/4 3-4

SEQUOYAH - UNIT 1

3/4 3-3

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
12. Loss of Flow - Single Loop (Above P-8)	3/loop	2/loop in any operating loop	2/loop in each operating loop	1	7 <sup>#</sup>
13. Loss of Flow - Two Loops (Above P-7 and below P-8)	3/loop	2/loop in two operating loops	2/loop each operating loop	1	7 <sup>#</sup>
14. Main Steam Generator Water Level--Low-Low	3/loop	2/loop in any operating loop	2/loop in each operating loop	1, 2	7 <sup>#</sup>
15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	2/loop-level and 2/loop-flow mismatch in same loop	1/loop-level coincident with 1/loop-flow mismatch in same loop	1/loop-level and 2/loop-flow mismatch or 2/loop-level and 1/loop-flow mismatch	1, 2	7 <sup>#</sup>
16. Undervoltage-Reactor Coolant Pumps	4-1/bus	2	3	1	6 <sup>#</sup>
17. Underfrequency-Reactor Coolant Pumps	4-1/bus	2	3	1	6 <sup>#</sup>
18. Turbine Trip					
A. Low Fluid Oil Pressure	3	2	2		7 <sup>#</sup>
B. Turbine Stop Valve Closure	4	4	4	1	13

SEQUOYAH - UNIT 1

3/4 3-4

Correction letter of 8-24-87  
Amendment No. ~~XXX~~, 56

TABLE 3.3-1 (Continued)  
REACTOR TRIP SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
19. Safety Injection Input from ESF	2	1	2	1, 2	12
20. Reactor Trip Breakers					
A. Startup and Power Operation	2	1	2	1, 2	12, 15
B. Shutdown	2	1	2	3*, 4* and 5*	16
21. Automatic Trip Logic					
A. Startup and Power Operation	2	1	2	1, 2	12
B. Shutdown	2	1	2	3*, 4* and 5*	16
22. Reactor Trip System Interlocks					
A. Intermediate Range Neutron Flux P-6	2	1	2	2, and*	8a
B. Power Range Neutron Flux - P-7	4	2	3	1	8b
C. Power Range Neutron Flux - P-8	4	2	3	1	8c
D. Power Range Neutron Flux - P-10	4	2	3	1, 2	8d
E. Turbine Impulse Chamber Pressure - P-13	2	1	2	1	8b
F. Power Range Neutron Flux - P-9	4	2	3	1	8e
G. Reactor Trip - P-4	2	1	2	1, 2, and*	14



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. 48  
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 April 16, 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.

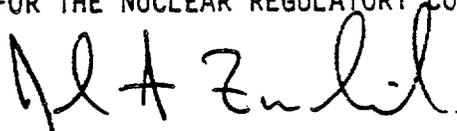
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-79 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 48, 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



John A. Zwolinski, Assistant Director  
for Projects  
TVA Projects Division  
Office of Special Projects

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: July 20, 1987

ATTACHMENT TO LICENSE AMENDMENT NO. 48

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

3/4 3-3

3/4 3-4

INSERT

3/4 3-3\*

3/4 3-4

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
12. Loss of Flow - Single Loop (Above P-8)	3/loop	2/loop in any operating loop	2/loop in each operating loop	1	7 <sup>#</sup>
13. Loss of Flow - Two Loops (Above P-7 and below P-8)	3/loop	2/loop in two operating loops	2/loop each operating loop	1	7 <sup>#</sup>
14. Steam Generator Water Level--Low-Low	3/loop	2/loop in any operating loops	2/loop in each operating loop	1, 2	7 <sup>#</sup>
15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	2/loop-level and 2/loop-flow mismatch in same loop	1/loop-level coincident with 1/loop-flow mismatch in same loop	1/loop-level and 2/loop-flow mismatch in same loop or 2/loop-level and 1/loop-flow mismatch in same loop	1, 2	7 <sup>#</sup>
16. Undervoltage-Reactor Coolant Pumps	4-1/bus	2	3	1	6 <sup>#</sup>
17. Underfrequency-Reactor Coolant Pumps	4-1/bus	2	3	1	6 <sup>#</sup>
18. Turbine Trip					
A. Low Fluid Oil Pressure	3	2	2	1	7 <sup>#</sup>
B. Turbine Stop Valve Closure	4	4	4	1	13 <sup>#</sup>

