December 20, 1982

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Docket Nos. 50-325
50-324

Mr. E. E. Utley
Executive Vice President
Carolina Power & Light Company
P. O. Box 1551
Raleigh, North Carolina 27602

Dear Mr. Utley:

The Commission has issued the enclosed Amendment Nos. 53 and 78 to Facility Operating License Nos. DPR-71 and DPR-62 for the Brunswick Steam Electric Plant, Units 1 and 2. The amendments consist of changes to the technical specifications in response to your submittal of November 12, 1982.

The amendments revise the Technical Specifications to reflect certain digital to analog instrument replacements, revise instrumentation formats, and correct miscellaneous typographical errors.

Copies of the related Safety Evaluation and Notice of Issuance are also enclosed.

Sincerely,

ORIGINAL SIGNED BY

Domenic B. Vassallo, Chief
Operating Reactors Branch #2
Division of Licensing

Enclosures:
1. Amendment No. 53 to DPR-71
2. Amendment No. 78 to DPR-62
3. Safety Evaluation
4. Notice

cc w/enclosures:
See next page

F.R. NOTICE + AMENDMENT

OFFICE	DL:ORB#2	DL:ORB#2	DL:ORB#2	DL:OR	OELD		
	S. Norris	J.VanVliet pr	D. Vassallo	G. Lainas	H. Karman		
	12/16/82	12/17/82	12/17/82	12/17/82	12/17/82		

Mr. E. E. Utley
Carolina Power & Light Company

cc:

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

CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-325

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 53
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 November 12, 1982, 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. 53, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Domenic B. Vassallo, Chief
Operating Reactors Branch #2
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 20, 1982

ATTACHMENT TO LICENSE AMENDMENT NO. 53

FACILITY OPERATING LICENSE NO. DPR-71

DOCKET NO. 50-325

Revise the Appendix A Technical Specifications as follows:

Remove	Insert
2-4	2-4
2-6	2-6
3/4 3-2	3/4 3-2
3/4 3-3	3/4 3-3
3/4 3-6	3/4 3-6
3/4 3-6A	3/4 3-6a
3/4 3-7	3/4 3-7
3/4 3-8	3/4 3-8
3/4 3-8A	3/4 3-8a
3/4 3-11	3/4 3-11
3/4 3-11A	-
3/4 3-12	3/4 3-12
3/4 3/13	3/4 3-13
3/4 3-14	3/4 3-14
-	3/4 3-14a
3/4 3-15	3/4 3-15
3/4 3-17	3/4 3-17
3/4 3-18	3/4 3-18
3/4 3-19	3/4 3-19
3/4 3-20	3/4 3-20
3/4 3-21	3/4 3-21
3/4 3-22	3/4 3-22
3/4 3-22A	-
3/4 3-23	3/4 3-23
3/4 3-24	3/4 3-24
-	3/4 3-24a
3/4 3-25	3/4 3-25
3/4 3-25A	-
3/4 3-26	3/4 3-26
3/4 3-26A	-
3/4 3-27	3/4 3-27
3/4 3-28	3/4 3-28
3/4 3-29	3/4 3-29
-	3/4 3-29a
3/4 3-31	3/4 3-31
3/4 3-31A	-
3/4 3-32	3/4 3-32
3/4 3-32A	3/4 3-32a

Remove	Insert
3/4 3-34	3/4 3-34
3/4 3-34A	-
3/4 3-35	3/4 3-35
3/4 3-35A	3/4 3-35a
3/4 3-37	3/4 3-37
3/4 3-37A	-
3/4 3-38	3/4 3-38
3/4 3-38A	3/4 3-38a
3/4 3-38B	3/4 3-38b
3/4 3-51	3/4 3-51
3/4 3-52	3/4 3-52
3/4 3-63	3/4 3-63
3/4 3-64	3/4 3-64
3/4 3-65	3/4 3-65

TABLE 2.2.1-1 (Continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION SETPOINTS

TABLE NOTATION

* Vessel water levels refer to REFERENCE LEVEL ZERO.

(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.

TABLE 2.2.1-1

REACTOR PROTECTION SYSTEM INSTRUMENTATION SETPOINTS

FUNCTIONAL UNIT AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUES
1. Intermediate Range Monitor, Neutron Flux - High[1] (C51-IRM-K601A,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%[2]	≤ 15% of RATED THERMAL POWER	≤ 15% of RATED THERMAL POWER
b. Flow-Biased Neutron Flux - High[3][4]	≤ (0.66 W + 54%)	≤ (0.66 W + 54%)
c. Fixed Neutron Flux - High[4]	≤ 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-LTM-N017A-1,B-1,C-1,D-1)	≥ +162.5 inches*	≥ +162.5 inches*
5. Main Steam Line Isolation Valve - Closure[5] (B21-F022A,B,C,D; B21-F028A,B,C,D)	≤ 10% closed	≤ 10% closed
6. Main Steam Line Radiation - High (D12-RM-K603A,B,C,D)	≤ 3 x full power background	≤ 3.5 x full power background
7. Drywell Pressure - High (C71-PS-N002A,B,C,D)	≤ 2 psig	≤ 2 psig
8. Scram Discharge Volume Water Level - High (C12-LSH-N013A,B,C,D)	≤ 109 gallons	≤ 109 gallons

TABLE 3.3.1-1

REACTOR PROTECTION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT AND INSTRUMENT NUMBER	APPLICABLE OPERATIONAL CONDITIONS	MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM (a)	ACTION
1. Intermediate Range Monitors: (C51-IRM-K601A,B,C,D,E,F,G,H)			
a. Neutron Flux - High	2, 5[b]	3	1
	3, 4	2	2
b. Inoperative	2, 5	3	1
	3, 4	2	2
2. Average Power Range Monitor (C51-APRM-CH.A,B,C,D,E,F)			
a. Neutron Flux - High, 15%	2, 5[b]	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-PTM-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 Isolation Valve - Closure (B21-FO22A,B,C,D and B21-FO28A,B,C,D)	1	4	4
6. Main Steam Line Radiation - High (D12-RM-K603A,B,C,D)	1, 2[d]	2	7

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)	ACTION
7. Drywell Pressure - High (C71-PS-N002A,B,C,D)	1, 2(e)	2	6
8. Scram Discharge Volume Water Level - High (C11-LSH-N013A,B,C,D)	1, 2, 5(f)	2	5
9. Turbine Stop Valve - Closure (EHC-SVOS-1X,2X,3X,4X)	1(g)	4	8
10. Turbine Control Valve Fast Closure, Control Oil Pressure - Low (EHC-PSL-1756,1757,1758,1759)	1(g)	2	8
11. Reactor Mode Switch in Shutdown Position (C71A-51)	1, 2, 3, 4, 5	1	9
12. Manual Scram (C71-A-S3A,B)	1, 2, 3, 4, 5	1	10

