

August 5, 1988

Docket Nos. 50-327/328

Mr. S. A. White
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Tennessee Valley Authority
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Dear Mr. White:

SUBJECT: TURBINE DRIVEN AFW PUMP RESPONSE TIME AND ACTUATION SIGNAL TESTING
(TAC R00362/R00363) (TS 88-10) - SEQUOYAH NUCLEAR PLANT, UNITS 1
AND 2

The Commission has issued the enclosed Amendment No. 77 to Facility
Operating License No. DPR-77 and Amendment No. 68 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 13, 1988.

The amendments modify the Sequoyah Units 1 and 2 Technical Specifications (TS)
to revise the testing requirements for the turbine driven auxiliary feedwater pumps
(TDAFWP). In addition, an outdated footnote is deleted. The changes are the
following: (1) a footnote is added to Table 3.3-5, (2) a footnote is added to
Surveillance Requirement (SR) 4.7.1.2.b, (3) an outdated footnote is deleted
from Table 3.3-5, and (4) the wording of the Unit 2 SR 4.7.1.2.b.2 is revised.

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

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Enclosures:

1. Amendment No. 77 to
License No. DPR-77
2. Amendment No. 68 to
License No. DPR-79
3. Safety Evaluation

cc w/enclosures:
See next page

OSP:TVA/LA
MSimms
7/12/88

OSP:TVA/PM
JDonohew:as
7/19/88

OGC
7/21/88

TVA:MS
SBlack
8/5/88

DF01
1/1

Mr. S. A. White
Tennessee Valley Authority

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. 77
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 13, 1988, 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.

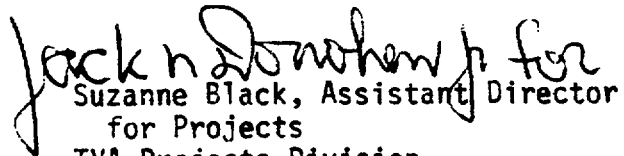
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-77 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 77, 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: August 5, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 77

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 3-29

3/4 3-30

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3/4 3-32

3/4 3-33

3/4 3-33a

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INSERT

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3/4 3-30

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3/4 7-6

TABLE 3.3-5

ENGINEERED SAFETY FEATURES RESPONSE TIMES

<u>INITIATING SIGNAL AND FUNCTION</u>	<u>RESPONSE TIME IN SECONDS</u>
1. <u>Manual</u>	
a. Safety Injection (ECCS)	Not Applicable
Feedwater Isolation	Not Applicable
Reactor Trip (SI)	Not Applicable
Containment Isolation-Phase "A"	Not Applicable
Containment Ventilation Isolation	Not Applicable
Auxiliary Feedwater Pumps	Not Applicable
Essential Raw Cooling Water System	Not Applicable
Emergency Gas Treatment System	Not Applicable
b. Containment Spray	Not Applicable
Containment Isolation-Phase "B"	Not Applicable
Containment Ventilation Isolation	Not Applicable
Containment Air Return Fan	Not Applicable
c. Containment Isolation-Phase "A"	Not Applicable
Emergency Gas Treatment System	Not Applicable
Containment Ventilation Isolation	Not Applicable
d. Steam Line Isolation	Not Applicable
2. <u>Containment Pressure-High</u>	
a. Safety Injection (ECCS)	$\leq 32.0^{(1)}$
b. Reactor Trip (from SI)	≤ 3.0
c. Feedwater Isolation	$\leq 8.0^{(2)}$
d. Containment Isolation-Phase "A" ⁽³⁾	$\leq 18.0^{(8)}/28.0^{(9)}$
e. Containment Ventilation Isolation	Not Applicable
f. Auxiliary Feedwater Pumps	$\leq 60^{(11)}$
g. Essential Raw Cooling Water System	$\leq 65.0^{(8)}/75.0^{(9)}$
h. Emergency Gas Treatment System	$\leq 38.0^{(9)}$

