

- (4) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required, any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis, instrument calibration or associated with radioactive apparatus or components; and
- (5) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the Sequoyah and Watts Bar Unit 1 Nuclear Plants.

C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

The Tennessee Valley Authority is authorized to operate the facility at reactor core power levels not in excess of 3455 megawatts thermal.

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. , are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications.

(3) Initial Test Program

The Tennessee Valley Authority shall conduct the post-fuel-loading initial test program (set forth in Section 14 of Tennessee Valley Authority's Final Safety Analysis Report, as amended), without making any major modifications of this program unless modifications have been identified and have received prior NRC approval. Major modifications are defined as:

- a. Elimination of any test identified in Section 14 of TVA's Final Safety Analysis Report as amended as being essential;
- b. Modification of test objectives, methods or acceptance criteria for any test identified in Section 14 of TVA's Final Safety Analysis Report as amended as being essential;
- c. Performance of any test at power level different from there described; and

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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>
7. This Functional Unit has been deleted.					
8. ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INTERLOCKS					
a. Pressurizer Pressure-P-11/Not P-11	3	2	2	1, 2, 3	22a
b. Deleted					
c. Steam Generator Level P-14	3/loop	2/loop any loop	3/loop	1, 2	22c

TABLE 3.3-3 (Continued)

TABLE NOTATION

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

Trip function automatically blocked above P-11 and may be blocked below P11 when Safety Injection on Steam Line Pressure-Low is not blocked.

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 12 hours and in COLD SHUTDOWN within the following 30 hours; however, one channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.2.1.1 provided the other channel is OPERABLE.
- ACTION 16 - Deleted.
- ACTION 17 - 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 6 hours.
 - b. The Minimum Channels OPERABLE requirements is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels 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 within 6 hours and the Minimum Channels OPERABLE requirement is met; one additional channel may be bypassed for up to 4 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 purge supply and exhaust 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.

TABLE 3.3-3 (Continued)

- ACTION 21 - With less than the Minimum Number of Channels OPERABLE, declare the associated auxiliary feedwater pump inoperable, and comply with the ACTION requirements of Specification 3.7.1.2.
- 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
 - Steam Line Pressure
 - Negative Steam Line Pressure Rate
 - b. Deleted
 - 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.
- ACTION 34 - Deleted

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>NOMINAL TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
ii. RCS Loop ΔT Equivalent to Power > 50% RTP		
Coincident with Steam Generator Water Level-- Low-Low (Adverse)	15.0% of narrow range instrument span	$\geq 14.4\%$ of narrow range instrument span
and		
Containment Pressure (EAM)	0.5 psig	≤ 0.6 psig
or		
Steam Generator Water Level-- Low-Low (EAM)	10.7% of narrow range instrument span	$\geq 10.1\%$ of narrow range instrument span
d. S.I.	See 1 above (all SI Setpoints)	
e. Loss of Power Start		
1. Voltage Sensors	Refer to Function 1 of Table 3.3-14 for setpoints and allowable values.	
2. Load Shed Timer		
f. Trip of Main Feedwater Pumps	N.A.	N.A.
g. Auxiliary Feedwater Suction Pressure- Low	3.21 psig (motor driven pump)	≥ 2.44 psig (motor driven pump)
	13.9 psig (turbine driven pump)	≥ 12 psig (turbine driven pump)
h. Auxiliary Feedwater Suction Transfer Time Delays	4 seconds (motor driven pump)	≤ 4.4 seconds and ≥ 3.6 seconds (motor driven pump)
	5.5 seconds (turbine driven pump)	≤ 6.05 seconds and ≥ 4.95 seconds (turbine driven pump)

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>NOMINAL TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
7. This Functional Unit has been deleted.		
8. ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INTERLOCKS		
a. Pressurizer Pressure		
1. Not P-11, Automatic Unblock of Safety Injection on Increasing Pressure	1970 psig	≤ 1975.2 psig
2. P-11, Enable Manual Block of Safety Injection on Decreasing Pressure	1962 psig	≥ 1956.8 psig

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 FOR WHICH SURVEILLANCE REQUIRED</u>
c. Main Steam Generator Water Level--Low-Low				
1. Steam Generator Water Level--Low-Low (Adverse)	S	R	Q	1, 2, 3
2. Steam Generator Water Level--Low-Low (EAM)	S	R	Q	1, 2, 3
3. RCS Loop ΔT	S	R	Q	1, 2, 3
4. Containment Pressure (EAM)	S	R	Q	1, 2, 3
d. S.I.	See 1 above (all SI surveillance requirements)			
e. Loss of Power Start				
1. Voltage Sensors	N.A.	R	M	1, 2, 3
2. Load Shed Timer	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 Pressure-Low	N.A.	R	N.A.	1, 2, 3
h. Auxiliary Feedwater Suction Transfer Time Delays	N.A.	R	N.A.	1, 2, 3
7. This Functional Unit has been deleted.				

