

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. 63 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 22, 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.

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- 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. 63 , 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

Mira X Gol

Gary G. Zech, /ssistant Director for Projects TVA Projects Division Office of Special Projects

Attachment: Changes to the Technical Specifications

Date of Issuance: December 31, 1987

ATTACHMENT TO LICENSE AMENDMENT NO. 63

FACILITY OPERATING LICENSE NO. DPR-77

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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.

REM	OVE	INSERT	
3/4 3/4 3/4 3/4 3/4 3/4 3/4 3/4 3/4 3/4	3-11 3-12 3-15 3-16 3-17 3-18 3-19 3-20 3-21a 3-22 3-23 3-24 3-25 3-26 3-28 3-31 3-32 3-35	INSERT 3/4 3-11* 3/4 3-12 3/4 3-15* 3/4 3-16 3/4 3-17 3/4 3-18* 3/4 3-18* 3/4 3-20* 3/4 3-20* 3/4 3-21a 3/4 3-22 3/4 3-22 3/4 3-25* 3/4 3-26 3/4 3-31 3/4 3-32* 3/4 3-35*	
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TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

H - HNIT	FUN	TIONAL UNIT	CHANNEL CHANNEL CHECK CALIBRATION		CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
2	1.	Manual Reactor Trip	N. A.	N. A.	S/U(1) and R(9)	1, 2, and *
	2.	Power Range, Neutron Flux	S	D(2), M(3) and Q(6)		1, 2
	3.	Power Range, Neutron F'ux, High Positive Rate	N.A.	R(6)	Q	1, 2
	4.	Power Range, Neutron Flux, High Negative Rate	N. A.	R(6)	Q	1, 2
2/4	5.	Intermediate Range, Neutron Flux	S	R(6)	S/U(1)	1, 2, and *
2	6.	Source Range, Neutron Flux	\$(7)	R(6) M	1 and S/U(1)	2, 3, 4, 5, and *
-	7.	Overtemperature Delta T	S	R	м	1, 2
	8.	Overpower Delta T	S	R	м	1, 2
	9.	Pressurizer PressureLow	S	R	Q	1, 2
	10.	Pressurizer PressureHigh	S	R	ŋ	1, 2
	11.	Pressurizer Water LevelHigh	S	R	Q	1, 2
	12.	Loss of Flow - Single Loop	S	R	0	1
	13.	Loss of Flow - Two Loops	S	R	N.A.	1
Amenda	14.	Main Steam Generator Water LevelLow-Low	S	R	Q	1, 2

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FUN	CTIONAL UNIT	CHANNEL	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
15.	Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	S	R	Q	1, 2
16.	Undervoltage - Reactor Coolant Pumps	N.A.	R	м	1
17.	Underfrequency - Reactor Coolant Pumps	N.A.	R	м	1
18.	Turbine Trip A. Low Fluid Oil Pressure B. Turbine Stop Valve Closure	N.A. N.A.	N. A. N. A.	S/U(1) S/U(1)	1 1
19.	Safety Injection Input from ESF	N. A.	N. A.	M(4)	1, 2
20.	Reactor Trip Breaker	N.A.	N. A.	M(5) and S/U(1) 1, 2, and
21.	Automatic Trip Logic	N.A.	N. A.	M(5)	1, 2, and
22.	Reactor Trip System Interlocks A. Intermediate Range Neutron Flux, P-6	Ν.Α.	R	S/U(8)	2, and *
	B. Power Range Neutron Flux, P-7	N.A.	R	S/U(8)	1
	C. Power Range Neutron Flux, P-8	N.A.	R	S/U(8)	1
	D. Power Range Neutron Flux, P-10	N.A.	R	S/U(8)	1, 2
	E. Turbine Impulse Chamber Pressure, P-13	N.A.	R	S/U(8)	1
	F. Power Range Neutron Flux, P-9	N.A.	R	S/U(8)	1
	G. Reactor Trip, P-4	N.A.	N. A.	S/U(8)	1, 2, and
23.	Reactor Trip Bypass Breaker	N.A.	N.A.	M(10)R(11)	1, 2, and
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TABLE 3.3-3

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FI	UNC	TIONA	<u>AL UNIT</u>	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1	•		TY INJECTION, TURBINE WATER ISOLATION	TRIP AND				
		a.	Manual Initiation	2	1	2	1, 2, 3, 4	20
		b.	Automatic Actuation Logic	2	1	2	1, 2, 3, 4	15
		с.	Containment Pressure-High	3	2	2	1, 2, 3	16*
		d.	Pressurízer Pressure - Low	3	2	2	1, 2, 3#	16*
		e.	Differential Pressure Between Steam Lines - High				1, 2, 3	
			Four Loops Operating	3/steam line	2/steam line any steam line	2/steam iine		16*
		f.	Steam Flow in Two Steam Lines-High				1, 2, 3##	
			Four Loops Operating	2/steam line	<pre>1/steam line any 2 steam lines</pre>	1/steam line		16*

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FUNC	TIONA	LUNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTI
COIN	CIDEN	T WITH EITHER Tavg ^{Low-Low}				1, 2, 3 ^{##}	
		Four Loops Operating	1 T _{avg} /loop	2 T _{avg} any loops	1 T _{avg} any 3 loops		16*
OR, I		IDENT WITH m Line Pressure-Low				1, 2, 3##	
		Loops ating	1 pressure/ loop	2 pressures any loops	1 pressure any 3 loops		16*
2.	CONT	AINMENT SPRAY					
	a.	Manual	2	1*	2	1, 2, 3, 4	20
	b.	Automatic Actuation Logic	2	1	2	1, 2, 3, 4	15
	с.	Containment Pressure High-High	4	2	3	1, 2, 3	18
3.	CONT	AINMENT ISOLATION					
	a.	Phase "A" Isolation 1) Manual	2	1	2	1, 2, 3, 4	20
		 From Safety Inject Automatic Actuatic Logic 		1	2	1, 2, 3, 4	15

*Two switches must be operated simultaneously for actuation.

