



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

Docket

April 28, 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: TMI ACTION PLAN POST-ACCIDENT RADIATION MONITORING INSTRUMENTATION
(TAC R00169/R00170) (TS 87-28) - SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

The Commission has issued the enclosed Amendment No. 112 to Facility Operating License No. DPR-77 and Amendment No. 102 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 10, 1987.

The amendments will transfer requirements from Section 3/4.3.3.1, "Radiation Monitoring Instrumentation," to Section 3/4.3.3.7, "Accident Monitoring Instrumentation," of the Sequoyah Nuclear Plant, Units 1 and 2, Technical Specifications (TS). These changes affect the post-accident containment area monitors and noble gas effluent monitors. These monitors are Items II.F.1.3 and II.F.1.1, respectively, of NUREG-0737, "TMI Action Plan Requirements," dated November 1980. For the post-accident noble gas effluent monitors, additional requirements are being added to the TS. The amendment for Unit 1 also corrects a typographical error on page 3/4 3-42: "Moses" should be "Modes."

This application supersedes and withdraws the changes on these monitors proposed in your previous applications dated January 24, 1984 and December 9, 1985.

8905080008 890428
PDR ADDCK 05000327
P PNU

DF001
1/1

[Handwritten signature]

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

B. D. Liaw, Director
TVA Projects Division
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No. 112 to License No. DPR-77
- 2. Amendment No. 102 to License No. DPR-79
- 3. Safety Evaluation

cc w/enclosures:
See next page

DISTRIBUTION:

Docket File	RPierson	GPA/CA
NRC PDR	JBrady	GPA/PA
Local PDR	JPartlow	SQN Rdg. File
Projects Reading	BGrimes	LWatson(2)
ADSP Reading	EJordan	EMarinos
DCrutchfield	DHagan	BWilson
BDLiaw	TMeek(8)	
SBlack	WJones	
MSimms	EButcher	
JDonohew(2)	ACRS(10)	
OGC	ARM-LFMB	

*SEE PREVIOUS CONCURRENCE

OFC	:NRR:TVA/LA*	:NRR:TVA/PM*	:NRR:TVA:BC*	TVA:AD/TP*	OGC*	:TVA:AD
NAME	:MSimms	:JDonohew:as	:EMarinos	:RPierson		BDLiaw
DATE	:3/30/89	:3/23/89	:3/27/89	:3/27/89	:3/30/89	:4/2/89

OFFICIAL RECORD COPY

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. 112 to License No. DPR-77
2. Amendment No. 102 to License No. DPR-79
3. Safety Evaluation

cc w/enclosures:
See next page

DISTRIBUTION:

Docket File	RPierson	GPA/CA
NRC PDR	JBrady	GPA/PA
Local PDR	SVarga	SN Rdg. File
Projects Reading	BGrimes	LWatson(2)
ADSP Reading	EJordan	EMarinos
DCrutchfield	DHagan	GHolahan
BDLiaw	TMeek(8)	ARM-LFMB
SBlack	WJones	OGC
MSimms	EButcher	
JDonohew(2)	ACRS(10)	

Done by 4/19/89
See comments on 3/27/89

OFC	:NRR:TVA/LA	:NRR:TVA/PM	:NRR:TVA/BC	TVA:AD/TP	OGC	:TVA:AD/P	:
NAME	:MSimms	JDonohew:as	:EMarinos	:RPierson	R Bachmann	SBlack	:
DATE	3/30/89	3/23/89	3/27/89	:3/27/89	:3/30/89	:4/19/89	:

Mr. Oliver D. Kingsley, Jr.

-3-

CC:

General Counsel
Tennessee Valley Authority
400 West Summit Hill Drive
E11 B33
Knoxville, Tennessee 37902

Mr. R. L. Gridley
Tennessee Valley Authority
5N 157B Lookout Place
Chattanooga, Tennessee 37402-2801

Mr. John T. LaPoint
Tennessee Valley Authority
Sequoyah Nuclear Plant
P.O. Box 2000
Soddy Daisy, Tennessee 37379

Mr. M. Burzynski
Tennessee Valley Authority
Sequoyah Nuclear Plant
P.O. Box 2000
Soddy Daisy, Tennessee 37379

