



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

Docket

December 30, 1988

Docket Nos. 50-327/328

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

Dear Mr. Kingsley:

SUBJECT: AUXILIARY FEEDWATER SUCTION PRESSURE-LOW SETPOINT AND ALLOWABLE VALUE  
(TAC R00244/R00245) (TS 87-40) - SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

The Commission has issued the enclosed Amendment No. 94 to Facility Operating License No. DPR-77 and Amendment No. 84 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 November 17, 1987.

The amendments revise the Sequoyah Nuclear Plant (SQN) Units 1 and 2 Technical Specifications (TS). The revisions are to increase, in the conservative direction, the auxiliary feedwater (AFW) suction pressure-low trip setpoint and the allowable value of Table 3.3-4, Item 6.g, for both units for the turbine-driven AFW pump.

An issue separate from these amendments is the appropriateness of including the time delay values for the time delay circuitry in the switchover logic that transfers the water supply from the condensate storage tank to the Emergency Raw Cooling Water System (ERCW) for the AFW pumps. This is discussed in the enclosed Safety Evaluation. Currently, there is no mention of this time delay feature in the Sequoyah TS even though it is an integral part of the actuation sequence for switchover to the ERCW system. The staff's interpretation of the NRC policy statement on technical specification content (as published in the February 6, 1987 edition of the Federal Register) is that the time delay circuitry does meet the policy statement criteria and should be included in TS. In your letter dated November 23, 1988, you committed to submit these additional TS by June 1, 1989 because of the current workload associated with the Unit 2 Cycle 3 refueling outage scheduled to begin next month. This is acceptable to the staff. In the interim, the staff expects you to maintain assurance, through periodic testing, that the time delay circuitry complies with the analytical results (4 seconds for the motor-driven AFW pumps and 5.5 seconds for the turbine-driven AFW pumps) contained in your November 17, 1987 submittal.

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Mr. Oliver D. Kingsley, Jr.

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

cc w/enclosures:  
See next page

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Mr. Oliver D. Kingsley, Jr.

-3-

Sequoyah Nuclear Plant

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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. 94  
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 November 17, 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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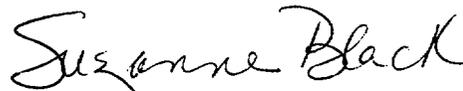
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-77 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 94, 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: December 30, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 94

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.

REMOVE

3/4 3-27

INSERT

3/4 3-27

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
6. AUXILIARY FEEDWATER		
a. Manual	Not Applicable	Not Applicable
b. Automatic Actuation Logic	Not Applicable	Not Applicable
c. Main 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
d. S.I.	See 1 above (all SI Setpoints)	
e. Station Blackout	0 volts with a 5.0 second time delay	0 volts with a 5.0 $\pm$ 1.0 second time delay
f. Trip of Main Feedwater Pumps	N.A.	N.A.
g. Auxiliary Feedwater Suction Pressure-Low	$\geq 2$ psig (motor driven pump) $\geq 13.9$ psig (turbine driven pump)	$\geq 1$ psig (motor driven pump) $\geq 12$ psig (turbine driven pump)
*7. LOSS OF POWER		
a. 6.9 kv Shutdown Board Undervoltage Loss of Voltage		
1. Start of Diesel Generators		
a. Nominal Voltage Setpoint	4860 volts	4860 volts +97.2 volts
b. Relay Response Time for Loss of Voltage	0 volts with a 1.5 second time delay	0 volts with a 1.5 $\pm$ 0.5 second time delay
2. Load Shedding		
a. Nominal Voltage Setpoint	4860 volts	4860 volts + 97.2 volts
b. Relay Response Time for Loss of Voltage	0 volts with a 5.0 second time delay	0 volts with a 5.0 $\pm$ 1.0 second time delay

\*NOTE: This technical specification is to be implemented at the startup following the 2nd refueling outage or following completion of the modification, whichever is earlier.



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. 84  
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 November 17, 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.

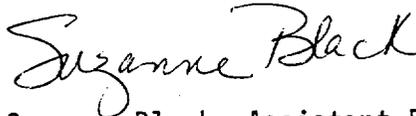
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-79 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 84, 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: December 30, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 84

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.

