

May 5, 1983

Docket Nos: 50-327
and 50-328

Mr. H. G. Parris
Manager of Power
Tennessee Valley Authority
500A Chestnut Street, Tower II
Chattanooga, Tennessee 37401

Dear Mr. Parris:

Subject: Issuance of Amendment No. 29 to Facility Operating License
No. DPR-77 and Amendment No. 18 to Facility Operating
License No. DPR-79 - Sequoyah Nuclear Plant, Units 1 and 2

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 29 to
Facility Operating License No. DPR-77 and Amendment No. 18 to Facility Operating
License No. DPR-79.

The amendments change the Technical Specifications to reflect installation of
the second level of undervoltage protection for the Class 1E buses. The amend-
ments are in response to your letters dated September 17 and December 1, 1982,
and April 7, 1983.

A copy of the related safety evaluation supporting Amendment No. 29 to Facility
Operating License DPR-77 and Amendment No. 18 to Facility Operating License
DPR-79 is enclosed. Also enclosed is a copy of the Federal Register Notice
which has been forwarded to the Office of the Federal Register for publication.

Sincerely,

Elinor G. Adensam, Chief
Licensing Branch No. 4
Division of Licensing

Enclosures:

1. Amendment No. 29 to DPR-77
2. Amendment No. 18 to DPR-79
3. Safety Evaluation
4. Federal Register Notice

cc w/enclosures:

See next page

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PDR ADOCK 05000327
P PDR

OFFICE	LA:DL:LB #4	DL:LB #4	DL:LB #4	DL:LB #4			
SURNAME	MDuncan/hmc	MMiller	CStahle	EAdensam			
DATE	4/26/83	4/25/83	4/21/83	4/4/83			

SEQUOYAH

Mr. H. G. Parris
Manager of Power
Tennessee Valley Authority
500A Chestnut Street, Tower II
Chattanooga, Tennessee 37401

cc: Herbert S. Sanger, Jr., Esq.
General Counsel
Tennessee Valley Authority
400 Commerce Avenue
E 11B 33
Knoxville, Tennessee 37902

Mr. H. N. Culver
Tennessee Valley Authority
400 Commerce Avenue, 249A HBB
Knoxville, Tennessee 37902

Mr. Bob Faas
Westinghouse Electric Corp.
P.O. Box 355
Pittsburgh, Pennsylvania 15230

Mr. Jerry Mills
Tennessee Valley Authority
400 Chestnut Street, Tower II
Chattanooga, Tennessee 37401

Mr. Donald L. Williams, Jr.
Tennessee Valley Authority
400 Commerce Avenue, W10C131C
Knoxville, Tennessee 37902

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

Director, Office of Urban
& Federal Affairs
108 Parkway Towers
404 James Robertson Way
Nashville, Tennessee 37219

Attorney General
Supreme Court Building
Nashville, Tennessee 37219

U.S. Environmental Protection
Agency
ATTN: EIS Coordinator
345 Courtland Street
Atlanta, Georgia 30308

Honorable Don Moore, Jr.
County Judge
Hamilton County Courthouse
Chattanooga, Tennessee 37402

Regional Administrator
Nuclear Regulatory Commission,
Region II
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

OFFICE ▶	.....	.....	.....	.....	.....	.....	.....
SURNAME ▶	.....	.....	.....	.....	.....	.....	.....
DATE ▶	.....	.....	.....	.....	.....	.....	.....

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-327

SEQUOYAH NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 29
License No. DPR-77

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment to the Sequoyah Nuclear Plant, Unit 1 (the facility) Facility Operating License No. DPR-77 filed by the Tennessee Valley Authority (licensee), dated September 17, 1982, as revised December 1, 1982, and April 7, 1983, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations as set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the license, as amended, 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 hereby amended by page changes to the Appendix A 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 Appendix A, as revised through Amendment No.29 , are hereby incorporated into the license.

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DATE ▶

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

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Elinor G. Adensam, Chief
Licensing Branch No. 4
Division of Licensing

Attachment:
Appendix A Technical
Specification Change

Date of Issuance: May 5, 1983

OFFICE	LA:DL:LB #4	DL:LB #4	DL:LB #4	OELD	DL:LB #4	AD:L:LB	
SURNAME	MDuncan/hmc	MMiller	CStahle	Adensam	EAdensam	INovak	
DATE	4/21/83	4/26/83	4/27/83	4/28/83	5/4/83	5/7/83	

ATTACHMENT TO LICENSE AMENDMENT NO. 29

FACILITY OPERATING LICENSE NO. DPR-77

DOCKET NO. 50-327

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change.