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ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNCTION	AL UN	11	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
b.	Pha	se "B" Isolation					
	1) 2)	Manual Automatic Actuation Logic	2 2	1^{*}_{1}	2 2	1, 2, 3, 4 1, 2, 3, 4	20 15
	3)	Containment Pressure-High-High	4	2	3	1, 2, 3	18
с.		tainment Ventilation lation					
	1)	Manua 1	2	1	2	1, 2, 3, 4	19
	2)	Automatic Isolation Logic	2	1	2	1, 2, 3, 4	15
	3)	Containment Gas Ronitor Radioactivi	2 ty-High	1	1	1, 2, 3, 4	19
	4)	Containment Purge Air Exhaust Monitor Radioactivity-High	2	1	1	1, 2, 3, 4	19
	5)	Containment Particu late Activity High	- 2	1	1	1, 2, 3, 4	19

*Two switches must be operated simultaneously for actuation.

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUN	CTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
4.	STEAM LINE ISOLATION					
	a. Manual	1/steam line	1/steam line	1/operating steam line	1, 2, 3	25
	 Automatic Actuation Logic 	2	1	2	1, 2, 3	23
	c. Containment Pressure High-High	4	2	3	1, 2, 3	18
	d. Steam Flow in Two Steam LinesHigh				1, 2, 3	
	Four Loops Operating	2/steam line	l/steam line any 2 steam lines	1/steam line		16*
	COINCIDENT WITH EITHER TavgLow-Low Four Loops Operating	1 T _{avg} /loop	2 T avg any loop	1 T any 3100ps	1, 2, 3	16*
OR,	COINCIDENT WITH Stear Line Pressive- Low				1, 2, 3	
	Four Loops Operating	l pressure/ loop	2 pressures any loops	1 pressure any 3 loops		16*

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ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

SEQUOYAH			ENGINEE	RED SAFETY FEAT	UNE ACTUATION ST	STEPT INSTRUMEN	TATION	
AH - UNIT	FUN	CTION	AL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1	5.		BINE TRIP & DWATER ISOLATION					
		a.	Steam Generator Water Level High-High	3/loop	2/loop in any oper- ating loop	2/loop in each oper- ating loop	1, 2, 3	16*
		b.	Automatic Actuation Logic	2	1	2	1, 2, 3	23
3/4	6.	AUX	ILIARY FEEDWATER					
3-19		а.	Manual Initiation	2	1	2	1, 2, 3	24
		b.	Automatic Actuation Logic	2	1	2	1, 2, 3	23
		с.	Main Stm. Gen. Water Level-Low-Low					
Amer			i. Start Motor Driven Pumps	3/stm. gen.	2/stm. gen. any stm gen.	2/stm. gen.	1, 2, 3	16*
Amendment No.			ii. Start Turbine- Driven Pump	3/stm. gen.	2/stm. gen. any 2 stm. ge	2/stm. gen n.	1, 2, 3	16*
5. 41 , 63		d.	S.I. Start Motor-Driven Pumps and Turbine Driven Pump		all S.I. initia			

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONA	AL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
e.	Station Blackout Start Motor-Driven Pump associated with the shutdown board and Turbine Driven Pump	2/shutdown board	1/shutdown board	2/shutdown board	1, 2, 3	20
f.	Trip of Main Feedwater Pumps Start Motor-Driven Pumps and Turbine Driven Pump	1/pump	1/pump	1/pump	1, 2	20*
g.	Auxiliary Feedwater Suction Pressure-Low	3/pump	2/pump	2/pump	1, 2, 3	20*
**7. LOSS	OF POWER					
a.	6.9 kv Shutdown Board Loss of Voltage					
	1. Start Diesel Generators	2/shutdown board	l loss of voltage on any shutdown board	2/shutdown board	1, 2, 3, 4	20*
	2. Load Shedding	2/shutdown board	l/shutdown board	2/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.

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ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNC	TION	AL_UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
8.		INEERED SAFETY FEATURE UATION SYSTEM INTERLOCKS					
	a.	Pressurizer Pressure - Not P-il	3	2	2	1, 2, 3	22a
	b.	Tavg - P-12	4	2	3	1, 2, 3	22b
	с.	Steam Generator Level P-14	3/loop	2/loop any loop	3/loop	1, 2	22c
9.		DMATIC SWITCHOVER TO TAINMENT SUMP					
	a.	RWST Level - Low COINCIDENT WITH Containment Sump	4	2	3	1, 2, 3, 4	18
		Level - High AND	4	2	3	1, 2, 3, 4	18
		Safety Injection	(See 1 above	for Safety Inj	jection Requirem	ments)	
	b.	Automatic Actuation Logic	2	1	2	1, 2, 3, 4	15

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TABLE NOTATION

"Trip function may be bypassed in this MODE below P-11 (Pressurizer Pressure ##Block of Safety Injection) setpoint.

##Trip function may be bypassed in this MODE below P-12 (T avg Block of Safety Injection) setpoint.

The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped mode.

The provisions of Specification 3.0.4 are not applicable.