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

<u>INITIATING SIGNAL AND FUNCTION</u>	<u>RESPONSE TIME IN SECONDS</u>
3. <u>Pressurizer Pressure-Low</u>	
a. Safety Injection (ECCS)	$\leq 32.0^{(1)}/28.0^{(7)}$
b. Reactor Trip (from SI)	≤ 3.0
c. Feedwater Isolation	$\leq 8.0^{(2)}$
d. Containment Isolation-Phase "A" ⁽³⁾	$\leq 18.0^{(8)}$
e. Containment Ventilation Isolation	Not Applicable
f. Auxiliary Feedwater Pumps	$\leq 60^{(11)}$
g. Essential Raw Cooling Water System	$\leq 65.0^{(8)}/75.0^{(9)}$
h. Emergency Gas Treatment System	$\leq 28.0^{(8)}$
4. <u>Differential Pressure Between Steam Lines-High</u>	
a. Safety Injection (ECCS)	$\leq 28.0^{(7)}/28.0^{(1)}$
b. Reactor Trip (from SI)	≤ 3.0
c. Feedwater Isolation	$\leq 8.0^{(2)}$
d. Containment Isolation-Phase "A" ⁽³⁾	$\leq 18.0^{(8)}/28.0^{(9)}$
e. Containment Ventilation Isolation	Not Applicable
f. Auxiliary Feedwater Pumps	$\leq 60^{(11)}$
g. Essential Raw Cooling Water System	$\leq 65.0^{(8)}/75.0^{(9)}$
h. Emergency Gas Treatment System	$\leq 38.0^{(9)}$
5. <u>Steam Flow in Two Steam Lines - High Coincident with T_{avg}--Low-Low</u>	
a. Safety Injection (ECCS)	$\leq 30.0^{(7)}/30.0^{(1)}$
b. Reactor Trip (from SI)	≤ 5.0
c. Feedwater Isolation	$\leq 10.0^{(2)}$
d. Containment Isolation-Phase "A" ⁽³⁾	$\leq 20.0^{(8)}/30.0^{(9)}$
e. Containment Ventilation Isolation	Not Applicable
f. Auxiliary Feedwater Pumps	$\leq 60^{(11)}$
g. Essential Raw Cooling Water System	$\leq 67.0^{(8)}/77.0^{(9)}$
h. Steam Line Isolation	≤ 10.0
i. Emergency Gas Treatment System	$\leq 40.0^{(9)}$

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

<u>INITIATING SIGNAL AND FUNCTION</u>	<u>RESPONSE TIME IN SECONDS</u>
6. <u>Steam Flow in Two Steam Lines-High</u> <u>Coincident with Steam Line Pressure-Low</u>	
a. Safety Injection (ECCS)	$\leq 28.0^{(7)}/28.0^{(1)}$
b. Reactor Trip (from SI)	≤ 3.0
c. Feedwater Isolation	$\leq 8.0^{(2)}$
d. Containment Isolation-Phase "A" ⁽³⁾	$\leq 18.0^{(8)}/28.0^{(9)}$
e. Containment Ventilation Isolation	Not Applicable
f. Auxiliary Feedwater Pumps	$\leq 60^{(11)}$
g. Essential Raw Cooling Water System	$\leq 65.0^{(8)}/75.0^{(9)}$
h. Steam Line Isolation	≤ 8.0
i. Emergency Gas Treatment System	$\leq 38.0^{(9)}$
7. <u>Containment Pressure--High-High</u>	
a. Containment Spray	$\leq 208^{(9)}$
b. Containment Isolation-Phase "B"	$\leq 65^{(8)}/75^{(9)}$
c. Steam Line Isolation	≤ 7.0
d. Containment Air Return Fan	≥ 540.0 and ≤ 660
8. <u>Steam Generator Water Level--High-High</u>	
a. Turbine Trip	≤ 2.5
b. Feedwater Isolation	$\leq 11.0^{(2)}$
9. <u>Main Steam Generator Water Level -</u> <u>Low-Low</u>	
a. Motor-driven Auxiliary Feedwater Pumps ⁽⁴⁾	≤ 60.0
b. Turbine-driven Auxiliary Feedwater Pumps ⁽⁵⁾⁽¹¹⁾	≤ 60.0