Mr. D. L. Williams
Tennessee Valley Authority
400 West Summit Hill Drive
W10 B85
Knoxville, Tennessee 37902

County Judge
Hamilton County Courthouse
Chattanooga, Tennessee 37402

Regional Administrator, Region II
U.S. Nuclear Regulatory Commission
101 Marietta Street, N.W.
Atlanta, Georgia 30323

Resident Inspector/Sequoyah NP
c/o U.S. Nuclear Regulatory Commission
2600 Igou Ferry Road
Soddy Daisy, Tennessee 37379

Mr. Michael H. Mobley, Director
Division of Radiological Health
T.E.R.R.A. Building, 6th Floor
150 9th Avenue North
Nashville, Tennessee 37219-5404

Dr. Henry Myers, Science Advisor
Committee on Interior
and Insular Affairs
U.S. House of Representatives
Washington, D.C. 20515

Tennessee Valley Authority
Rockville Office
11921 Rockville Pike
Suite 402
Rockville, Maryland 20852



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. 112
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 10, 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.

8905080010 890428
PDR ADOCK 05000327
P PNU

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. 112, 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



B. B. Eraw, Director
TVA Projects Division
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 28, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 112

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 3-39

3/4 3-40

3/4 3-41

3/4 3-42

3/4 3-55

--

--

INSERT

3/4 3-39*

3/4 3-40

3/4 3-41

3/4 3-42

3/4 3-55

3/4 3-56a

3/4 3-57a

3/4.3.3 MONITORING INSTRUMENTATION

RADIATION MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.1 The radiation monitoring instrumentation channels shown in Table 3.3-6 shall be OPERABLE with their alarm/trip setpoints within the specified limits.

APPLICABILITY: As shown in Table 3.3-6.

ACTION:

- a. With a radiation monitoring channel alarm/trip setpoint exceeding the value shown in Table 3.3-6, adjust the setpoint to within the limit within 4 hours or declare the channel inoperable.
- b. With one or more radiation monitoring channels inoperable, take the ACTION shown in Table 3.3-6.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.1 Each radiation monitoring instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations during the modes and at the frequencies shown in Table 4.3-3.

TABLE 3.3-6

RADIATION MONITORING INSTRUMENTATION

<u>INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ALARM/TRIP SETPOINT</u>	<u>MEASUREMENT RANGE</u>	<u>ACTION</u>
1. AREA MONITOR					
a. Fuel Storage Pool Area	1	*	≤ 200 mR/hr	10 ⁻¹ - 10 ⁴ mR/hr	26
2. PROCESS MONITORS					
a. Containment Purge Air	1	1, 2, 3, 4 & 6	≤ 8.5x10 ⁻³ μCi/cc	10 - 10 ⁷ cpm	28
b. Containment					
i. Gaseous Activity					
a) Ventilation Isolation	1	ALL MODES	≤ 8.5x10 ⁻³ μCi/cc	10 - 10 ⁷ cpm	28
b) RCS Leakage Detection	1	1, 2, 3 & 4	N/A	10 - 10 ⁷ cpm	27
ii. Particulate Activity					
a) Ventilation Isolation	1	ALL MODES	≤ 1.5x10 ⁻⁵ μCi/cc	10 - 10 ⁷ cpm	28
b) RCS Leakage Detection	1	1, 2, 3 & 4	N/A	10 - 10 ⁷ cpm	27
c. Control Room Isolation	1	ALL MODES	≤ 400 cpm**	10 - 10 ⁷ cpm	29

*With fuel in the storage pool or building

**Equivalent to 1.0 x 10⁻⁵ μCi/cc

TABLE 3.3-6 (Continued)

TABLE NOTATION

- ACTION 26 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per 24 hours.
- ACTION 27 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.4.6.1.
- ACTION 28 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.9.9.
- ACTION 29 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, within 1 hour initiate and maintain operation of the control room emergency ventilation system in the recirculation mode of operation.