TABLE 3.3.1-2

REACTOR PROTECTION SYSTEM RESPONSE TIMES

FUNCTIONAL UNIT AND INSTRUMENT NUMBER	RESPONSE TIME (Seconds)
1. Intermediate Range Monitors (C51-IRM-K601A,B,C,D,E,F,G,H):	
a. Neutron Flux - High*	NA
b. Inoperative	NA
2. Average Power Range Monitor* (C51-APRM-CH.A,B,C,D,E,F):	
a. Neutron Flux - High, 15%	$\leq$ 0.09
b. Flow-Biased Neutron Flux - High	NA
c. Neutron Flux - High, 120%	$\leq$ 0.09
d. Inoperative	NA
e. Downscale	NA
f. LPRM	NA
3. Reactor Vessel Steam Dome Pressure - High (B21-PT-N023A,B,C,D) (B21-PTM-N023A-1,B-1,C-1,D-1)	$\leq$ 0.55
4. Reactor Vessel Water Level - Low, Level 1 (B21-LT-N017A-1,B-1,C-1,D-1) (B21-LTM-N017A-1,B-1,C-1,D-1)	$\leq$ 1.05
5. Main Steam Line Isolation Valve-Closure (B21-F022A,B,C,D and B21-F028A,B,C,D)	$\leq$ 0.06
6. Main Steam Line Radiation - High (D12-RM-K603A,B,C,D)	NA

TABLE 3.3.1-2 (Continued)

REACTOR PROTECTION SYSTEM RESPONSE TIMES

FUNCTIONAL UNIT AND INSTRUMENT NUMBER	RESPONSE TIME (Seconds)
7. Drywell Pressure - High (C71-PS-N002A,B,C,D)	NA
8. Scram Discharge Volume Water Level - High (C11-LSH-N013A,B,C,D)	NA
9. Turbine Stop Valve - Closure (EHC-SVOS-1X,2X,3X,4X)	$\leq$ 0.06
10. Turbine Control Valve Fast Closure, Control Oil Pressure - Low (EHC-PSL-1756, 1757, 1758, 1759)	$\leq$ 0.08
11. Reactor Mode Switch in Shutdown Position (C71A-S1)	NA
12. Manual Scram (C71A-S3A,B)	NA

* Neutron detectors are exempt from response time testing. Response time shall be measured from detector output or from the input of the first electronic component in the 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
1. Intermediate Range Monitors: (C51-IRM-K601A,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/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-NO23A,B,C,D)	NA[k]	NA	R[l]	1, 2
(B21-PTM-NO23A-1,B-1,C-1,D-1)	D	M	M	1, 2
4. Reactor Vessel Water Level - Low, Level 1				
(B21-LT-NO17A-1,B-1,C-1,D-1)	NA[k]	NA	R[l]	1, 2
(B21-LTM-NO17A-1,B-1,C-1,D-1)	D	M	M	1, 2

TABLE 4.3.1-1 (Continued)

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
5. Main Steam Line Isolation Valve - Closure (B21-F022A,B,C,D and B21-F028A,B,C,D)	NA	M	R[h]	1
6. Main Steam Line Radiation - High (D12-RM-K603A,B,C,D)	S	M[i]	R[j]	1, 2
7. Drywell Pressure - High (C71-PS-N002A,B,C,D)	NA	M	Q	1, 2
8. Scram Discharge Volume Water Level - High (C12-LSH-N013A,B,C,D)	NA	Q	R	1, 2, 5
9. Turbine Stop Valve - Closure (EHC-SVOS-1X,2X,3X,4X)	NA	M	R[h]	1
10. Turbine Control Valve Fast Closure, Control Oil Pressure - Low (EHC-PSL-1756,1757,1758,1759)	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

TABLE 4.3.1-1 (Continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

(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 IRM 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.

(f) This calibration shall consist of the adjustment of the APRM flow-biased setpoint to conform to a calibrated flow signal.

(g) The LPRMs 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

TRIP FUNCTION AND INSTRUMENT NUMBER	VALVE GROUPS OPERATED BY SIGNAL(a)	MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM(b)(c)	APPLICABLE OPERATIONAL CONDITION	ACTION
1. PRIMARY CONTAINMENT ISOLATION				
a. Reactor Vessel Water Level -				
1. 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	20
2. 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	20
b. Drywell Pressure - High (C71-PS-N002A,B,C,D)	2, 6, 7	2	1, 2, 3	20
c. Main Steam Line				
1. Radiation - High (d) (D12-RM-K603A,B,C,D)	1	2	1, 2, 3	21
2. Pressure - Low (B21-PT-N015A,B,C,D) (B21-PTM-N015A-1,B-1,C-1,D-1)	1	2	1	22
3. Flow - High (B21-PDT-N006A,B,C,D; B21-PDT-N007A,B,C,D; B21-PDT-N008A,B,C,D; B21-PDT-N009A,B,C,D) (B21-PDTM-N006A-1,B-1,C-1,D-1; B21-PDTM-N007A-1,B-1,C-1,D-1; B21-PDTM-N008A-1,B-1,C-1,D-1; B21-PDTM-N009A-1,B-1,C-1,D-1)	1	2/line	1	22

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

TRIP FUNCTION AND INSTRUMENT NUMBER	VALVE GROUPS OPERATED BY SIGNAL(a)	MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM(b)(c)	APPLICABLE OPERATIONAL CONDITION	ACTION
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; B21-TS-N013A,B,C,D)	1	2(e)	1, 2, 3	21
e. Condenser Vacuum - Low (B21-PS-N056A,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; B21-TS-3232A,B,C,D)	1	4(e)	1, 2, 3	21
2. SECONDARY CONTAINMENT ISOLATION				
a. Reactor Building Exhaust Radiation - High (D12-RM-N010A,B)	6	1	1, 2, 3, 5, and*	23
b. Drywell Pressure - High (C71-PS-N002A,B,C,D)	2, 6, 7	2	1, 2, 3	23

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

TRIP FUNCTION AND INSTRUMENT NUMBER	VALVE GROUPS OPERATED BY SIGNAL(a)	MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM(b)(c)	APPLICABLE OPERATIONAL CONDITION	ACTION
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, 3	2	1, 2, 3	23
3. REACTOR WATER CLEANUP SYSTEM ISOLATION				
a. Δ Flow - High (G31-dFS-N603-1A,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 Δ Temp. - High (G31-TS-N602A,B,C,D,E,F)	3	2	1, 2, 3	24
d. SLCS Initiation (C41A-S1)	3 (g)	NA	1, 2, 3	24
e. Reactor Vessel Water Level - Low, Level 2 (B21-LT-NO24 A-1,B-1 and B21-LT-NO25 A-1,B-1) (B21-LTM-NO24 A-1,B-1 and B21-LTM-NO25 A-1,B-1)	1, 3	2	1, 2, 3	24