ACTION STATEMENTS

- ACTION 15 With the number of OPERABLE Channels one less than the Total Number of Channels, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1 provided the other channel is OPERABLE.
- ACTION 16 With the number of OPERABLE Channels one less than the Total Number of Channels, operation may proceed until performance of the next required CHANNEL FUNCTIONAL TEST, provided the inoperable channel is placed in the tripped condition within 1 hour.
- ACTION 17 With a channel associated with an operating loop inoperable, restore the inoperable channel to OPERABLE status within 2 hours or be in at least HOT SHUTDOWN within the following 12 hours; however, one channel associated with an operating loop may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.
- ACTION 18 With the number of OPERABLE Channels one less than the Total Number of Channels, operation may proceed provided the inoperable channel is placed in the bypassed condition and the Minimum Channels OPERABLE requirement is demonstrated within 1 hour; one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.
- ACTION 19 With less than the Minimum Channels OPERABLE, operation may continue provided the containment ventilation isolation valves are maintained closed.
- ACTION 20 With the number of OPERABLE Channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

- ACTION 21 With the number of OPERABLE Channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:
 - a. The inoperable channel is placed in the tripped condition within 1 hour.
 - b. The Minimum Channels OPERABLE requirements is met; however, one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.
- ACTION 22 With less than the Minimum Number of Channels OPERABLE, declare the interlock inoperable and verify that all affected channels of the functions listed below are OPERABLE or apply the appropriate ACTION statement(s) for those functions. Functions to be evaluated are:
 - a. Safety Injection Pressurizer Pressure
 - b. Safety Injection High Steam Line Flow Steam Line Isolation High Steam Line Flow Steam Dump
 - c. Turbine Trip Steam Generator Level High-High Feedwater Isolation Steam Generator Level High-High
- ACTION 23 With the number of OPERABLE channels one less than the Total Number of Channels, be in at least HOT STANDBY within 6 hours and in at least HOT SHUTDOWN within the following 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.
- ACTION 24 With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within 6 hours and in at least HOT SHUTDOWN within the following 6 hours.
- ACTION 25 With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or declare the associated valve inoperable and take the ACTION required by Specification 3.7.1.5.

TABLE 3.3-4

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT

TRIP SETPOINT

ALLOWABLE VALUES

- SAFETY INJECTION, TURBINE TRIP AND FEEDWATER ISOLATION
 - a. Manual Initiation
 - b. Automatic Actuation Logic
 - c. Containment Pressure--High
 - d. Pressurizer Pressure--Low
 - e. Differential Pressure Between Steam Lines--High
 - f. Steam Flow in Two Steam Lines--High Coincident with Tavg or Steam Line Pressure--Low
- Not ApplicableNot ApplicableNot ApplicableNot Applicable $\leq 1.54 \text{ psig}$ $\leq 1.7 \text{ psig}$ $\geq 1870 \text{ psig}$ $\geq 1860 \text{ psig}$ $\leq 100 \text{ psi}$ $\leq 112 \text{ psi}$

< A function defined as follows: A Δp corresponding to 40% of full steam flow between 0% and 20% load and then a Δp increasing linearly to a Δp corresponding to 110% of full steam flow at full load

 $T_{avg} \ge 540^{\circ}F$ $\ge 600 \text{ psig steam line}$ pressure < A function defined as follows: A Δp corresponding to 44% of full steam flow between 0% and 20% load and then a Δp increasing linearly to a Δp corresponding to 111.5% of full steam flow at full load

 $T_{avg} \ge 538^{\circ}F$ $\ge 580 \text{ psig steam line}$ pressure

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1.

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNC	TION	AL UNIT	TRIP SETPOINT	ALLOWABLE VALUES			
2.	CONT	TAINMENT SPRAY					
	a.	Manual Initiation	Not Applicable	Not A _L licable			
	b.	Automatic Actuation Logic	Not Applicable	Not Applicable			
	с.	Containment PressureHigh-High	2.81 psig	< 2.97 psig			
3.	CONTAINMENT ISOLATION						
	a.	Phase "A" Isolation					
		1. Manual	Not Applicable	Not Applicable			
		 From Safety Injection Automatic Actuation logic 	Not Applicable	Not Applicable			
	b.	Phase "B" Isolation					
		1. Manual	Not Applicable	Not Applicable			
		2. Automatic Actuation Logic	Not Applicable	Not Applicable			
		3. Containment PressureHigh-High	2.81 psig	<pre>< 2.97 psig</pre>			
	C.	Containment Ventilation Isolation					
		1. Manual	Not Applicable	Not Applicable			
		2. Automatic Isolation Logic	Not Applicable	Not Applicable			

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ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNC	CTION	ALUNIT	TRIP SETPOINT	ALLOWABLE VALUES
		 Containment Gas Monitor Radioactivity-High 	\leq 8.5 x 10 ⁻³ µCi/cc	\leq 8.5 x 10 ⁻³ µCi/cc
		 Containment Purge Air Exhaust Monitor Radioactivity-High 	\leq 8.5 x 10 ⁻³ µCi/cc	\leq 8.5 x 10 ⁻³ µCi/cc
		 Containment Particulate Activity-High 	\leq 1.5 x 10 ⁻⁵ µCi/cc	\leq 1.5 x 10 ⁻⁵ µCi/cc
4.	STE	AM LINE ISOLATION		
	a.	Manual	Not Applicable	Not Applicable
	b.	Automatic Actuation Logic	Not Applicable	Not Applicable
	с.	Containment PressureHigh-High	2.81 psig	< 2.97 psig
	d.	Steam Flow in Two Steam lines High Coincident with TLow-Low Or Steam Line Pressure-Low	\leq A function defined as follows: A Δp correspond- ing to 40% of full steam flow between 0% and 20% load and then a Δp increasing linearly to a Δp corresponding to ll0% of full steam flow at full load.	\leq A function defined as follows: A Δp corresponding to 44% of full steam flow between 0% and 20% load and then a Δp increasing linearly to a Δp correspond- ing to 111.5% of full steam flow at full load
			$T_{avg} \ge 540^{\circ}F$	$T_{avg} \ge 538^{\circ}F$
			> 600 psig steam line pressure	> 580 psig steam Tine pressure
5.	TUR	BINE TRIP AND FEEDWATER ISOLATION		
	a.	Steam Generator Water level High-High	<pre>< 75% of narrow range instrument span each steam generator</pre>	< 76% of narrow range instrument span each steam generator
	b.	Automatic Actuation Logic	N.A.	N. A.