TABLE 4.3-3

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
1. AREA MONITOR				
a. Fuel Storage Pool Area	S	R	M	*
2. PROCESS MONITORS				
a. Containment Purge Air Exhaust	S	R	M	1, 2, 3, 4 & 6
b. Containment				
i. Gaseous Activity				
a) Ventilation Isolation	S	R	M	ALL MODES
b) RCS Leakage Detection	S	R	M	1, 2, 3, & 4
ii. Particulate Activity				
a) Ventilation Isolation	S	R	M	ALL MODES
b) RCS Leakage Detection	S	R	M	1, 2, 3, & 4
c. Control Room Isolation	S	R	M	ALL MODES

*With fuel in the storage pool or building

INSTRUMENTATION

ACCIDENT MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.7 The accident monitoring instrumentation channels shown in Table 3.3-10 shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

- a. With the number of OPERABLE accident monitoring instrumentation channels, except for the RCS subcooling margin monitor, less than the Required Number of Channels shown in Table 3.3-10, restore the inoperable channel(s) to OPERABLE status within 7 days, or be in at least HOT SHUTDOWN within the next 12 hours.
- b. With the number of OPERABLE accident monitoring instrumentation channels less than the MINIMUM CHANNELS OPERABLE requirements of Table 3.3-10, restore the inoperable channel(s) to OPERABLE status within 48 hours or be in at least HOT SHUTDOWN within the next 12 hours.
- c. With the subcooling margin monitor inoperable for more than 48 hours, the minimum shift crew (per Table 6.2-1) will be increased by one member who shall be dedicated to and capable of determining the subcooling margin during an accident using existing instrumentation.
- d. With the number of OPERABLE channels for the containment area monitor, shield building exhaust vent monitor, and condensor vacuum exhaust vent monitor less than the Minimum Channels OPERABLE requirements of Table 3.3-10, initiate an alternate method of monitoring the appropriate parameter(s) within 72 hours and either restore the inoperable channel to OPERABLE status within 7 days, or prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days that provides actions taken, cause of the inoperability and plans and schedule for restoring the channels to OPERABLE status.
- e. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.7 Each accident monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3-7.

TABLE 3.3-10 (Continued)

ACCIDENT MONITORING INSTRUMENTATION

<u>INSTRUMENT</u>	<u>REQUIRED NO. OF CHANNELS</u>	<u>MINIMUM CHANNELS OPERABLE</u>
18. Shield Building Exhaust Vent		
a. High Range Noble Gas Monitor	N.A.	1
b. Mid Range Noble Gas Monitor	N.A.	1
19. Condenser Vacuum Exhaust Vent	N.A.	1
a. High Range Noble Gas Monitor	N.A.	1
b. Mid Range Noble Gas Monitor	N.A.	1
20. Containment Area		
a. Upper Compartment	N.A.	1
b. Lower Compartment	N.A.	1

SEQUOYAH - UNIT 1

3/4 3-56a

Amendment No. 112

TABLE 4.3-7 (Continued)

ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>
18. Shield Building Exhaust Vent		
a. High Range Noble Gas Monitor	M	R*
b. Mid Range Noble Gas Monitor	M	R*
19. Condenser Vacuum Exhaust Vent		
a. High Range Noble Gas Monitor	M	R*
b. Mid Range Noble Gas Monitor	M	R*
20. Containment Area		
a. Upper Compartment	M	R*
b. Lower Compartment	M	R*

*CHANNEL CALIBRATION may consist of an electronic calibration of the channel, not including the detector, for range decades above 10R/h and a single point calibration check of the detector below 10R/h with either an installed or portable gamma source.



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. 102
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 10, 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.102, 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



B. D. Liaw, Director
TVA Projects Division
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 28, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 102