REMOVE

3/4 3-27

INSERT

3/4 3-27

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
6. AUXILIARY FEEDWATER		
a. Manual	Not Applicable	Not Applicable
b. Automatic Actuation Logic	Not Applicable	Not Applicable
c. Main Steam Generator Water Level-low-low	>18% of narrow range Instrument span each steam generator	>17% of narrow range Instrument span each steam generator
d. S.I.	See 1 above (all SI Setpoints)	
e. Station Blackout	0 volts with a 5.0 second time delay	0 volts with a 5.0 ± 1.0 second time delay
f. Trip of Main Feedwater Pumps	N.A.	N.A.
g. Auxiliary Feedwater Suction Pressure-Low	> 2 psig (motor driven pump) ≥ 13.9 psig (turbine driven pump)	> 1 psig (motor driven pump) ≥ 12 (turbine driven pump)
*7. LOSS OF POWER		
a. 6.9 kv Shutdown Board Loss of Voltage		
1. Start of Diesel Generators		
a. Nominal Voltage Setpoint	4860 volts	4860 volts +97.2 volts
b. Relay Response Time for Loss of Voltage	0 volts with a 1.5 second time delay	0 volts with a 1.5 +0.5 second time delay
2. Load Shedding		
a. Nominal Voltage Setpoint	4860 volts	4860 volts + 97.2 volts
b. Relay Response Time for Loss of Voltage	0 volts with a 5.0 second time delay	0 volts with a 5.0 +1.0 second time delay

\*NOTE: This technical specification is to be implemented during the startup following the 1st refueling outage.



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

ENCLOSURE

SAFETY EVALUATION BY THE OFFICE OF SPECIAL PROJECTS

SUPPORTING AMENDMENT NO. 94 TO FACILITY OPERATING LICENSE NO. DPR-77

AND AMENDMENT NO. 84 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 November 17, 1987, the Tennessee Valley Authority (TVA or the licensee) requested an amendment to Appendix A of the Sequoyah Nuclear Plant, Units 1 and 2 Technical Specifications (TS). The proposed amendment would revise the auxiliary feedwater (AFW) suction pressure-low trip setpoint and the allowable value of Table 3.3-4, Item 6.g, for both units for the turbine-driven AFW pump. The purpose of these proposed revisions is to make the TS setpoint representative of the actual setpoint used for the turbine-driven pumps and to make the TS allowable value representative of the analytical safety limits as calculated by TVA. The proposed revisions of these two turbine-driven pump TS values are in the conservative direction.

2.0 EVALUATION

10 CFR Part 50, Appendix A, General Design Criteria 34 and 44 require, in part, that the appropriate systems have the capability to transfer heat loads from the reactor system to a heat sink under both normal operating and accident conditions. The AFW system, in conjunction with a seismic Category 1 water source, functions as an emergency system for the removal of heat from the primary reactor coolant system when the main feedwater system is not available. The normal source of water for all AFW pumps at Sequoyah, Units 1 and 2 are the two 385,000 gallon non-seismic condensate storage tanks. The Emergency Raw Cooling Water (ERCW) System (Seismic Category 1) serves as the backup water supply and is initiated by low-pressure signals, time delays circuits are included in the circuitry that open the ERCW valves supplying the AFW headers.

The proposed TS changes concern only the turbine-driven AFW pump pressure-low trip setpoint and allowable value, and are intended to make the setpoint and allowable value indicative of the actual plant setpoint and analytical safety limits determined by calculations performed by the licensee. Specifically, the licensee proposed to change Table 3.3-4, Item 6.g, the trip setpoint from 6.5 psig to 13.9 psig and the allowable value from 5.5 psig to 12 psig for the turbine-driven pump. The proposed changes are in the conservative direction.

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The staff has reviewed the supporting calculations contained in the November 17, 1987 licensee submittal on the turbine-driven AFW pump setpoint and allowable values and the associated time delay values. The staff concludes that the methodology used and the results contained are conservative and will prevent inadequate net positive suction head (NPSH) during switchover from the condensate storage tank to the ERCW water supply.

The staff finds the proposed change in the Sequoyah, Units 1 and 2 TS to be acceptable with regard to the changes mentioned above in the setpoint and allowable values of the turbine-driven pump pressure-low signals.

An issue separate from this TS change request evaluation is the appropriateness of including the time delay values discussed above in the Sequoyah TS. Currently, there is no mention of this time delay feature in the TS even though it is an integral part of the actuation sequence for switchover to the ERCW system. The staff's interpretation of the NRC policy statement on technical specification content (as published in the February 6, 1987 edition of the Federal Register) is that the time delay circuit does meet the policy statement criteria and should be included in the TS. The licensee committed in its letter dated October 23, 1988 to submit these additional TS by June 1, 1989 because of the current workload associated with the Unit 2 Cycle 3 refueling outage scheduled to begin in January 1989. This is acceptable to the staff. In the interim, the staff expects the licensee to maintain assurance through periodic testing that the time delay circuitry complies with the analytical results (4 seconds for the motor-driven AFW pumps and 5.5 seconds for the turbine-driven AFW pumps) contained in the licensee's submittal of November 17, 1987.

### 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 and changes to the surveillance requirements. 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 Commission made a proposed determination that the amendment involves no significant hazards consideration which was published in the Federal Register (53 FR 3960) on February 10, 1988 and consulted with the State of Tennessee. No public comments were received and the State of Tennessee did not have any comments.

The staff 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, 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 Contributor: M. Fields

Dated: Decemner 30, 1988