



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

CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-325

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 38  
License No. DPR-71

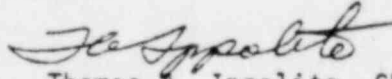
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Carolina Power & Light Company dated June 11, 1981 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations 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-71 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 38, 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 the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Thomas A. Ippolito, Chief  
Operating Reactors Branch #2  
Division of Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: June 25, 1981

ATTACHMENT TO LICENSE AMENDMENT NO. 38

FACILITY OPERATING LICENSE NO. DPR-71

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Remove the following pages and replace with identically numbered pages.

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The underlined page is an overleaf page and is provided for convenience.

## SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

### 2.2 LIMITING SAFETY SYSTEM SETTINGS

#### REACTOR PROTECTION SYSTEM INSTRUMENTATION SETPOINTS

2.2.1 The reactor protection system instrumentation setpoints shall be set consistent with the Trip Setpoint values shown in Table 2.2.1-1.

APPLICABILITY: As shown for each channel in Table 3.3.1-1.

ACTION:

With a reactor protection system instrumentation setpoint less conservative than the value shown in the Allowable values column of Table 2.2.1-1, declare the channel inoperable and apply the applicable ACTION statement requirement of Specification 3.3.1 until the channel is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.

TABLE 2, 2, 1-1

REACTOR PROTECTION SYSTEM INSTRUMENTATION SETPOINTS

<u>FUNCTIONAL UNIT AND INSTRUMENT NUMBER</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
1. Intermediate Range Monitor, Neutron Flux - High <sup>(1)</sup> (C51-IRM-K601 A, B, C, D, E, F, G, H)	≤ 120 divisions of full scale	≤ 120 divisions of full scale
2. Average Power Range Monitor (C51-APRM-CH. A, B, C, D, E, F)		
a. Neutron Flux - High, 15% <sup>(2)</sup>	≤ 15% of RATED THERMAL POWER	≤ 15% of RATED THERMAL POWER
b. Flow Biased Neutron Flux - High <sup>(3)(4)</sup>	≤ (0.66 W + 54%)	≤ (0.66 W + 54%)
c. Fixed Neutron Flux - High <sup>(4)</sup>	≤ 120% of RATED THERMAL POWER	≤ 120% of RATED THERMAL POWER
3. Reactor Vessel Steam Dome Pressure - High (B21-PTM-N023A-1, B-1, C-1, D-1)	≤ 1045 psig	≤ 1045 psig
4. Reactor Vessel Water Level - Low, Level #1 (B21-LTW-N017A-1, B-1, C-1, D-1)	> +162.5 inches above top fuel guide	> +162.5 inches above top fuel guide
5. Main Steam Line Isolation Valve - Closure <sup>(5)</sup> (B21-F022 A, B, C, D; B21-F028 A, B, C, D)	≤ 10% closed	≤ 10% closed
6. Main Steam Line Radiation - High (D12-RM-K603 A, B, C, D)	≤ 3 x full power background	≤ 3.5 x full power background

TABLE 2.2.1-1 (continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION SETTINGS

FUNCTIONAL, UNIT AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUES
7. Drywell Pressure - High (C71-PS-H002 A, B, C, D)	$\leq 2$ psig	$\leq 2$ psig
8. Scram Discharge Volume Water Level - High (C11-LSH-R013 A, B, C, D)	$\leq 109$ Gallons	$\leq 109$ Gallons
9. Turbine Stop Valve - Closure (6) (EHC-SV05-1X, 2X, 3X, 4X)	$< 10X$ closed	$< 10X$ closed
10. Turbine Control Valve Fast Closure, Control Oil Pressure - Low (EHC-PSL-1756, 1757, 1758, 1759)	$> 500$ psig	$> 500$ psig

TABLE 2.2.1-1 (Continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION SETPOINTS

TABLE NOTATION

- (1) The Intermediate Range Monitor scram functions are automatically bypassed when the reactor mode switch is placed in the Run position and the Average Power Range Monitors are on scale.
- (2) This Average Power Range Monitor scram function is a fixed point and is increased when the reactor mode switch is placed in the Run position.
- (3) The Average Power Range Monitor scram function is varied, Figure 2.2.1-1, as a function of recirculation loop flow (W). The trip setting of this function must be maintained in accordance with Specification 3.2.2.
- (4) The APRM flow biased high neutron flux signal is fed through a time constant circuit of approximately 6 seconds. The APRM fixed high neutron flux signal does not incorporate the time constant, but responds directly to instantaneous neutron flux.
- (5) The Main Steam Line Isolation Valve-Closure scram function is automatically bypassed when the reactor mode switch is in other than the Run position.
- (6) These scram functions are bypassed when THERMAL POWER is less than 30% of RATED THERMAL POWER.

### 3/4.3 INSTRUMENTATION

#### 3/4.3.1 REACTOR PROTECTION SYSTEM INSTRUMENTATION

##### LIMITING CONDITION FOR OPERATION

3.3.1 As a minimum, the reactor protection system instrumentation channels shown in Table 3.3.1-1 shall be OPERABLE with REACTOR PROTECTION SYSTEM RESPONSE TIME as shown in Table 3.3.1-2. Set points and interlocks are given in Table 2.2.1-1.

APPLICABILITY: As shown in Table 3.3.1-1.

##### ACTION:

- a. With the requirements for the minimum number of OPERABLE channels not satisfied for one trip system, place at least one inoperable channel in the tripped condition within one hour.
- b. With the requirements for the minimum number of OPERABLE channels not satisfied for both trip systems, place at least one inoperable channel in at least one trip system\* in the tripped condition within one hour and take the ACTION required by Table 3.3.1-1.
- c. The provisions of Specification 3.0.3 are not applicable in OPERATIONAL CONDITION 5.

##### SURVEILLANCE REQUIREMENTS

4.3.1.1 Each reactor protection system instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations during the OPERATIONAL CONDITIONS and at the frequencies shown in Table 4.3.1-1.

4.3.1.2 LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all channels shall be performed at least once per 18 months and shall include calibration of time delay relays and timers necessary for proper functioning of the trip system.

4.3.1.3 The REACTOR PROTECTION SYSTEM RESPONSE TIME of each reactor trip function of Table 3.3.1-2 shall be demonstrated to be within its limit at least once per 18 months. Each test shall include at least one logic train such that both logic trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once every N times 18 months where N is the total number of redundant channels for a specific reactor trip function.

\*If both channels are inoperable in one trip system, select at least one inoperable channel in that trip system to place in the tripped condition, except when this could cause the Trip Function to occur.



TABLE J.3.1-1

REACTOR PROTECTION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT AND INSTRUMENT NUMBER	APPLICABLE OPERATIONAL CONDITIONS	MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM (a) (b)	ACTION
1. Intermediate Range Monitors: (C51-IRM-K601A,B,C,D,E,F,G,H)			
a. Neutron Flux - High	2, 5 (b) 3, 4	3 2	1 2
b. Inoperative	2, 5 3, 4	2 2	1 2
2. Average Power Range Monitor: (C51-APRM-CH. A,B,C,D,E,F,)			
a. Neutron Flux - High, 15%	2, 5	2	3
b. Flow Biased Neutron Flux - High	1	2	4
c. Fixed Neutron Flux-High, 120%	1	2	4
d. Inoperative	1, 2, 5	2	5
e. Downscale	1	2	4
f. LPRM	1, 2, 5	(c)	NA
3. Reactor Vessel Steam Dome Pressure - High (B21-PT-NO23A,B,C,D) (B21-PTH-NO23A-1,B-1,C-1,D-1)	1, 2 (d)	2	6
4. Reactor Vessel Water Level Low, Level #1 (B21-LT-NO17A-1,B-1,C-1,D-1) (B21-LTM-NO17A-1,B-1,C-1,D-1)	1, 2	2	6
5. Main Steam Line Isolation Valve - Closure (B21-F022A,B,C,D, and B21-F028A,B,C,D)	1	4	4

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TABLE 3.3.1-1 (Continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT AND INSTRUMENT NUMBER	APPLICABLE OPERATIONAL CONDITIONS	MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM(a) (b)	ACTION
6. Main Steam Line Radiation - High (D12-RH-K603A, B, C, D)	1, 2 <sup>(d)</sup>	2	7
7. Drywell Pressure - High (C71-PS-N002 A, B, C, D)	1, 2 <sup>(e)</sup>	2	6
8. Scram Discharge Volume Water Level - High (C11-LSH-N013A, B, C, D)	1, 2, 5 <sup>(f)</sup>	2	5
9. Turbine Stop Valve - Closure (EHC-SVOS-1X, 2X, 3X, 4X)	1 <sup>(g)</sup>	4	8
10. Turbine Control Valve Fast Closure Control Oil Pressure - Low (EHC-FSL-1756, 1757, 1758, 1759)	1 <sup>(g)</sup>	2	8
11. Reactor Mode Switch in Shutdown Position (C71A-S1)	1, 2, 3, 4, 5	1	9
12. Manual Scram (C71A-S3A, B)	1, 2, 3, 4, 5	1	10

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TABLE 3.3.1-1 (Continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION

ACTION

- ACTION 1 - In CONDITION 2, be in at least HOT SHUTDOWN within 6 hours.  
In CONDITION 5, suspend all operations involving CORE ALTERATIONS or positive reactivity changes and fully insert all insertable control rods within one hour.
- ACTION 2 - Lock the reactor mode switch in the Shutdown position within one hour.
- ACTION 3 - In OPERATIONAL CONDITION 2, be in at least HOT SHUTDOWN within 6 hours.  
In OPERATIONAL CONDITION 5, suspend all operations involving CORE ALTERATIONS or positive reactivity changes and fully insert all insertable control rods within one hour.
- ACTION 4 - Be in at least STARTUP within 2 hours.
- ACTION 5 - In OPERATIONAL CONDITION 1 or 2, be in at least HOT SHUTDOWN within 6 hours.  
In OPERATIONAL CONDITION 5, suspend all operations involving CORE ALTERATIONS or positive reactivity changes and fully insert all insertable control rods within one hour.
- ACTION 6 - Be in at least HOT SHUTDOWN within 6 hours.
- ACTION 7 - Be in STARTUP with the main steam line isolation valves closed within 2 hours or in at least HOT SHUTDOWN within 6 hours.
- ACTION 8 - Initiate a reduction in THERMAL POWER within 15 minutes and be at less than 30% of RATED THERMAL POWER within 2 hours.
- ACTION 9 - In OPERATIONAL CONDITION 1 or 2, be in at least HOT SHUTDOWN within 6 hours.  
In OPERATIONAL CONDITION 3 or 4, immediately and at least once per 12 hours verify that all control rods are fully inserted.  
In OPERATIONAL CONDITION 5, suspend all operations involving CORE ALTERATIONS or positive reactivity changes and fully insert all insertable control rods within one hour.

