March 13, 1989

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: CONTAINMENT VENTILATION ISOLATION RESPONSE TIME (TAC R00392/00393) (TS 87-38), SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

The Commission has issued the enclosed Amendment No. 106 to Facility Operating License No. DPR-77 and Amendment No. 96 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 September 14, 1987.

The amendments revise Table 3.3-5, Engineered Safety Features Response Times, of the Sequoyah Units 1 and 2 Technical Specifications (TS). The changes add requirements to the response time test of the containment ventilation isolation function when initiated by a high containment pressure signal or a low pressurizer pressure signal.

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 Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 106 to License No. DPR-77
2. Amendment No. 96 to License No. DPR-79
3. Safety Evaluation

cc w/enclosures:
See next page

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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. 106
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 September 14, 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. 106, 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

Suzanne Black, Assistant Director
for Projects
TVA Projects Division
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 13, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 106

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	INSERT
3/4 3-29	3/4 3-29
3/4 3-30	3/4 3-30
3/4 3-33a	3/4 3-33a

TABLE 3.3-5

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
1. Manual	
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. Containment Pressure-High	
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	$\leq 5.5^{(8)(13)}$
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

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
3. Pressurizer Pressure-Low	
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	$\leq 5.5^{(8)(13)}$
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. Differential Pressure Between Steam Lines-High	
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. Steam Flow in Two Steam Lines - High Coincident with T_{avg}--Low-Low	
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 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.

(12) 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 the function indicated:

Valves: FCV-67-89, -90, -105, -106
Response times: 7.b, 75(8)/85(9)

Valve: FCV-70-141
Response times: 7.b, 70(8)/80(9)

(13) Containment purge valves only. Containment radiation monitor valves have a response time of 6.5 seconds or less.

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. 96
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 September 14, 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. 96 , 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

Suzanne Black, Assistant Director
for Projects
TVA Projects Division
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 12, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 96

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	INSERT
3/4 3-29	3/4 3-29
3/4 3-30	3/4 3-30
3/4 3-33a	3/4 3-33a

TABLE 3.3-5

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
1. Manual	
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. Containment Pressure-High	
a. Safety Injection (ECCS)	$\leq$ 32.0(1)
b. Reactor Trip (from SI)	$\leq$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	$\leq$ 5.5(8)(13)
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

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
3. Pressurizer Pressure-Low	
a. Safety Injection (ECCS)	$\leq$ 32.0(1)/28.0(7)
b. Reactor Trip (from SI)	$\leq$ 3.0
c. Feedwater Isolation	$\leq$ 8.0(2)
d. Containment Isolation-Phase "A"(3)	$\leq$ 18.0(8)
e. Containment Ventilation Isolation	$\leq$ 5.5(8)(13)
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. Differential Pressure Between Steam Lines-High	
a. Safety Injection (ECCS)	$\leq$ 28.0(7)/28.0(1)
b. Reactor Trip (from SI)	$\leq$ 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. Steam Flow in Two Steam Lines - High Coincident with T_{avg}--Low-Low	
a. Safety Injection (ECCS)	$\leq$ 30.0(7)/30.0(1)
b. Reactor Trip (from SI)	$\leq$ 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	$\leq$ 10.0
i. Emergency Gas Treatment System	$\leq$ 40.0(9)

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.

(12) 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 the function indicated:

Valves: FCV-67-89, -90, -105, -106
Response times: 7.b, 75(8)/85(9)

Valve: FCV-70-141
Response times: 7.b, 70(8)/80(9)

(13) Containment purge valves only. Containment radiation monitor valves have a response time of 6.5 seconds or less.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 106 TO FACILITY OPERATING LICENSE NO. DPR-77

AND AMENDMENT NO. 96 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 September 14, 1987, the Tennessee Valley Authority (TVA) proposed changes to revise Table 3.3-5, Engineered Safety Features Response Times, of the Sequoyah Nuclear Plant, Units 1 and 2 Technical Specifications (TS). This is TVA's TS change number 87-38. The changes add requirements to the response time test of the containment ventilation isolation function when initiated by a high containment pressure signal or a low pressurizer pressure signal.

2.0 EVALUATION

Section 15.4.1.1.5 and Table 6.2.4-1 of the Sequoyah Final Safety Analysis Report (FSAR) describe the effects of containment purging on the Loss-of-Coolant Accident (LOCA) analysis. The assumptions in the current Amendment 5 of the FSAR are currently verified by response time testing, but not as a requirement of Table 3.3-5.

In its application, TVA stated that the containment ventilation isolation function is response time tested by the performance of Surveillance Instruction SI-247.900, "Engineered Safety Features Response Time Verification," and Instrument Maintenance Instructions (IMIs)-99 RT-622A and RT-622B, "Response Time Testing Engineered Safety Feature Actuation Slave Relay K622." TVA stated that the proposed change (TS 87-38) adds a requirement to the TS to perform the response time testing. TVA stated that this testing is currently being performed. This TS change is being proposed to ensure that the assumptions made in the FSAR accident analysis are verified by response time testing pursuant to Table 3.3-5 of the TS.

TVA further stated that the response times for the containment ventilation isolation function that are added to Table 3.3-5 are derived from data in the FSAR. Although TVA stated that Section 15.4.1.1.5 of the FSAR assumes a value of 1.5 seconds for the generation of both the safety injection (SI) signal and the containment ventilation isolation (CVI) signal, the section actually states that the 1.5 seconds is assumed for reaching the SI signal setpoint and generating the SI signal. In a phone call on February 13, 1989, TVA stated that the FSAR would be revised in the next scheduled update (i.e. April 1989) to state that the 1.5 seconds is for reaching the SI signal setpoint, and then generating the SI signal and the CVI signal.

Table 6.2.4-1, Primary Containment and Shield Building Penetration Isolation System Data, of the FSAR indicates that the accident analysis assumes the containment purge isolation valves require 4.0 seconds to close on the CVI signal and the isolation valves for the upper and lower compartment air radiation monitors, which also close on the CVI signal, require 5.0 seconds to close. These are penetrations numbers 4, 5, 6, 7, 9A, 9B, 10A, 10B, 11, 94A, 94B, 94C, 95A, 95B and 95C in Table 6.2.4-1 (i.e., lower compartment purge air (4, 10A, 10B), upper compartment purge air (6, 7, 9A, 9B), lower compartment air radiation monitors (95A, 95B, 95C), upper compartment air radiation monitors (94A, 94B, 94C) and instrument room purge air (5, 11)). Table 6.2.4-1 has the reference to CVI isolation signal for these penetrations and either the 4.0 or 5.0 second valve closing time as indicated above. These values yield the response time test values of 5.5 seconds and 6.5 seconds for the containment purge isolation valves and the containment air radiation monitor isolation valves, respectively.

TVA also stated that the response time test for the containment ventilation isolation function is performed only for the high containment pressure and the low pressurizer pressure initiating signals. This is because these are the only two automatic SI initiating signals indicative of a LOCA.

Based on the above, the staff concludes that the proposed changes in TS 87-38 are 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 Commission made a proposed determination that the amendment involves no significant hazards consideration which was published in the Federal Register (53 FR 30145) on August 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: J. Donohew

Dated: March 13, 1989