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

TRIP FUNCTION AND INSTRUMENT NUMBER	VALVE GROUPS OPERATED BY SIGNAL(a)	MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM(b)(c)	APPLICABLE OPERATIONAL CONDITION	ACTION
4. CORE STANDBY COOLING SYSTEMS ISOLATION				
a. High Pressure Coolant Injection System Isolation				
1. HPCI Steam Line Flow - High (E41-dPIS-N004 and E41-dPIS-N005)	4	2	1, 2, 3	25
2. HPCI Steam Supply Pressure - Low (E41-PSL-N001A,B,C,D)	4	2	1, 2, 3	25
3. HPCI 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; E41-TS-3489)	4	2	1, 2, 3	25
4. Bus Power Monitor (E41-K55 and E41-K56)	NA(h)	1/bus	1, 2, 3	26
5. HPCI Turbine Exhaust Diaphragm Pressure - High (E41-PSH-N012A,B,C,D)	4	2	1, 2, 3	25
6. HPCI Steam Line Ambient Temperature - High (E51-TS-N603C,D)	4	2	1, 2, 3	25
7. HPCI Steam Line Area Δ Temp. - High (E51-dTS-N604C,D)	4	2	1, 2, 3	25
8. Emergency Area Cooler Temperature - High (E41-TS-N602A,B)	4	2	1, 2, 3	25

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

TRIP FUNCTION AND INSTRUMENT NUMBER	VALVE GROUPS OPERATED BY SIGNAL(a)	MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM(b)(c)	APPLICABLE OPERATIONAL CONDITION	ACTION
b. Reactor Core Isolation Cooling System Isolation				
1. RCIC Steam Line Flow - High (E51-dPIS-N017 and E51-dPIS-N018)	5	2	1, 2, 3	25
2. RCIC Steam Supply Pressure - Low (E51-PS-N019A,B,C,D)	5	2	1, 2, 3	25
3. RCIC Steam Line Tunnel Temperature - High (E51-TS-3319; E51-TS-3320; E51-TS-3321; E51-TS-3322; E51-TS-3323; E51-TS-3355; E51-TS-3487)	5	2	1, 2, 3	25
4. Bus Power Monitor (E51-K42 and E51-K43)	NA (h)	1/bus	1, 2, 3	26
5. RCIC Turbine Exhaust Diaphragm Pressure - High (E51-PS-N012A,B,C,D)	5	2	1, 2, 3	25
6. RCIC Steam Line Ambient Temp - High (E51-TS-N603A,B)	5	2	1, 2, 3	25
7. RCIC Steam Line Area Δ Temp - High (E51-dTS-N604A,B)	5	2	1, 2, 3	25
8. RCIC Equipment Room Ambient Temp - High (E51-TS-N602A,B)	5	2	1, 2, 3	25
9. RCIC Equipment Room Δ Temp - High (E51-dTS-N601A,B)	5	2	1, 2, 3	25

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

TRIP FUNCTION AND INSTRUMENT NUMBER	VALVE GROUPS OPERATED BY SIGNAL(a)	MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM(b)(c)	APPLICABLE OPERATIONAL CONDITION	ACTION
5. SHUTDOWN COOLING SYSTEM ISOLATION				
a. Reactor Vessel Water Level - 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

TABLE 3.3.2-2

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUE
1. PRIMARY CONTAINMENT ISOLATION		
a. Reactor Vessel Water Level -		
1. Low, Level 1 (B21-LTM-N017A-1,B-1,C-1,D-1)	$\geq$ + 162.5 inches*	$\geq$ + 162.5 inches*
2. Low, Level 2 (B21-LTM-N024A-1,B-1 and B21-LTM-N025A-1,B-1)	$\geq$ + 112 inches*	$\geq$ + 112 inches*
b. Drywell Pressure - High (C71-PS-N002A,B,C,D)	$\leq$ 2 psig	$\leq$ 2 psig
c. Main Steam Line		
1. Radiation - High (D12-RM-K603A,B,C,D)	$\leq$ 3 x full power background	$\leq$ 3.5 x full power background
2. Pressure - Low (B21-PTM-N015A-1,B-1,C-1,D-1)	$\geq$ 825 psig	$\geq$ 825 psig
3. Flow - High (B21-PDTM-N006A-1,B-1,C-1,D-1; B21-PDTM-N007A-1,B-1,C-1,D-1; B21-PDTM-N008A-1,B-1,C-1,D-1; B21-PDTM-N009A-1,B-1,C-1,D-1)	$\leq$ 140% of rated flow	$\leq$ 140% of rated flow

TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUE
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; B21-TS-N013A,B,C,D)	$\leq$ 200°F	$\leq$ 200°F
e. Condenser Vacuum - Low (B21-PS-N056A,B,C,D)	$\geq$ 7 inches Hg vacuum	$\geq$ 7 inches Hg vacuum
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; B21-TS-3232A,B,C,D)	$\leq$ 200°F	$\leq$ 200°F
2. SECONDARY CONTAINMENT ISOLATION		
a. Reactor Building Exhaust Radiation - High (D12-RM-N010A,B)	$\leq$ 11 mr/hr	$\leq$ 11 mr/hr
b. Drywell Pressure - High (C71-PS-N002A,B,C,D)	$\leq$ 2 psig	$\leq$ 2 psig
c. Reactor Vessel Water Level - Low, Level 2 (B21-LTM-N024A-1,B-1 and B21-LTM-N025A-1,B-1)	$\geq$ + 112 inches*	$\geq$ + 112 inches*

TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUE
3. REACTOR WATER CLEANUP SYSTEM ISOLATION		
a. Δ Flow - High (G31-dFS-N603-1A,1B)	≤ 53 gal/min	≤ 53 gal/min
b. Area Temperature - High (G31-TS-N600A,B,C,D,E,F)	≤ 150°F	≤ 150°F
c. Area Ventilation Temperature Δ Temp - High (G31-TS-N602A,B,C,D,E,F)	≤ 50°F	≤ 50°F
d. SLCS Initiation (C41A-S1)	NA	NA
e. Reactor Vessel Water Level - Low, Level 2 (B21-LTM-N024A-1,B-1 and B21-LTM-N025A-1,B-1)	≥ + 112 inches*	≥ + 112 inches*
4. CORE STANDBY COOLING SYSTEMS ISOLATION		
a. High Pressure Coolant Injection System Isolation		
1. HPCI Steam Line Flow - High (E41-dPIS-N004 and E41-dPIS-N005)	≤ 300% of rated flow	≤ 300% of rated flow
2. HPCI Steam Supply Pressure - Low (E41-PSL-N001A,B,C,D)	≥ 100 psig	≥ 100 psig
3. HPCI 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; E41-TS-3489)	≤ 200°F	≤ 200°F

TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUE
4. Bus Power Monitor (E41-K55 and E41-K56)	NA	NA
5. HPCI Turbine Exhaust Diaphragm Pressure - High (E41-PSH-N012A,B,C,D)	$\leq$ 10 psig	$\leq$ 10 psig
6. HPCI Steam Line Ambient Temp - High (E51-TS-N603C,D)	$\leq$ 200°F	$\leq$ 200°F
7. HPCI Steam Line Area Δ Temp - High (E51-dTS-N604C,D)	$\leq$ 50°F	$\leq$ 50°F
8. Emergency Area Cooler Temp - High (E41-TS-N602A,B)	$\leq$ 175°F	$\leq$ 175°F
b. Reactor Core Isolation Cooling System Isolation		
1. RCIC Steam Line Flow - High (E51-dPIS-N017 and E51-dPIS-N018)	$\leq$ 300% of rated flow	$\leq$ 300% of rated flow
2. RCIC Steam Supply Pressure - Low (E51-PS-N019A,B,C,D)	$\geq$ 50 psig	$\geq$ 50 psig
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; E51-TS-3487)	$\leq$ 175°F	$\leq$ 175°F
4. Bus Power Monitor (E51-K42 and E51-K43)	NA	NA

TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUE
5. RCIC Turbine Exhaust Diaphragm Pressure - High (E51-PS-N012A,B,C,D)	$\leq$ 10 psig	$\leq$ 10 psig
6. RCIC Steam Line Ambient Temp - High (E51-TS-N603A,B)	$\leq$ 200°F	$\leq$ 200°F
7. RCIC Steam Line Area Δ Temp - High (E51-dTS-N604A,B)	$\leq$ 50°F	$\leq$ 50°F
8. RCIC Equipment Room Ambient Temp - High (E51-TS-N602A,B)	$\leq$ 175°F	$\leq$ 175°F
9. RCIC Equipment Room Δ Temp - High (E51-dTS-N601A,B)	$\leq$ 50°F	$\leq$ 50°F
5. SHUTDOWN COOLING SYSTEM ISOLATION		
a. Reactor Vessel Water Level - Low, Level 1 (B21-LTM-N017A-1,B-1,C-1,D-1)	$\geq$ + 162.5 inches*	$\geq$ + 162.5 inches*
b. Reactor Steam Dome Pressure - High (B32-PS-N018A,B)	$\leq$ 140 psig	$\leq$ 140 psig

* Vessel water levels refer to REFERENCE LEVEL ZERO.

TABLE 3.3.2-3

ISOLATION SYSTEM INSTRUMENTATION RESPONSE TIME

TRIP FUNCTION AND INSTRUMENT NUMBER	RESPONSE TIME (Seconds)#
1. PRIMARY CONTAINMENT ISOLATION	
a. Reactor Vessel Water Level -	
1. Low, Level 1 (B21-LT-N017A-1,B-1,C-1,D-1) (B21-LTM-N017A-1,B-1,C-1,D-1)	≤13
2. 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)	≤1.0**
b. Drywell Pressure - High (C71-PS-N002A,B,C,D)	≤13
c. Main Steam Line	≤1.0**
1. Radiation - High* (D12-RM-K603A,B,C,D)	
2. Pressure - Low (B21-PT-N015A,B,C,D) (B21-PTM-N015A-1,B-1,C-1,D-1)	≤13
3. Flow - High (B21-PDT-N006A,B,C,D; B21-PDT-N007A,B,C,D; B21-PDT-N008A,B,C,D; B21-PDT-N009A,B,C,D) (B21-PDTM-N006A-1,B-1,C-1,D-1; B21-PDTM-N007A-1,B-1,C-1,D-1; B21-PDTM-N008A-1,B-1,C-1,D-1; B21-PDTM-N009A-1,B-1,C-1,D-1)	≤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; B21-TS-N013A,B,C,D)	≤13
e. Condenser Vacuum - Low (B21-PS-N056A,B,C,D)	≤13

TABLE 3.3.2-3 (Continued)

ISOLATION SYSTEM INSTRUMENTATION RESPONSE TIME

TRIP FUNCTION AND INSTRUMENT NUMBER	RESPONSE TIME (Seconds)#
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
2. SECONDARY CONTAINMENT ISOLATION	
a. Reactor Building Exhaust Radiation - High* (D12-RM-N010A,B)	≤13
b. Drywell Pressure - High (C71-PS-N002A,B,C,D)	≤13
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)	≤1.0**
3. REACTOR WATER CLEANUP SYSTEM ISOLATION	
a. Δ Flow - High (G31-dFS-N603-1A,1B)	≤13
b. Area Temperature - High (G31-TS-N600A,B,C,D,E,F)	≤13
c. Area Ventilation Temperature ΔT - High (G31-TS-N602A,B,C,D,E,F)	≤13
d. SLCS Initiation (C41A-S1)	NA
e. Reactor Vessel Water Level - Low, Level 2 (B21-LT-N024 A-1,B-1 and B21-LT-N025 A-1,B-1) (B21-LTM-N024 A-1,B-1 and B21-LTM-N025 A-1,B-1)	≤1.0**

TABLE 3.3.2-3 (Continued)

ISOLATION SYSTEM INSTRUMENTATION RESPONSE TIME

TRIP FUNCTION AND INSTRUMENT NUMBER	RESPONSE TIME (Seconds)#
4. CORE STANDBY COOLING SYSTEMS ISOLATION	
a. High Pressure Coolant Injection System Isolation	
1. HPCI Steam Line Flow - High (E41-dPIS-N004 and E41-dPIS-N005)	≤13
2. HPCI Steam Supply Pressure - Low (E41-PSL-N001A,B,C,D)	≤13
3. HPCI 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; E41-TS-3489)	≤13
4. Bus Power Monitor (E41-K55 and E41-K56)	NA
5. HPCI Turbine Exhaust Diaphragm Pressure - High (E41-PSH-N012A,B,C,D)	NA
6. HPCI Steam Line Ambient Temperature - High (E51-TS-N603C,D)	NA
7. HPCI Steam Line Area (E51-dTS-N604C,D)	NA
8. Emergency Area Cooler Temperature - High (E41-TS-602A,B)	NA
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; E51-TS-3487)	NA
4. Bus Power Monitor (E51-K42 and E51-K43)	NA

TABLE 3.3.2-3 (Continued)

ISOLATION SYSTEM INSTRUMENTATION RESPONSE TIME

TRIP FUNCTION AND INSTRUMENT NUMBER	RESPONSE TIME (Seconds)#
5. RCIC Turbine Exhaust Diaphram 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 Δ Temp - High (E51-dTS-N604A,B)	NA
8. Emergency Area Cooler Temperature - High (E51-TS-N602A,B)	NA
9. RCIC Equipment Room Δ Temp - High (E51-dTS-N601A,B)	NA
5. SHUTDOWN COOLING SYSTEM ISOLATION	
a. Reactor Vessel Water Level - Low, Level 1 (B21-LT-N017A-1,B-1,C-1,D-1) (B21-LTM-N017A-1,B-1,C-1,D-1)	NA
b. Reactor Steam Dome Pressure - High (B32-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.

Isolation system instrumentation response time specified for the Trip Function actuating each valve group shall be added to isolation time shown in Table 3.6.3-1 and Table 3.6.5.2-1 for valves in each valve group to obtain ISOLATION SYSTEM RESPONSE TIME for each valve.