TABLE 3.3.1-1 (Continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION

ACTION 10 - In OPERATIONAL CONDITION 1 or 2, be in at least HOT SHUTDOWN within 6 hours.

In OPERATIONAL CONDITION 3 or 4, lock the reactor mode switch in the Shutdown position within one hour.

In OPERATIONAL CONDITION 5, suspend all operations involving CORE ALTERATIONS or positive reactivity changes and fully insert all insertable control rods within one hour.

TABLE NOTATIONS

- a. A channel may be placed in an inoperable status for up to 2 hours for required surveillance without placing the trip system in the tripped condition provided at least one OPERABLE channel in the same trip system is monitoring that parameter.
- b. The "shorting links" shall be removed from the RPS circuitry prior to and during the time any control rod is withdrawn\* and shutdown margin demonstrations.
- c. An APRM channel is inoperable if there are less than 2 LPRM inputs per level or less than eleven LPRM inputs to an APRM channel.
- d. These functions are not required to be OPERABLE when the reactor pressure vessel head is unbolted or removed.
- e. This function is not required to be OPERABLE when PRIMARY CONTAINMENT INTEGRITY is not required.
- f. With any control rod withdrawn. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.
- g. These functions are bypassed when THERMAL POWER is less than 30% of RATED THERMAL POWER.

\*Not required for control rods removed per Specification 3.9.10.1 or 3.9.10.2.

TABLE 3.3.1-2

REACTOR PROTECTION SYSTEM RESPONSE TIMES

<u>FUNCTIONAL UNIT AND INSTRUMENT NUMBER</u>	<u>RESPONSE TIME (Seconds)</u>
1. Intermediate Range Monitors (C51-IRM-K601A,B,C,D,E,F,G,H):	
a. Neutron Flux - High*	HA
b. Inoperative	HA
2. Average Power Range Monitor* (C51-APRM-CH.A,B,C,D,E,F):	
a. Neutron Flux - High, 15%	<0.09
b. Flow Biased Neutron Flux - High	HA
c. Neutron Flux - High, 120%	<0.09
d. Inoperative	HA
e. Downscale	HA
f. LPRM	HA
3. Reactor Vessel Steam Dome Pressure - High (B21-PT-N023A,B,C,D) (B21-PTH-N023A-1,B-1,C-1,D-1)	<0.55
4. Reactor Vessel Water Level - Level #1 (B21-LT-N017A-1,B-1,C-1,D-1) (B21-LTM-N017A-1,B-1,C-1,D-1)	<1.05
5. Main Steam Line Isolation Valve-Closure (B21-F022A,B,C,D and B21-F020A,B,C,D)	<0.06
6. Main Steam Line Radiation - High (D12-RM-K603A,B,C,D)	HA
7. Drywell Pressure - High (C71-PS-N002 A,B,C,D)	HA
8. Scram Discharge Volume Water Level - High (C11-LSH-N013A,B,C,D)	HA
9. Turbine Stop Valve - Closure (EHC-SV03-1X,2X,3X,4X)	<0.06

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TABLE 3.3.1-2 (Continued)

REACTOR PROTECTION SYSTEM RESPONSE TIMES

<u>FUNCTIONAL UNIT AND INSTRUMENT NUMBER</u>	<u>RESPONSE TIME (Seconds)</u>
10. Turbine Control Valve Fast Closure, Control Oil Pressure - Low (EHC-PSL-1756,1757,1758,1759)	<0.08
11. Reactor Mode Switch in Shutdown Position (C71A-S1)	HA
12. Manual Scram (C71A-S3A,B)	HA

\* Neutron detectors are exempt from response time testing. Response time shall be measured from detector output or input of first electronic component in channel.

TABLE 4.3.1-1

REACTOR PROTECTION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT AND INSTRUMENT NUMBER	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION (a)	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED	
				OPERATIONAL	OPERATIONAL
1. Intermediate Range Monitors: (C51-IRH-K601 A, B, C, D, E, F, G, H)					
a. Neutron Flux - High	D	S/U(b)(c)	R	2	
	D	W	R	3, 4, 5	
b. Inoperative	NA	W	NA	2, 3, 4, 5	
2. Average Power Range Monitor: (C51-APRM-CH.A, B, C, D, E, F)					
a. Neutron Flux - High 15%	S	S/U(b), W(d)	Q	2	
	S	W	Q	5	
b. Flow Biased Neutron Flux-High S	S	S/U(b), W	W (e)(f), Q	1	
c. Fixed Neutron Flux - High, 120%	S	S/U(b), W	W(e), Q	1	
d. Inoperative	NA	W	NA	1, 2, 5	
e. Downscale	NA	W	NA	1	
f. LPRM	D	NA	(g)	1, 2, 5	
3. Reactor Vessel Steam Dome Pressure - High (B21-PT-RO23A, B, C, D) (B21-FIM-RO23A-1, B-1, C-1, D-1)					
	NA(k)	NA	R(1)		
	D	H	H	1, 2	
4. Reactor Vessel Water Level - Low Level #1 (B21-LT-RO17A-1, B-1, C-1, D-1) (B21-LTM-RO17A-1, B-1, C-1, D-1)					
	NA(k)	NA	R(1)		
	D	H	H	1, 2	
5. Main Steam Line Isolation Valve - Closure (B21-F022 A, B, C, D and W B21-F020 A, B, C, D)					
	W	H	R(b)		

TABLE 4.3.1-1 (continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT AND INSTRUMENT NUMBER	CHANNEL			OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
	CHANNEL CHECK	FUNCTIONAL TEST	CHANNEL CALIBRATION (a)	
6. Main Steam Line Radiation-High (D12-RM-K60) A, B, C, D)	S	M (I)	R (J)	1, 2
7. Drywell Pressure - High (C71-PS-H002 A, B, C, D)	NA	M	Q	1, 2
8. Scram Discharge Volume Water Level - High (C11-LSH-N013 A, B, C, D)	NA	Q	R	1, 2, 5
9. Turbine Stop Valve - Closure (EHC-SV08-1X, 2X, 3X, 4X)	NA	M	R (b)	1
10. Turbine Control Valve Fast Closure, Control Oil Pressure- Low (EHC-PSL-17, 1757, 1758, 1759)	NA	M	R	1
11. Reactor Mode Switch In Shutdown Position (C71A-S1)	NA	R	NA	1, 2, 3, 4, 5
12. Manual Scram (C71A-S3A, B)	NA	Q	NA	1, 2, 3, 4, 5

a. Neutron detectors may be excluded from CHANNEL CALIBRATION.

b. Within 24 hours prior to startup, if not performed within the previous 7 days.

c. The IRR channels shall be compared to the APRM channels and the SRM instruments for overlap during each startup, if not performed within the previous 7 days.

d. When changing from CONDITION 1 to CONDITION 2, perform the required surveillance within 12 hours after entering CONDITION 2.

e. This calibration shall consist of the adjustment of the APRM readout to conform to the power values calculated by a heat balance during CONDITION 1 when THERMAL POWER  $\geq$  25% of RATED THERMAL POWER.



TABLE 4.3.1-1 (continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

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- f. This calibration shall consist of the adjustment of the APRM flow biased setpoint to conform to a calibrated flow signal.
  - g. The LPRM's shall be calibrated at least once per effective full power month (EFPM) using the TIP system.
  - h. This calibration shall consist of a physical inspection and actuation of these position switches.
  - i. Instrument alignment using a standard current source.
  - j. Calibration using a standard radiation source.
  - k. The transmitter channel check is satisfied by the trip unit channel check. A separate transmitter check is not required.
  - l. Transmitters are exempted from the monthly channel calibration.

TABLE 3.3.2-1

ISOLATION ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>VALVE GROUPS OPERATED BY SIGNAL(a)</u>	<u>MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM(b)(c)</u>	<u>APPLICABLE OPERATIONAL CONDITION</u>	<u>ACTION</u>
<b>I. <u>PRIMARY CONTAINMENT ISOLATION</u></b>				
<b>a. Reactor Vessel Water Level - Low</b>				
1. Level #1 (B21-LT-N017A-1, B-1, C-1, D-1) (B21-LTM-N017A-1, B-1, C-1, D-1)	2, 6, 7, 8	2	1, 2, 3	20
2. Level #2 (B21-LT-N024A-1, B-1, and B21-LT-N025A-1, B-1)  (B21-LTM-N024A-1, B-1 and B21-LTM-N025A-1, B-1)	1, 3	2	1, 2, 3	20
b. Drywell Pressure - High (C71-PS-H002 A, B, C, D)	2, 6, 7	2	1, 2, 3	20
<b>c. Main Steam Line</b>				
1. Radiation - High (d) (D12-RM-K603A, B, C, D)	1	2	1, 2, 3	21
2. Pressure - Low (B21-PS-N015 A, B, C, D)	1	2	1	22

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TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>VALVE GROUPS OPERATED BY SIGNAL(a)</u>	<u>MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM(b)(c)</u>	<u>APPLICABLE OPERATIONAL CONDITION</u>	<u>ACTION</u>
<b>I. PRIMARY CONTAINMENT ISOLATION (Continued)</b>				
<b>c. Main Steam Line (Continued)</b>				
3. Flow - High (B21-dPIS-H006 A,B,C,D; B21-dPIS-H007 A,B,C,D; B21-dPIS-H008 A,B,C,D; and B21-dPIS-H009 A,B,C,D)	1	2/line	1	22
d. Main Steam Line Tunnel Temperature - High (B21-TS-H010A,B,C,D; B21-TS-H011A,B,C,D; B21-TS-H012A,B,C,D and B21-TS-H013A,B,C,D)	1	2(e)	1, 2, 3	21
e. Condenser Vacuum - Low (B21-PS-H056 A,B,C,D)	1	2	1, 2(f)	21
f. Turbine Building Area Temperature - High (B21-TS-3225A,B,C,D; B21-TS-3226A,B,C,D; B21-TS-3227A,B,C,D; B21-TS-3228A,B,C,D; B21-TS-3229A,B,C,D; B21-TS-3230A,B,C,D; B21-TS-3231A,B,C,D; and B21-TS-3232A,B,C,D)	1	4(e)	1, 2, 3	21