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

<u>INITIATING SIGNAL AND FUNCTION</u>	<u>RESPONSE TIME IN SECONDS</u>
10. <u>Station Blackout</u>	
a. Auxiliary Feedwater Pumps	$\leq 60^{(11)}$
11. <u>Trip of Main Feedwater Pumps</u>	
a. Auxiliary Feedwater Pumps	$\leq 60^{(11)}$
12. <u>Loss of Power</u>	
a. 6.9 kv Shutdown Board - Degraded Voltage or Loss of Voltage	$\leq 10^{(10)}$
13. <u>RWST Level-Low Coincident with Containment Sump Level-High and Safety Injection</u>	
a. Automatic Switchover to Containment Sump	≤ 250
14. <u>Containment Purge Air Exhaust Radioactivity - High</u>	
a. Containment Ventilation Isolation	$\leq 10^{(6)}$
15. <u>Containment Gas Monitor Radioactivity High</u>	
a. Containment Ventilation Isolation	$\leq 10^{(6)}$
16. <u>Containment Particulate Activity High</u>	
a. Containment Ventilation Isolation	$\leq 10^{(6)}$

TABLE 3.3-5 (Continued)

TABLE NOTATION

- (1) Diesel generator starting and sequence loading delays included. Response time limit includes opening of valves to establish SI path and attainment of discharge pressure for centrifugal charging pumps, SI and RHR pumps.
- (2) Using air operated valve
- (3) The following valves are exceptions to the response times shown in the table and will have the values listed in seconds for the initiating signals and function indicated:

Valves: FCV-26-240, -243
Response times: 2.d. 21⁽⁸⁾/31⁽⁹⁾
3.d. 22⁽⁸⁾
4.d. 21⁽⁸⁾/31⁽⁹⁾
5.d. 24⁽⁸⁾/34⁽⁹⁾
6.d. 21⁽⁸⁾/31⁽⁹⁾

Valves: FCV-61-96, -97, -110, -122, -191, -192, -193, -194
Response times:

2.d. 31⁽⁸⁾
3.d. 32⁽⁸⁾
4.d. 31⁽⁸⁾
5.d. 34⁽⁸⁾
6.d. 31⁽⁸⁾

Valve: FCV-70-143
Response times: 2.d. 61⁽⁸⁾/71⁽⁹⁾
3.d. 62⁽⁸⁾
4.d. 61⁽⁸⁾/71⁽⁹⁾
5.d. 64⁽⁸⁾/74⁽⁹⁾
6.d. 61⁽⁸⁾/71⁽⁹⁾

- (4) On 2/3 any Steam Generator
- (5) On 2/3 in 2/4 Steam Generator
- (6) Radiation detectors for Containment Ventilation Isolation may be excluded from Response Time Testing.
- (7) Diesel generator starting and sequence loading delays not included. Offsite power available. Response time limit includes opening and closing of valves to establish SI path and attainment of discharge pressure for centrifugal charging pumps.
- (8) Diesel generator starting and sequence loading delays not included. Response time limit includes operating time of valves.
- (9) Diesel Generator starting and sequence loading delays included. Response time limit includes operating time of valves.

TABLE 3.3-5 (Continued)

TABLE NOTATION

- (10) The response time for loss of voltage is measured from the time voltage is lost until the time full voltage is restored by the diesel. The response time for degraded voltage is measured from the time the load shedding signal is generated, either from the degraded voltage or the SI enable timer, to the time full voltage is restored by the diesel. The response time of the timers is covered by the requirements on their setpoints.
- (11) The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 for the turbine-driven Auxiliary Feedwater Pump.

PLANT SYSTEMS

AUXILIARY FEEDWATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.1.2 At least three independent steam generator auxiliary feedwater pumps and associated flow paths shall be OPERABLE with:

- a. Two motor-driven auxiliary feedwater pumps, each capable of being powered from separate shutdown boards, and
- b. One steam turbine-driven auxiliary feedwater pump capable of being powered from an OPERABLE steam supply system.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

- a. With one auxiliary feedwater pump inoperable, restore the required auxiliary feedwater pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN² within the following 6 hours.
- b. With two auxiliary feedwater pumps inoperable, be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.
- c. With three auxiliary feedwater pumps inoperable, immediately initiate corrective action to restore at least one auxiliary feedwater pump to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

4.7.1.2 In addition to the requirements of Specification 4.0.5 each auxiliary feedwater pump shall be demonstrated OPERABLE by :

- a. Verifying that:
 1. each motor-driven pump develops a differential pressure of greater than or equal to 1397 psid on recirculation flow.
 2. the steam-turbine driven pump develops a differential pressure of greater than or equal to 1183 psid on recirculation flow when the secondary steam supply pressure is greater than 842 psig. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