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 3-41

3/4 3-42

3/4 3-43

3/4 3-55

3/4 3-56

--

--

INSERT

3/4 3-41

3/4 3-42

3/4 3-43

3/4 3-55*

3/4 3-56

3/4 3-57a

3/4 3-58a

TABLE 3.3-6
RADIATION MONITORING INSTRUMENTATION

<u>INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ALARM/TRIP SETPOINT</u>	<u>MEASUREMENT RANGE</u>	<u>ACTION</u>
1. AREA MONITOR					
a. Fuel Storage Pool Area	1	*	≤200 mR/hr	10 ⁻¹ - 10 ⁴ mR/hr	26
2. PROCESS MONITORS					
a. Containment Purge Air	1	1, 2, 3, 4 & 6	≤8.5 x 10 ⁻³ μCi/cc	10 - 10 ⁷ cpm	28
b. Containment					
i. Gaseous Activity					
a) Ventilation Isolation	1	ALL MODES	≤8.5 x 10 ⁻³ μCi/cc	10 - 10 ⁷ cpm	28
b) RCS Leakage Detection	1	1, 2, 3 & 4	N/A	10 - 10 ⁷ cpm	27
ii. Particulate Activity					
a) Ventilation Isolation	1	ALL MODES	≤1.5 x 10 ⁻⁵ μCi/cc	10 - 10 ⁷ cpm	28
b) RCS Leakage Detection	1	1, 2, 3 & 4	N/A	10 - 10 ⁷ cpm	27
c. Control Room Isolation	1	ALL MODES	≤ 400 cpm**	10 - 10 ⁷ cpm	29

* With fuel in the storage pool or building

** Equivalent to 1.0 x 10⁻⁵ μCi/cc.

TABLE 3.3-6 (Continued)

ACTION STATEMENTS

- ACTION 26 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per 24 hours.
- ACTION 27 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.4.6.1.
- ACTION 28 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.9.9.
- ACTION 29 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, within 1 hour initiate and maintain operation of the control room emergency ventilation system in the recirculation mode of operation.

TABLE 4.3-3

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES FOR WHICH SURVEILLANCE IS REQUIRED</u>
1. AREA MONITOR				
a. Fuel Storage Pool Area	S	R	M	*
2. PROCESS MONITORS				
a. Containment Purge Air Exhaust	S	R	M	1, 2, 3, 4 & 6
b. Containment				
i. Gaseous Activity				
a) Ventilation Isolation	S	R	M	ALL MODES
b) RCS Leakage Detection	S	R	M	1, 2, 3, & 4
ii. Particulate Activity				
a) Ventilation Isolation	S	R	M	ALL MODES
b) RCS Leakage Detection	S	R	M	1, 2, 3 & 4
c. Control Room Isolation	S	R	M	ALL MODES

*With fuel in the storage pool or building.

INSTRUMENTATION

CHLORINE DETECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

This specification deleted.

INSTRUMENTATION

ACCIDENT MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.7 The accident monitoring instrumentation channels shown in Table 3.3-10 shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

- a. With the number of OPERABLE accident monitoring instrumentation channels, except for the RCS subcooling margin monitor, less than the Required Number of Channels shown in Table 3.3-10, restore the inoperable channel(s) to OPERABLE status within 7 days, or be in at least HOT SHUTDOWN within the next 12 hours.
- b. With the number of OPERABLE accident monitoring instrumentation channels less than the MINIMUM CHANNELS OPERABLE requirements of Table 3.3-10, restore the inoperable channel(s) to OPERABLE status within 48 hours or be in at least HOT SHUTDOWN within the next 12 hours.
- c. With the subcooling margin monitor inoperable for more than 48 hours, the minimum shift crew (per Table 6.2-1) will be increased by one member who shall be dedicated to and capable of determining the subcooling margin during an accident using existing instrumentation.
- d. With the number of OPERABLE channels for the containment area monitor, shield building exhaust vent monitor, and condenser vacuum exhaust vent monitor less than the Minimum Channels OPERABLE requirements of Table 3.3-10, initiate an alternate method of monitoring the appropriate parameter(s) within 72 hours and either restore the inoperable channel to OPERABLE status within 7 days, or prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days that provides actions taken, cause of the inoperability and plans and schedule for restoring the channels to OPERABLE status.
- e. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.4.7 Each accident monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in TABLE 4.3-7.