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ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS FUNCTIONAL UNIT TRIP SETPOINT ALLOWABLE VALUES ENGINEERED SAFETY FEATURE ACTUATION 8. SYSTEM INTERLOCKS (Continued) Tavg b. Prevents Manual Block of Safety Injection P-12 < 540°F < 542°F Tavg С. Manual Block of Safety Injection, Steam Line Isolation, Block Steam Dump > 540°F > 538°F Steam Generator Level d. Turbine Trip, Feedwater Isolation P-14 (See 5. above) 9. AUTOMATIC SWITCHOVER TO CONTAINMENT SUMP RWST Level - Low 130" from tank base 130" ± 4" from tank base a. COINCIDENT WITH Containment Sump Level - High 30" above elev. 680' 30" ± 2.5" above elev. 680' AND Safety Injection (See 1 above for all Safety Injection Setpoints/Allowable Valves) Automatic Actuation Logic b. N.A. N.A.

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ENGINEERED SAFETY FEATURES RESPONSE TIMES

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

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ENCINEERED SAFETY FEATURES RESPONSE TIMES

.0.	Station Blackout	
	a. Auxiliary Feedwater Pumps	<u> </u>
1.	Trip of Main Feedwater Pumps	
	a. Auxiliary Feedwater Pumps	≤ 60
12.	Loss of Power	
	a. 6.9 kv Shutdown Board - Degraded Voltage or Loss of Voltage	< 10 ⁽¹⁰⁾
3.	RWST Level-Low Coincident with Containment S	ump
	Level-High and Safety Injection	
	a. Automatic Switchover to	
	Containment Sump	<u><</u> 250
ı.	Containment Purge Air Exhaust	
	Radioactivity - High	
	a. Containment Ventilation Isolation	< 10 ⁽⁶⁾
	Containment Gas Monitor	
	Radioactivity High	
	a. Containment Ventilation Isolation	< 10 ⁽⁶⁾
	Containment Particulate Activity High	
	a. Containment Ventilation Isolation	< 10 ⁽⁶⁾
NOTE	: This technical specification to be implem the second refueling outage or following whichever is earlier.	ented at the startup follow

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ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUN	FUNCTIONAL UNIT			CHANNEL CHANNEL F CHECK CALIBRATION		CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED	
3.	CON	ONTAINMENT ISOLATION						
	a.	Pha	ase "A" Isolation					
		1)	Manua 1	N.A.	N. A.	R	1, 2, 3, 4	
		2)	From Safety Injection Automatic Actuation Logic	Ν.Α.	N.A.	M(1)	1, 2, 3, 4	
	b.	. Phase "B" Isolation						
		1)	Manua 1	N.A.	N.A.	R	1, 2, 3, 4	
		2)	Automatic Actuation Logic	Ν.Α.	Ν.Α.	M(1)	i, 2, 3, 4	
		3)	Containment Pressure High-High	S	R	Q	1, 2, 3	
	с.	Con	ntainment Ventilation Isolat	ion				
		1)	Manua 1	N.A.	N.A.	R	1, 2, 3, 4	
		2)	Automatic Isolation Logic	N.A.	N. A.	M(1)	1, 2, 3, 4	
		3)	Containment Gas Monitor Radioactivity-High	S	R	м	1, 2, 3, 4	

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Amendment No. 47

SEQUOYAH			M INSTRUMENTATIO	DN				
YAH - UNIT	FUNCTIONAL UNIT			INIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
1 1		 Containment Purge Air Exhaust Monitor Radio- activity-High 		S	R	Ν	1, 2, 3, 4	
			5)	Containment Particulate Activity-High	S	R	М	1, 2, 3, 4
	4.	STEAM LINE ISOLATION						
		a.	Man	ual	Ν.Α.	N. A.	R	1, 2, 3
3/4		b.	Aut	omatic Actuation Logic	N.A.	N. A.	M(1)	1, 2, 3
3-36		C.		tainment Pressure h-High	S	R	Q	1, 2, 3
		d.	Lin T _{av}	am Flow in Two Steam desHigh Coincident with gLow-Low or Steam Line essureLow	S	R	Q	1, 2, 3
_	5.	TURBINE TRIP AND FEEDWATER						
Amendment		a.		eam Generator Water elHigh-High	S	R	Q	1, 2, 3
lent		b.	Aut	omatic Actuation Logic	N. A.	N. A.	M(1)	1, 2, 3
No.	6.	AU)	ILIA	RY FEEDWATER				
. 47	*	a.	Man	lual	N.A.	N.A.	R	1, 2, 3
6		b.	Aut	omatic Actuation Logic	N. A.	N.A.	M(1)	1, 2, 3

Amendment No. 47, 63

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUN	CTIONA	AL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
8.		NEERED SAFETY FEATURE DATION SYSTEM INTERLOCKS				
		Pressurizer Pressure, P-11	Ν.Α.	R(2)	N. A.	1, 2, 3
	b.	T _{avg} , P-12	N.A.	R(2)	N.A.	1, 2, 3
	с.	Steam Generator Level, P-14	Ν.Α.	R(2)	N.A.	1, 2
9.		MATIC SWITCHOVER TO AINMENT SUMP				
		RSWT Level - Low COINCIDENT WITH	S	R	М	1, 2, 3, 4
		Containment Sump Level - High AND	S	R	М	1, 2, 3, 4
		Safety Injection	(See 1 at	bove for all Safe	ety Injection S	urveillance Requirements)
	b.	Automatic Actuation Logic	N. A.	N. A.	M(1)	1, 2, 3, 4

SEQUOYAH - UNIT 1

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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. 55 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 22, 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.

