



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

October 22, 1987

Docket Nos. 50-327/328

Posted
Amatt. 61
to DPR-77
(See Collection letter
of 11-27-87 to Unit
2 only)

Mr. S. A. White
Manager of Nuclear Power
Tennessee Valley Authority
6N 38A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

Dear Mr. White:

SUBJECT: DELETION OF REFERENCE TO MOTOR-OPERATED VALVES (MOVs) WITH
BYPASSED THERMAL OVERLOAD DEVICES AND OTHER MOVs (TAC 00141,
00142) (TS 87-29)

Re: Sequoyah Nuclear Plant, Units 1 and 2

The Commission has issued the enclosed Amendment No. 61 to Facility Operating License No. DPR-77 and Amendment No. 53 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 May 15, 1987, clarified by letter dated June 16, 1987.

The change revises Technical Specifications (TS) Table 3.8-2 to delete references to MOVs with bypassed TOL devices and MOVs which are no longer active. In addition, the change also adds MOVs previously omitted and corrects a typographical error in TS Table 3.8-2 for Unit 1.

NRC staff notes TVA's commitment to implement a Motor Operated Valve Analysis and Test System prior to the restart of Unit 2 and phase current monitoring of all MOVs during the next refueling outage of Unit 2 and prior to the restart of Unit 1.

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
John A. Zwolinski, Assistant Director
for Projects
TVA Projects Division
Office of Special Projects

Enclosures:

1. Amendment No. 61 to License No. DPR-77
2. Amendment No. 53 to License No. DPR-79
3. Safety Evaluation

cc w/enclosures:
See next page

Distribution

Docket File	BDLiaw	EGoodwin
NRC PDR	EJordan	OGC-Beth
Local PDR	GZech, RII	TBarnhart(8)
JAxelrad	JPartlow	Wanda Jones
SEbnetter	DHagan	SRichardson
GPA/PA	TRotella(2)	JZwolinski
ACRS(10)	CJamerson(2)	FMiraglia
EButcher	LFMB	Projects Rdg.
TVA-Bethesda		

OFFICIAL RECORD COPY

OST:TVA/LA

CJamerson

10/19/87

OSP:TVA/BN

TRotella

10/13/87

OGC-BETH

Barnhart

10/14/87

TVA:AD/P

JZwolinski

10/21/87



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

October 22, 1987

Docket Nos. 50-327/328

Mr. S. A. White
Manager of Nuclear Power
Tennessee Valley Authority
6N 38A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

Dear Mr. White:

SUBJECT: DELETION OF REFERENCE TO MOTOR-OPERATED VALVES (MOV)S WITH
BYPASSED THERMAL OVERLOAD DEVICES AND OTHER MOVs (TAC 00141,
00142) (TS 87-29)

Re: Sequoyah Nuclear Plant, Units 1 and 2

The Commission has issued the enclosed Amendment No. 61 to Facility Operating License No. DPR-77 and Amendment No. 53 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 May 15, 1987, clarified by letter dated June 16, 1987.

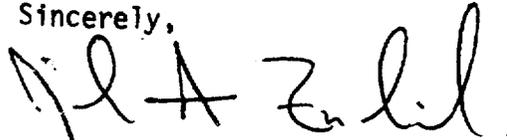
The change revises Technical Specifications (TS) Table 3.8-2 to delete references to MOVs with bypassed TOL devices and MOVs which are no longer active. In addition, the change also adds MOVs previously omitted and corrects a typographical error in TS Table 3.8-2 for Unit 1.

NRC staff notes TVA's commitment to implement a Motor Operated Valve Analysis and Test System prior to the restart of Unit 2 and phase current monitoring of all MOVs during the next refueling outage of Unit 2 and prior to the restart of Unit 1.