TABLE 3.3-10

ACCIDENT MONITORING INSTRUMENTATION

<u>INSTRUMENT</u>	<u>REQUIRED NO. OF CHANNELS</u>	<u>MINIMUM CHANNELS OPERABLE</u>
1. Reactor Coolant T _{Hot} (Wide Range)	2	1
2. Reactor Coolant T _{Cold} (Wide Range)	2	1
3. Containment Pressure (Wide Range)	2	1
4. Refueling Water Storage Tank Level	2	1
5. Reactor Coolant Pressure (Wide Range)	2	1
6. Pressurizer Level (Wide Range)	2	1
7. Steam Line Pressure	2/steam line	1/steam line
8. Steam Generator Level - (Wide Range)	1/steam generator	1/steam generator
9. Steam Generator Level - (Narrow Range)	1/steam generator	1/steam generator
10. Auxiliary Feedwater Flow Rate	1/steam generator	1/steam generator
11. Reactor Coolant System Subcooling Margin Monitor	1	0
12. Pressurizer PORV Position Indicator*	2/valve#	1/valve
13. Pressurizer PORV Block Valve Position Indicator**	2/valve	1/valve
14. Safety Valve Position Indicator	2/valve#	1/valve
°15. Containment Water Level (Wide Range)	2	1
16. In Core Thermocouples	4/core quadrant	2/core quadrant
17. Reactor Vessel Level Instrumentation System***	2	1

*Not applicable if the associated block valve is in the closed position.

**Not applicable if the block valve is verified in the closed position with power to the valve operator removed.

***This Technical Specification and surveillance requirement will not be implemented until Sequoyah Specific Instructions are developed for the use of this system as committed to in the TVA response to Supplement 1 of NUREG-0737.

#At least one channel shall be the acoustic monitors.

TABLE 3.3-10 (Continued)

ACCIDENT MONITORING INSTRUMENTATION

<u>INSTRUMENT</u>	<u>REQUIRED NO. OF CHANNELS</u>	<u>MINIMUM CHANNELS OPERABLE</u>
18. Shield Building Exhaust Vent		
a. High Range Noble Gas Monitor	N.A.	1
b. Mid Range Noble Gas Monitor	N.A.	1
19. Condenser Vacuum Exhaust Vent		
a. High Range Noble Gas Monitor	N.A.	1
b. Mid Range Noble Gas Monitor	N.A.	1
20. Containment Area		
a. Upper Compartment	N.A.	1
b. Lower Compartment	N.A.	1

TABLE 4.3-7 (Continued)

ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>
18. Shield Building Exhaust Vent		
a. High Range Noble Gas Monitor	M	R*
b. Mid Range Noble Gas Monitor	M	R*
19. Condenser Vacuum Exhaust Vent		
a. High Range Noble Gas Monitor	M	R*
b. Mid Range Noble Gas Monitor	M	R*
20. Containment Area		
a. Upper Compartment	M	R*
b. Lower Compartment	M	R*

* CHANNEL CALIBRATION may consist of an electronic calibration of the channel, not including the detector, for range decades above 10R/h and a single point calibration check of the detector below 10R/h with either an installed or portable gamma source.



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

ENCLOSURE 3

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 112 TO FACILITY OPERATING LICENSE NO. DPR-77
AND AMENDMENT NO. 102 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 10, 1987, the Tennessee Valley Authority (TVA) proposed changes to the Sequoyah Nuclear Plant, Units 1 and 2, Technical Specifications (TS). The changes would transfer requirements from Section 3/4.3.3.1, "Radiation Monitoring Instrumentation," to Section 3/4.3.3.7, "Accident Monitoring Instrumentation," of the TS. This is to transfer requirements from Tables 3.3-6 and 4.3-3 to Tables 3.3-10 and 4.3-7. These proposed changes would affect the post-accident containment area monitors and noble gas effluent monitors. These high-range radiation monitors are Items II.F.1.3 and II.F.1.1, respectively, of NUREG-0737, "TMI Action Plan Requirements," dated November 1980. For the post-accident noble gas effluent monitors, additional requirements would be added to the TS. A change would also correct a typographical error on page 3/4 3-42 for Unit 1: "Moses" would be replaced by "Modes."

In a letter dated January 25, 1984, TVA submitted a requested change to the TS as required by NUREG-0737 and Generic Letter (GL) 83-37, "NUREG-0737 Technical Specifications," dated November 1, 1983. NRC requested additional information to complete the review of Table 3.3-6, "Radiation Monitoring Instrumentation." TVA's efforts to provide the additional information resulted in the need for additional changes which were submitted in a letter dated December 9, 1985. TVA stated that, to avoid confusion, the changes involving Section 3/4.3.3.1, "Radiation Monitoring Instrumentation," for these post-accident monitors in the letters dated January 25, 1984 and December 9, 1985 were withdrawn and resubmitted as proposed changes in this application.