- 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 Tachnical Specifications contained in Appendices A and B, as revised through Amendment No. 55, 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

Harry S. Ser-

Gary G. Zech, Assistant Director for Projects TVA Projects Division Office of Special Projects

Attachment: Changes to the Technical Specifications

Date of Issuance: December 31, 1987

ATTACHMENT TO LICENSE AMENDMENT NO. 55

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	INSERT
3/4 3-11 3/4 3-12 3/4 3-17 3/4 3-18 3/4 3-19 3/4 3-20 3/4 3-21a 3/4 3-22 3/4 3-23 3/4 3-23 3/4 3-25 3/4 3-26 3/4 3-28 3/4 3-31	3/4 3-11* 3/4 3-12 3/4 3-17 3/4 3-18* 3/4 3-19 3/4 3-20* 3/4 3-21a 3/4 3-22 3/4 3-23 3/4 3-23 3/4 3-24* 3/4 3-25* 3/4 3-26 3/4 3-28 3/4 3-31
3/4 3-32 3/4 3-35	3/4 3-32* 3/4 3-35*
3/4 3-36 3/4 3-37	3/4 3-36 3/4 3-37*
3/4 3-37a	
3/4 3-38	3/4 3-38

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT		CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED		
1.	Manual Reactor Trip	N.A.	N. A.	S/U(1)and R(9)	1, 2, and *		
2.	Power Range, Neutron Flux	S	D(2), M(3) and Q(6)	Q	1, 2		
3.	Power Range, Neutron Flux, High Positive Rate	Ν.Α.	R(6)	Q	1, 2		
4.	Power Range, Neutron Flux, High Negative Rate	Ν.Α.	R(6)	Q	1, 2		
5.	Intermediate Range, Neutron Flux	S	R(6)	S/U(1)	1, 2, and *		
6.	Source Range, Neutron Flux	S(7)	R(6)	M and S/U(1)	2, 3, 4,		
7.	Overtemperature ΔT	S	R	м	5, and * 1, 2		
8.	Overpower ΔT	S	R	м	1, 2		
9.	Pressurizer PressureLow	S	R	Q	1, 2		
10.	Pressurizer PressureHigh	S	R	Q	1, 2		
11.	Pressurizer Water LevelHigh	5	R	Q	1, 2		
12.	Loss of Flow - Single Loop	S	R	Q	1		
13.	Loss of Flow - Two Loops	S	R	N.A.	1		
14.	Steam Generator Water Level Low-Low	S	R	Q	1, 2		

SEQUOYAH - UNIT 2

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REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT		CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED	
15.	Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	S	R	Q	1, 2	
16.	Undervoltage - Reactor Coolant Pumps	N.A.	R	м	1	
17.	Underfrequency - Reactor Coolant Pumps	N.A.	R	М	1	
18.	Turbine Trip					
	A. Low Fluid Oil Pressure	N.A.	N.A.	S/U(1)	1	
	B. Turbine Stop Valve Closure	N.A.	N.A.	S/U(1)	1	
19.	Safety Injection Input from ESF	N.A.	N.A.	M(4)	1, 2	
20.	Reactor Trip Breaker	N.A.	Ν.Α.	M(5) and S/U(1)) 1, 2, and *	
21.	Automatic Trip Logic	N.A.	N.A.	M(5)	1, 2, and *	
22.	Reactor Trip System Interlocks A. Intermediate Range Neutron Flux, P-6	N. A	R	S/U (8)	2, and *	
	B. Power Range Neutron Flux, P-7	Ν.Α.	R	S/U (8)	1	
	C. Power Range Neutron Flux, P-8	Ν.Α.	R	S/U (8)	1	
	D. Power Range Neutron Flux, P-10	N.A.	R	S/U (8)	1, 2	
	 E. Turbine Impulse Chamber Pressure, P-13 F. Power Range Neutron 	Ν.Α.	R	S/U (8)	1	
	Flux, P-9	N.A.	R	5/U (8)	1	
~ ~	G. Reactor Trip, P-4	N.A.	N.A.	5/U (8)	1, 2, and *	
23.	Reactor Trip Bypass Breaker	N. A.	N.A.	M(10)R(11)	1, 2, and *	

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

F	UNCT	IONA	L UNI	<u>T</u>	TOTAL NO. DF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE		LICAB MODES		ACTION
2		CONTAINMENT SPRAY									
		a.	Manu	al	2	1*	2	1,	2, 3,	4	20
		b.	Auto Logi	matic Actuation c	2	1	2	1,	2, 3,	4	15
		c.		ainment Pressure High	4	2	3	1,	2, 3		18
3		CONTAINMENT ISOLATION									
		a.	Phas 1)	e "A" Isolation Manual	2	1	2	1,	2, 3,	4	20
			2)	From Safety Injectic Automatic Actuation Logic	on 2	1	2	1,	2, 3,	4	15
		b.	Phas	e "B" Isolation							
			1) 2)	Manual Automatic Actuation Logic	2 2	1* 1	2 2	1, 1,	2, 3, 2, 3,	4 4	20 15
			3)	Containment Pressure-High-High	4	2	3	1,	2, 3		18

*Two switches must be operated simultaneously for actuation.