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>VALVE GROUPS OPERATED BY SIGNAL(n)</u>	<u>MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM(b)(c)</u>	<u>APPLICABLE OPERATIONAL CONDITION</u>	<u>ACTION</u>
<b>2. <u>SECONDARY CONTAINMENT ISOLATION</u></b>				
a. Reactor Building Exhaust Radiation - High (D12-RM-N010A,B)	6	1	1, 2, 3, 5 and *	21
b. Drywell Pressure - High (C71-PS-N002 A,B,C,D)	2, 6, 7	2	1, 2, 3	21
c. Reactor Vessel Water Level - Low, Level #2 (B21-LT-N024A-1,B-1 and B21-LT-N025A-1,B-1)				
(B21-LTM-N024A-1,B-1 and B21-LTM-N025A-1,B-1)	1, 3	2	1, 2, 3	21
<b>3. <u>REACTOR WATER CLEANUP SYSTEM ISOLATION</u></b>				
a. $\Delta$ Flow - High (G31-dFS-N60)-1A,1B)	3	1	1, 2, 3	24
b. Area Temperature - High (G31-TS-N600A,B,C,D,E,F)	3	2	1, 2, 3	24
c. Area Ventilation $\Delta$ Temp. - High (G31-TS-N602A,B,C,D,E,F)	3	2	1, 2, 3	24
d. SILCS Initiation (C41A-S1)	3(R)	NA	1, 2, 3	24
e. Reactor Vessel Water Level - Low, Level #2 (B21-LT-N024A-1,B-1 and B21-LT-N025A-1,B-1)				
(B21-LTM-N024A-1,B-1 and B21-LTM-N025A-1,B-1)	1, 3	2	1, 2, 3	24

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TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>VALVE GROUPS OPERATED BY SIGNAL(a)</u>	<u>MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM(b)(c)</u>	<u>APPLICABLE OPERATIONAL CONDITION</u>	<u>ACTION</u>
5. <u>SHUTDOWN COOLING SYSTEM ISOLATION</u>				
a. Reactor Vessel Water - Low, Level #1 (B21-LT-N017A-1, B-1, C-1, D-1) (B21-LTM-N017A-1, B-1, C-1, D-1)	2, 6, 7, 8	2	1, 2, 3	27
b. Reactor Steam Dome Pressure - High (B32-PS-N018A, B)	7, 8	1	1, 2, 3	27

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TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

ACTIONS

- ACTION 20 - Be in at least HOT SHUTDOWN within 6 hours and in COLD SHUTDOWN within the following 30 hours.
- ACTION 21 - Be in at least STARTUP with the main steam line isolation valves closed within 2 hours or be in at least HOT SHUTDOWN within 6 hours and in COLD SHUTDOWN within the next 30 hours.
- ACTION 22 - Be in at least STARTUP within 2 hours.
- ACTION 23 - Establish SECONDARY CONTAINMENT INTEGRITY with the standby gas treatment system operating within one hour.
- ACTION 24 - Isolate the reactor water cleanup system.
- ACTION 25 - Close the affected system isolation valves and declare the affected system inoperable.
- ACTION 26 - Verify power availability to the bus at least once per 12 hours.
- ACTION 27 - Deactivate the shutdown cooling supply and reactor vessel head spray isolation valves in the closed position until the reactor steam dome pressure is within the specified limits.

NOTES

- \* When handling irradiated fuel in the secondary containment.
- a. See Specification 3.6.3.1, Table 3.6.3.1-1 for valves in each valve group.
- b. A channel may be placed in an inoperable status for up to 2 hours for required surveillance without placing the trip system in the tripped condition provided at least one other OPERABLE channel in the same trip system is monitoring that parameter.
- c. With only one channel per trip system, an inoperable channel need not be placed in the tripped condition where this would cause the Trip Function to occur. In these cases, the inoperable channel shall be restored to OPERABLE status within 2 hours or the ACTION required by Table 3.3.2-1 for that Trip Function shall be taken.
- d. Trips the mechanical vacuum pumps.
- e. A channel is OPERABLE if 2 of 4 instruments in that channel are OPERABLE.
- f. With reactor steam pressure  $\geq$  500 psig.
- g. Closes only RWCU outlet isolation valve.
- h. Alarm only.

TABLE 3.3.2-2

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUE
<b>1. PRIMARY CONTAINMENT ISOLATION</b>		
<b>a. Reactor Vessel Water Level - Low</b>		
1. Level #1 (B21-LTH-N017A-1, B-1, C-1, D-1)	$\geq +162.5$ Inches	$\geq +162.5$ Inches
2. Level #2 (B21-LTH-N026A-1, B-1 and B21-LTH-N025A-1, B-1)	$\geq +112$ Inches	$\geq +112$ Inches
<b>b. Drywell Pressure - High (C71-PS-H002 A,B,C,D)</b>		
	$\leq 2$ psia	$\leq 2$ psia
<b>c. Main Steam Line</b>		
1. Radiation - High (D12-RH-K603 A, B, C, D)	$\leq 3 \times$ full power background	$\leq 3.5 \times$ full power background
2. Pressure - Low (B21-PS-H015 A,B,C,D)	$\geq 025$ psia	$\geq 025$ psia
3. Flow - High (B21-dP15-H006 A,B,C,D; B21-dP15-H007 A,B,C,D; B21-dP15-H008 A,B,C,D; and B21-dP15-H009 A,B,C,D)	$\leq 140\%$ of rated flow	$\leq 140\%$ of rated flow
<b>d. Main Steam Line Tunnel</b>		
Temperature - High (B21-TS-H010 A, B, C, D; B21-TS-H011 A, B, C, D; B21-TS-H012 A, B, C, D; and B21-TS-H013 A, B, C, D)	$\leq 200^{\circ}$ F	$\leq 200^{\circ}$ F
<b>e. Condenser Vacuum - Low (B21-PS-H056 A,B,C,D)</b>		
	$\geq 7$ Inches Hg Vacuum	$\geq 7$ Inches Hg vacuum
<b>f. Turbine Building Area Temp. - High</b>		
(B21-TS-3225 A, B, C, D; B21-TS-3226 A, B, C, D; B21-TS-3227 A, B, C, D; B21-TS-3228 A, B, C, D; B21-TS-3229 A, B, C, D; B21-TS-3230 A, B, C, D; B21-TS-3231 A, B, C, D and B21-TS-3232 A, B, C, D)	$\leq 200^{\circ}$ F	$\leq 200^{\circ}$ F

TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
<b>2. SECONDARY CONTAINMENT ISOLATION</b>		
a. Reactor Building Exhaust Radiation - High (D12-RH-N010 A, B)	$\leq 11$ mr/hr	$\leq 11$ mr/hr
b. Drywell Pressure - High (C/1-PS-N002 A, B, C, D)	$\leq 2$ psig	$\leq 2$ psig
c. Reactor Vessel Water Level - Low, Level #2 (B21-LTW-N024A-1, B-1 and B21-LTW-N025A-1, B-1)	$\geq +112$ Inches	$\geq +112$ Inches
<b>3. REACTOR WATER CLEANUP SYSTEM ISOLATION</b>		
a. $\Delta$ Flow - High (G31-dFS-N603-1A, 1B)	$\leq 53$ gal/min	$\leq 53$ gal/min
b. Area Temperature - High (G31-TS-N600A, B, C, D, E, F)	$\leq 150^{\circ}$ F	$\leq 150^{\circ}$ F
c. Area Ventilation Temperature $\Delta$ Temp - High (G31-TS-N602A, B, C, D, E, F)	$\leq 50^{\circ}$ F	$\leq 50^{\circ}$ F
d. SIC5 Initiation (C/4IA-S1)	NA	NA
e. Reactor Vessel Water - Low, Level #2 (B21-LTW-N024A-1, B-1 and B21-LTW-N025A-1, B-1)	$\geq +112$ Inches	$\geq +112$ Inches



TABLE 3.3.2-2 (continued)

ISOLATION ACTIVATION INSTRUMENTATION SETPOINTS

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
5. <u>SHUTDOWN COOLING SYSTEM ISOLATION</u>		
a. Reactor Vessel Water - Low, Level #1 (B21-LTR-H017A-1, B-1, C-1, D-1)	$\geq +162.5$ inches	$\geq +162.5$ inches
b. Reactor Steam Dome Pressure - High (B32-PS-H018A, B)	$\leq 140$ psig	$\leq 140$ psig

TABLE 3.3.2.-3

ISOLATION SYSTEM RESPONSE TIME

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>RESPONSE TIME (Seconds)</u>
<u>1. PRIMARY CONTAINMENT ISOLATION</u>	
a. Reactor Vessel Water Level - Low	
1. Level #1 (B21-LT-N017A-1, B-1, C-1, D-1) (B21-LTM-N017A-1, B-1, C-1, D-1)	≤13
2. Level #2 (B21-LT-N024A-1, B-1 and B21-LT-N025A-1, B-1) (B21-LTM-N024A-1, B-1 and B21-LTM-N025A-1, B-1)	≤1.0**
b. Drywell Pressure - High (C71-PS-N002 A, B, C, D)	≤13
c. Main Steam Line	
1. Radiation - High* (D12-RM-K603A, B, C, D)	≤1.0**
2. Pressure - Low (B21-PS-N015 A, B, C, D)	≤13
3. Flow - High (B21-dPIS-N006 A, B, C, D; B21-dPIS-N007 A, B, C, D; B21-dPIS-N008 A, B, C, D and B21-dPIS-N009 A, B, C, D)	≤0.5**
d. Main Steam Line Tunnel Temperature - High (B21-TS-N010A, B, C, D; B21-TS-N011A, B, C, D; B21-TS-N012A, B, C, D; and B21-TS-N013A, B, C, D)	≤13
e. Condenser Vacuum - Low (B21-PS-N056 A, B, C, D)	≤13

TABLE 3.3.2-3 (Continued)

ISOLATION SYSTEM RESPONSE TIME

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>RESPONSE TIME (Seconds)</u>
<u>1. PRIMARY CONTAINMENT ISOLATION (Continued)</u>	
f. Turbine Building Area Temperature - High (B21-TS-3225A, B, C, D; B21-TS-3226A, B, C, D; B21-TS-3227A, B, C, D; B21-TS-3228A, B, C, D; B21-TS-3229A, B, C, D; B21-TS-3230A, B, C, D; B21-TS-3231A, B, C, D; B21-TS-3232A, B, C, D)	NA
<u>2. SECONDARY CONTAINMENT ISOLATION</u>	
a. Reactor Building Exhaust Radiation - High * (D12-RM-NO10A, B)	<13
b. Drywell Pressure - High (C71-PS-NO02 A, B, C, D)	<13
c. Reactor Vessel Water Level - Low, Level #2 (B21-LT-NO24A-1, B-1 and B21-LT-NO25A-1, B-1) (B21-LTM-NO24A-1, B-1 and B21-LTM-NO25A-1, B-1)	<1.0**