The post-accident containment radiation and noble gas effluent monitors provide information during and following an accident. This information is helpful to the operator in assessing the plant condition. TVA stated that these monitors have been installed in the plant and, therefore, should be added to the list of accident instrumentation in Section 3/4.3.3.7 of the TS.

8905080012 890428
PDR ADDCK 05000327
P PNU

2.0 EVALUATION

2.1 Introduction

Item II.F.1.1 of NUREG-0737 required that noble gas effluent monitors be installed with an extended range to function during accident conditions as well as during normal operating conditions. TVA stated that it has installed Eberline Model Nos. SA-14 and SA-15 noble gas monitors for the shield building exhaust vent and the condenser vacuum exhaust vent at Sequoyah. The SA-14 model is a mid-range monitor with a range of 10^3 to 10^4 mCi/cc and the SA-15 model is a high range monitor with a range of 10^1 to 10^5 mCi/cc. TVA also stated that the low-range noble gas monitors for these release paths are already included in TS 3/4.3.3.10, "Radioactive Gaseous Effluent Monitoring Instrumentation."

Item II.F.1.3 of NUREG-0737 required that containment high-range radiation monitors be installed with a maximum range of 10^6 rad/hr (total radiation) or 10^7 rad/hr (photon radiation only) to function during accident conditions inside containment. TVA stated that it has installed General Atomic Model No. RD-23 monitors in the low and upper compartments of containment with a range of 1 to 10^6 rad/hr. By a telephone call on March 20, 1989, TVA explained that there are two monitors (90-271 and 90-272) for the upper compartment of the containment and two monitors (90-273 and 90-274) for the lower compartment.

TVA explained that the surveillance requirements for accident monitoring instruments require a monthly channel check and a channel calibration every refueling outage. TVA stated that because of the extended ranges of the noble gas and containment area monitors, a footnote will be added to allow electronic calibration of the upper ranges and a point calibration check of the lower ranges. These requirements will ensure equipment operability. TVA also stated that the proposed changes are consistent with the NRC Westinghouse Pressurized Water Reactor Standard Technical Specifications (NUREG-0452, Revision 5). Sequoyah, Units 1 and 2, are Westinghouse pressurized water reactors.

2.2 Evaluation

In Section 11.3.7 of the Sequoyah Final Safety Analysis Report (FSAR), TVA states that gaseous radioactive wastes are released to the atmosphere from Sequoyah through vents located on the shield building, auxiliary building, turbine building and service building. The waste gases from containment purge and the gas decay tanks are discharged through the shield building exhaust vent. Waste gases in the auxiliary building are discharged through the auxiliary building exhaust vent except during accident conditions. Under accident conditions, the auxiliary building is isolated and the auxiliary building gas treatment system discharges to the shield building exhaust vent. The ventilation air from the turbine building is discharged from the turbine building exhaust vent. The non-condensibles in the condenser are discharged through the condenser vacuum exhaust vent. Therefore, the only vents that must be monitored for post-accident high range noble gas effluents (i.e., Item II.F.1.1) to meet the requirements for pressurized water reactors in NUREG-0737 are the shield building exhaust vent and the condenser vacuum

exhaust vent. These are the vents proposed by TVA for Tables 3.3-10 and 4.3-7 in Section 3/4.3.3.7 of the TS.

TVA stated in the application that the range for the post-accident noble gas effluent monitors is 10^{-3} to 10^{-5} mCi/cc. The units "mCi/cc" are not the correct units for gaseous effluent radiation monitors. TVA explained, in a telephone call on March 23, 1989, that the units in its application were a typographical error and the correct units are "uCi/cc." The units "uCi/cc" are the correct units for these monitors. With this clarification, the range for these monitors meets the requirements for post-accident noble gas effluent monitors in NUREG-0737.

In Supplement No. 2 to the Safety Evaluation Report (S2SER) dated August 1980, issued by the staff to license Sequoyah Nuclear Plant, the staff evaluated the accident monitoring instrumentation for containment radiation (i.e., Item II.F.1.3). TVA's description of the containment monitors given above was accepted by the staff in the SER. Therefore, these monitors are acceptable to meet the requirements of Item II.F.1.3 of NUREG-0737. The S2SER required two containment high-range monitors and TVA has four at Sequoyah: two in the upper compartment and two in the lower compartment.