TABLE 4.3.2-1

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION AND INSTRUMENT NUMBER	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
1. PRIMARY CONTAINMENT ISOLATION				
a. Reactor Vessel Water Level -				
1. Low, Level 1 (B21-LT-N017A-1,B-1,C-1,D-1)	NA[a]	NA	R[b]	1, 2, 3
(B21-LTM-N017A-1,B-1,C-1,D-1)	D	M	M	1, 2, 3
2. Low, Level 2 (B21-LT-N024A-1,B-1 and B21-LT-N025A-1,B-1)	NA[a]	NA	R[b]	1, 2, 3
(B21-LTM-N024A-1,B-1 and B21-LTM-N025A-1,B-1)	D	M	M	1, 2, 3
b. Drywell Pressure - High (C71-PS-N002A,B,C,D)	NA	M	Q	1, 2, 3
c. Main Steam Line				
1. Radiation - High (D12-RM-K603A,B,C,D)	D	W	R	1, 2, 3
2. Pressure - Low (B21-PT-N015A,B,C,D)	NA[a]	NA	R[b]	1
(B21-PTM-N015A-1,B-1,C-1,D-1)	D	M	M	1
3. Flow - High (B21-PDT-N006A,B,C,D; B21-PDT-N007A,B,C,D; B21-PDT-N008A,B,C,D; B21-PDT-N009A,B,C,D)	NA[a]	NA	R[b]	1
(B21-PDTM-N006A-1,B-1,C-1,D-1; B21-PDTM-N007A-1,B-1,C-1,D-1; B21-PDTM-N008A-1,B-1,C-1,D-1; B21-PDTM-N009A-1,B-1,C-1,D-1)	D	M	M	1

TABLE 4.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION AND INSTRUMENT NUMBER	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
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; B21-TS-N013A,B,C,D)	NA	M	R	1, 2, 3
e. Condenser Vacuum - Low (B21-PS-N056A,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; B21-TS-3232A,B,C,D)	NA	M	R	1, 2, 3
2. SECONDARY CONTAINMENT ISOLATION				
a. Reactor Building Exhaust Radiation - High (D12-RM-N010A,B)	D	M	R	1,2,3,5, and *

TABLE 4.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION AND INSTRUMENT NUMBER	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
b. Drywell Pressure - High (C71-PS-N002A,B,C,D)	NA	M	Q	1, 2, 3
c. Reactor Vessel Water Level - Low, Level 2 (B21-LT-N024 A-1,B-1 and B21-LT-N025 A-1,B-1)	NA(a)	NA	R(b)	1, 2, 3
(B21-LTM-N024 A-1,B-1 and B21-LTM-N025 A-1,B-1)	D	M	M	1, 2, 3
3. REACTOR WATER CLEANUP SYSTEM ISOLATION				
a. Δ Flow - High (G31-dFS-N603-1A,1B)	D	M	R	1, 2, 3
b. Area Temperature - High (G31-TS-N600A,B,C,D,E,F)	NA	M	R	1, 2, 3
c. Area Ventilation Δ Temp - High (G31-TS-N602A,B,C,D,E,F)	NA	M	R	1, 2, 3
d. SLCS Initiation (C41A-S1)	NA	R	NA	1, 2, 3
e. Reactor Vessel Water Level - Low, Level 2 (B21-LT-N024 A-1,B-1 and B21-LT-N025 A-1,B-1)	NA(a)	NA	R(b)	1, 2, 3
(B21-LTM-N024 A-1,B-1 and B21-LTM-N025 A-1,B-1)	D	M	M	1, 2, 3

TABLE 4.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION AND INSTRUMENT NUMBER	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
4. CORE STANDBY COOLING SYSTEMS ISOLATION				
a. High Pressure Coolant Injection System Isolation				
1. HPCI Steam Line Flow - High (E41-dPIS-N004 and E41-dPIS-N005)	D	M	Q	1, 2, 3
2. HPCI Steam Supply Pressure - Low (E41-PSL-N001A,B,C,D)	NA	M	R	1, 2, 3
3. HPCI 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-3388; E41-TS-3489)	NA	M	Q	1, 2, 3
4. Bus Power Monitor (E41-K55 and E41-K56)	NA	R	NA	1, 2, 3
5. HPCI Turbine Exhaust Diaphragm Pressure - High (E41-PSH-N012A,B,C,D)	NA	M	Q	1, 2, 3
6. HPCI Steam Line Ambient Temp - High (E51-TS-N603C,D)	NA	M	R	1, 2, 3
7. HPCI Steam Line Area Δ Temp - High (E51-dTS-N604C,D)	NA	M	R	1, 2, 3

TABLE 4.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION AND INSTRUMENT NUMBER	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
8. Emergency Area Cooler Temp - High (E41-TS-N602A,B)	NA	M	Q	1, 2, 3
b. Reactor Core Isolation Cooling System Isolation				
1. RCIC Steam Line Flow - High (E51-dPIS-N017 and E51-dPIS-N018)	NA	M	Q	1, 2, 3
2. RCIC Steam Supply Pressure - Low (E51-PS-N019A,B,C,D)	NA	M	Q	1, 2, 3
3. RCIC Steam Line Tunnel High Temperature (E51-TS-3319; E51-TS-3320; E51-TS-3321; E51-TS-3322; E51-TS-3323; E51-TS-3355; E51-TS-3487)	NA	M	R	1, 2, 3
4. Bus Power Monitor (E51-K42 and E51-K43)	NA	R	NA	1, 2, 3
5. RCIC Turbine Exhaust Diaphragm Pressure - High (E51-PS-N012A,B,C,D)	NA	M	R	1, 2, 3

TABLE 4.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION AND INSTRUMENT NUMBER	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
6. RCIC Steam Line Ambient Temp - High (E51-TS-N603A,B)	NA	M	R	1, 2, 3
7. RCIC Steam Line Area Δ Temp - High (E51-dTS-N604A,B)	NA	M	R	1, 2, 3
8. RCIC Equipment Room Ambient Temp - High (E51-TS-N602A,B)	NA	M	Q	1, 2, 3
9. RCIC Equipment Room Δ Temp - High (E51-dTS-N601A,B)	NA	M	Q	1, 2, 3
5. SHUTDOWN COOLING SYSTEM ISOLATION				
a. Reactor Vessel Water Level - Low, Level 1 (B21-LT-N017A-1,B-1,C-1,D-1)	NA(a)	NA	R(b)	1, 2, 3
(B21-LTM-N017A-1,B-1,C-1,D-1)	D	M	M	1, 2, 3
b. Reactor Steam Dome Pressure - High (B32-PS-N018A,B)	NA	S/U(c), M	R	1, 2, 3

* When handling irradiated fuel in the secondary containment.
\# When reactor steam pressure $\geq$ 500 psig.
(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.
(c) If not performed within the previous 31 days.