TABLE B.3.2-3 (Continued)

ISOLATION SYSTEM RESPONSE TIME

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>RESPONSE TIME (Seconds)</u>
<u>3. REACTOR WATER CLEANUP SYSTEM ISOLATION</u>	
a. $\Delta$ Flow - High (G31-dFS-N603-1A,1B)	$\leq 13$
b. Area Temperature - High (G31-TS-N600A,B,C,D,E,F)	$\leq 13$
c. Area Ventilation Temperature $\Delta$ T - High (G31-TS-N602A,B,C,D,E,F)	$\leq 13$
d. SLOS Initiation (C41A-S1)	NA
e. Reactor Vessel Water - Low, Level #2 (E21-LT-N024A-1,B-1 and E21-LT-N025A-1,B-1) E21-LTM-N024A-1,B-1 and E21-LTM-N025A-1,B-1)	$\leq 1.0^{**}$
<u>4. CORE STANDBY COOLING SYSTEMS ISOLATION</u>	
a. High Pressure Coolant Injection Isolation	
1. EPCI Steam Line Flow - High (E41-dPIS-N004 and E41-dPIS-N005)	$\leq 13$
2. EPCI Steam Supply Pressure - Low (E41-PSL-N001A,B,C,D)	$\leq 13$
3. EPCI Steam Line Tunnel Temperature - High (E41-TS-3314; E41-TS-3315; E41-TS-3316; E41-TS-3317; E41-TS-3318; E41-TS-3354; E41-TS-3488 and E41-TS-3489)	$\leq 13$
4. Bus Power Monitor (E41-K55 and E41-K56)	NA
5. EPCI Turbine Exhaust Diaphragm Pressure - High (E41-PSH-N012A,B,C,D)	NA
6. EPCI Steam Line Ambient Temperature - High (E51-TS-N603C,D)	NA
7. EPCI Steam Line Area $\Delta$ Temp - High (E51-dTS-N604C,D)	NA
8. Emergency Area Cooler Temperature - High (E41-TS-602A,B)	NA

TABLE 3.3.2-3 (Continued)

ISOLATION SYSTEM RESPONSE TIME

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>RESPONSE TIME (Seconds)</u>
b. Reactor Core Isolation Cooling System Isolation	
1. RCIC Steam Line Flow - High (E51-dPIS-N017 and E51-dPIS-N018)	NA
2. RCIC Steam Supply Pressure - Low (E51-PS-N019A, B, C, D)	NA
3. RCIC Steam Line Tunnel Temp - High (E51-TS-3319; E51-TS-3320; E51-TS-3321; E51-TS-3322; E51-TS-3323; E51-TS-3355 and E51-TS-3467)	NA
4. Bus Power Monitor (E51-K42 and E51-K43)	NA
5. RCIC Turbine Exhaust Diaphragm Pressure - High (E51-PS-N012A, B, C, D)	NA
6. RCIC Steam Line Ambient Temperature - High (E51-TS-N603A, B)	NA
7. RCIC Steam Line Area $\Delta$ Temp - High (E51-dTS-N604A, B)	NA
8. Emergency Area Cooler Temperature - High (E51-TS-N602A, B)	NA
9. RCIC Equipment Room $\Delta$ Temp - High (E51-dTS-N601A, B)	NA
5. <u>SHUTDOWN COOLING SYSTEM ISOLATION</u>	
a. Reactor Vessel Water Level - Low, Level #1 (E21-LT-N017A-1, B-1, C-1, D-1) (E21-LTM-N017A-1, B-1, C-1, D-1)	NA
b. Reactor Steam Dome Pressure - High (E32-PS-N018A, B)	NA

\* Radiation monitors are exempt from response time testing. Response time shall be measured from detector output or the input of the first electronic component in the channel.

\*\* Isolation actuation instrumentation response time only.

TABLE 4.3.2-1

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

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TRIP FUNCTION AND INSTRUMENT NUMBER	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
<b>I. PRIMARY CONTAINMENT ISOLATION</b>				
<b>a. Reactor Vessel Water Level - Low</b>				
<b>1. Level #1</b>				
(B21-LT-N017A-1, B-1, C-1, D-1)	NA <sup>(a)</sup>	NA	R <sup>(b)</sup>	
(B21-LTM-N017A-1, B-1, C-1, D-1)	D	H	H	1, 2, 3
<b>2. Level #2</b>				
(B21-LT-N024A-1, B-1 and B21-LT-N025A-1, B-1)	NA <sup>(a)</sup>	NA	R <sup>(b)</sup>	
(B21-LTM-N024A-1, B-1 and B21-LTM-N025A-1, B-1)	D	H	H	1, 2, 3
<b>b. Drywell Pressure - High (C71-PS-N002 A, B, C, D)</b>				
	NA	H	Q	1, 2, 3
<b>c. Main Steam Line</b>				
<b>1. Radiation - High</b>				
(D12-RM-K603A, B, C, D)	D	W	R	1, 2, 3
<b>2. Pressure - Low</b>				
(B21-PS-N015 A, B, C, D)	NA	H	Q	1
<b>3. Flow - High</b>				
(B21-dPIS-N006 A, B, C, D; B21-dPIS-N007 A, B, C, D; B21-dPIS-N008 A, B, C, D; and B21-dPIS-N009 A, B, C, D)	NA	H	Q	1

TABLE 4.3.2.-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED</u>
I. <u>PRIMARY CONTAINMENT ISOLATION (Continued)</u>				
d. Main Steam Line Tunnel Temperature - High (B21-TS-N010A, B, C, D; B21-TS-N011A, B, C, D; B21-TS-N012A, B, C, D and B21-TS-N013A, B, C, D)	NA	H	R	1, 2, 3
e. Condenser Vacuum - Low (B21-PS-N056 A, B, C, D)	NA	M	R	1, 2#
f. Turbine Building Area Temp - High (B21-TS-3225A, B, C, D; B21-TS-3226A, B, C, D; B21-TS-3227A, B, C, D; B21-TS-3228A, B, C, D; B21-TS-3229A, B, C, D; B21-TS-3230A, B, C, D; B21-TS-3231A, B, C, D and B21-TS-3232A, B, C, D)	NA	H	R	1, 2, 3

#When reactor steam pressure  $\geq 500$  psig.

TABLE 4.3.2.-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED</u>
<b>2. <u>SECONDARY CONTAINMENT ISOLATION</u></b>				
a. Reactor Building Exhaust Radiation - High (D12-RM-N610A,B)	D	H	R	1, 2, 3, 5 and *
b. Drywell Pressure - High (C71-PS-N002 A,B,C,D)	NA	H	Q	1, 2, 3
c. Reactor Vessel Water Level - Low, Level #2 (B21-LT-N024A-1,B-1 and B21-LT-N025A-1,B-1) (B21-LTM-N024A-1,B-1 and B21-LTM-N025A-1,B-1)	NA <sup>(a)</sup> D	NA H	R <sup>(b)</sup> H	1, 2, 3
<b>3. <u>REACTOR WATER CLEANUP SYSTEM ISOLATION</u></b>				
a. $\Delta$ Flow - High (G31-dFS-N603-1A,1B)	D	H	R	1, 2, 3
b. Area Temperature - High (G31-TS-N604A,B,C,D,E,F)	NA	H	R	1, 2, 3
c. Area Ventilation $\Delta$ Temp - High (G31-TS-N602A,B,C,D,E,F)	NA	H	R	1, 2, 3

\*When handling irradiated fuel in the secondary containment.



TABLE 4.3.2-1 (continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED</u>
3. <u>REACTOR WATER CLEANUP SYSTEM ISOLATION</u> (continued)				
d. SLCS Initiation (C41A-S1)	NA	R	NA	1, 2, 3
e. Reactor Vessel Water Level - Low, Level #2 (B21-LT-N024A-1, B-1 and B21-LT-N025A-1, B-1)	NA <sup>(a)</sup>	NA	R <sup>(b)</sup>	
(B21-LTM-N024A-1, B-1 and B21-LTM-N025A-1, B-1)	D	H	H	1, 2, 3

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TABLE 4.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED</u>
<b>5. <u>SHUTDOWN COOLING SYSTEM ISOLATION</u></b>				
a. Reactor Vessel Water - Low, Level #1 (B21-LT-N017A-1, B-1, C-1, D-1) (B21-LTM-N017A-1, B-1, C-1, D-1)	NA <sup>(a)</sup> D	NA M	R <sup>(b)</sup> M	1, 2, 3
b. Reactor Steam Dome Pressure High (B32-PS-N018A, B)	NA	S/U*, M	R	1, 2, 3

\* If not performed within the previous 31 days.

- (a) The transmitter channel check is satisfied by the trip unit channel check. A separate transmitter check is not required.
- (b) Transmitters are exempted from the monthly channel calibration.

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## INSTRUMENTATION

### 3/4.3.3 EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

#### LIMITING CONDITION FOR OPERATION

3.3.3 The Emergency Core Cooling System (ECCS) actuation instrumentation shown in Table 3.3.3-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3.3-2 and with EMERGENCY CORE COOLING SYSTEM RESPONSE TIME as shown in Table 3.3.3-3.

APPLICABILITY: As shown in Table 3.3.3-1.

#### ACTION:

- a. With an ECCS actuation instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3.3-2, declare the channel inoperable and place the inoperable channel in the tripped condition until the channel is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.
- b. With one or more ECCS actuation instrumentation channels inoperable, take the ACTION required by Table 3.3.3-1.
- c. The provisions of Specification 3.0.3 are not applicable in OPERATIONAL CONDITION 5.

#### SURVEILLANCE REQUIREMENTS

4.3.3.1 Each ECCS actuation instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations during the OPERATIONAL CONDITIONS and at the frequencies shown in Table 4.3.3-1.

4.3.3.2 LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all channels shall be performed at least once per 18 months and shall include calibration of time delay relays and timers necessary for proper functioning of the trip system.

4.3.3.3 The ECCS RESPONSE TIME of each ECCS function shown in Table 3.3.3-3\* shall be demonstrated to be within the limit at least once per 18 months. Each test shall include at least one logic train such that both logic trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once every N times 12 months where N is the total number of redundant channels in a specific ECCS function.

\*For the ECCS response time test for Items 1 and 2 of Table 3.3.3-3 scheduled for completion by February 21, 1981, and February 19, 1981, respectively, a onetime-only exemption is allowed to extend this test until "before the completion of the Spring 1981 outage," scheduled to commence in March, 1981.