TVA is proposing to transfer the requirements on the containment high-range radiation monitors and the high-range noble gas effluent monitors from the TS Section 3/4.3.3.1, "Radiation Monitoring Instrumentation," to TS Section 3/4.3.3.7, "Accident Monitoring Instrumentation." This is transferring requirements from Table 3.3-6 and 4.3-3 to Tables 3.3-10 and 4.3-7. TVA is also adding additional requirements on the noble gas effluent monitors to Tables 3.3-10 and 4.3-7.

The TS Section 3/4.3.3.1 is for normal plant radiation monitoring instrumentation and TS Section 3/4.3.3.7 is for post-accident plant radiation monitoring instrumentation. TVA stated that the containment radiation monitors and noble gas effluent monitors currently listed in Tables 3.3-6 and 4.3-3 are to provide information during and following an accident to assess the condition of the plant. As such, the staff agrees that this radiation monitoring instrumentation should be listed instead, in TS Section 3/4.3.3.7, as accident monitoring instrumentation.

The TS requirements for this radiation monitoring have been reviewed against the staff's requirements in the following documents: (1) S2SER; (2) GL 83-37, "NUREG-0737 Technical Specifications," for pressurized water reactors, dated November 1, 1983; and (3) Standard Technical Specifications for Westinghouse Pressurized Water Reactors (PWRSTS), NUREG-0452, Revision 4a, dated September 1987.

The requirements for the containment high-range radiation monitors and the high-range noble gas effluent monitors proposed for Tables 3.3-10 and 4.3-7 are consistent with the PWRSTS except for one minor item. There are differences between these requirements and those listed in GL 83-37. The tables in GL 83-37 were for the post-accident radiation monitors to be listed among the normal plant radiation monitoring instrumentation and the tables in the PWRSTS were for the post-accident radiations monitors to be listed separately with other accident monitoring instrumentation. The current radiation monitoring

tables in the Sequoyah TS are consistent with the format of PWRSTS. Therefore, the staff concludes that the differences from the guidance of GL 83-37 are not important because the proposed requirements are consistent with the requirements for post accident radiation monitors in PWRSTS Section 3.3.3.6, "Accident Monitoring Instrumentation." This includes the proposed Action Statements d and e for Sequoyah TS Section 3.3.3.6 and the proposed footnote "*" for Table 4.3-7. The footnote is applied to the noble gas effluent monitors because electronic calibration of these channels is needed for the high range.

The only difference between the proposed requirements for the Sequoyah high range radiation monitors and the requirements in the PWRSTS is that TVA's proposal lists N.A. (not applicable) for the total number of channels for the containment high range radiation monitors whereas the PWRSTS lists "2." The staff's S2SER states that the plant must have at least two such monitors, however, the Action Statements for the number of operable monitors apply only if both monitors in either the upper or lower compartments are inoperable. This is in the TVA proposed requirements and in the PWRSTS. Also, TS 3.0.4 is not applicable for accident monitoring instrumentation in the TVA proposed requirements and in the PWRSTS, so that the plant may change modes while the plant is in an Action Statement for this post-accident monitoring instrumentation.

The plant is required to have at least two containment high-range radiation monitors because the proposed TS require that at least two containment high-range radiation monitors must be operable, one in the containment upper compartment and one in the lower compartment, or Action Statement d must be followed. Therefore, the TVA proposal to not state the total number of channels of these radiation monitors is acceptable. In fact, TVA has two high-range radiation monitors in the upper compartment and two in the lower compartment.

For the proposed change for Unit 1 only to replace the word "Moses" by the word "Modes" on page 3/4 3-42, the staff agrees that the correct word is "Modes." Therefore, this proposed change is acceptable.

The containment high-range radiation monitors are referred to as the containment area monitors by TVA. The high-range noble gas effluent monitors are referred to as the shield building exhaust vent monitors and condenser vacuum exhaust vent monitors by TVA. The references to the containment area and shield building exhaust vent monitors in the proposed TS for the Action Statement for TS 3.3.3.7 are different from the references to these monitors in Table 3.3-10. For example proposed Action Statement d refers to the containment atmosphere monitor and Table 3.3-10 refers to the containment area monitor. This was discussed with TVA by telephone on April 10, 1989 and TVA agreed to have the references in both the Action Statement d and Table 3.3-10 the same: containment area monitor and shield building exhaust vent monitor.