3. each automatic control valve in the flow path is OPERABLE whenever the auxiliary feedwater system is placed in automatic control or when above 10% of RATED THERMAL POWER.
- b. At least once per 18 months during shutdown* by:
 1. Verifying that each automatic valve in the flow path actuates to its correct position upon receipt of an auxiliary feedwater actuation test signal and a low auxiliary feedwater pump suction pressure test signal.
 2. Verifying that each auxiliary feedwater pump starts as designed automatically upon receipt of an auxiliary feedwater actuation test signal.
- c. At least once per 7 days by verifying that each non-automatic valve in the auxiliary feedwater system flowpath is in its correct position.

*The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 for the turbine-driven Auxiliary Feedwater Pump.



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. 68
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 13, 1988, 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.

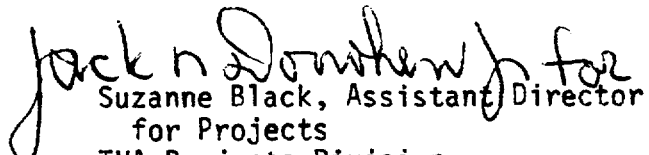
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-79 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 68 , 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: August 8, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 68

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 3-29

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3/4 3-33a

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INSERT

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TABLE 3.3-5

ENGINEERED SAFETY FEATURES RESPONSE TIMES

<u>INITIATING SIGNAL AND FUNCTION</u>	<u>RESPONSE TIME IN SECONDS</u>
1. <u>Manual</u>	
a. Safety Injection (ECCS)	Not Applicable
Feedwater Isolation	Not Applicable
Reactor Trip (SI)	Not Applicable
Containment Isolation-Phase "A"	Not Applicable
Containment Ventilation Isolation	Not Applicable
Auxiliary Feedwater Pumps	Not Applicable
Essential Raw Cooling Water System	Not Applicable
Emergency Gas Treatment System	Not Applicable
b. Containment Spray	Not Applicable
Containment Isolation-Phase "B"	Not Applicable
Containment Ventilation Isolation	Not Applicable
Containment Air Return Fan	Not Applicable
c. Containment Isolation-Phase "A"	Not Applicable
Emergency Gas Treatment System	Not Applicable
Containment Ventilation Isolation	Not Applicable
d. Steam Line Isolation	Not Applicable
2. <u>Containment Pressure-High</u>	
a. Safety Injection (ECCS)	$\leq 32.0^{(1)}$
b. Reactor Trip (from SI)	≤ 3.0
c. Feedwater Isolation	$\leq 8.0^{(2)}$
d. Containment Isolation-Phase "A" ⁽³⁾	$\leq 18.0^{(8)}/28.0^{(9)}$
e. Containment Ventilation Isolation	Not Applicable
f. Auxiliary Feedwater Pumps	$\leq 60^{(11)}$
g. Essential Raw Cooling Water System	$\leq 65.0^{(8)}/75.0^{(9)}$
h. Emergency Gas Treatment System	$\leq 38.0^{(9)}$

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

<u>INITIATING SIGNAL AND FUNCTION</u>	<u>RESPONSE TIME IN SECONDS</u>
3. <u>Pressurizer Pressure-Low</u>	
a. Safety Injection (ECCS)	$\leq 32.0^{(1)}/28.0^{(7)}$
b. Reactor Trip (from SI)	≤ 3.0
c. Feedwater Isolation	$\leq 8.0^{(2)}$
d. Containment Isolation-Phase "A" ⁽³⁾	$\leq 18.0^{(8)}$
e. Containment Ventilation Isolation	Not Applicable
f. Auxiliary Feedwater Pumps	$\leq 60^{(11)}$
g. Essential Raw Cooling Water System	$\leq 65.0^{(8)}/75.0^{(9)}$
h. Emergency Gas Treatment System	$\leq 28.0^{(8)}$
4. <u>Differential Pressure Between Steam Lines-High</u>	
a. Safety Injection (ECCS)	$\leq 28.0^{(7)}/28.0^{(1)}$
b. Reactor Trip (from SI)	≤ 3.0
c. Feedwater Isolation	$\leq 8.0^{(2)}$
d. Containment Isolation-Phase "A" ⁽³⁾	$\leq 18.0^{(8)}/28.0^{(9)}$
e. Containment Ventilation Isolation	Not Applicable
f. Auxiliary Feedwater Pumps	$\leq 60^{(11)}$
g. Essential Raw Cooling Water System	$\leq 65.0^{(8)}/75.0^{(9)}$
h. Emergency Gas Treatment System	$\leq 38.0^{(9)}$
5. <u>Steam Flow in Two Steam Lines - High Coincident with T_{avg}--Low-Low</u>	
a. Safety Injection (ECCS)	$\leq 30.0^{(7)}/30.0^{(1)}$
b. Reactor Trip (from SI)	≤ 5.0
c. Feedwater Isolation	$\leq 10.0^{(2)}$
d. Containment Isolation-Phase "A" ⁽³⁾	$\leq 20.0^{(8)}/30.0^{(9)}$
e. Containment Ventilation Isolation	Not Applicable
f. Auxiliary Feedwater Pumps	$\leq 60^{(11)}$
g. Essential Raw Cooling Water System	$\leq 67.0^{(8)}/77.0^{(9)}$
h. Steam Line Isolation	≤ 10.0
i. Emergency Gas Treatment System	$\leq 40.0^{(9)}$