October 22, 1987

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,



John A. Zwolinski, Assistant Director
for Projects
TVA Projects Division
Office of Special Projects

Enclosures:

1. Amendment No. 61 to
License No. DPR-77
2. Amendment No. 53 to
License No. DPR-79
3. Safety Evaluation

cc w/enclosures:
See next page

Mr. S. A. White
Tennessee Valley Authority

Sequoyah Nuclear Plant

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

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

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

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

Mr. H. L. Abercrombie
Tennessee Valley Authority
Sequoyah Nuclear Plant
P.O. Box 2000
Soddy Daisy, Tennessee 37379

Mr. Richard King
c/o U.S. GAO
1111 North Shore Drive
Suite 225, Box 194
Knoxville, Tennessee 37919

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

Tennessee Department of
Public Health
ATTN: Director, Bureau of
Environmental Health Services
Cordell Hull Building
Nashville, Tennessee 37219

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

Mr. Michael H. Mobley, Director
Division of Radiological Health
T.E.R.R.A. Building
150 9th Avenue North
Nashville, Tennessee 37203

County Judge
Hamilton County Courthouse
Chattanooga, Tennessee 37402



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. 61
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 May 15, 1987, clarified on June 16, 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.

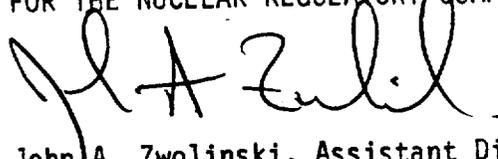
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-77 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 61, 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



John A. Zwolinski, Assistant Director
for Projects
TVA Projects Division
Office of Special Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance: October 22, 1987

ATTACHMENT TO LICENSE AMENDMENT NO. 61

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

IX

X

8-35

8-36

8-37

8-38

INSERT

IX

X

8-35

8-36

8-37

--

INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

<u>SECTION</u>	<u>PAGE</u>
3/4.7.5 ULTIMATE HEAT SINK.....	3/4 7-14
3/4.7.6 FLOOD PROTECTION.....	3/4 7-15
3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM.....	3/4 7-17
3/4.7.8 AUXILIARY BUILDING GAS TREATMENT SYSTEM.....	3/4 7-19
3/4.7.9 SNUBBERS.....	3/4 7-21
3/4.7.10 SEALED SOURCE CONTAMINATION.....	3/4 7-29
3/4 7.11 FIRE SUPPRESSION SYSTEMS	
Fire Suppression Water System.....	3/4 7-31
Spray and/or Sprinkler Systems.....	3/4 7-33
CO ₂ Systems.....	3/4 7-35
Fire Hose Stations.....	3/4 7-37
3/4.7.12 FIRE BARRIER PENETRATIONS.....	3/4 7-41
<u>3/4.8 ELECTRICAL POWER SYSTEMS</u>	
3/4.8.1 A.C. SOURCES	
Operating.....	3/4 8-1
Shutdown.....	3/4 8-8
3/4.8.2 ONSITE POWER DISTRIBUTION SYSTEMS	
A.C. Distribution - Operating.....	3/4 8-9
A.C. Distribution - Shutdown.....	3/4 8-10
D.C. Distribution - Operating.....	3/4 8-11
D.C. Distribution - Shutdown.....	3/4 8-14
3/4.8.3 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES	
Containment Penetration Conductor Overcurrent Protective Devices.....	3/4 8-15

INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

<u>SECTION</u>	<u>PAGE</u>
Motor Operated Valves Thermal Overload Protection.....	3/4 8-34
Isolation Devices.....	3/4 8-37
<u>3/4.9 REFUELING OPERATIONS</u>	
3/4.9.1 BORON CONCENTRATION.....	3/4 9-1
3/4.9.2 INSTRUMENTATION.....	3/4 9-2
3/4.9.3 DECAY TIME.....	3/4 9-3
3/4.9.4 CONTAINMENT BUILDING PENETRATIONS.....	3/4 9-4
3/4.9.5 COMMUNICATIONS.....	3/4 9-5
3/4.9.6 MANIPULATOR CRANE.....	3/4 9-6
3/4.9.7 CRANE TRAVEL - SPENT FUEL PIT AREA.....	3/4 9-7
3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION	
All Water Levels.....	3/4 9-8
Low Water Level.....	3/4 9-8a
3/4.9.9 CONTAINMENT VENTILATION ISOLATION SYSTEM.....	3/4 9-9
3/4.9.10 WATER LEVEL-REACTOR VESSEL.....	3/4 9-10
3/4.9.11 SPENT FUEL PIT WATER LEVEL.....	3/4 9-11
3/4 9.12 AUXILIARY BUILDING GAS TREATMENT SYSTEM.....	3/4 9-12
<u>3/4.10 SPECIAL TEST EXCEPTIONS</u>	
3/4.10.1 SHUTDOWN MARGIN.....	3/4 10-1
3/4.10.2 GROUP HEIGHT, INSERTION AND POWER DISTRIBUTION LIMITS.....	3/4 10-2
3/4.10.3 PHYSICS TESTS.....	3/4 10-3
3/4.10.4 REACTOR COOLANT LOOPS.....	3/4 10-4
3/4.10.5 POSITION INDICATION SYSTEM - SHUTDOWN.....	3/4 10-5