<u>Amended</u> <u>Page</u>
3/4 3-21
3/4 3-21a
3/4 3-27
3/4 3-27a
3/4 3-32
3/4 3-33a
3/4 3-37
3/4 3-37a
3/4 8-13

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
**7. LOSS OF POWER					
a. 6.9 kv Shutdown Board --Loss of Voltage					
1. Start Diesel Generators	2/shutdown board	1 loss of voltage on any shutdown board	2/shutdown board	1, 2, 3, 4	20*
2. Load Shedding	2/shutdown board	1/shutdown board	2/shutdown board	1, 2, 3, 4	20*
b. 6.9 kv Shutdown Board Degraded Voltage					
1. Voltage Sensors	3/shutdown board	2/shutdown board	2/shutdown board	1, 2, 3, 4	20*
2. Diesel Generator Start and Load Shedding Timer	2/shutdown board	1/shutdown board	1/shutdown board	1, 2, 3, 4	20*
3. SI/Degraded Voltage Enable Timer	2/shutdown board	1/shutdown board	1/shutdown board	1, 2, 3, 4	20*

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

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
8. ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INTERLOCKS					
a. Pressurizer Pressure - Not P-11	3	2	2	1, 2, 3	22a
b. T_{avg} - P-12	4	2	3	1, 2, 3	22b
c. Steam Generator Level P-14	3/loop	2/loop any loop	3/loop	1, 2	22c
9. AUTOMATIC SWITCHOVER TO CONTAINMENT SUMP					
A. RWST Level - Low COINCIDENT WITH Containment Sump Level - High AND Safety Injection	4 4 (See 1 above for Safety Injection Requirements)	2 2	3 3	1, 2, 3, 4 1, 2, 3, 4	18 18

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
6. AUXILIARY FEEDWATER		
a. Manual	Not Applicable	Not Applicable
b. Automatic Actuation Logic	Not Applicable	Not Applicable
c. Main Steam Generator Water Level-low-low	> 18% of narrow range instrument span each steam generator	> 17% of narrow range instrument span each steam generator
d. S.I.	See 1 above (all SI Setpoints)	
e. Station Blackout	0 volts with a 5.0 second time delay	0 volts with a 5.0 \pm 1.0 second time delay
f. Trip of Main Feedwater Pumps	N.A.	N.A.
g. Auxiliary Feedwater Suction Pressure-Low	\geq 2 psig (motor driven pump) \geq 6.5 psig (turbine driven pump)	\geq 1 psig (motor driven pump) \geq 5.5 psig (turbine driven pump)
*7. LOSS OF POWER		
a. 6.9 kv Shutdown Board Undervoltage Loss of Voltage		
1. Start of Diesel Generators		
a. Nominal Voltage Setpoint	4860 volts	4860 volts \pm 97.2 volts
b. Relay Response Time for Loss of Voltage	0 volts with a 1.5 second time delay	0 volts with a 1.5 \pm 0.5 second time delay
2. Load Shedding		
a. Nominal Voltage Setpoint	4860 volts	4860 volts \pm 97.2 volts
b. Relay Response Time for Loss of Voltage	0 volts with a 5.0 second time delay	0 volts with a 5.0 \pm 1.0 second time delay

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

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
*b. 6.9 kv Shutdown Board-Degraded Voltage		
1. Voltage Sensors	6560 volts	6560 volts \pm 33 volts
2. Diesel Generator Start and Load Shed Timer	300 seconds	300 seconds \pm 15 seconds
3. SI/Degraded Voltage Logic Enable Timer	10 seconds	10 seconds \pm 0.5 seconds
8. ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INTERLOCKS		
a. Pressurizer Pressure		
Manual Block of Safety Injection P-11 \leq 1970 psig		\leq 1980 psig

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

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	≤ 60
11. <u>Trip of Main Feedwater Pumps</u>	
a. Auxiliary Feedwater Pumps	≤ 60
*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	$\leq 10^{(6)}$

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

INSTRUMENTATION

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.