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ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNC	TIONA	L UNI	Ξ	TOTAL NO OF CHANNE		CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
	c.		tainment Ventilation lation						
		1)	Manua1	2		1	2	1, 2, 3, 4	19
		2)	Automatic Isolation Logic	2		1	2	1, 2, 3, 4	15
		3)	Containment Gas Monitor Radioactivi	2 ty-High		1	1	1, 2, 3, 4	19
		4)	Containment Purge Air Exhaust Monitor Radioactivity-High	2		1	1	1, 2, 3, 4	19
		5)	Containment Particu late Activity High	- 2		1	1	1, 2, 3, 4	19
4.	STEA	M LI	NE ISOLATION						
	a.	Manu	ual	1/steam	line	1/steam li	ne 1/operating steam line	1, 2, 3	25
	b.		omatic uation Logic	2		1	2	1, 2, 3	23
	c.		tainment Pressure h-High	4		2	3	1, 2, 3	18
	d.		am Flow in Two am LinesHigh					1, 2, 3	
			Four Loops Operating	2/steam	line	1/steam lin any 2 steam lines			16*

SEQUOYAH - UNIT 2

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUN	CTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TC TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
	COINCIDENT WITH EITHER T _{avg} Low-Low Four Loops Operating	1 T _{avg} /loop	2 T _{avg} any loop	1 T _{ayg} any 3100ps	1, 2, 3	16*
OR,	COINCIDENT WITH Steam Line Pressure- Low				1, 2, 3	
	Four Loops Operating	l pressure/ loop	2 pressures any loops	1 pressure any 3 loops		16*
5.	TURBINE TRIP & FEEDWATER ISOLATION					
	a. Steam Generator Water Level High-High	3/loop	2/loop in any oper- ating loop	2/loop in each oper- ating loop	1, 2, 3	16*
	 Automatic Actuation Logic 	2	1	2	1, 2, 3	23

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ENGINEERED SAFETY FEATUPE ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT			TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	AP	E ACTION	
6.	AUX	ILIARY FEEDWATER						
	a.	Manual Initiation	2	1	2	1,	2, 3	24
	b.	Automatic Actuation Logic	2	1	2	1,	2, 3	23
	с.	Main Stm. Gen. Water Level-Low-Low						
		i. Start Motor Driven Pumps	3/stm gen.	2/stm. gen. any stm gen.	2/stm. gen	1,	2,3	16*
		ii. Start Turbine- Driven Pump	3/stm. gen.	2/stm. gen. any 2 stm. g	2/stm. gen Jen.	1,	2,3	16*
	d.	S.I. Start Motor-Driven Pumps and Turbine Driven Pump	See 1 above	(all S.I. initi	ating functions	and	require	ements)
	e.	Station Blackout Start Motor-Driven Pump associated with the shutdown board and Turbine Driven Pump	2/shutdown board	l/shutdown board	2/shutdown board	1,	2,3	20
	f.	Trip of Main Feedwater Pumps Start Motor-Driven Pumps and Turbine Driven Pump	1/pump	1/pump	1/pump	1	. 2	20*
	g.	Auxiliary Feedwater Suction Pressure-Low	3/pump	2/pump	2/pump	1	, 2, 3	20*

SEQUOYAH - UNIT 2

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1

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUN	CTION	AL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
ε.		INEERED SAFETY FEATURE UATION 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	3/1oop	1, 2	22c
9.		DMATIC SWITCHOVER TO TAINMENT SUMP					
	a.	RWST Level - Low COINCIDENT WITH Containment Sump	4	2	3	1, 2, 3, 4	18
		Level - High AND	4	2	3	1, 2, 3, 4	18
		Safety Injection	(See 1 above	for Safety In	jection Require	ments)	
	b.	Automatic Actuation Logic	2	1	2	1, 2, 3, 4	15

1.4

SEQUOYAH - UNIT

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TABLE NOTATION

#Trip function may be bypassed in this MODE below P-11 (Pressurizer Pressure
##Block of Safety Injection) setpoint.

##Trip function may be bypassed in this MODE below P-12 (T avg Block of Safety
####Injection) setpoint.

"The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped mode.

The provisions of Specification 3.0.4 are not applicable.

ACTION STATEMENTS

- ACTION 15 With the number of OPERABLE Channels one less than the Total Number of Channels, be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1 provided the other channel is OPERABLE.
- ACTION 16 With the number of OPERABLE Channels one less than the Total Number of Channels, operation may proceed until performance of the next required CHANNEL FUNCTIONAL TEST, provided the inoperable channel is placed in the tripped condition within 1 hour.
- ACTION 17 With a channel associated with an operating loop inoperable, restore the inoperable channel to OPERABLE status within 2 hours or be in at least HOT SHUTDOWN within the following 12 hours; however, one channel associated with an operating loop may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.
- ACTION 18 With the number of OPERABLE Channels one less than the Total Number of Channels, operation may proceed provided the inoperable channel is placed in the bypassed condition and the Minimum Channels OPERABLE requirement is demonstrated within 1 hour; one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.
- ACTION 19 With less than the Minimum Channels OPERABLE, operation may continue provided the containment ventilation isolation valves are maintained closed.
- ACTION 20 With the number of OPERABLE Channels one less than the Total Number of Channels, restore the inorerable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

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ACTION 21 - With the number of OPERABLE Channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

- a. The inoperable channel is placed in the tripped condition within 1 hour.
- b. The Minimum Channels OPERABLE requirements is met; however, one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.
- ACTION 22 With less than the Minimum Number of Channels OPERABLE, declare the interlock inoperable and verify that all affected channels of the functions listed below are OPERABLE or apply the appropriate ACTION statement(s) for those functions. Functions to be evaluated are:
 - a. Safety Injection Pressurizer Pressure
 - b. Safety Injection High Steam Line Flow Steam Line Isolation High Steam Line Flow Steam Dump
 - c. Turbine Trip Steam Generator Level High-High Feedwater Isolation Steam Generator Level High-High
- ACTION 23 With the number of OPERABLE channels one less than the Total Number of Channels, be in at least HOT STANDBY within 6 hours and in at least HOT SHUTDOWN within the following 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.
- ACTION 24 With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within 6 hours and in at least HOT SHUTDOWN within the following 6 hours.
- ACTION 25 With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or declare the associated valve inoperable and take the ACTION required by Specification 3.7.1.5.