TABLE 3.3.3-1

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM</u>	<u>APPLICABLE OPERATIONAL CONDITIONS</u>	<u>ACTION</u>
<b>1. CORE SPRAY SYSTEM</b>			
a. Reactor Vessel Water Level - Low, Level #3 (B21-LT-N031A, B, C, D) (B21-LTS-N031A-4, B-4, C-4, D-4)	2	1, 2, 3, 4, 5	30
b. Reactor Steam Dome Pressure - Low (Injection Permissive) (B21-PT-N021A, B, C, D) (B21-PTN-N021A-1, B-1, C-1, D-1) (B21-PTS-N021A-2, B-2, C-2, D-2)	2	1, 2, 3, 4, 5	31
c. Drywell Pressure - High (E11-PS-N011A,B,C,D)	2	1, 2, 3	30
d. Time Delay Relay	1	1, 2, 3, 4, 5	31
e. Bus Power Monitor # (E21-K1A, B)	1/bus	1, 2, 3, 4, 5	32
<b>2. LPCI NODE OF RHR SYSTEM</b>			
a. Drywell Pressure - High (E11-PS-N011A,B,C,D)	2	1, 2, 3	30
b. Reactor Vessel Water Level - Low, Level #3 (B21-LT-N031A, B, C, D) (B21-LTS-N031A-4, B-4, C-4, D-4)	2	1, 2, 3, 4 <sup>A</sup> , 5 <sup>A</sup>	30

<sup>A</sup>Not applicable when two core spray system subsystems are OPERABLE per Specification 3.5.3.1.

#Alarm Only.

TABLE 3.3.3-1 (continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM</u>	<u>APPLICABLE OPERATIONAL CONDITIONS</u>	<u>ACTION</u>
<b>2. <u>LPCI NODE OF RHR SYSTEM (continued)</u></b>			
c. Reactor Vessel Shroud Level (Drywell Spray Permissive) (B21-LT-NO36 and B21-LT-NO37) (B21-LTM-NO36-1 and B21-LTM-NO37-1)	1	1, 2, 3, 4*, 5*	31
d. Reactor Steam Dome Pressure - Low (Injection Permissive) (B21-PT-NO21A, B, C, D) (B21-PTM-NO21A-1, B-1, C-1, D-1) (B21-PTS-NO21A-2, B-2, C-2, D-2)			
1. RHR Pump Start and LPCI Injection Valve Actuation	1	1, 2, 3, 4*, 5*	31
2. Recirculation Loop Pump Discharge Valve Actuation	2	1, 2, 3, 4*, 5*	31
e. RHR Pump Start - Time Delay Relay	1	1, 2, 3, 4*, 5*	31
f. Bus Power Monitor <sup>#</sup> (E11-K106A, B)	1/bus	1, 2, 3, 4*, 5*	32

\*Not applicable when two core spray system subsystems are OPERABLE per Specification 3.5.3.1.

<sup>#</sup>Alarm only.

TABLE 3.3.3-1 (continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM</u>	<u>APPLICABLE OPERATIONAL CONDITIONS</u>	<u>ACTION</u>
<b>3. <u>HPCI SYSTEM</u></b>			
a. Reactor Vessel Water Level - Low, Level #2 (B21-LT-H031A, B, C, D) (B21-LTM-H031A-1, B-1, C-1, D-1; B21-LTS-H031A-2, B-2, C-2, D-2)	2	1, 2, 3	30
b. Drywell Pressure - High (E11-PS-N011A,B,C,D)	2	1, 2, 3	30
c. Condensate Storage Tank Level-Low (E41-LS-H002, E41-LS-H003)	2**	1, 2, 3	33
d. Suppression Chamber Water Level-High (E41-LSH-N015A, B)	2**	1, 2, 3	33
e. Bus Power Monitor # (E41-K55 and E41-K56)	1/bus	1, 2, 3	32
<b>4. <u>ADS</u></b>			
a. Drywell Pressure - High, coincident with (E11-PS-N010A,B,C,D)	2	1, 2, 3	30
b. Reactor Vessel Water Level - Low, Level #3 (B21-LT-H031A, B, C, D) (B21-LTS-H031A-3, B-3, C-3, D-3)	2	1, 2, 3	30

# Alarm only.

\*\*Provides signal to HPCI pump suction valves only.

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TABLE 3.3.3-1 (continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

TRIP FUNCTION AND INSTRUMENT NUMBER	MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM	APPLICABLE OPERATIONAL CONDITIONS	ACTION
4. ADS (continued)			
c. Reactor Vessel Water Level - Low Level #1 (B21-LT-N002A, B; B21-LTH-N007A-1, B-1)	1	1, 2, 3	30
d. ADS Timer (B21-TDPU-K5A, B)	1	1, 2, 3	31
e. Core Spray Pump Discharge Pressure - High (Permissive) (E21-PS-N008A, B and E21-PS-N009A, B)	2	1, 2, 3	31
f. RHR (LPCI MODE) Pump Discharge Pressure - High (Permissive) (E11-PS-N016A, B, C, D and E11-PS-N020A, B, C, D)	2/pump	1, 2, 3	31
g. Bus Power Monitor # (B21-K1A, B)	1/bus	1, 2, 3	32
5. LOSS OF POWER			
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage)	1/bus	1, 2, 3, 4 <sup>##</sup> , 5 <sup>##</sup>	34
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage)	3/bus	1, 2, 3, 4 <sup>##</sup> , 5 <sup>##</sup>	35

##Alarm only.

##Required when ESF equipment is required to be OPTIMABLE.

TABLE 3.3.3-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

ACTION

- ACTION 30 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement:
- a. For one trip system, place at least one inoperable channel in the tripped condition within one hour or declare the associated ECCS inoperable.
  - b. For both trip systems, declare the associated ECCS inoperable.
- ACTION 31 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement, declare the associated ECCS inoperable.
- ACTION 32 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement, verify bus power availability at least once per 12 hours or declare the associated ECCS inoperable.
- ACTION 33 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement, place at least one inoperable channel in the tripped condition within one hour or declare the HPCS system inoperable.
- ACTION 34 - With the number of OPERABLE channels less than the Total Number of Channels, declare the associated emergency diesel generator inoperable and take the ACTION required by Specification 3.8.1.1 or 3.8.1.2, as appropriate.
- ACTION 35 - With the number of OPERABLE channels one less than the Total Number of Channels, place the inoperable channel in the tripped condition within 1 hour; operation may then continue until performance of the next required CHANNEL FUNCTIONAL TEST.



TABLE 3.3.3-2

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SETPOINTS

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
<u>1. CORE SPRAY SYSTEM</u>		
a. Reactor Vessel Water Level - Low, Level #3 (B21-LTS-N031A-4, B-4, C-4, D-4)	$\geq +2.5$ inches above top fuel guide	$\geq +2.5$ inches above top fuel guide
b. Reactor Steam Dome Pressure - Low (B21-PTS-N021A-2, B-2, C-2, D-2)	$410 \pm 15$ psig	$410 \pm 15$ psig
c. Drywell Pressure - High (E11-PS-N011A,B,C,D)	$\leq 2$ psig	$\leq 2$ psig
d. Time Delay Relay	$14 \leq t \leq 16$ secs	$14 \leq t \leq 16$ secs
e. Bus Power Monitor (E21-K1A, B)	NA	NA
<u>2. LPCI MODE OF RHR SYSTEM</u>		
a. Drywell Pressure - High (E11-PS-N011A,B,C,D)	$\leq 2$ psig	$\leq 2$ psig
b. Reactor Vessel Water Level - Low, Level #3 (B21-LTS-N031A-4, B-4, C-4, D-4)	$\geq +2.5$ inches above top fuel guide	$\geq +2.5$ inches above top fuel guide
c. Reactor Vessel Shroud Level (B21-LHM-N036-1 and B21-LHM-N037-1)	$\geq 53$ " below top fuel guide	$\geq 53$ " below top fuel guide

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TABLE 3.3.3-2 (continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SETPOINTS

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
d. Reactor Steam Dome Pressure - Low		
1. RHR Pump Start and LCPI Injection Valve Actuation (B21-PTS-NO21A-2, B-2, C-2, D-2)	410 ± 15 psig	410 ± 15 psig
2. Recirculation Pump Discharge Valve Actuation (B21-P1M-NO21A-1, B-1, C-1, D-1)	310 ± 15 psig	310 ± 15 psig
e. RHR Pump Start - Time Delay Relay	9 ≤ t ≤ 11 seconds	9 ≤ t ≤ 11 seconds
f. Bus Power Monitor (E11-K106A, B)	NA	NA

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TABLE 3.3.3-2 (cont Inced)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SETTINGS

TRIP FUNCTION AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUE
<b>3. HPCI SYSTEM</b>		
a. Reactor Vessel Water Level - Low, Level #2 (B21-LTS-R031A-2, B-2, C-2, D-2)	> +112 inches above top fuel guide	> +112 inches above top fuel guide
b. Drywell Pressure - High (E11-PS-R011A, B, C, D)	< 2 psig	< 2 psig
c. Condensate Storage Tank Level - Low (E41-LS-R002, E41-LS-R003)	> 23 1/4"	> 23 1/4"
d. Suppression Chamber Water Level - High* (E41-LS-R015A, B)	< -2 feet	< -2 feet
e. Bus Power Monitor (E41-K55 and E41-K56)	N/A	N/A
<b>4. ADS</b>		
a. Drywell Pressure - High (E11-PS-R010A, B, C, D)	< 2 psig	< 2 psig
b. Reactor Vessel Water Level - Low, Level #3 (B21-LTS-R031A-3, B-3, C-3, D-3)	> +2.5 inches	> +2.5 inches
c. Reactor Vessel Water Level - Low, Level #1 (B21-LTM-R042A-1, B-1)	> +162.5 inches	> +162.5 inches
d. ADS Timer (B21-TDPU-K5A, B)	< 120 seconds	< 120 seconds
e. Core Spray Pump Discharge Pressure - High (E21-PS-R008A, B and E21-PS-R009A, 3)	> 100 psig	> 100 psig
f. RRT (LPCI Mode) Pump Discharge Pressure - High (E11-PS-R016A, B, C, D and E11-PS-R020A, B, C, D)	> 100 psig	> 100 psig

\*Suppression chamber water level zero in the torus centerline minus 1 inch.