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

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
c. Main Steam Generator Water Level-Low-Low	S	R	Q	1, 2, 3
d. S.I.	See 1 above (all SI surveillance requirements)			
e. Station Blackout	N.A.	R	N.A.	1, 2, 3
f. Trip of Main Feedwater Pumps	N.A.	N.A.	R	1, 2
g. Auxiliary Feedwater Suction	N.A.	R	M	1, 2, 3
*7. LOSS OF POWER				
a. 6.9 kv Shutdown Board - Loss of Voltage				
1. Start Diesel Generators	S	R	M	1, 2, 3, 4
2. Load Shedding	S	R	N.A.	1, 2, 3, 4
b. 6.9 kv Shutdown Board - Degraded Voltage				
1. Voltage sensors	S	R	M	1, 2, 3, 4
2. Diesel Generators Start and Load Shedding Timer	N.A.	R	N.A.	1, 2, 3, 4
3. SI/Degraded Voltage Logic Timer	N.A.	R	N.A.	1, 2, 3, 4

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

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
8. ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INTERLOCKS				
a. Pressurizer Pressure, P-11	N.A.	R (4)	N.A.	1, 2, 3
b. T _{avg} , P-12	N.A.	R (4)	N.A.	1, 2, 3
c. Steam Generator Level, P-14	N.A.	R (4)	N.A.	1, 2
9. AUTOMATIC SWITCHOVER TO CONTAINMENT SUMP				
a. RSWT Level - Low	S	R	M	1, 2, 3, 4
COINCIDENT WITH				
Containment Sump Level - High	S	R	M	1, 2, 3, 4
AND				
Safety Injection	(See 1 above for all Safety Injection Surveillance Requirements)			

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- d. At least once per 18 months by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual or simulated emergency loads for 2 hours when the battery is subjected to a battery service test.
- e. At least once per 60 months by verifying that the battery capacity is at least 82%* of the manufacturer's rating when subjected to a performance discharge test. Once per 60 month interval, this performance discharge test may be performed in lieu of the battery service test.
- f. Annual performance discharge tests of battery capacity shall be given to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-328

SEQUOYAH NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 18
License No. DPR-79

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment to the Sequoyah Nuclear Plant, Unit 2 (the facility) Facility Operating License No. DPR-79 filed by the Tennessee Valley Authority (licensee), dated September 17, 1982, as revised December 1, 1982, and April 7, 1983, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations as set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the license, as amended, 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 hereby amended by page changes to the Appendix A Technical Specifications as indicated in the attachments 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 Appendix A, as revised through Amendment No. , are hereby incorporated into the license.

OFFICE							
SURNAME							
DATE							

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

51

Elinor G. Adensam, Chief
Licensing Branch No. 4
Division of Licensing

Attachment:
Appendix A Technical
Specification Change

Date of Issuance: May 5, 1983

OFFICE	LA:DL:LB.#4	DL:LB.#4	DL:LB.#4	QELD	DL:LB.#4	AP:LB:DL	
SURNAME	MDuncan/hmc	MMiller	CStahle	Walt Miller	EAdensam	TNovak	
DATE	4/26/83	4/26/83	4/ /83	4/2/83	5/4/83	5/3/83	

ATTACHMENT TO LICENSE AMENDMENT NO. 18

FACILITY OPERATING LICENSE NO. DPR-79

DOCKET NO. 50-328

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change.

Amended
Page

3/4 3-21

3/4 3-21a

3/4 3-27

3/4 3-27a

3/4 3-32

3/4 3-33a

3/4 3-37

3/4 3-37a

3/4 8-13

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

SEQUOIAH - UNIT 2

3/4 3-21

Amendment No. 18

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
**7. LOSS OF POWER					
a. 6.9 kv Shutdown Board --Loss of Voltage					
1. Start Diesel Generators	2/shutdown board	1 loss of voltage on any shutdown board	2/shutdown board	1, 2, 3, 4	20*
2. Load Shedding	2/shutdown board	1/shutdown board	2/shutdown board	1, 2, 3, 4	20*
b. 6.9 kv Shutdown Board Degraded Voltage					
1. Voltage Sensors	3/shutdown board	2/shutdown board	2/shutdown board	1, 2, 3, 4	20*
2. Diesel Generator Start and Load Shedding Timer	2/shutdown board	1/shutdown board	1/shutdown board	1, 2, 3, 4	20*
3. SI/Degraded Voltage Enable Timer	2/shutdown board	1/shutdown board	1/shutdown board	1, 2, 3, 4	20*