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

<u>INITIATING SIGNAL AND FUNCTION</u>	<u>RESPONSE TIME IN SECONDS</u>
6. <u>Steam Flow in Two Steam Lines-High</u> <u>Coincident with Steam Line Pressure-Low</u>	
a. Safety Injection (ECCS)	$\leq 28.0^{(7)}/28.0^{(1)}$
b. Reactor Trip (from SI)	≤ 3.0
c. Feedwater Isolation	$\leq 8.0^{(2)}$
d. Containment Isolation-Phase "A" ⁽³⁾	$\leq 18.0^{(8)}/28.0^{(9)}$
e. Containment Ventilation Isolation	Not Applicable
f. Auxiliary Feedwater Pumps	$\leq 60^{(11)}$
g. Essential Raw Cooling Water System	$\leq 65.0^{(8)}/75.0^{(9)}$
h. Steam Line Isolation	≤ 8.0
i. Emergency Gas Treatment System	$\leq 38.0^{(9)}$
7. <u>Containment Pressure--High-High</u>	
a. Containment Spray	$\leq 208^{(9)}$
b. Containment Isolation-Phase "B"	$\leq 65^{(8)}/75^{(9)}$
c. Steam Line Isolation	≤ 7.0
d. Containment Air Return Fan	≥ 540.0 and ≤ 660
8. <u>Steam Generator Water Level--High-High</u>	
a. Turbine Trip	≤ 2.5
b. Feedwater Isolation	$\leq 11.0^{(2)}$
9. <u>Main Steam Generator Water Level -</u> <u>Low-Low</u>	
a. Motor-driven Auxiliary Feedwater Pumps ⁽⁴⁾	≤ 60.0
b. Turbine-driven Auxiliary Feedwater Pumps ⁽⁵⁾⁽¹¹⁾	≤ 60.0

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

<u>INITIATING SIGNAL AND FUNCTION</u>	<u>RESPONSE TIME IN SECONDS</u>
10. <u>Station Blackout</u>	
a. Auxiliary Feedwater Pumps	$\leq 60^{(11)}$
11. <u>Trip of Main Feedwater Pumps</u>	
a. Auxiliary Feedwater Pumps	$\leq 60^{(11)}$
12. <u>Loss of Power</u>	
a. 6.9 kv Shutdown Board - Degraded Voltage or Loss of Voltage	$\leq 10^{(10)}$
13. <u>RWST Level-Low Coincident with Containment Sump Level-High and Safety Injection</u>	
a. Automatic Switchover to Containment Sump	≤ 250
14. <u>Containment Purge Air Exhaust Radioactivity - High</u>	
a. Containment Ventilation Isolation	$\leq 10^{(6)}$
15. <u>Containment Gas Monitor Radioactivity High</u>	
a. Containment Ventilation Isolation	$\leq 10^{(6)}$
16. <u>Containment Particulate Activity High</u>	
a. Containment Ventilation Isolation	$\leq 10^{(6)}$

INSTRUMENTATION

TABLE 3.3-5 (Continued)

TABLE NOTATION

(1) Diesel generator starting and sequence loading delays included. Response time limit includes opening of valves to establish SI path and attainment of discharge pressure for centrifugal charging pumps, SI and RHR pumps.