TABLE 3.3.3-1

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

TRIP FUNCTION AND INSTRUMENT NUMBER	MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM	APPLICABLE OPERATIONAL CONDITIONS	ACTION
1. CORE SPRAY SYSTEM			
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-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 (E21-K16A,B)	1	1, 2, 3, 4, 5	31
e. Bus Power Monitor# (E21-K1A,B)	1/bus	1, 2, 3, 4, 5	32
2. LPCI MODE OF RHR SYSTEM			
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*, 5*	30
c. Reactor Vessel Shroud Level (Drywell Spray Permissive) (B21-LT-N036 and B21-LT-N037) (B21-LTM-N036-1 and B21-LTM-N037-1)	1	1, 2, 3, 4*, 5*	31
d. Reactor Steam Dome Pressure - Low (Injection Permissive) (B21-PT-N021A,B,C,D) (B21-PTM-N021A-1,B-1,C-1,D-1) (B21-PTS-N021A-2,B-2,C-2,D-2)			
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

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
e. RHR Pump Start - Time Delay Relay (STR-1A1,2 and STR-1B1,2)	1	1, 2, 3, 4*, 5*	31
f. Bus Power Monitor# (E11-K106A,B)	1/bus	1, 2, 3, 4*, 5*	32
3. HPCI SYSTEM			
a. Reactor Vessel Water Level - Low, Level 2 (B21-LT-N031A,B,C,D) (B21-LTS-N031A-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-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
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-LT-N031A,B,C,D) (B21-LTS-N031A-3,B-3,C-3,D-3)	2	1, 2, 3	30

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
c. Reactor Vessel Water Level - Low, Level 1 (B21-LT-N042A,B) (B21-LTM-N042A-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

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##,5##	34
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage)	3/bus	2/bus	2/bus	1,2,3,4##,5##	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 3.3.3-2

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUE
1. CORE SPRAY SYSTEM		
a. Reactor Vessel Water Level - Low, Level 3 (B21-LTS-N031A-4,B-4,C-4,D-4)	$\geq$ + 2.5 inches*	$\geq$ + 2.5 inches*
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 (E21-K16A,B)	14 $\leq$ t $\leq$ 16 secs	14 $\leq$ t $\leq$ 16 secs
e. Bus Power Monitor (E21-K1A,B)	NA	NA
2. LPCI MODE OF RHR SYSTEM		
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*	$\geq$ + 2.5 inches*
c. Reactor Vessel Shroud Level (B21-LTM-N036-1 and B21-LTM-N037-1)	$\geq$ - 53 inches*	$\geq$ - 53 inches*
d. Reactor Steam Dome Pressure - Low		
1. RHR Pump Start and LCPI Valve Actuation (B21-PTS-N021A-2,B-2,C-2,D-2)	410 $\pm$ 15 psig	410 $\pm$ 15 psig
2. Recirculation Pump Discharge Valve Actuation (B21-PTM-N021A-1,B-1,C-1,D-1)	310 $\pm$ 15 psig	310 $\pm$ 15 psig

TABLE 3.3.3-2 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUE
e. RHR Pump Start - Time Delay Relay (STR-1A1,2 and STR-1B1,2)	$9 \leq t \leq 11$ seconds	$9 \leq t \leq 11$ seconds
f. Bus Power Monitor (E11-K106A,B)	NA	NA
3. HPCI SYSTEM		
a. Reactor Vessel Water Level - Low, Level 2 (B21-LTS-N031A-2,B-2,C-2,D-2)	$\geq$ + 112 inches*	$\geq$ + 112 inches*
b. Drywell Pressure - High (E11-PS-N011A,B,C,D)	$\leq$ 2 psig	$\leq$ 2 psig
c. Condensate Storage Tank Level - Low (E41-LS-N002; E41-LS-N003)	$\geq$ 23 feet 4 inches	$\geq$ 23 feet 4 inches
d. Suppression Chamber Water Level - High (E41-LSH-N015A,B)	$\leq$ -2 feet**	$\leq$ -2 feet**
e. Bus Power Monitor (E41-K55 and E41-K56)	NA	NA
4. ADS		
a. Drywell Pressure-High (E11-PS-N010A,B,C,D)	$\leq$ 2 psig	$\leq$ 2 psig
b. Reactor Vessel Water Level - Low, Level 3 (B21-LTS-N031A-3,B-3,C-3,D-3)	$\geq$ + 2.5 inches*	$\geq$ + 2.5 inches*
c. Reactor Vessel Water Level - Low, Level 1 (B21-LTM-N042A-1,B-1)	$\geq$ + 162.5 inches*	$\geq$ + 162.5 inches*
d. ADS Timer (B21-TDPU-K5A,B)	$\leq$ 120 seconds	$\leq$ 120 seconds

TABLE 3.3.3-2 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER		TRIP SETPOINT	ALLOWABLE VALUE
e.	Core Spray Pump Discharge Pressure - High (E21-PS-N008A,B and E21-PS-N009A,B)	$\geq$ 100 psig	$\geq$ 100 psig
f.	RHR (LPCI MODE) Pump Discharge Pressure - High (E11-PS-N016A,B,C,D and E11-PS-N020A,B,C,D)	$\geq$ 100 psig	$\geq$ 100 psig
g.	Bus Power Monitor (B21-K1A,B)	NA	NA
5.	LOSS OF POWER		
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. $\leq$ 10 sec. time delay	2940 ± 315 volts 84 ± 9 volts $\leq$ 10 secs. 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 volts 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.

* Vessel water levels refer to REFERENCE LEVEL ZERO.

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

TABLE 4.3.3-1

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
1. CORE SPRAY SYSTEM				
a. Reactor Vessel Water Level - Low, Level 3				
(B21-LT-N031A,B,C,D)	NA[a]	NA	R[b]	1, 2, 3, 4, 5
(B21-LTS-N031A-4,B-4,C-4,D-4)	D	M	M	1, 2, 3, 4, 5
b. Reactor Steam Dome Pressure - Low				
(B21-PT-N021A,B,C,D)	NA[a]	NA	R[b]	1, 2, 3, 4, 5
(B21-PTS-N021A-2,B-2,C-2,D-2)	D	M	M	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 (E21-K16A,B)	NA	R	R	1, 2, 3, 4, 5
e. Bus Power Monitor (E21-K1A,B)	NA	R	NA	1, 2, 3, 4, 5
2. LPCI MODE OF RHR SYSTEM				
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-LT-N031A,B,C,D)	NA[a]	NA	R[b]	1, 2, 3, 4*, 5*
(B21-LTS-N031A-4,B-4,C-4,D-4)	D	M	M	1, 2, 3, 4*, 5*
c. Reactor Vessel Shroud Level				
(B21-LT-N036 and B21-LT-N037)	NA[a]	NA	R[b]	1, 2, 3, 4*, 5*
(B21-LTM-N036-1 and B21-LTM-N037-1)	D	M	M	1, 2, 3, 4*, 5*

TABLE 4.3.3-1 (Continued)

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
d. Reactor Steam Dome Pressure - Low (B21-PT-NO21A,B,C,D)	NA[a]	NA	R[b]	1, 2, 3, 4*, 5*
1. RHR Pump Start and LPCI Injection Valve Actuation (B21-PTS-NO21A-2,B-2,C-2,D-2)	D	M	M	1, 2, 3, 4*, 5*
2. Recirculation Loop Pump Discharge Valve Actuation (B21-PTM-NO21A-1,B-1,C-1,D-1)	D	M	M	1, 2, 3, 4*, 5*
e. RHR Pump Start - Time Delay Relay (STR-1A1,2 and STR-1B1,2)	NA	R	R	1, 2, 3, 4*, 5*
f. Bus Power Monitor (E11-K106A,B)	NA	R	NA	1, 2, 3, 4*, 5*
3. HPCI SYSTEM				
a. Reactor Vessel Water Level - Low, Level 2 (B21-LT-NO31A,B,C,D)	NA[a]	NA	R[b]	1, 2, 3
(B21-LTS-NO31A-2,B-2,C-2,D-2)	D	M	M	1, 2, 3
b. Drywell Pressure - High (E11-PS-NO11A,B,C,D)	NA	M	Q	1, 2, 3
c. Condensate Storage Tank Level - Low (E41-LS-NO02; E41-LS-NO03)	NA	M	Q	1, 2, 3
d. Suppression Chamber Water Level - High (E41-LSH-NO15A,B)	NA	M	Q	1, 2, 3
e. Bus Power Monitor (E41-K55 and E41-K56)	NA	R	NA	1, 2, 3