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

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
8. ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INTERLOCKS					
a. Pressurizer Pressure - Not P-11	3	2	2	1, 2, 3	22a
b. T _{avg} - P-12	4	2	3	1, 2, 3	22b
c. Steam Generator Level P-14	3/loop	2/loop any loop	3/loop	1, 2	22c
9. AUTOMATIC SWITCHOVER TO CONTAINMENT SUMP					
A. RWST Level - Low COINCIDENT WITH Containment Sump Level - High AND Safety Injection	4 4 (See 1 above for Safety Injection Requirements)	2 2	3 3	1, 2, 3, 4 1, 2, 3, 4	18 18

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
6. AUXILIARY FEEDWATER		
a. Manual	Not Applicable	Not Applicable
b. Automatic Actuation Logic	Not Applicable	Not Applicable
c. Main Steam Generator Water Level-low-low	> 18% of narrow range instrument span each steam generator	> 17% of narrow range instrument span each steam generator
d. S.I.	See 1 above (all SI Setpoints)	
e. Station Blackout	0 volts with a 5.0 second time delay	0 volts with a 5.0 ± 1.0 second time delay
f. Trip of Main Feedwater Pumps	N.A.	N.A.
g. Auxiliary Feedwater Suction Pressure-Low	> 2 psig (motor driven pump) ≥ 6.5 psig (turbine driven pump)	≥ 1 psig (motor driven pump) ≥ 5.5 psig (turbine driven pump)
*7. LOSS OF POWER		
a. 6.9 kv Shutdown Board Loss of Voltage		
1. Start of Diesel Generators		
a. Nominal Voltage Setpoint	4860 volts	4860 volts ± 97.2 volts
b. Relay Response Time for Loss of Voltage	0 volts with a 1.5 second time delay	0 volts with a 1.5 ± 0.5 second time delay
2. Load Shedding		
a. Nominal Voltage Setpoint	4860 volts	4860 volts ± 97.2 volts
b. Relay Response Time for Loss of Voltage	0 volts with a 5.0 second time delay	0 volts with a 5.0 ± 1.0 second time delay

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

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
*b. 6.9 kv Shutdown Board-Degraded Voltage		
1. Voltage Sensors	6560 volts	6560 volts \pm 33 volts
2. Diesel Generator Start and Load Shed Timer	300 seconds	300 seconds \pm 15 seconds
3. SI/Degraded Voltage Logic Enable Timer	10 seconds	10 seconds \pm 0.5 seconds
8. ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INTERLOCKS		
a. Pressurizer Pressure		
Manual Block of Safety Injection P-11 \leq 1970 psig		\leq 1980 psig

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

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	≤ 60
11. <u>Trip of Main Feedwater Pumps</u>	
a. Auxiliary Feedwater Pumps	≤ 60
*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	$\leq 10^{(6)}$

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

INSTRUMENTATION

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.

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

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
c. Main Steam Generator Water Level-Low-Low	S	R	Q	1, 2, 3
d. S.I.	See 1 above (all SI surveillance requirements)			
e. Station Blackout	N.A.	R	N.A.	1, 2, 3
f. Trip of Main Feedwater Pumps	N.A.	N.A.	R	1, 2
g. Auxiliary Feedwater Suction	N.A.	R	M	1, 2, 3
*7. LOSS OF POWER				
a. 6.9 kv Shutdown Board - Loss of Voltage				
1. Start Diesel Generators	S	R	M	1, 2, 3, 4
2. Load Shedding	S	R	N.A.	1, 2, 3, 4
b. 6.9 kv Shutdown Board - Degraded Voltage				
1. Voltage sensors	S	R	M	1, 2, 3, 4
2. Diesel Generators Start and Load Shedding Timer	N.A.	R	N.A.	1, 2, 3, 4
3. SI/Degraded Voltage Logic Timer	N.A.	R	N.A.	1, 2, 3, 4

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

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
8. ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INTERLOCKS				
a. Pressurizer Pressure, P-11	N.A.	R (4)	N.A.	1, 2, 3
b. T _{avg} , P-12	N.A.	R (4)	N.A.	1, 2, 3
c. Steam Generator Level, P-14	N.A.	R (4)	N.A.	1, 2
9. AUTOMATIC SWITCHOVER TO CONTAINMENT SUMP				
a. RSWT Level - Low	S	R	M	1, 2, 3, 4
COINCIDENT WITH				
Containment Sump Level - High	S	R	M	1, 2, 3, 4
AND				
Safety Injection	(See 1 above for all Safety Injection Surveillance Requirements)			