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
19. Safety Injection Input from ESF	2	1	2	1, 2	12
20. Reactor Trip Breakers A. Startup and Power Operation B. Shutdown	2	1	2	1, 2	12, 15
	2	1	2	3* 4* and 5*	16
21. Automatic Trip Logic A. Startup and Power Operation B. Shutdown	2	1	2	1, 2	12
	2	1	2	3* 4* and 5*	16
22. Reactor Trip System Interlocks					
A. Intermediate Range Neutron Flux, P-6	2	1	2	2, and*	8a
B. Power Range Neutron Flux, P-7	4	2	3	1	8b
C. Power Range Neutron Flux, P-8	4	2	3	1	8c
D. Power Range Neutron Flux, P-10	4	2	3	1, 2	8d
E. Turbine Impulse Chamber Pressure, P-13	2	1	2	1	8b
F. Reactor Trip, P-4	2	1	2	1, 2, and *	14

SEQUOYAH - UNIT 2

3/4 3-4

Amendment No. 48  
Collection Letter of 8-24-87



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

SAFETY EVALUATION BY THE OFFICE OF SPECIAL PROJECTS

SUPPORTING AMENDMENT NO. 56 TO FACILITY OPERATING LICENSE NO. DPR-77

AND AMENDMENT NO. 48 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 April 16, 1987 the licensee for the Sequoyah Nuclear Plant, Units 1 and 2, submitted proposed Technical Specification (TS) changes to correct the instrumentation functional requirements for Functional Units 20 (Reactor Trip Breakers) and 21 (Automatic Trip Logic) of Table 3.3-1 (Reactor Trip System Instrumentation). These functional requirements are on the total number of channels, the channels to trip, the minimum channels operable, the applicable modes and the action for not meeting the requirements. The licensee is specifically proposing changes to Table 3.3-1 to (1) align on the TS page the requirements for both Functional Units in the startup and power operation modes with the statement "Startup and Power Operation," (2) delete the "\*" under the applicable modes for both Functional Units for the startup and power operation modes and (3) revise the channels to trip and minimum channels operable requirements for both Functional Units in the shutdown mode.

2.0 EVALUATION

In Amendment 46, the staff issued page 3/4 3-4 of Table 3.3-1 with instrumentation functional requirements for the reactor trip breakers and the automatic trip logic. These are Functional Units 20 and 21, respectively, of this table. Requirements were specified for both these Functional Units in the startup and power operation modes and in the shutdown mode. The requirements specified for the startup and power operation modes for both Functional Units were both positioned on the page next to the title of the Functional Units rather than on the lines for "Startup and Power Operation." The licensee's first proposed change will position the requirements in the correct location on the page. This change does not change any of the requirements for either Functional Unit for the startup and power operation modes. The staff considers this change to be strictly administrative, and therefore acceptable.

The following proposed changes do revise the requirements for the two Functional Units. For the Functional Units, the licensee indicated that the applicable mode requirement for startup and power operation contains a redundant entry by including the "\*" mode. The "\*" mode exists when the reactor trip breakers are in the closed position, when the control rod drive system is capable of rod

withdrawal, and when fuel is in the reactor vessel. The staff determined that the purpose of this mode requirement is to ensure the "\*" condition is covered during modes 3, 4, and 5. The way the functional unit requirements have been restructured, the "\*" mode is covered by the shutdown subsection and does not need to be included with the startup and power operation subsection. The staff agrees that the deletion of the "\*" mode requirement for startup and power operation only removes a redundant entry and therefore is acceptable.

Also, for the same functional units, the Sequoyah Technical Specifications currently indicate 0 channels to trip and 1 as the minimum channels operable for the shutdown modes 3\*, 4\* and 5\*. The 0 channels to trip is in error, since at least one channel must be operable in order to trip the breaker. Similarly, the 1 minimum channels operable is not in conformance with Generic Letter 85-09 which requires 2 as the minimum channels operable. The licensee's proposed Technical Specification changes would change the 0 (channels to trip) to a 1, and the 1 (minimum channels operable) to a 2. We find this change to be consistent with Generic Letter 85-09, and therefore, is acceptable.

### 3.0 ENVIRONMENTAL CONSIDERATION

These amendments involve 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 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 these amendments involve no significant hazards consideration and there has been no public comment on such finding. 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 nor environmental assessment need be prepared in connection with the issuance of these amendments.

### 4.0 CONCLUSION

The licensee's proposed Technical Specification changes for the Sequoyah Nuclear Plant, Units 1 and 2, correct errors and clearly delineate functional unit requirements for the reactor trip breakers and automatic trip logic in a manner consistent with Generic Letter 85-09. We find the proposed changes enhance plant reliability and safety, and therefore find them to be acceptable.

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 amendments will not be inimical to the common defense and security nor to the health and safety of the public.

Principal Contributors: A. Toalston and T. Rotella

Dated: July 20, 1987