TABLE 3.8-2 (Continued)

MOTOR OPERATED VALVES THERMAL OVERLOAD PROTECTION

<u>Valve No.</u>	<u>Function</u>
1-FCV-1-15	Stm Supply to Aux FWP turbine
1-FCV-1-16	Stm Supply to Aux FWP turbine
1-FCV-1-17	Stm Supply to Aux FWP turbine
1-FCV-1-18	Stm Supply to Aux FWP turbine
1-FCV-62-138	Safe Shutdown Redundancy (CVCS)
1-FCV-63-1	ECCS Operation
1-FCV-63-3	SI Pump Mini-flow
1-FCV-63-4	SI Pump Mini-flow
1-FCV-63-5	ECCS Flow Path
1-FCV-63-6	ECCS Operation
1-FCV-63-7	ECCS Operation
1-FCV-63-8	ECCS Flow Path
1-FCV-63-11	ECCS Flow Path
1-FCV-63-22	ECCS Flow Path
1-FCV-63-47	Train Isolation
1-FCV-63-48	Train Isolation
1-FCV-63-72	ECCS Flow Path from Cont. Sump
1-FCV-63-73	ECCS Flow Path from Cont. Sump
1-FCV-63-93	ECCS Cooldown Flow Path
1-FCV-63-94	ECCS Cooldown Flow Path
1-FCV-63-152	ECCS Recirc
1-FCV-63-153	ECCS Recirc
1-FCV-63-156	ECCS Flow Path
1-FCV-63-157	ECCS Flow Path
1-FCV-63-172	ECCS Flow Path
1-FCV-63-175	SI Pump Mini-flow
1-FCV-67-123	CSS Ht Ex Supply
1-FCV-67-124	CSS Ht Ex Discharge
1-FCV-67-125	CSS Ht Ex Supply
1-FCV-67-126	CSS Ht Ex Discharge
1-FCV-67-146	CCW Ht Ex Throttling
0-FCV-67-205*	Turb Bldg Hdr Isolation
0-FCV-67-208*	Turb Bldg Hdr Isolation
0-FCV-70-1*	SFPCS Hx Throttle
0-FCV-70-11*	SFPCS Hx Throttle
1-FCV-70-153	RHR Hx Outlet Isolation
1-FCV-70-156	RHR Hx Outlet Isolation
0-FCV-70-193*	SFPCS Hdr Isolation
0-FCV-70-194*	SFPCS Hdr Isolation
0-FCV-70-197*	SFPCS Hdr Isolation
0-FCV-70-198*	SFPCS Hdr Isolation
0-FCV-70-206*	CDWE Isolation
1-FCV-70-207	CDWE Throttle
0-FCV-70-208*	CDWE Isolation
1-FCV-72-20	Cont. Spray Pump Suction
1-FCV-72-21	Cont. Spray Pump Suction

*Common for Units 1 and 2

TABLE 3.8-2 (Continued)

MOTOR OPERATED VALVES THERMAL OVERLOAD PROTECTION

<u>Valve No.</u>	<u>Function</u>
1-FCV-72-22	Cont. Spray Pump Suction
1-FCV-72-23	Cont. Spray Pump Suction
1-FCV-72-40	RHR Cont. Spray Isol.
1-FCV-72-41	RHR Cont. Spray Isol.
1-FCV-74-1	Open for Normal Plant Cooldown
1-FCV-74-2	Open for Normal Plant Cooldown
1-FCV-74-3	ECCS Operation
1-FCV-74-21	ECCS Operation
1-FCV-74-33	ECCS Operation
1-FCV-74-35	ECCS Operation

ELECTRICAL POWER SYSTEMS

ISOLATION DEVICES

LIMITING CONDITION FOR OPERATION

3.8.3.3 All circuit breakers actuated by fault currents that are used as isolation devices protecting IE busses from non qualified loads shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With one or more of the above required circuit breakers inoperable either:

- a. Restore the inoperable circuit breaker(s) to OPERABLE status within 8 hours, or
- b. Trip the inoperable circuit breaker(s), rack-out the circuit breaker(s) within 8 hours and verify the circuit breaker(s) to be racked out at least once per 7 days thereafter; the provisions of Specification 3.0.4 are not applicable to racked-out circuit breakers, or
- c. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.3.3 Each of the above required circuit breakers shall be demonstrated OPERABLE:

- a. At least once per 18 months by selecting and functionally testing a representative sample of at least 10% of each type of circuit breaker. Circuit breakers selected for functional testing shall be selected on a rotating basis. The functional test shall consist of injecting a current input at the specified setpoint to each selected circuit breaker or relay and verifying that each circuit breaker functions as designed. For each device found inoperable during these functional tests, an additional representative sample of at least 10% of each over current protection device of the inoperable type shall also be functionally tested until no more failures are found or all devices of that type have been functionally tested.
- b. At least once per 60 months by subjecting each circuit breaker to an inspection and preventive maintenance in accordance with procedures prepared in conjunction with its manufacturer's recommendations.



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. 53
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 May 15, 1987, clarifies on June 16, 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.

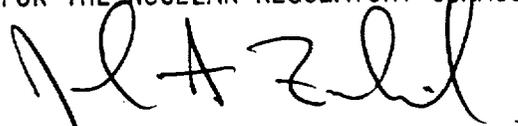
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-79 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 53, 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



John A. Zwolinski, Assistant Director
for Projects
TVA Projects Division
Office of Special Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance: October 22, 1987

ATTACHMENT TO LICENSE AMENDMENT NO. 53

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.

<u>REMOVE</u>	<u>INSERT</u>
IX	IX*
X	X
8-33	8-33*
8-34	8-34
8-35	8-35
8-36	8-36
8-37	--

INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

<u>SECTION</u>	<u>PAGE</u>
3/4.7.4	ESSENTIAL RAW COOLING WATER SYSTEM
	Essential Raw Cooling Water System..... 3/4 7-13
3/4.7.5	ULTIMATE HEAT SINK..... 3/4 7-14
3/4.7.6	FLOOD PROTECTION..... 3/4 7-15
3/4.7.7	CONTROL ROOM EMERGENCY VENTILATION SYSTEM..... 3/4 7-17
3/4.7.8	AUXILIARY BUILDING GAS TREATMENT SYSTEM..... 3/4 7-19
3/4.7.9	SNUBBERS..... 3/4 7-21
3/4.7.10	SEALED SOURCE CONTAMINATION..... 3/4 7-41
3/4 7.11	FIRE SUPPRESSION SYSTEMS
	Fire Suppression Water System..... 3/4 7-43
	Spray and/or Sprinkler Systems..... 3/4 7-45
	CO ₂ Systems..... 3/4 7-47
	Fire Hose Stations..... 3/4 7-48
3/4.7.12	FIRE BARRIER PENETRATIONS..... 3/4 7-52
<u>3/4.8</u>	<u>ELECTRICAL POWER SYSTEMS</u>
3/4.8.1	A.C. SOURCES
	Operating..... 3/4 8-1
	Shutdown..... 3/4 8-9
3/4.8.2	ONSITE POWER DISTRIBUTION SYSTEMS
	A.C. Distribution - Operating..... 3/4 8-10
	A.C. Distribution - Shutdown..... 3/4 8-11
	D.C. Distribution - Operating..... 3/4 8-12
	D.C. Distribution - Shutdown..... 3/4 8-15

INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

<u>SECTION</u>	<u>PAGE</u>
3/4.8.3 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES	
Containment Penetration Conductor Overcurrent Protective Devices.....	3/4 8-16
Motor Operated Valves Thermal Overload Protection.....	3/4 8-33
Isolation Devices.....	3/4 8-36
<u>3/4.9 REFUELING OPERATIONS</u>	
3/4.9.1 BORON CONCENTRATION.....	3/4 9-1
3/4.9.2 INSTRUMENTATION.....	3/4 9-3
3/4.9.3 DECAY TIME.....	3/4 9-4
3/4.9.4 CONTAINMENT BUILDING PENETRATIONS.....	3/4 9-5
3/4.9.5 COMMUNICATIONS.....	3/4 9-6
3/4.9.6 MANIPULATOR CRANE.....	3/4 9-7
3/4.9.7 CRANE TRAVEL - SPENT FUEL PIT AREA.....	3/4 9-8
3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION	
All Water Levels.....	3/4 9-9
Low Water Level.....	3/4 9-10
3/4.9.9 CONTAINMENT VENTILATION ISOLATION SYSTEM.....	3/4 9-11
3/4.9.10 WATER LEVEL - REACTOR VESSEL.....	3/4 9-12
3/4.9.11 WATER LEVEL - SPENT FUEL PIT.....	3/4 9-13
3/4 9.12 AUXILIARY BUILDING GAS TREATMENT SYSTEM.....	3/4 9-14
<u>3/4.10 SPECIAL TEST EXCEPTIONS</u>	
3/4.10.1 SHUTDOWN MARGIN.....	3/4 10-1
3/4.10.2 GROUP HEIGHT, INSERTION AND POWER DISTRIBUTION LIMITS.....	3/4 10-2
3/4.10.3 PHYSICS TESTS.....	3/4 10-3

ELECTRICAL POWER SYSTEMS

MOTOR OPERATED VALVES THERMAL OVERLOAD PROTECTION

LIMITING CONDITION FOR OPERATION

3.8.3.2: The thermal overload protection devices, integral with the motor starter, of each valve listed in Table 3.8-2 shall be OPERABLE.

APPLICABILITY: Whenever the motor operated valve is required to be OPERABLE.

ACTION:

With one or more of the thermal overload protection devices inoperable, declare the affected valve(s) inoperable and apply the ACTION Statement to the affected valve(s).

SURVEILLANCE REQUIREMENTS

4.8.3.2 The above required thermal overload protection devices shall be demonstrated OPERABLE:

- a. At least once per 18 months by the performance of a CHANNEL CALIBRATION of a representative sample of at least 25% of all thermal overload devices which are not bypassed, such that each non-bypassed device is calibrated at least once per 6 years.

TABLE 3.8-2 (Continued)

MOTOR OPERATED VALVES THERMAL OVERLOAD PROTECTION

<u>Valve No.</u>	<u>Function</u>
2-FCV-1-15	Stm Supply to Aux FWP turbine
2-FCV-1-16	Stm Supply to Aux FWP turbine
2-FCV-1-17	Stm Supply to Aux FWP turbine
2-FCV-1-18	Stm Supply to Aux FWP turbine
2-FCV-62-138	Safe Shutdown Redundancy (CVCS)
2-FCV-63-1	ECCS Operation
2-FCV-63-3	SI Pump Mini-flow
2-FCV-63-4	SI Pump Mini-flow
2-FCV-63-5	ECCS Flow Path
2-FCV-63-6	ECCS Operation
2-FCV-63-7	ECCS Operation
2-FCV-63-8	ECCS Flow Path
2-FCV-63-11	ECCS Flow Path
2-FCV-63-22	ECCS Flow Path
2-FCV-63-47	Train Isolation
2-FCV-63-48	Train Isolation
2-FCV-63-72	ECCS Flow Path from Cont. Sump
2-FCV-63-73	ECCS Flow Path from Cont. Sump
2-FCV-63-93	ECCS Cooldown Flow Path
2-FCV-63-94	ECCS Cooldown Flow Path
2-FCV-63-152	ECCS Recirc
2-FCV-63-153	ECCS Recirc
2-FCV-63-156	ECCS Flow Path
2-FCV-63-157	ECCS Flow Path
2-FCV-63-172	ECCS Flow Path
2-FCV-63-175	SI Pump Mini-flow
2-FCV-67-123	CSS Ht Ex Supply
2-FCV-67-124	CSS Ht Ex Discharge
2-FCV-67-125	CSS Ht Ex Supply
2-FCV-67-126	CSS Ht Ex Discharge
2-FCV-67-146	CCW Ht Ex Throttling
0-FCV-67-205*	Turb Bldg Hdr Isolation
0-FCV-67-208*	Turb Bldg Hdr Isolation
0-FCV-70-1*	SFPCS Hx Throttle
0-FCV-70-11*	SFPCS Hx Throttle
2-FCV-70-153	RHR Hx Outlet Isolation
2-FCV-70-156	RHR Hx Outlet Isolation
0-FCV-70-193*	SFPCS Hdr Isolation
0-FCV-70-194*	SFPCS Hdr Isolation
0-FCV-70-197*	SFPCS Hdr Isolation
0-FCV-70-198*	SFPCS Hdr Isolation
0-FCV-70-206*	CDWE Isolation
2-FCV-70-207	CDWE Throttle
0-FCV-70-208*	CDWE Isolation
2-FCV-72-20	Cont. Spray Pump Suction
2-FCV-72-21	Cont. Spray Pump Suction