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS

2. Verifying total battery terminal voltage is greater than or equal to 129-volts on float charge.
- b. At least once per 92 days and within 7 days after a battery discharge (battery terminal voltage below 110-volts), or battery overcharge (battery terminal voltage above 150-volts), by:
 1. Verifying that the parameters in Table 4.8-2 meet the Category B limits,
 2. Verifying there is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150×10^{-6} ohms, and
 3. Verifying that the average electrolyte temperature of 6 connected cells is above 60 F.
- c. At least once per 18 months by verifying that:
 1. The cells, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration,
 2. The cell-to-cell and terminal connections are clean, tight, and coated with anti-corrosion material,
 3. The resistance of each cell-to-terminal connection is less than or equal to 150×10^{-6} ohms, and
 4. The battery charger will supply at least 150 amperes at 125-volts for at least 4 hours.
- d. At least once per 18 months by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual or simulated emergency loads for 2 hours when the battery is subjected to a battery service test.
- e. At least once per 60 months by verifying that the battery capacity is at least 82%* of the manufacturer's rating when subjected to a performance discharge test. Once per 60 month interval, this performance discharge test may be performed in lieu of the battery service test.
- f. Annual performance discharge tests of battery capacity shall be given to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 29 TO FACILITY OPERATING LICENSE DPR-77
AND AMENDMENT NO. 18 TO FACILITY OPERATING LICENSE DPR-79
TENNESSEE VALLEY AUTHORITY

INTRODUCTION

In a letter dated September 17, 1982, Tennessee Valley Authority (TVA) requested a change in the Sequoyah Units 1 and 2 Technical Specifications Tables 3.3-3, 3.3-4, 3.3-5, and 4.3-2 because of the installation of the second level of undervoltage protection for the Class 1E buses. These changes are intended to meet the requirements of license conditions 2.C(18)c. of Unit 1 and 2.C(11)b. of Unit 2. In a submittal dated December 1, 1982, the licensee provided additional information needed to clarify the initial submittal. TVA resubmitted the proposed Technical Specifications on April 7, 1983, with the only change being the addition of implementation schedules. Units 1 and 2 Technical Specification changes will be implemented at the startup following the second or first refueling outage, respectively, or at the modification completion for Unit 1, whichever is earlier for that unit.

EVALUATION

In the submittals of September 17 and December 1, 1982, TVA provided design details and technical specifications for the replacement of first level undervoltage relays and the installation of a second level of undervoltage protection (degraded voltage relays) for the Class 1E buses. The proposed replacement of the first level relays will replace the CV-7 (inverse time) loss of voltage relay on the normal feeder to the 6.9 Kv Class 1E buses with three instantaneous (ITE-27H) relays arranged in a two-out-of-three coincidence logic with a setpoint of 80% of nominal voltage and a time delay of four seconds. The logic will energize two timers, either of which will initiate transfer of the Class 1E buses to the alternate power source provided the alternate source has a voltage greater than 95% nominal voltage.

Installation of the second level of undervoltage relays will protect the Class 1E buses from sustained degraded undervoltage. Each of the two 6.9 Kv Class 1E buses per unit will be provided with three instantaneous (ITE 27/59H) undervoltage relays. These relays will have a nominal setpoint of 6560V + 1/2% (95% of nominal). The relays will be arranged in a two-out-of-three coincidence logic to initiate three time delay sequences. The first sequence of 30 seconds will provide annunciation in the control room without spurious actuation due to motor starting transients. The second sequence of 10 seconds is short enough to allow safety-related equipment

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to be powered within the time required by the accident analysis. At the end of 10 seconds if a safety injection signal (SIS) has been initiated, or is subsequently initiated, the Class 1E shutdown board degraded voltage relays will initiate load shedding and transfer the affected shutdown board to the onsite emergency diesel generator. The third time delay of 5 minutes under non-accident conditions is long enough to allow operator action to attempt to restore bus voltage to normal without resulting in damage to the safety-related equipment. If the operator is unable to restore bus voltage to above 95% within 5 minutes, the degraded voltage relays will automatically transfer the affected Class 1E buses to the onsite emergency diesel generator.