TABLE 3.3.3-2 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SETPOINTS

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
4. <u>ADS (continued)</u>		
g. Bus Power Monitor (B21-K1A, B)	HA	HA
5. <u>LOSS OF POWER</u>		
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage)*	a. 4.16 kv Basis - $2940 \pm 361$ volts b. 120 v Basis - $84 \pm 4.6$ volts c. $\leq 10$ sec. time delay	$2940 \pm 315$ volts $84 \pm 9$ volts $\leq 10$ sec. time delay
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage)	a. 4.16 kv Basis - $3727 \pm 9$ volts b. 120 v Basis - $106.5 \pm 0.25$ volts c. $10 \pm 0.5$ sec. time delay	$3727 \pm 21$ volts $106.5 \pm 0.60$ volts $10 \pm 1.0$ sec. time delay

\*This is an inverse time delay voltage relay. The voltages shown are the maximum that will not result in a trip. Lower voltage conditions will result in decreased trip times.

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TABLE 4.3.3-1

## EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED</u>
<b>1. CORE SPRAY SYSTEM</b>				
a. Reactor Vessel Water Level - Low, Level #3 (B21-LF-NO31A, B, C, D) (B21-LTS-NO31A-4, B-4, C-4, D-4)	NA <sup>(a)</sup> D	NA H	R <sup>(b)</sup> H	1, 2, 3, 4, 5
b. Reactor Steam Dome Pressure - Low (B21-PT-NO21A, B, C, D) (B21-PTN-NO21A-1, B-1, C-1, D-1) (B21-PTS-NO21A-2, B-2, C-2, D-2)	NA <sup>(a)</sup> D D	NA H H	R <sup>(b)</sup> H H	1, 2, 3, 4, 5
c. Drywell Pressure - High (E11-PS-NO11A, B, C, D)	NA	M	Q	1, 2, 3
d. Time Delay Relay	NA	R	R	1, 2, 3, 4, 5
e. Bas Power Monitor (E21-K1A, B)	NA	R	NA	1, 2, 3, 4, 5
<b>2. LPCI MODE OF RHR SYSTEM</b>				
a. Drywell Pressure - High (E11-PS-NO11A, B, C, D)	NA	M	Q	1, 2, 3

(a) The transmitter channel check is satisfied by the trip unit channel check. A separate transmitter check is not required.

(b) Transmitters are exempted from the monthly channel calibration.

TABLE 4.3.3.-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED</u>
2. <u>LPCI MODE OF RHR SYSTEM (Continued)</u>				
b. Reactor Vessel Water Level - Low, Level #3 (B21-LT-NO31A,B,C,D) (B21-LTS-NO31A-4,B-4,C-4,D-4)	NA <sup>(a)</sup> D	NA H	R <sup>(b)</sup> H	1, 2, 3, 4*, 5*
c. Reactor Vessel Shroud Level (B21-LT-NO36; B21-LT-NO37) (B21-LTM-NO36-1 and B21-LTM-NO37-1)	NA <sup>(a)</sup> D	NA H	R <sup>(b)</sup> H	1, 2, 3, 4*, 5*
d. Reactor Steam Dome Pressure - Low (B21-PT-NO21A,B,C,D)	NA <sup>(a)</sup>	NA	R <sup>(b)</sup>	
1. RHR Pump Start and LPCI Injection Valve Actuation (B21-PTS-NO21A-2,B-2,C-2,D-2)	D	H	H	1, 2, 3, 4*, 5*
2. Recirculation Loop Pump Discharge Valve Actuation (B21-PTH-NO21A-1,B-1,C-1,D-1)	D	H	H	1, 2, 3, 4*, 5*
e. RHR Pump Start-Time Delay Relay	NA	R	R	1, 2, 3, 4 <sup>o</sup> , 5*
f. Bus Power Monitor (Eii-K106A,B)	NA	R	NA	1, 2, 3, 4*, 5*

\* Not applicable when two core spray system subsystems are OPERABLE per Specification 3.5.3.1.

(a) The transmitter channel check is satisfied by the trip unit channel check. A separate transmitter check is not required.

(b) Transmitters are exempted from the monthly channel calibration.

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TABLE 4.3.3.-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED</u>
<b>3. <u>HPCL SYSTEM</u></b>				
a. Reactor Vessel Water Level - Low Level #2 (B21-LT-N031A,B,C,D)	NA <sup>(a)</sup>	NA	R <sup>(b)</sup>	1, 2, 3
(B21-LTM-N031A-1,B-1,C-1,D-1)	D	M	H	
(B21-LTS-N031A-2,B-2,C-2,D-2)	D	M	H	
b. Drywell Pressure - High (E11-PS-N011A,B,C,D)	NA	M	Q	1, 2, 3
c. Condensate Storage Tank Level Low (E41-LS-N002, E41-LS-N003)	NA	M	Q	1, 2, 3
d. Suppression Chamber Water Level - High (E41-LSH-N015A,B)	NA	M	Q	1, 2, 3
e. Bus Power Monitor (E41-K55 and E41-K56)	NA	R	NA	1, 2, 3
<b>4. <u>ADS</u></b>				
a. Drywell Pressure - High (E11-PS-N010A,B,C,D)	NA	M	Q	1, 2, 3

(a) The transmitter channel check is satisfied by the trip unit channel check. A separate transmitter check is not required.

(b) Transmitters are exempted from the monthly channel calibration.

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TABLE 4.3.3-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED</u>
4. <u>ADS (Continued)</u>				
b. Reactor Vessel Water Level - Low, Level #3 (B21-LT-N031A, B, C, D) (B21-LTS-N031A-3, B-3, C-3, D-3)	NA <sup>(a)</sup> D	NA H	R <sup>(b)</sup> H	1, 2, 3
c. Reactor Vessel Water Level - Low Level #1 (B21-LT-N042A, B) (B21-LTM-N042A-1, B-1)	NA <sup>(a)</sup> D	NA H	R <sup>(b)</sup> H	1, 2, 3
d. ADS Timer (B21-TDPU-K5A, B)	NA	R	R	1, 2, 3
e. Core Spray Pump Discharge Pressure - High (E21-PS-N008A, B and E21-PS-N009A, B)	NA	H	Q	1, 2, 3
f. RHR (LPCI MODE) Pump Discharge Pressure - High (E11-PS-N016A, B, C, D and E11-PS-N020A, B, C, D)	NA	H	Q	1, 2, 3
g. Bus Power Monitor (B21-K1A, B)	NA	R	NA	1, 2, 3

(a) The transmitter channel check is satisfied by the trip unit channel check. A separate transmitter check is not required.

(b) Transmitters are exempted from the monthly channel calibration.



TABLE 4.3.3-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
5. LOSS OF POWER				
a. 4.16 kv Emergency Bus Undervoltage (Less of Voltage)	NA	NA	R	1, 2, 3, 4*, 5*
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage)	S	M	R	1, 2, 3, 4*, 5*

\*Required when ESF equipment is required to be OPERABLE.

TABLE 3.3.5.3-1

POST-ACCIDENT MONITORING INSTRUMENTATION

<u>INSTRUMENT AND INSTRUMENT NUMBER</u>	<u>MINIMUM NO. OF OPERABLE INSTRUMENT CHANNELS</u>
1. Reactor Vessel Water Level (B21-LITS-NO26A,B; B21-LR-615; B21-LI-R604A,B; B21-LT-NO37 and B21-LTM-NO37-1)	2
2. Reactor Vessel Pressure (B21-PI-R004A,B; C32-LPR-R608 and C32-PT-NO05A,B)	2
3. Containment Pressure (CAC-PI-2599; CAC-PI-2559; CAC-PR-1257-1 and CAC-PT-1257-1)	2
4. Containment Pressure (CAC-TR-1258-1 thru 13,22,23,24 and C91-P602)	2
5. Suppression Chamber Atmosphere Temperature (CAC-TR-1258-17 thru 20 and C91-P602)	2
6. Suppression Chamber Water Level (CAC-LI-2601-3; CAC-LA-2602; CAC-LT-2601; CAC-LT-2602 and CAC-LY-2601-1)	2
7. Suppression Chamber Water Temperature (CAC-TR-1258-14, 21 and C91-P602)	2
8. Containment Radiation (CAC-AR-1260; CAC-AQH-1260-1,2,3; CAC-AR-1261; CAC-AQH-1261-1,2,3; CAC-AR-1262 and CAC-AQH-1262-1,2,3)	2
9. Containment Oxygen (CAC-AT-1259-2; CAC-AR-1259; CAC-AT-1263-2 and CAC-AR-1263)	2
10. Containment Hydrogen (CAC-AT-1959-1; CAC-AR-1259; CAC-AT-1263-1 and CAC-AR-1263)	2
11. Safety relief valve position indication: Primary - Sonic (B21-FY-4157 through 4167 Secondary - Temp. (B21-TR-R614 points 1-11)	1/valve

TABLE 4.3.5.3-1

## POST-ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT AND INSTRUMENT NUMBER	CHANNEL CHECK	CHANNEL CALIBRATION
1. Reactor Vessel Water Level (B21-LITS-N026A,B; B21-LR-R615; B21-LI-R604A,B; B21-LT-N037 and B21-LTM-N037-1)	H	R
2. Reactor Vessel Pressure (B21-PI-R004A,B; C32-LPR-R600 and C32-PT-N005A,B)	H	R
3. Containment Pressure (CAC-PI-2599; CAC-PT-2599; CAC-PR-1257-1 and CAC-PT-1257-1)	H	R
4. Containment Temperature (CAC-TR-1258-1 thru 13,22,23,24 and C91-P602)	H	R
5. Suppression Chamber Atmosphere Temperature (CAC-TR-1258-17 thru 20 and C91-P602)	H	R
6. Suppression Chamber Water Level (CAC-LI-2601-3; CAC-LR-2602; CAC-LT-2601; CAC-LT-2602 and CAC-LY-2601-1)	H	R
7. Suppression Chamber Water Temperature (CAC-TR-1258-14, 21 and C91-P602)	H	R
8. Containment Radiation (CAC-AR-1260; CAC-AQH-1260-1,2,3; CAC-AR-1261; CAC-AQH-1261-1,2,3; CAC-AR-1262 and CAC-AQH-1262-1,2,3)	H	R
9. Containment Oxygen Concentration (CAC-AT-1259-2; CAC-AR-1259; CAC-AT-1263-2 and CAC-AR-1263)	H	R
10. Containment Hydrogen Concentration (CAC-AT-1259-1; CAC-AR-1259; CAC-AT-1263-1 and CAC-AR-1263)	H	R
11. Safety relief valve position Indication (Primary-Sonic) (B21-FY-4157 thru 4167)	H	R
12. Safety relief valve position Indication (Secondary-Temperature) (B21-TR-R614 points 1 thru 11)	M	R

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TABLE 3.3.6.1-1

ATWS RECIRCULATION PUMP TRIP SYSTEM INSTRUMENTATION

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>MINIMUM NUMBER OPERABLE TRIP SYSTEMS PER OPERATING PUMP</u>
1. Reactor Vessel Water Level - Low Low, Level 2 (B21-LT-N024A-2, B-2 and B21-LT-N025A-2, B-2) B21-LTM-N024A-2, B-2 and B21-LTM-N025A-2, B-2)	1
2. Reactor Vessel Pressure - High (B21-PS-N045A, B, C, D)	1

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TABLE 3.3.6.1-2

ATMS RECIRCULATION PUMP TRIP SYSTEM INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUE
1. Reactor Vessel, Water Level - Low low, Level 2 (B21-LTM-R024A-2, B-2 and B21-LTM-R025A-2, B-2)	> +112 inches above top fuel guide	> +112 inches above top fuel guide
2. Reactor Vessel Pressure - High (B21-PS-R045A, B, C, D)	< 1120 psig	< 1120 psig

TABLE 4.3.6.1-1

ATWS RECIRCULATION PUMP TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>
1. Reactor Vessel Water Level - Low Low, Level 2 (B21-LT-N024A-2, B-2; B21-LT-N025A-2, B-2) B21-LTM-N024A-2, B-2; B21-LTM-N025A-2, B-2)	NA <sup>(a)</sup> D	NA H	R <sup>(b)</sup> H
2. Reactor Vessel Pressure - High (B21-PS-N045A, B, C, D)	NA	H	R

(a) The transmitter channel check is satisfied by the trip unit channel check. A separate transmitter check is not required.