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 FOR WHICH SURVEILLANCE REQUIRED</u>
8. ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INTERLOCKS				
a. Pressurizer Pressure, P-11/Not P-11	N.A.	R(2)	N.A.	1, 2, 3
b. Deleted				
c. Steam Generator Level, P-14	N.A.	R(2)	N.A.	1, 2
9. AUTOMATIC SWITCHOVER TO CONTAINMENT SUMP				
a. RSWT Level - Low	S	R	Q	1, 2, 3, 4
COINCIDENT WITH				
Containment Sump Level -	S	R	Q	1, 2, 3, 4
High				
AND Safety Injection	(See 1 above for all Safety Injection Surveillance Requirements)			
b. Automatic Actuation Logic	N.A.	N.A.	M(1)	1, 2, 3, 4

TABLE 4.3-2 (Continued)

TABLE NOTATION

- (1) Each train or logic channel shall be tested at least every 62 days on a STAGGERED TEST BASIS.
- (2) The total interlock function shall be demonstrated OPERABLE during CHANNEL CALIBRATION testing of each channel affected by interlock operation.

INSTRUMENTATION

LOSS OF POWER (LOP) DIESEL GENERATOR (DG) START INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.11 The LOP DG start instrumentation for each function in Table 3.3-14 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4,
When associated DG is required to be OPERABLE by LCO 3.8.1.2, "AC Sources - Shutdown."

ACTION:

- a. With the number of OPERABLE channels one less than the Required Channels for voltage sensors, restore the inoperable channel to OPERABLE status within 6 hours or enter applicable Limiting Condition(s) For Operation and Action(s) for the associated DG set made inoperable by the channel.
- b. With the number of OPERABLE channels less than the Required Channels by more than one for voltage sensors or with the number of OPERABLE channels one less than the Required Channels for timers, restore all but one channel of voltage sensors and at least one timer for each function to OPERABLE status within 1 hour or enter applicable Limiting Condition(s) For Operation and Action(s) for the associated DG set made inoperable by the channels.
- c. Separate entry is allowed for each function.
- d. Enter applicable Actions of LCO 3.3.2, "Engineered Safety Feature Actuation System Instrumentation," for Auxiliary Feedwater Loss of Power Start Instrumentation made inoperable by LOP DG Start Instrumentation.

SURVEILLANCE REQUIREMENTS

4.3.3.11.1 Each LOP DG Start Instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-10.

4.3.3.11.2 The ENGINEERED SAFETY FEATURES RESPONSE TIME of each LOP DG Start Instrumentation function shall be verified to be within the limit at least once per 18 months. Each verification shall include at least one train such that both trains are verified at least once per 36 months and one channel per function such that all channels are verified at least once every N times 18 months where N is the total number of redundant channels.

TABLE 3.3-14

LOSS OF POWER DIESEL GENERATOR START INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>APPLICABLE MODES OR CONDITIONS</u>	<u>REQUIRED CHANNELS</u>	<u>NOMINAL TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
1. 6.9 kv Shutdown Board - Loss of Voltage				
a. Voltage Sensors	1, 2, 3, 4, #	3/Shutdown Board	5520	≥ 5331 volts and ≤ 5688 volts
b. Diesel Generator Start and Load Shed Timer	1, 2, 3, 4, #	1/Shutdown Board	1.25 seconds	≥ 1.00 seconds and ≤ 1.50 seconds
2. 6.9 kv Shutdown Board - Degraded Voltage				
a. Voltage Sensors	1, 2, 3, 4, #	3/Shutdown Board	6456 volts	≥ 6403.5 volts and ≤ 6522.5 volts
b. Diesel Generator Start and Load Shed Timer	1, 2, 3, 4, #	1/Shutdown Board	300 seconds	≥ 218.6 seconds and ≤ 370 seconds
c. SI/Degraded Voltage Logic Enable Timer	1, 2, 3, 4	1/Shutdown Board	9.5 seconds	≥ 7.5 seconds and ≤ 11.5 seconds

When associated DG is required to be OPERABLE by LCO 3.8.1.2, "AC Sources - Shutdown."

TABLE 4.3-10

LOSS OF POWER DIESEL GENERATOR START INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES FOR WHICH SURVEILLANCE REQUIRED</u>
1. 6.9 kv Shutdown Board - Loss of Voltage				
a. Voltage Sensors	N.A.	R	M	1, 2, 3, 4, #
b. Diesel Generator Start and Load Shed Timer	N.A.	R	N.A.	1, 2, 3, 4, #
2. 6.9 kv Shutdown Board - Degraded Voltage				
a. Voltage Sensors	N.A.	R	M	1, 2, 3, 4, #
b. Diesel Generators Start and Load Shed Timer	N.A.	R	N.A.	1, 2, 3, 4, #
c. SI/Degraded Voltage Logic Enable Timer	N.A.	R	N.A.	1, 2, 3, 4

When associated DG is required to be OPERABLE by LCO 3.8.1.2, "AC Sources - Shutdown."