In the proposed change to Technical Specification 4.8.2.3.2 the minimum battery capacity has been raised from 80% to 82% to allow for possible discharge during the 5 minute delay which assures that the batteries meet the 2 hour accident requirements in all cases. Technical Specification Tables 3.3-3, 3.3-4, 3.3-5 and 4.3-2 have been modified to include the degraded voltage instrumentation. Table 3.3-4 lists the trip setpoint and allowable values for the degraded voltage setpoints. At the request of the NRC staff in an October 29, 1982, telephone conversation, TVA committed to include the trip setpoint and allowable values for the first level of undervoltage protection (loss of voltage) also found in Table 3.3-4. The proposed change to Table 3.3-5 adds a footnote to clarify the time period measured by the degraded voltage channels. Table 4.3-2 deals specifically with surveillance of the instrumentation.

To protect the Class 1E bus from a sustained overvoltage, each 6.9 Kv Class 1E bus will be provided with a set of three instantaneous (ITE-59H) overvoltage relays. These relays will be arranged in a one-out-of-three logic to annunciate in the control room. Upon receipt of this alarm, the operator will take the necessary action required to reduce the voltage to normal.

The load shedding feature provided by the degraded voltage relays (second level) will be bypassed when the diesel generator is supplying the Class 1E buses. The load shedding feature provided by the loss of voltage relays (first level) will be retained when the diesel generator is supplying the Class 1E buses. The licensee has demonstrated that the setpoint (70% of nominal) will preclude actuation of load shedding while the safety-related equipment is being sequenced on the onsite emergency diesel generator.

The proposed second level protective relay setpoints and time delays have been substantiated by a verified voltage analysis which determined the voltage requirements of the safety-related equipment. The staff has reviewed the licensee submittals and concludes that upon completion of the proposed modifications and implementation of the associated Technical Specifications, the Sequoyah Nuclear Plant, Units 1 and 2, design will provide adequate assurance that no damage to the safety-related electrical equipment will occur as a result of degraded grid voltage and is therefore acceptable.

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ENVIRONMENTAL CONSIDERATION

We have determined that the amendments do not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendments involve an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

CONCLUSION

We have concluded, based on the considerations discussed above, that: (1) because the amendments do not involve a significant increase in the probability or consequences of accidents previously considered, do not create the possibility of an accident of a type different from any evaluated previously, and do not involve a significant decrease in a safety margin, the amendments do not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) 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 or to the health and safety of the public.

Date: May 5, 1983

Principal Contributors: Melanie Miller, Licensing Branch No. 4, DL
Carl Stahle, Licensing Branch No. 4, DL
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UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NOS. 50-327 AND 50-328TENNESSEE VALLEY AUTHORITYNOTICE OF ISSUANCE OF AMENDMENTSFACILITY OPERATING LICENSE NOS. DPR-77 AND DPR-79

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 29 to Facility Operating License No. DPR-77 and Amendment No. 18 to Facility Operating License No. DPR-79, issued to Tennessee Valley Authority (licensee) for the Sequoyah Nuclear Plant, Units 1 and 2 (the facilities) located in Hamilton County, Tennessee. These amendments change the Technical Specifications to reflect installation of the second level of undervoltage protection for the Class 1E buses. The amendments are effective as of their dates of issuance.

The application for the amendments complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations. The Commission has made appropriate findings as required by the Act and the Commission's regulations in 10 CFR Chapter I, which are set forth in the license amendments. Prior public notice of these amendments was not required since the amendments do not involve a significant hazards consideration.

The Commission has determined that the issuance of these amendments will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of these amendments.

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For further details with respect to this action, see (1) Tennessee Valley Authority letters dated September 17 and December 1, 1982, and April 7, 1983 (2) Amendment No. 29 to Facility Operating License No. DPR-77 with Appendix A Technical Specification page changes; (3) Amendment No. 18 to Facility Operating License No. DPR-79 with Appendix A Technical Specification page changes; and (4) the Commission's related Safety Evaluation.

All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D. C., and the Chattanooga Hamilton County Bicentennial Library, 1001 Broad Street, Chattanooga, Tennessee 37402. A copy of Amendment No. 29 and Amendment No. 18 may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Licensing.

Dated at Bethesda, Maryland, this 5th day of May 1983.

FOR THE NUCLEAR REGULATORY COMMISSION

5/
Elinor G. Adensam, Chief
Licensing Branch No. 4
Division of Licensing

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May 11, 1983

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Office of Nuclear Reactor Regulation

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As Stated

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AMENDMENT NO. 29 TO FACILITY OPERATING LICENSE DPR-77 - SEQUOYAH UNIT 1
AMENDMENT NO. 18 TO FACILITY OPERATING LICENSE DPR-79 - SEQUOYAH UNIT 2

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