TABLE 3.3-4

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT

TRIP SETPOINT

ALLOWABLE VALUES

- 1. SAFETY INJECTION, TURBINE TRIP AND FEEDWATER ISOLATION
 - Not Applicable Manual Initiation Not Applicable a. Automatic Actuation Logic Not Applicable Not Applicable b. Containment Pressure--High <1.54 psig <1.7 psig С. d. Pressurizer Pressure--Low >1870 psig >1860 psig <112 psi Differential Pressure <100 psi е. Between Steam Lines--High
 - f. Steam Flow in Two Steam Lines--High Coincident with T_{avg}--Low-Low or Steam Line Pressure--Low

<A function defined as
follows: A Δp corresponding to 40% of full steam
flow between 0% and 20%
load and then a Δp increasing linearly to a Δp corresponding to 110%
of full steam flow at
full load

T_{avg} ≥540°F ≥600 psig steam line pressure <A function defined as
follows: A Δp corresponding
to 44% of full steam flow
between 0% and 20% load and
then a Δp increasing
linearly to a Δp corresponding to 111.5% of full steam
flow at full load

T_{avg} ≥538°F ≥580 psig steam line pressure

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUN	CTION	AL UN	II	TRIP SETPOINT	ALLOWABLE VALUES
2.	CON	TAINM	ENT SPRAY		
	a.	Man	ual Initiation	Not Applicable	Not Applicable
	b.	Aut	omatic Actuation Logic	Not Applicable	Not Applicable
	с.	Con	tainment PressureHigh-High	<2.81 psig	<2.97 psig
3.	CON	TAINM	ENT ISOLATION		
	a.	Pha	se "A" Isolation		
		1.	Manual	Not Applicable	Not Applicable
		2.	From Safety Injection Automatic Actuation logic	Not Applicable	Not Applicable
	b.	Pha	se "B" Isolation		
		1.	Manual	Not Applicable	Not Applicable
		2.	Automatic Actuation Logic	Not Applicable	Not Applicable
		3.	Containment PressureHigh-High	≤2.81 psig	<2.97 psiy
	с.	Con	tainment Ventilation Isolation		
		1.	Manual	Not Applicable	Not Applicable
		2.	Automatic Isolation Logic	Not Applicable	Not Applicable

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FUNC	TIONA	LUNIT	TRIP SETPOINT	ALLOWABLE VALUES
		 Containment Gas Monitor Radioactivity-High 	$\leq 8.5 \times 10^{-3} \ \mu \text{Ci/cc}$	≤8.5 x 10 ⁻³ µCi/cc
		 Containment Purge Air Exhaust Monitor Radioactivity-High 	≤8.5 x 10 ⁻³ μCi/cc	<pre>_≤8.5 x 10⁻³ µCi/cc</pre>
		 Containment Particulate Activity-High 	≤1.5 x 10 ⁻⁵ µCi/cc	≤1.5 × 10 ⁻⁵ µCi/cc
4.	STEA	M LINE ISOLATION		
	a.	Manual	Not Applicable	Not Applicable
	b.	Automatic Actuation Logic	Not Applicable	Not Applicable
	с.	Containment PressureHigh-High	<2.81 psig	<2.97 psig
	d.	Steam Flow in Two Steam lines High Coincident with TLow-Low Or Steam Line PressureEow	<pre><a as<br="" defined="" function="">follows: A Δp correspond- ing to 40% of full steam flow between 0% and 20% load and then a Δp increasing linearly to a Δp corresponding to 110% of full steam flow at full load.</pre>	<pre><a <math="" a="" as="" defined="" follows:="" function="">\Delta p correspondin to 44% of full steam flow between 0% and 20% load and then a Δp increasing linearly to a Δp correspond ing to 111.5% of full steam flow at full load</pre>
			T _{avg} ≥540°F ≥600 psig steam Tine pressure	T _{avg} ≥538°F ≥580 psig steam Tine pressure
5.	TURE	SINE TRIP AND FEEDWATER ISOLATION		
	a.	Steam Generator Water level High-High	<75% of narrow range Instrument span each stean generator	<76% of narrow range Instrument span each steam generator

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ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNC	CTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
8.	ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INTERLOCKS (Continued)		
	b. Tavg Prevents Manual Block of Safety Injection P-12	≤ 540°F	≤542°F
	c. T _{avg} Manual Block of Safety Injection, Steam Line Isolation, Block Steam Dump	≥ 540°F	≥538°F
	d. Steam Generator Level Turbine Trip, Feedwater Isolation P-14	(See 5. above)	
9.	AUTOMATIC SWITCHOVER TO CONTAINMENT SUMP		
	a. RWST Level - Low COINCIDENT WITH	130" from tank base	$130'' \pm 4''$ from tank base
	Containment Sump Level - High AND Safety Injection		30" ± 2.5" above elev. 680' Injection Setpoints/2110wable Valves)
	b. Automatic Actuation Logic	N. A.	N.A.

SEQUOYAH - UNIT 2

ENGINEERED SAFETY FEATURES RESPONSE TIMES

		NG SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
6.	Ste	am Flow in Two Steam Lines-High	
	Coi	ncident with Steam Line Pressure-Low	
	a.	Safety Injection (ECCS)	$\leq 28.0^{(7)}/28.0^{(1)}$
	b.	Reactor Trip (from SI)	< 3.0
	с.	Feedwater Isolation	< 8.0 ⁽²⁾
	d.	Containment Isolation-Phase "A"(3)	$\leq 18.0^{(8)}/28.0^{(9)}$
	e.	Containment Ventilation Isolation	Not Applicable
	f.	Auxiliary Feedwater Pumps	<60
	g.	Essential Raw Cooling Water System	< 65.0 ⁽⁸⁾ /75.0 ⁽⁹⁾
	h.	Steam Line Isolation	< 8.0
	i.	Emergency Gas Treatment System	(9) (9)
7.	Cont	tainment PressureHigh-High	
	a.	Containment Spray	< 208 ⁽⁹⁾
	b.	Containment Isolation-Phase "B"	< 65 ⁽⁸⁾ /75 ⁽⁹⁾
	с.	Steam Line Isolation	< 7.
	d.	Concainment Air Return Fan	\geq 540 and \leq 660
3.	Stea	am Generator Water LevelHigh-High	
	a.	Turbine Trip	< 2.5
	b.	Feedwater Isolation	< 11.0 ⁽²⁾
э.	Mair	n Steam Generator Water Level -	
	Low-	- Low	
	a.	Motor-driven Auxiliary	≤ 60.0
		Feedwater Pumps ⁽⁴⁾	
	b.	Turbine-driven Au.iliary	< 60.0
		Feedwater Pumps ⁽⁵⁾	