(b) Transmitters are exempted from the monthly channel calibration.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

4.8.2.3.2 Each 125-volt battery and charger shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying that:
  1. The electrolyte level of each pilot cell is between the minimum and maximum level indication marks,
  2. The pilot cell specific gravity, corrected to 77°F, is  $\geq 1.18$ ,
  3. The pilot cell voltage is  $\geq 2.0$  volts, and
  4. The overall battery voltage is  $\geq 120$  volts.
- b. At least once per 92 days by verifying that:
  1. The voltage of each connected cell is  $\geq 2.0$  volts under float charge and has not decreased more than 0.3 volts from the value observed during the original acceptance test,
  2. The specific gravity, corrected to 77°F, of each connected cell is  $\geq 1.18$  and has not decreased more than 0.04 from the value observed during the previous test, and
  3. The electrolyte level of each connected cell is between the minimum and maximum level indication marks.
- c. At least once per 18 months by verifying that:
  - 1.\* The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration,
  2. The cell-to-cell and terminal connections are clean, tight, free of abnormal corrosion and coated with anti-corrosion material, and
  - 3.\* The battery charger will supply at least 250 amperes at a minimum of 135 volts for at least 4 hours.

\*For the verification of this item scheduled for completion by February 23, 1981, a onetime-only exemption is allowed to extend this inspection until "before the completion of the Spring 1981 outage," scheduled to commence in March, 1981.

## ELECTRICAL POWER SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

- d. At least once per 18 months, during shutdown, by verifying that either:
1. The battery capacity is adequate to supply and maintain in OPERABLE status all of the actual emergency loads for 8 hours when the battery is subjected to a battery service test, or
  2. The battery capacity is adequate to supply a dummy load of the following profile while maintaining the battery terminal voltage  $\geq$  105 volts.
    - a) During the initial 60 seconds of the test;
      - 1) Battery 1A-1  $\geq$  1056.42 amperes,
      - 2) Battery 1A-2  $\geq$  1211.90 amperes,
      - 3) Battery 1B-1  $\geq$  1089.06 amperes, and
      - 4) Battery 1B-2  $\geq$  1042.67 amperes.
    - b) During the remainder of the first 30 minutes of the test;
      - 1) Battery 1A-1  $\geq$  243.19 amperes,
      - 2) Battery 1A-2  $\geq$  169.10 amperes,
      - 3) Battery 1B-1  $\geq$  176.79 amperes, and
      - 4) Battery 1B-2  $\geq$  216.67 amperes.
    - c) During the remainder of the 8 hour test;
      - 1) Battery 1A-1  $\geq$  89.52 amperes,
      - 2) Battery 1A-2  $\geq$  50.34 amperes,
      - 3) Battery 1B-1  $\geq$  63.39 amperes, and
      - 4) Battery 1B-2  $\geq$  75.09 amperes.
  3. At the completion of either of the above tests, the battery charger shall be demonstrated capable of recharging its battery at a rate of at least 200 amperes while supplying normal D.C. loads. The battery shall be charged to at least 95% capacity in  $\leq$  24 hours.
- e. At least once per 60 months during shutdown by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. This performance discharge test shall be performed subsequent to the satisfactory completion of the required battery service test and after normal equalizer charge.





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

CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-324

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 60  
License No. DPR-62

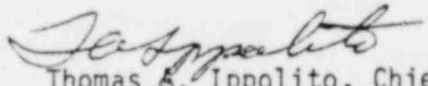
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Carolina Power & Light Company dated June 11, 1981 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations 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-62 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 60, 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 the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Thomas A. Ippolito, Chief  
Operating Reactors Branch #2  
Division of Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: June 25, 1981

ATTACHMENT TO LICENSE AMENDMENT NO. 60

FACILITY OPERATING LICENSE NO. DPR-62

DOCKET NO. 50-324

Remove the following pages and replace with identically numbered pages.

2-3/2-4

3/4 3-31/3/4 3-32

3/4 3-33/3/4 3-34

3/4 3-35/3/4 3-35A

3/4 3-37/3/4 3-38

The underlined page is an overleaf page and is provided for convenience.

## SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

### 2.2 LIMITING SAFETY SYSTEM SETTINGS

#### REACTOR PROTECTION SYSTEM INSTRUMENTATION SETPOINTS

2.2.1 The reactor protection system instrumentation setpoints shall be set consistent with the Trip Setpoint values shown in Table 2.2.1-1.

APPLICABILITY: As shown for each channel in Table 3.3.1-1.

#### ACTION:

With a reactor protection system instrumentation setpoint less conservative than the value shown in the Allowable values column of Table 2.2.1-1, declare the channel inoperable and apply the applicable ACTION statement requirement of Specification 3.3.1 until the channel is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.

## REACTOR PROTECTION SYSTEM INSTRUMENTATION SETPOINTS

FUNCTIONAL UNIT AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUES
1. Intermediate Range Monitor, Neutron Flux - High <sup>(1)</sup> (C51-1001-K601 A,B,C,D,E,F,G,H)	< 120 divisions of full scale	< 120 divisions of full scale
2. Average Power Range Monitor (C51-APRM-CH.A,D,C,D,E,F)		
a. Neutron Flux - High, 15% <sup>(2)</sup>	< 15% of RATED THERMAL POWER	< 15% of RATED THERMAL POWER
b. Flow Biased Neutron Flux - High <sup>(3)(4)</sup>	< (0.66 W + 54%)	< (0.66 W + 54%)
c. Fixed Neutron Flux - High <sup>(4)</sup>	< 120% of RATED THERMAL POWER	< 120% of RATED THERMAL POWER
3. Reactor Vessel Steam Dome Pressure - High (B21-PS-1023 A,B,C,D)	< 1045 psig	< 1045 psig
4. Reactor Vessel Water Level - Low, Level <sup>(1)</sup> (B21-L15-1017 A,B,C,D)	> 162.5 inches above instrument zero	> 162.5 inches above top fuel guide
5. Main Steam Line Isolation Valve - Closure <sup>(5)</sup> (B21-I022 A,B,C,D; B21-F020 A,B,C,D)	< 10% closed	< 10% closed
6. Main Steam Line Radiation - High (B12-104-K603 A,B,C,D)	< 3 x full power background	< 3.5 x full power background
7. Dwyer Pressure - High (C72-PS-1002 A,B,C,D)	< 2 psig	< 2 psig
8. Scram Discharge Volume Water Level - High (C12-L511-1013 A,B,C,D)	< 169 gallons	< 169 gallons

TABLE 3.3.3-1

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM</u>	<u>APPLICABLE OPERATIONAL CONDITIONS</u>	<u>ACTION</u>
<u>1. CORE SPRAY SYSTEM</u>			
a. Reactor Vessel Water Level - Low, Level #3 (B21-LIS-N031A,B,C,D)	2	1, 2, 3, 4, 5	30
b. Reactor Steam Dome Pressure - Low (Injection Permissive) (B21-PS-N021A,B,C,D)	2	1, 2, 3, 4, 5	31
c. Drywell Pressure - High (E11-PS-N011A,B,C,D)	2	1, 2, 3	30
d. Time Delay Relay	1	1, 2, 3, 4, 5	31
e. Bus Power Monitor# (E21-K1A,B)	1/bus	1, 2, 3, 4, 5	32
<u>2. LPCI MODE OF RHR SYSTEM</u>			
a. Drywell Pressure - High (E11-PS-N011A,B,C,D)	2	1, 2, 3	30
b. Reactor Vessel Water Level - Low, Level #3 (B21-LIS-N031A,B,C,D)	2	1, 2, 3, 4*, 5*	30
c. Reactor Vessel Shroud Level (Drywell Spray Permissive) (B21-LITS-N036 and B21-LITS-N037)	1	1, 2, 3, 4*, 5*	31
d. Reactor Steam Dome Pressure - Low (Injection Permissive) (B21-PS-N021A,B,C,D)			
1. RHR Pump Start and LPCI Injection Valve Actuation	2	1, 2, 3, 4*, 5*	31
2. Recirculation Loop Pump Discharge Valve Actuation	2	1, 2, 3, 4*, 5*	31
e. RHR Pump Start - Time Delay Relay	1	1, 2, 3, 4*, 5*	31
f. Bus Power Monitor# (E11-K106A,B)	1/bus	1, 2, 3, 4*, 5*	32
<u>3. HPCI SYSTEM</u>			
a. Reactor Vessel Water Level - Low, Level #2 (B21-LIS-N031A,B,C,D)	2	1, 2, 3	30
b. Drywell Pressure - High (E11-PS-N011A,B,C,D)	2	1, 2, 3	30
c. Condensate Storage Tank Level-Low (E41-LS-N002, E41-LS-N003)	2**	1, 2, 3	33
d. Suppression Chamber Water Level-High (E41-LSH-N015A,B)	2**	1, 2, 3	33
e. Bus Power Monitor# (E41-K55 and E41-K56)	1/bus	1, 2, 3	32

TABLE 3.3.3-1 (Cont Inued)

EMERGENCY CORE COOLING SYSTEM ACTIVATION INSTRUMENTATION

TRIP FUNCTION AND INSTRUMENT NUMBER	MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM	APPLICABLE OPERATIONAL CONDITIONS	ACTION
4. ADS			
a. Drywell Pressure - High, coincident with (E11-PS-N010A,B,C,D)	2	1, 2, 3	30
b. Reactor Vessel Water Level - Low, Level #3 (B21-LIS-N031A,B,C,D)	2	1, 2, 3	30
c. Reactor Vessel Water Level - Low Level #1 (B21-LIS-N042 A, B)	1	1, 2, 3	30
d. ADS Timer (B21-TDPU-K5A,B)	1	1, 2, 3	31
e. Core Spray Pump Discharge Pressure - High (Permissive) (E21-PS-N008A,B and E21-PS-N009A,B)	2	1, 2, 3	31
f. RHR (LPCI MODE) Pump Discharge Pressure - High (Permissive) (E11-PS-N016A,B,C,D and E11-PS-N020A,B,C,D)	2/pump	1, 2, 3	31
g. Bus Power Monitor# (B21-K1A,B)	1/bus	1, 2, 3	32

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE OPERATIONAL CONDITIONS	ACTION
5. LOSS OF POWER					
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage)	1/bus	1/bus	1/bus	1, 2, 3, 4 <sup>##</sup> , 5 <sup>##</sup>	34
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage)	3/bus	2/bus	2/bus	1, 2, 3, 4 <sup>##</sup> , 5 <sup>##</sup>	35

\*Not applicable when two core spray system subsystems are OPERABLE per Specification 3.5.3.1.