2.3 Conclusion

Based on the above, the staff concludes that the changes proposed by TVA in its application dated June 10, 1987 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 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 to 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 (52 FR 39308) on October 21, 1987 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: April 28, 1989



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

April 28, 1989

Cocket

Docket Nos. 50-327/328

MEMORANDUM FOR: Sholly Coordinator

FROM: B. D. Liaw, Director
TVA Projects Division, NRR

SUBJECT: REQUEST FOR PUBLICATION IN BI-WEEKLY FR NOTICE - NOTICE
OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE
(TAC R00169/R00170)

Tennessee Valley Authority, Docket Nos. 50-327 and 50-328, Sequoyah Nuclear
Plant, Units 1 and 2, Hamilton County, Tennessee

Date of application for amendments: June 10, 1987 (TS 87-28)

Brief description of amendments: The amendments will transfer requirements from Section 3/4.3.3.1, "Radiation Monitoring Instrumentation," to Section 3/4.3.3.7, "Accident Monitoring Instrumentation," of the Sequoyah Nuclear Plant, Units 1 and 2, Technical Specifications. These changes relate to the post-accident containment area monitors and noble gas effluent monitors. These monitors are addressed in Items II.F.1.3 and II.F.1.1, respectively, of NUREG-0737, "TMI Action Plan Requirements," dated November 1980. For the post-accident noble gas effluent monitors, requirements are being added to the TS. The amendment for Unit 1 also corrects a typographical error on Page 3/4.3-42: "Moses" should be "Modes."

This application superseded and withdrew the proposed changes on these monitors in the licensee's applications dated January 25, 1984 and December 9, 1985.

Date of issuance: April 28, 1989

Effective date: April 28, 1989

8905080013 890428
PDR ADOCK 05000327
P PNU

Amendment Nos.: 112, 102

Facility Operating Licenses Nos. DPR-77 and DPR-79. Amendments revised the Technical Specifications.

Date of initial notice in FEDERAL REGISTER: October 21, 1987 (52 FR 39308)

The Commission's related evaluation of the amendment is contained in a Safety Evaluation dated April 28, 1989.

No significant hazards consideration comments received: No

Local Public Document Room location: Chattanooga-Hamilton County Library, 1001 Broad Street, Chattanooga, Tennessee 37402.

Original signed by

B. D. Liaw, Director
TVA Projects Division, NRR

Distribution

- Docket File
- Projects Reading
- SBlack
- MSimms
- OGC
- JDonohew
- Sholly Coordinator (orig & 1)

*SEE PREVIOUS CONCURRENCE

OFC	:NRR:TVA/LA	:NRR:TVA/PM *	:OGC *	:TVA:Q			
NAME	:MSimms	:JDonohew:as	:	:BDLiaw	:	:	:
DATE	:4/28/89	:3/23/89	:3/30/89	:4/28/89	:	:	:

Amendment Nos.:

Facility Operating Licenses Nos. DPR-77 and DPR-79. Amendments revised the Technical Specifications.

Date of initial notice in FEDERAL REGISTER: October 21, 1987 (52 FR 39308)

The Commission's related evaluation of the amendment is contained in a Safety Evaluation dated

No significant hazards consideration comments received: No

Local Public Document Room location: Chattanooga-Hamilton County Library, 1001 Broad Street, Chattanooga, Tennessee 37402.

Suzanne Black, Assistant Director
for Projects, NRR

Distribution

- Docket File
- Projects Reading
- SBlack
- MSimms
- OGC
- JDonohew
- Sholly Coordinator (orig & 1)

OFC	:NRR:TVA/LA	:NRR:TVA/RM	:OGC	:TVA:AD/P	:	:	:
NAME	:MSimms	:JDonohew:as	:R Bachmann	:SBlack	:	:	:
DATE	:3/ /89	:3/23/89	:3/30/89	:4/19/89	:	:	:

OFFICIAL RECORD COPY

See mods. on No. Ke. & No. 4/12/89

MS