*Common for Units 1 and 2

TABLE 3.8-2 (Continued)

MOTOR OPERATED VALVES THERMAL OVERLOAD PROTECTION

<u>Valve No.</u>	<u>Function</u>
2-FCV-72-22	Cont. Spray Pump Suction
2-FCV-72-23	Cont. Spray Pump Suction
2-FCV-72-40	RHR Cont. Spray Isol.
2-FCV-72-41	RHR Cont. Spray Isol.
2-FCV-74-1	Open for Normal Plant Cooldown
2-FCV-74-2	Open for Normal Plant Cooldown
2-FCV-74-3	ECCS Operation
2-FCV-74-21	ECCS Operation
2-FCV-74-33	ECCS Operation
2-FCV-74-35	ECCS Operation

ELECTRICAL POWER SYSTEMS

ISOLATION DEVICES

LIMITING CONDITION FOR OPERATION

3.8.3.3 All circuit breakers actuated by fault currents that are used as isolation devices protecting IE busses from non qualified loads shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With one or more of the above required circuit breakers inoperable either:

- a. Restore the inoperable circuit breaker(s) to OPERABLE status within 8 hours, or
- b. Trip the inoperable circuit breaker(s), rack-out the circuit breaker(s) within 8 hours and verify the circuit breaker(s) to be racked out at least once per 7 days thereafter; the provisions of Specification 3.0.4 are not applicable to racked-out circuit breakers, or
- c. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.3.3 Each of the above required circuit breakers shall be demonstrated OPERABLE:

- a. At least once per 18 months by selecting and functionally testing a representative sample of at least 10% of each type of circuit breaker. Circuit breakers selected for functional testing shall be selected on a rotating basis. The functional test shall consist of injecting a current input at the specified setpoint to each selected circuit breaker or relay and verifying that each circuit breaker functions as designed. For each device found inoperable during these functional tests, an additional representative sample of at least 10% of each over current protection device of the inoperable type shall also be functionally tested until no more failures are found or all devices of that type have been functionally tested.
- b. At least once per 60 months by subjecting each circuit breaker to an inspection and preventive maintenance in accordance with procedures prepared in conjunction with its manufacturer's recommendations.



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

SAFETY EVALUATION BY THE OFFICE OF SPECIAL PROJECTS
SUPPORTING AMENDMENT NO. 61 TO FACILITY OPERATING LICENSE NO. DPR-77
AND AMENDMENT NO. 53 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

This safety evaluation addresses proposed change TVA SQN-TS-87-29 to Sequoyah Technical Specifications, Units 1 and 2, Section 3.8.3.2. The change involves deleting and adding specific motor-operated valves (MOV) from those requiring periodic surveillance testing of their thermal overload (TOL) protective devices. In a submittal dated May 15, 1987, supplemented by a submittal dated June 16, 1987, Tennessee Valley Authority (TVA) proposed deletion of three categories of MOV and the addition of one category to table 3.8-2 of the Sequoyah Technical Specifications. Section 3.8.3.2 of the Technical Specifications require that TOL devices for the valves specified in the table be operable, that the operability of the TOL device be demonstrated periodically, and that the associated valve be declared inoperable when the TOL of the motor operator is found to be inoperable. The individual categories of MOV affected by the proposed Technical Specification change are as follows:

- (1) MOV's whose TOL device is to be permanently bypassed and therefore to be deleted from the table (Attachment 1 to 6/16/87 submittal).
- (2) MOV's no longer required to be active (to change state in normal operation or during accidents) as a result of changes in procedures or system configurations arising out of compliance with Appendix R and therefore to be deleted from the table (Attachment 2 to 6/16/87 submittal).
- (3) Valves not required to change state to prevent or mitigate an accident; consequently not required to be tested under ASME Code, Part III, Section 11 and therefore deleted from the table (Attachment 3 to 6/16/87 submittal).
- 4) Valves with TOL devices required to be operable and inadvertently omitted from the technical specifications (Attachment 4 to 6/16/87 submittal).