(2) Using air operated valve

(3) The following valves are exceptions to the response times shown in the table and will have the values listed in seconds for the initiating signals and function indicated:

Valves: FCV-26-240, -243
Response times: 2.d. 21⁽⁸⁾/31⁽⁹⁾
3.d. 22⁽⁸⁾
4.d. 21⁽⁸⁾/31⁽⁹⁾
5.d. 24⁽⁸⁾/34⁽⁹⁾
6.d. 21⁽⁸⁾/31⁽⁹⁾

Valves: FCV61-96, -97, -110, -122, -191, -192, -193, -194
Response times

2.d. 31⁽⁸⁾
3.d. 32⁽⁸⁾
4.d. 31⁽⁸⁾
5.d. 34⁽⁸⁾
6.d. 31⁽⁸⁾

Valve: FCV-70-143
Response times: 2.d. 61⁽⁸⁾/71⁽⁹⁾
3.d. 62⁽⁸⁾
4.d. 61⁽⁸⁾/71⁽⁹⁾
5.d. 64⁽⁸⁾/74⁽⁹⁾
6.d. 61⁽⁸⁾/71⁽⁹⁾

(4) On 2/3 any Steam Generator

(5) On 2/3 in 2/4 Steam Generator

(6) Radiation detectors for Containment Ventilation Isolation may be excluded from Response Time Testing.

(7) Diesel generator starting and sequence loading delays not included. Offsite power available. Response time limit includes opening and closing of valves to establish SI path and attainment of discharge pressure for centrifugal charging pumps.

(8) Diesel generator starting and sequence loading delays not included. Response time limit includes operating time of valves.

(9) Diesel generator starting and sequence loading delays included. Response time limit includes operating time of valves.

TABLE 3.3-5 (Continued)

TABLE NOTATION

- (10) The response time for loss of voltage is measured from the time voltage is lost until the time full voltage is restored by the diesel. The response time for degraded voltage is measured from the time the load shedding signal is generated, either from the degraded voltage or the SI enable timer, to the time full voltage is restored by the diesel. The response time of the timers is covered by the requirements on their setpoints.
- (11) The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 for the turbine-driven Auxiliary Feedwater Pump.

PLANT SYSTEMS

AUXILIARY FEEDWATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.1.2 At least three independent steam generator auxiliary feedwater pumps and associated flow paths shall be OPERABLE with:

- a. Two motor-driven auxiliary feedwater pumps, each capable of being powered from separate shutdown boards, and
- b. One turbine-driven auxiliary feedwater pump capable of being powered from an OPERABLE steam supply system.

APPLICABILITY: Modes 1, 2 and 3.

ACTION:

- a. With one auxiliary feedwater pump inoperable, restore the required auxiliary feedwater pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With two auxiliary feedwater pumps inoperable, be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.
- c. With three auxiliary feedwater pumps inoperable, immediately initiate corrective action to restore at least one auxiliary feedwater pump to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

4.7.1.2 In addition to the requirements of Specification 4.0.5 each auxiliary feedwater pump shall be demonstrated OPERABLE by:

- a. Verifying that:
 1. each motor-driven pump develops a differential pressure of greater than or equal to 1397 psid on recirculation flow.
 2. the steam-turbine driven pump develops a differential pressure of greater than or equal to 1183 psid on recirculation flow when the secondary steam supply pressure is greater than 842 psig. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

3. each automatic control valve in the flow path is OPERABLE whenever the auxiliary feedwater system is placed in automatic control or when above 10% of RATED THERMAL POWER.
- b. At least once per 18 months during shutdown* by:
 1. Verifying that each automatic valve in the flow path actuates to its correct position upon receipt of an auxiliary feedwater actuation test signal and a low auxiliary feedwater pump suction pressure test signal.
 2. Verifying that each auxiliary feedwater pump starts as designed automatically upon receipt of an auxiliary feedwater actuation test signal.
- c. At least once per 7 days by verifying that each non-automatic valve in the auxiliary feedwater system flowpath is in its correct position.

*The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 for the turbine-driven Auxiliary Feedwater Pump.