TABLE 4.3.3-1 (Continued)

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
4. ADS				
a. Drywell Pressure - High (E11-PS-N010A,B,C,D)	NA	M	Q	1, 2, 3
b. Reactor Vessel Water Level - Low, Level 3				
(B21-LT-N031A,B,C,D)	NA(a)	NA	R(b)	1, 2, 3
(B21-LTS-N031A-3,B-3,C-3,D-3)	D	M	M	1, 2, 3
c. Reactor Vessel Water Level - Low, Level 1				
(B21-LT-N042A,B)	NA(a)	NA	R(b)	1, 2, 3
(B21-LTM-N042A-1,B-1)	D	M	M	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	M	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	M	Q	1, 2, 3
g. Bus Power Monitor (B21-K1A,B)	NA	R	NA	1, 2, 3

TABLE 4.3.3-1 (Continued)

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
5. LOSS OF POWER				
a. 4.16 kv Emergency Bus Undervoltage (Loss 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.
(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 3.3.5.3-1

POST-ACCIDENT MONITORING INSTRUMENTATION

	INSTRUMENT AND INSTRUMENT NUMBER	MINIMUM NO. OF OPERABLE INSTRUMENT CHANNELS
1.	Reactor Vessel Pressure (B21-PI-R004A,B; C32-LPR-R608; and C32-PT-N005A,B)	2
2.	Reactor Vessel Water Level (B21-LITS-N026A,B; B21-LR-R615; B21-LI-R604A,B; B21-LT-N037; and B21-LTM-N037-1)	2
3.	Suppression Chamber Water Level (CAC-LT-2601; CAC-LY-2601-1; CAC-LI-2601-3) (CAC-LT-2602; CAC-LR-2602)	2
4.	Suppression Chamber Water Temperature (CAC-TR-1258-14, 21; and C91-P602)	2
5.	Suppression Chamber Atmosphere Temperature (CAC-TR-1258-17 thru 20; and C91-P602)	2
6.	Drywell Pressure (CAC-PI-4176; CAC-PT-4176; CAC-PR-1257-1; and CAC-PT-4175)	2
7.	Drywell Temperature (CAC-TR-1258-1 thru 13, 22, 23, 24; and C91-P602)	2
8.	Drywell 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.	Drywell Oxygen (CAC-AT-1259-2; CAC-AR-1259; CAC-AT-1263-2; and CAC-AR-1263)	2
10.	Drywell Hydrogen (CAC-AT-1259-1; CAC-AR-1259; CAC-AT-1263-1; and CAC-AR-1263)	2
11.	Safety Relief Valve Position Indication: a. Primary - Sonic (B21-FY-4157 thru 4167) b. 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 Pressure (B21-PI-R004A,B; C32-LPR-R608; and C32-PT-N005A,B)	M	R	|
2. Reactor Vessel Water Level (B21-LITS-N026A,B; B21-LR-R615; B21-LI-R604A,B; B21-LT-N037; and B21-LTM-N037-1)	M	R	|
3. Suppression Chamber Water Level (CAC-LT-2601; CAC-LY-2601-1; CAC-LI-2601-3; CAC-LT-2602; CAC-LR-2602)	M	R	|
4. Suppression Chamber Water Temperature (CAC-TR-1258-14, 21; and C91-P602)	M	R	|
5. Suppression Chamber Atmosphere Temperature (CAC-TR-1258-17 thru 20; and C91-P602)	M	R	
6. Drywell Pressure (CAC-PI-4176; CAC-PT-4176; CAC-PR-1257-1; and CAC-PT-4175)	M	R	|
7. Drywell Temperature (CAC-TR-1258-1 thru 13, 22, 23, 24; and C91-P602)	M	R	|
8. Drywell 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)	M	R	|
9. Drywell Oxygen Concentration (CAC-AT-1259-2; CAC-AR-1259; CAC-AT-1263-2; and CAC-AR-1263)	M	R	|
10. Drywell Hydrogen Concentration (CAC-AT-1259-1; CAC-AR-1259; CAC-AT-1263-1; and CAC-AR-1263)	M	R	|
11. Safety Relief Valve Position Indication			|
a. Primary - Sonic (B21-FY-4157 thru 4167)	M	R	|
b. Secondary - Temp. (B21-TR-R614, points 1-11)	M	R	|

TABLE 3.3.6.1-1

ATWS RECIRCULATION PUMP TRIP SYSTEM INSTRUMENTATION

TRIP FUNCTION AND INSTRUMENT NUMBER	MINIMUM NUMBER OPERABLE TRIP SYSTEMS PER OPERATING PUMP
1. Reactor Vessel Water Level - Low, Level 2 (B21-LT-NO24A-2,B-2 and B21-LT-NO25A-2,B-2) (B21-LTM-NO24A-2,B-2 and B21-LTM-NO25A-2,B-2)	1
2. Reactor Vessel Pressure - High (B21-PS-NO45A,B,C,D)	1

TABLE 3.3.6.1-2

ATWS RECIRCULATION PUMP TRIP SYSTEM INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUE
1. Reactor Vessel, Water Level - Low, Level 2 (B21-LTM-N024A-2,B-2; B21-LTM-N025A-2,B-2)	$\geq$ + 112 inches*	$\geq$ + 112 inches*
2. Reactor Vessel Pressure - High (B21-PS-N045A,B,C,D)	$\leq$1120 psig	$\leq$1120 psig

*Vessel water levels refer to REFERENCE LEVEL ZERO.

TABLE 4.3.6.1-1

ATWS RECIRCULATION PUMP TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION AND INSTRUMENT NUMBER	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION
1. Reactor Vessel Water Level - Low, Level 2 (B21-LT-N024A-2,B-2 and B21-LT-N025A-2,B-2)	NA[a]	NA	R[b]
(B21-LTM-N024A-2,B-2 and B21-LTM-N025A-2,B-2)	D	M	M
2. Reactor Vessel Pressure - High (B21-PS-N045A, B, C, D)	NA	M	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.