\*\*Provides signal to HPCI pump suction valves only.

#Alarm only.

##Required when ESF equipment is required to be OPERABLE.

TABLE 3.3.3-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

ACTION

- ACTION 30 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement:
- a. For one trip system, place at least one inoperable channel in the tripped condition within one hour or declare the associated ECCS inoperable.
  - b. For both trip systems, declare the associated ECCS inoperable.
- ACTION 31 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement, declare the associated ECCS inoperable.
- ACTION 32 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement, verify bus power availability at least once per 12 hours or declare the associated ECCS inoperable.
- ACTION 33 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement, place at least one inoperable channel in the tripped condition within one hour or declare the HPCS system inoperable.
- ACTION 34 - With the number of OPERABLE channels less than the Total Number of Channels, declare the associated emergency diesel generator inoperable and take the ACTION required by Specification 3.8.1.1 or 3.8.1.2, as appropriate.
- ACTION 35 - With the number of OPERABLE channels one less than the Total Number of Channels, place the inoperable channel in the tripped condition within 1 hour; operation may then continue until performance of the next required CHANNEL FUNCTIONAL TEST.



TABLE J, J, J-2

EMERGENCY CORE COOLING SYSTEM ACTIVATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUE
<b>1. CORE SPRAY SYSTEM</b>		
a. Reactor Vessel Water Level - Low, Level #3 (021-L15-11031A, D, C, D)	$\geq 2.5$ Inches	$\geq 2.5$ Inches above top fuel guide
b. Reactor Steam Dome Pressure - Low (021-PS-11021A, D, C, D)	$410 \pm 15$ psig	$410 \pm 15$ psig
c. Drywell Pressure - High (E11-PS-11011A, D, C, D)	$\leq 2$ psig	$\leq 2$ psig
d. Time Delay Relay	$14 < t < 16$ secs	$14 < t < 16$ secs
e. Bus Power Monitor (E21-K1A, D)	HA	HA
<b>2. LPCI MODE OF RHR SYSTEM</b>		
a. Drywell Pressure - High (E11-PS-11011A, D, C, D)	$\leq 2$ psig	$\leq 2$ psig
b. Reactor Vessel Water Level - Low, Level #3 (021-L15-11031A, D, C, D)	$\geq 2.5$ Inches	$\geq 2.5$ Inches above top fuel guide
c. Reactor Vessel Shroud Level (021-L115-11036 and 021-L115-11037)	$\geq 39"$ below TAF*	$\geq 53"$ below top fuel guide
d. Reactor Steam Dome Pressure - Low (021-PS-11021A, D, C, D)	$410 \pm 15$ psig $310 \pm 15$ psig	$410 \pm 15$ psig $310 \pm 15$ psig
1. RHR Pump Start and LPCI Valve Actuation	$9 < t < 11$ seconds	$9 < t < 11$ seconds
2. Recirculation Pump Discharge Valve Actuation	HA	HA
e. RHR Pump Start - Time Delay Relay		
f. Bus Power Monitor (E11-K106A, D)		

TABLE 3.3.3-2 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUE
<b>3. HPCI SYSTEM</b>		
a. Reactor Vessel Water Level - Low, Level #2 (D21-LIS-H031A, B, C, D)	> 112 Inches	> 112 Inches
b. Drywell Pressure-High (E11-PS-H011A, B, C, D)	≤ 2 psig	≤ 2 psig
c. Condensate Storage Tank Level - Low (E41-LS-H002, E41-LS-H003)	> 23'4"	> 23'4"
d. Suppression Chamber Water Level - High* (E41-LSH-H015A, B)	≤ -2 feet	≤ -2 feet
e. Bus Power Monitor (E41-K55 and E41-K56)	N/A	N/A
<b>4. ADS</b>		
a. Drywell Pressure-High (E11-PS-H010A, B, C, D)	≤ 2 psig	≤ 2 psig
b. Reactor Vessel Water Level - Low, Level #3 (D21-LIS-H031A, B, C, D)	> 2.5 Inches	> 2.5 Inches
c. Reactor Vessel Water Level - Low Level #1 (B21-LIS-H047 A, B)	Z + 162.5 Inches	Z + 162.5 Inches
d. ADS Timer (D21-TOPU-K5A, B)	≤ 120 seconds	≤ 120 seconds
e. Core Spray Pump Discharge Pressure - High (E21-PS-H008A, B and E21-PS-H009A, B)	> 100 psig	> 100 psig
f. RHR (LPCI MODE) Pump Discharge Pressure - High (E11-PS-H016A, B, C, D and E11-PS-H020A, B, C, D)	> 100 psig	> 100 psig
g. Bus Power Monitor (D21-K1A, B)	N/A	N/A

\*Suppression chamber water level zero is the torus centerline minus 1 inch.

TABLE 3.3.3-2 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTIVATION INSTRUMENTATION SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP VALUE</u>	<u>ALLOWABLE VALUES</u>
5. <u>LOSS OF POWER</u>		
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage)*	a. 4.16 kv Basis - 2940 + 161 volts b. 120 v Basis - 84 + 4.6 volts c. < 10 sec. time delay	2940 + 315 volts 84 + 9 volts < 10 sec. time delay
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage)	a. 4.16 kv Basis - 3727 + 9 volts b. 120 v Basis - 106.5 + 0.25 volts c. 10 + 0.5 sec. time delay	3727 + 21 volts 106.5 + 0.60 volt. 10 + 1.0 sec. time delay

\*This is an inverse time delay voltage relay. The voltages shown are the maximum that will not result in a trip. Lower voltage conditions will result in decreased trip times.

TABLE 4.3.2.1

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION AND INSTRUMENT NUMBER	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
<b>1. CORE SPRAY SYSTEM</b>				
a. Reactor Vessel Water Level - Low, Level #3 (B21-LIS-N031A,B,C,D)	D	M	R	1, 2, 3, 4, 5
b. Reactor Steam Dome Pressure - Low (B21-PS-N021A,B,C,D)	NA	M	Q	1, 2, 3, 4, 5
c. Drywell Pressure - High (E11-PS-N011A,B,C,D)	NA	M	Q	1, 2, 3
d. Time Delay Relay	NA	R	R	1, 2, 3, 4, 5
e. Bus Power Monitor (E21-K1A,B)	NA	R	NA	1, 2, 3, 4, 5
<b>2. LPCI MODE OF RHR SYSTEM</b>				
a. Drywell Pressure - High (E11-PS-N011A,B,C,D)	NA	M	Q	1, 2, 3
b. Reactor Vessel Water Level - Low, Level #3 (B21-LIS-N031A,B,C,D)	D	M	R	1, 2, 3, 4*, 5*
c. Reactor Vessel Shroud Level (B21-LITS-N036 and B21-LITS-N037)	NA	M	Q	1, 2, 3, 4*, 5*
d. Reactor Steam Dome Pressure - Low (B21-PS-N021A,B,C,D)	NA	M	Q	1, 2, 3, 4*, 5*
1. RHR Pump Start and LPCI Injection Valve Actuation	NA	M	Q	1, 2, 3, 4*, 5*
2. Recirculation Loop Pump Discharge Valve Actuation	NA	M	Q	1, 2, 3, 4*, 5*
e. RHR Pump Start-Time Delay Relay	NA	R	R	1, 2, 3, 4*, 5*
f. Bus Power Monitor (E11-K106A,B)	NA	R	NA	1, 2, 3, 4*, 5*

\*Not applicable when two core spray system subsystems are OPERABLE per Specification 3.5.3.1.

TABLE 4.3.3-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

IRIP FUNCTION AND INSTRUMENT NUMBER	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
<b>3. HPCI SYSTEM</b>				
Reactor Vessel Water Level - Low				
a. Level #2 (B21-LIS-H031A,B,C,D)	D	M	R	1, 2, 3
b. Drywell Pressure-High (E11-PS-H011A,B,C,D)	HA	H	Q	1, 2, 3
Condensate Storage Tank Level -				
c. Low (E41-LS-H002, E41-LS-H003)	HA	H	Q	1, 2, 3
d. Suppression Chamber Water Level - High (E41-LSH-H015A,B)	HA	H	Q	1, 2, 3
e. Bus Power Monitor (E41-K55 and E41-K56)	HA	R	HA	1, 2, 3
<b>4. ADS</b>				
a. Drywell Pressure-High (E11-PS-H010A,B,C,D)	HA	M	Q	1, 2, 3
b. Reactor Vessel Water Level - Low, Level #3 (B21-LIS-H031A,B,C,D)	D	H	R	1, 2, 3
Reactor Vessel Water Level - Low				
c. Level #1 (B21-LIS-No. 42, A, B)	D	M	R	1, 2, 3
d. ADS Filter (B21-TBPU-K5A,B)	HA	R	R	1, 2, 3
Core Spray Pump Discharge				
e. Pressure - High (E21-PS-H008A,B and E21-PS-H009A,B)	HA	H	Q	1, 2, 3
HWR (LPCI MODE) Pump Discharge				
f. Pressure - High (E11-PS-H016A,B,C,D and E11-PS-H020A,B,C,D)	HA	M	Q	1, 2, 3
g. Bus Power Monitor (B21-K1A,B)	HA	R	HA	1, 2, 3