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

SAFETY EVALUATION BY THE OFFICE OF SPECIAL PROJECTS

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

AND AMENDMENT NO. 68 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 June 13, 1988, the Tennessee Valley Authority (TVA or the licensee) requested a change in the Sequoyah (SQN) Units 1 and 2 Technical Specifications (TS) relating to test requirements of the turbine-driven auxiliary feedwater pumps (TDAFWP). Specifically, the proposed change involves a modification of TS surveillance requirement (SR) 4.7.1.2.b to omit the applicability of TS 4.0.4 to the TDAFWP, thereby allowing entry into Mode 3 to conduct the response time and actuation signal testing required by TS SR 4.7.1.2.b. In association with this proposed TS revision, the licensee proposed editorial changes to Table 3.3-5 and SR 4.7.1.2.b.2.

The changes to the TS are the following:

1. A footnote is being added to Table 3.3-5,
2. A footnote is being added to Surveillance Requirement (SR) 4.7.1.2.b,
3. An outdated footnote is being deleted from Table 3.3-5, and
4. The wording of Unit 2 SR 4.7.1.2.b.2 is revised.

2.0 EVALUATION

The reason for the proposed changes related to the test requirements of the TDAFWP is that the licensee has been unable to establish the plant conditions needed to conduct the necessary testing within the required period of testing specified in the TS. Specifically, the response time and actuation signal testing for the TDAFWP is required to be performed every 18 months. In order to operate the turbine at rated conditions, and thus measure its start-up response time, the secondary steam system must be able to supply steam at 842 psig. To establish this pressure in the steam generators, the reactor coolant system must be at a temperature of 525 degrees F, resulting in the necessity of the reactor plant to be in Mode 3 to perform the required testing. SQN 1 and 2 has been in cold shutdown (Mode 5) for over two years and this testing could not be conducted.

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The staff addressed the safety concern associated with the proposed change: Will not having a fully tested automatic start capability for the TDAFWP upon entering Mode 3 have an adverse impact on safety?

The staff has reviewed the SQN accident analyses, and agrees with the licensee that the proposed change does not reduce the overall system requirements for the TDAFWP. This proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated. Further, staff analysis showed that the proposed change to the TS would not create the possibility of a new or different kind of accident from any previously analyzed, nor does the change involve a significant reduction of a margin of safety. These were addressed by the staff in its Notice of Consideration of Issuance of this application in the Federal Register (June 29, 1988, 53 FR 24519).

The above conclusions are supported by the fact that the monthly operability test run of the TDAFWP, required by surveillance requirement 4.7.1.2.a.2, is exempted from the requirements of TS 4.0.4 for entry into Mode 3 in order to allow the performance of the test run with sufficient steam pressure available to operate the turbine at rated conditions. In this case, the AFW system would be at a partial capability upon entering Mode 3, because the two motor driven AFW pumps are required to be fully tested prior to entering Mode 3. It should be noted that TS 3.7.1.2 requires three operable AFW pumps in Modes 1, 2 and 3.

Finally, the staff considered this proposed change in light of NRC Generic Letter 87-09, which solicited Technical Specification change proposals from licensees to modify TS 3.0.4, 4.0.3 and 4.0.4. The specific application of the guidance of Generic Letter 87-09 to this proposed change would result in the requirement to conduct the time response and actuation signal testing within 24 hours of entering Mode 3. The licensee's implementation of the provisions of GL 87-09 in the SQN 1 and 2 TS is pending before the staff at this time.

The staff identified no safety concerns related to the two proposed editorial changes to the SQN 1 and 2 TS. One change proposed the deletion of outdated footnotes from Table 3.3-5 for both SQN 1 and 2; these footnotes identified schedule requirements for plant modifications that had been completed. The other editorial change proposed revising the wording consistent with the corresponding wording in the SQN 1 TS and the Westinghouse Standard Technical Specifications (STS).

Therefore, based on the above, the staff finds that the proposed changes to the Sequoyah 1 and 2 TS are acceptable. Although TVA proposed a footnote number 13 for Table 3.3-5, footnote number 11 is being used because it is the next footnote for the Table.

3.0 ENVIRONMENTAL CONSIDERATION

These amendments involve administrative changes and changes to surveillance requirements and 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) and (c)(10). 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

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

Principal Contributor: P. Castleman

Dated: August 5, 1988