

TABLE 3.3-3 (Cont'd)

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>
5.	REACTOR BLDG. ISOLATION					
a.	Manual Initiation	2	1	2	1, 2, 3, 4	13
b.	Reactor Bldg. Pressure High	3	2	2	1, 2, 3	9#
c.	Automatic Actuation Logic	2	1	2	1, 2, 3, 4	10
d.	Manual Initiation (HPI Isolation)	2	1	2	1, 2, 3, 4	13
e.	RCS Pressure Low (HPI Isolation)	3	2	2	1, 2, 3*	13
f.	Automatic Actuation Logic (HPI Isolation)	2	1	2	1, 2, 3, 4	10
6.	LOSS OF POWER					
a.	4.16 Kv Emergency Bus Undervoltage (Loss of Voltage)	2	1	2	1, 2, 3, 4	14#
b.	4.16 Kv Emergency Bus Undervoltage (Degraded Voltage)	2	1	2	1, 2, 3, 4	14#

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TABLE 3.3-3 (Continued)

TABLE NOTATION

\*Trip function may be bypassed in this MODE with RCS pressure below 1700 psig. Bypass shall be automatically removed when RCS pressure exceeds 1700 psig.

\*\*Trip function may be bypassed in this MODE with RCS pressure below 900 psig. Bypass shall be automatically removed when RCS pressure exceeds 900 psig.

\*\*\*Trip function may be bypassed in this MODE with steam generator pressure below 725 psig. Bypass shall be automatically removed when steam generator pressure exceeds 765 psig.

#The provisions of Specification 3.0.4 are not applicable.

##Trip function may be bypassed in this MODE prior to stopping the operating main feedwater pump. Bypass shall be manually removed after starting the first main feedwater pump.

ACTION STATEMENTS

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| <b>ACTION 9</b>  | 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.   |
| <b>ACTION 10</b> | 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 next 30 hours; however, one channel may be bypassed for up to 1 hour for surveillance testing per Specification 4.3.2.1.1.  |
| <b>ACTION 11</b> | With less than the Minimum Channels OPERABLE, operation may continue provided the containment purge and exhaust valves are maintained closed.  |
| <b>ACTION 12</b> | 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 required 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. |
| <b>ACTION 13</b> | 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.   |
| <b>ACTION 14</b> | With the number of OPERABLE Channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.   |

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTION UNIT	TRIP SETPOINT	ALLOWABLE VALUES
5. REACTOR BLDG. ISOLATION		
a. ES Actuation "A" and "B"		
1. Manual Initiation	Not Applicable	Not Applicable
2. Reactor Bldg. Pressure High	$\leq 4$ psig	$\leq 4$ psig
3. Automatic Actuation Logic	Not Applicable	Not Applicable
4. Manual Initiation (HPI Isolation)	Not Applicable	Not Applicable
5. RCS Pressure Low (HPI Isolation)	$\leq 1500$ psig	$\leq 1500$ psig
6. Automatic Actuation Logic (HPI Isolation)	Not Applicable	Not Applicable
6. LOSS OF POWER		
a. 4.16 Kv Emergency Bus * Undervoltage (Loss of Voltage)	0 volts for $\leq 8.35$ seconds	0 volts for $\leq 8.35$ seconds
b. 4.16 Kv Emergency Bus Undervoltage (Degraded Voltage)	$\geq 3763$ and $\leq 3866$ volts for $\leq 7.7$ seconds	$\geq 3763$ and $\leq 3866$ volts for $\leq 7.7$ seconds

\* This is an inverse-time-delay relay applied as a loss of voltage sensor. This setpoint represents the minimum time delay point of the relay curve.

TABLE 3.3-5 (Cont'd)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

<u>INITIATING SIGNAL AND FUNCTION</u>	<u>RESPONSE TIME IN SECONDS</u>
7. <u>Containment Radioactivity-High</u>	
a. Reactor Building Purge Isolation	15 *
8. <u>Main Feedwater Pump Turbines A and B Control Oil Low</u>	
a. Emergency Feedwater Actuation	Not Applicable
9. <u>OTSG A and B Level Low-Low</u>	
a. Emergency Feedwater Actuation	Not Applicable
10. <u>4.16 Kv Emergency Bus Undervoltage (Loss of Voltage)</u>	Not Applicable
a. Loss of Power	
11. <u>4.16 Kv Emergency Bus Undervoltage (Degraded Voltage)</u>	Not Applicable
a. Loss of Power	

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\*Diesel Generator starting and sequence loading delays included. Response time limit includes movement of valves and attainment of pump or blower discharge pressure.



TABLE 4.3-2 (Cont'd)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
5. REACTOR BLDG. ISOLATION				
a. Manual Initiation	N/A	N/A	R	5 or 6
b. Reactor Bldg. Pressure High	S	R	M(2)	1, 2, 3
c. Automatic Actuation Logic	N/A	N/A	M(1)(3)(5)	1, 2, 3, 4
d. Manual Initiation (HPI Isolation)	N/A	N/A	R	5 or 6
e. RCS Pressure Low (HPI Isolation)	S	R	M	1, 2, 3
f. Automatic Actuation Logic (HPI Isolation)	N/A	N/A	M(1)(3)(5)	1, 2, 3, 4
6. LOSS OF POWER				
a. 4.16 Kv Emergency Bus Undervoltage (Loss of Voltage)	N/A	R(7)	M(1)(6)	1, 2, 3, 4
b. 4.16 Kv Emergency Bus Undervoltage (Degraded Voltage)	N/A	R(7)	M(6)	1, 2, 3, 4

TABLE 4.3-2 (Continued)

TABLE NOTATION

- (1) The CHANNEL FUNCTIONAL TEST of the Automatic Actuation Logic need only demonstrate one combination of the three two-out-of-three logic combinations that are operable provided that a different combination is tested at each test interval, such that all three combinations will be confirmed to be operable by the time the third successive test is completed.
- (2) The CHANNEL FUNCTIONAL TEST shall include exercising the transmitter by applying pressure to the appropriate side of the transmitter.
- (3) Each logic channel shall be tested at least once every other 31-day period (applies only to Test Groups HPI-3, LPI-1, and LPI-2 for the duration of Fuel Cycle 5 - see (5) below).
- (4) Reactor Building Pressure High - High signal only.
- (5) Monthly CHANNEL FUNCTIONAL TEST of the Automatic Actuation Logic circuitry has been waived for all Test Groups, with the exception of Test Groups HPI-3, LPI-1, and LPI-2 for the duration of Fuel Cycle 5 for Crystal River Unit 3.
- (6) The CHANNEL FUNCTIONAL TEST for the loss of voltage and degraded voltage functions shall be performed such that each diesel generator is started only once per month.
- (7) Channel calibration may exclude testing of the voltage sensor.