2.0 EVALUATION

2.1. MOV's with Bypassed Overload Devices

During an ongoing review of electrical calculations, TVA discovered that the original voltage drop calculations for Sequoyah's electrical system did not take into account the voltage drop at motor operators caused by the TOL device in series with the individual motor. When this effect was considered, the recalculated motor terminal voltage was unacceptably low during certain transient loading conditions following an accident. To correct the situation, TVA proposes to bypass permanently the TOL devices for the affected valves.

TVA notes as justification, NRC's Regulatory Guide 1.106 which in paraphrase states that (1) TOL devices should be either a) continuously bypassed except during testing or b) bypassed under accident conditions with a device conforming to IEEE-279 or (2) TOL devices be set with all uncertainties resolved in the direction of completing the safety action, i.e., set high, and periodically tested. TVA further states that, given the high set point on the TOL devices being bypassed, i.e., locked rotor current, there is little benefit to reinserting the TOL devices during valve operation for testing or maintenance.

The TOL device provides two functions:

- (1) It protects the motor in a locked rotor condition.
- (2) It may detect by tripping during test progressive deterioration of the valve or operator.

TVA has reanalyzed the circuit breakers associated with the motors to assure they will provide locked rotor protection and where necessary has replaced breakers; thus TVA addressed the first function. TVA has instituted a motor operated valves analysis and test system (MOVATS), a program developed by the utility industry with NRC input to detect deterioration. Further, at the next refueling outage TVA will implement a periodic maintenance procedure that will measure all phase currents of the MOV's during testing. This procedure provides a second means to detect defects in motor operator or valve. The combination of these latter two programs addresses the second function.

A review by the NRC staff and its consultant of these programs supports TVA's conclusions that the MOV's are adequately protected against electrical fault or locked rotor without the TOL device and that bypassing of the TOL device will not degrade system or plant safety. Further, the MOVATS program will provide an equivalent and - with the addition of periodic phase current measurement - a superior means of detecting mechanical or electrical degradation of the motor operator or valve. Therefore, the MOVATS program provides a reasonable justification for not removing the bypass feature during periodic testing. The possibility that the TOL devices would detect electrical damage during testing or maintenance, during the development period of the phase current monitoring, resulting in fault currents that would not trip the feeder breaker, is considered too remote to require removal of the bypass.

2.2 MOV's Deleted to Comply with 10 CFR Part 50, Appendix R

A total of 10 valves are deenergized at the switchboard to conform to Appendix R requirements. The only time they will normally be energized is momentarily for position indication. If for any reason the valves are energized for over an hour, a fire watch will be stationed. Therefore, TVA proposes deleting the TOL devices for these valve operators from the operability test requirement. The NRC staff and its consultant concur.

2.3 Valves not Required to Operate to Mitigate Accidents

Section XI of the ASME Code, Part III requires operability testing of valves required to change position to mitigate an accident. This operability testing requirement includes testing of the TOL. A review by TVA has identified 16 valves previously included in this category that are actually not required to change position. Eight are safety injection accumulator valves which are required by procedure to be deenergized at the switchboard in an open position during operation. Eight more are valves in the Essential Raw Cooling Water and Component Cooling systems which do not change position during the accident and are used to provide flexibility in operation or maintenance. The staff and its consultant agree that these valves, not being required to change position in an accident, need not have an operability test requirement for their TOL devices.

2.4 Additional Valves

TVA has identified 20 additional valves which, since they are required to operate for accident prevention or mitigation, need to have their TOL devices added to the list in the Technical Specifications. This is acceptable to NRC staff.

3.0 ENVIRONMENTAL CONSIDERATION

The amendments involve changes to requirements 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 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 the 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 the amendments.

4.0 CONCLUSION

Based on reviews by the staff and its consultants, the staff concurs in the deletions and additions to Table 3.8-2 of the Technical Specifications. The NRC staff notes TVA's commitment to implement a MOVATS program prior to restart of unit 2 and implement phase current monitoring of all MOV's (both those covered by the EQ program and those not covered) during the next refueling outage of Unit 2 and prior to restart of Unit 1.

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be 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: Edward F. Goodwin, Thomas S. Rotella

Dated: October 22, 1987