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INIT	IATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS						
10.	Station Blackout							
	a. Auxiliary Feedwater Pumps	<u> </u>						
11.	Trip of Main Feedwater Pumps							
	a. Auxiliary Feedwater Pumps	<u><</u> 60						
*12.	Loss of Power							
	a. 6.9 kv Shutdown Board - Negraded Voltage or Loss of Voltage	< 10 ⁽¹⁰⁾						
13.	RWST Level-Low Coincident with Containme	ent Sump						
	Level-High and Safety Injection							
	a. Automatic Switchover to							
	Containment Sump	<u>≤</u> 250						
14.	Containment Purge Air Echaust							
	Radioactivity - High							
	a. Containment Ventilation Isolation	< 10 ⁽⁶⁾						
15.	Containment Gas Monitor							
	Radioactivity High							
	a. Containment Ventilation Isolation	< 10 ⁽⁶⁾						
16.	Containment Particulate Activity High							
	a. Containment Ventilation Isolation	< 10 ⁽⁶⁾						
*NOT	E: This technical specification is to following the first refueling outag							

SEQUOYAH - UNIT 2

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Amendment No. 18

4

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT			INIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIGNAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
3.	CON	TAIN	MENT ISOLATION				
	a.	Pha	ase "A" Isolation				
		1)	Manual	N. A.	N. A.	R	1, 2, 3, 4
		2)	From Safety Injection Automatic Actuation Logic	N.A.	N. A.	M(1)	1, 2, 3, 4
	b.	Pha	ase "B" Isolation				
		1)	Manual	N.A.	Ν.Α.	R	1, 2, 3, 4
		2)	Automatic Actuation Logic	N. A.	N. A.	M(1)	1, 2, 3, 4
		3)	Contairment Pressure High High	S	R	Q	1, 2, 3
	С.	Cor	ntainment Ventilation Isolat	ion			
		1)	Manual	N.A.	N. A.	R	1, 2, 3, 4
		2)	Automatic Isolation Logic	N.A.	N. A.	M(1)	1, 2, 3, 4
		3)	Containment Gas Monitor Radioactivity-High	5	R	м	1, 2, 3, 4

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ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

		SURVEILL					
FUNCTIONAL UNIT		CHANNEL	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED		
	 Containment Purge Air Exhaust Monitor Radio- activity-High 	S	R	м	1, 2, 3, 4		
	 Containment Particulate Activity-High 	S	R	м	1, 2, 3, 4		
4.	STEAM LINE ISOLATION						
	a. Manual	N. A.	N. A.	R	1, 2, 3		
	b. Automatic Actuation Logic	N. A.	N. A.	M(1)	1, 2, 3		
	c. Containment Pressure High-High	S	R	Q	1, 2, 3		
	d. Steam Flow in Two Steam LinesHigh Coincident with T Low-Low or Steam Line PressureLow	S	R	Q	1, 2, 3		
5.	TURBINE TRIP AND FEEDWATER ISOLATION						
	a. Steam Generator Water LevelHigh-High	S	R	Q	1, 2, 3		
	b. Automatic Actuation Logic	N. A.	N. A.	M(1)	1, 2, 3		
6.	AUXILIARY FEEDWATER						
	a. Manual	N.A.	N. A.	R	1, 2, 3		
	b. Automatic Actuation Logic	N.A.	N. A.	M(1)	1, 2, 3		
	b. Hacondere needderon Logie		14. 11.	11(1)	1, 2, 5		

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ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT			CHANNEL	CHANNEL CALIBRATION	CHA' NEL FUNC LONAL TEST	MODES FOR WHIC SURVEILLANCE I REQUIRED
c		in Steam Generator Water vel-Low-Low	S	R	Q	1, 2, 3
d	I. S.	Ι.	See 1 at	bove (all SI sur	veillance requir	ements)
e	. St	ation Blackout	N.A.	R	N.A.	1, 2, 3
f		ip of Main Feedwater mps	N.A.	N. A.	R	1, 2
		xiliary Feedwater Suction	N.A.	R	м	1, 2, 3
*7. L	055 0	F POWER				
а		9 kv Shutdown Board - ss of Voltage				
	1. 2.		S S	R R	M N.A.	1, 2, 3, 4 1, 2, 3, 4
b		9 kv Shutdown Board - graded Voltage				
	1.	Voltage sensors	S	R	м	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.

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNC	TION	AL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
8.		INEERED SAFETY FEATURE UATION SYSTEM INTERLOCKS				
	a.	Pressurizer Pressure, P-11	N. A.	R (2)	N. A.	1, 2, 3
	b.	T _{avg} , P-12	N.A	R (2)	N.A.	1, 2, 3
	с.	Steam Generator Level, P-14	N. A.	R (2)	N. A.	1, 2
9.		OMATIC SWITCHOVER TO TAINMENT SUMP				
	a.	RSWT Level - Low COINCIDENT WITH	S	R	М	1, 2, 3, 4
		Containment Sump Level - High AND	S	R	М	1, 2, 3, 4
		Safety Injection	(See 1 a	bove for all Safe	ety Injection S	urveillance Requirements)
	b.	Automatic Actuation Logic	N. A.	N. A.	M(1)	1, 2, 3, 4

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