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

CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-324

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 78
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 November 12, 1982, 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 1;

   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. 78, 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

Domenic B. Vassallo, Chief
Operating Reactors Branch #2
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 20, 1982

ATTACHMENT TO LICENSE AMENDMENT NO. 78

FACILITY OPERATING LICENSE NO. DPR-62

DOCKET NO 50-324

Revise the Appendix A Technical Specifications as follows:

Remove	Insert
2-4	2-4
2-6	2-6
3/4 3-2	3/4 3-2
3/4 3-6	3/4 3-6
	3/4 3-6a
3/4 3-7	3/4 3-7
3/4 3-8	3/4 3-8
	3/4 3-8a
3/4 3-11	3/4 3-11
3/4 3-12	3/4 3-12
3/4 3-13	3/4 3-13
3/4 3-14	3/4 3-14
-	3/4 3-14a
3/4 3-15	3/4 3-15
3/4 3-17	3/4 3-17
3/4 3-18	3/4 3-18
3/4 3-19	3/4 3-19
3/4 3-20	3/4 3-20
3/4 3-21	3/4 3-21
3/4 3-22	3/4 3-22
3/4 3-23	3/4 3-23
3/4 3-24	3/4 3-24
	3/4 3-24A
3/4 3-25	3/4 3-25
3/4 3-26	3/4 3-26
3/4 3-27	3/4 3-27
3/4 3-28	3/4 3-28
3/4 3-29	3/4 3-29
	3/4 3-29a
3/4 3-31	3/4 3-31
3/4 3-32	3/4 3-32
	3/4 3-32a
3/4 3-34	3/4 3-34
3/4 3-35	3/4 3-35
3/4 3-35a	3/4 3-35a
3/4 3-37	3/4 3-37
3/4 3-38	3/4 3-38
3/4 3-38a	3/4 3-38a
	3/4 3-38b
3/4 3-51	3/4 3-51
3/4 3-52	3/4 3-52
3/4 3-63	3/4 3-63
3/4 3-64	3/4 3-64
3/4 8-65	3/4 8-65
3/4 8-10	3/4 8-10

TABLE 2.2.1-1

REACTOR PROTECTION SYSTEM INSTRUMENTATION SETPOINTS

FUNCTIONAL UNIT AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUES
1. Intermediate Range Monitor, Neutron Flux - High[1] (C51-IRM-K601A,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%[2]	≤ 15% of RATED THERMAL POWER	≤ 15% of RATED THERMAL POWER
b. Flow Biased Neutron Flux - High[3][4]	≤ (0.66 W + 54%)	≤ (0.66 W + 54%)
c. Fixed Neutron Flux - High[4]	≤ 120% of RATED THERMAL POWER	≤ 120% of RATED THERMAL POWER
3. Reactor Vessel Steam Dome Pressure - High (B21-PTM-NO23A-1,B-1,C-1,D-1)	≤ 1045 psig	≤ 1045 psig
4. Reactor Vessel Water Level - Low, Level 1 (B21-LTM-NO17A-1,B-1,C-1,D-1)	≥ +162.5 inches*	≥ +162.5 inches*
5. Main Steam Line Isolation Valve - Closure[5] (B21-FO22A,B,C,D; B21-FO28A,B,C,D)	≤ 10% closed	≤ 10% closed
6. Main Steam Line Radiation - High (D12-RM-K603A,B,C,D)	≤ 3 x full power background	≤ 3.5 x full power background
7. Drywell Pressure - High (C72-PS-NOO2A,B,C,D)	≤ 2 psig	≤ 2 psig
8. Scram Discharge Volume Water Level - High (C12-LSH-NO13A,B,C,D) (C12-LSH-4516A,B,C,D)	≤ 109 gallons	≤ 109 gallons

TABLE 2.2.1-1 (Continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION SETPOINTS

TABLE NOTATION

* Vessel water levels refer to REFERENCE LEVEL ZERO.

(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.

TABLE 3.3.1-1

REACTOR PROTECTION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT AND INSTRUMENT NUMBER	APPLICABLE OPERATIONAL CONDITIONS	MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM (a)	ACTION
1. Intermediate Range Monitors: (C51-IRM-K601A,B,C,D,E,F,G,H)			
a. Neutron Flux - High	2, 5[b]	3	1
	3, 4	2	2
b. Inoperative	2, 5	3	1
	3, 4	2	2
2. Average Power Range Monitor (C51-APRM-CH.A,B,C,D,E,F)			
a. Neutron Flux - High, 15%	2, 5[b]	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-PTM-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 Isolation Valve - Closure (B21-F022A,B,C,D and B21-F028A,B,C,D)	1	4	4
6. Main Steam Line Radiation - High (D12-RM-K603A,B,C,D)	1, 2[d]	2	7

TABLE 3.3.1-2

REACTOR PROTECTION SYSTEM RESPONSE TIMES

FUNCTIONAL UNIT AND INSTRUMENT NUMBER	RESPONSE TIME (Seconds)
1. Intermediate Range Monitors (C51-IRM-K601A,B,C,D,E,F,G,H):	
a. Neutron Flux - High*	NA
b. Inoperative	NA
2. Average Power Range Monitor* (C51-APRM-CH.A,B,C,D,E,F):	
a. Neutron Flux - High, 15%	$\leq$ 0.09
b. Flow-Biased Neutron Flux - High	NA
c. Neutron Flux - High, 120%	$\leq$ 0.09
d. Inoperative	NA
e. Downscale	NA
f. LPRM	NA
3. Reactor Vessel Steam Dome Pressure - High (B21-PT-NO23A,B,C,D) (B21-PTM-NO23A-1,B-1,C-1,D-1)	$\leq$ 0.55
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)	$\leq$ 1.05
5. Main Steam Line Isolation Valve-Closure (B21-FO22A,B,C,D and B21-FO28A,B,C,D)	$\leq$ 0.06
6. Main Steam Line Radiation - High (D12-RM-K603A,B,C,D)	NA

TABLE 3.3.1-2 (Continued)

REACTOR PROTECTION SYSTEM RESPONSE TIMES

FUNCTIONAL UNIT AND INSTRUMENT NUMBER	RESPONSE TIME (Seconds)
7. Drywell Pressure - High (C72-PS-N002A,B,C,D)	NA
8. Scram Discharge Volume Water Level - High (C12-LSH-N013A,B,C,D) (C12-LSH-4516A,B,C,D)	NA
9. Turbine Stop Valve - Closure (EHC-SVOS-1X,2X,3X,4X)	$\leq$ 0.06
10. Turbine Control Valve Fast Closure, Control Oil Pressure - Low (EHC-PSL-1756,1757,1758,1759)	$\leq$ 0.08
11. Reactor Mode Switch in Shutdown Position (C72A-S1)	NA
12. Manual Scram (C72A-S3A,B)	NA

* Neutron detectors are exempt from response time testing. Response time shall be measured from detector output or from the input of the first electronic component in the 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
1. Intermediate Range Monitors: (C51-IRM-K601A,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/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-N023A,B,C,D)	NA[k]	NA	R[1]	1, 2
(B21-PTM-N023A-1,B-1,C-1,D-1)	D	M	M	1, 2
4. Reactor Vessel Water Level - Low, Level 1				
(B21-LT-N017A-1,B-1,C-1,D-1)	NA[k]	NA	R[1]	1, 2
(B21-LTM-N017A-1,B-1,C-1,D-1)	D	M	M	1, 2

TABLE 4.3.1-1 (Continued)

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
5. Main Steam Line Isolation Valve - Closure (B21-F022A,B,C,D and B21-F028A,B,C,D)	NA	M	R[h]	1
6. Main Steam Line Radiation - High (D12-RM-K603A,B,C,D)	S	M[i]	R[j]	1, 2
7. Drywell Pressure - High (C72-PS-N002A,B,C,D)	NA	M	Q	1, 2
8. Scram Discharge Volume Water Level - High (C12-LSH-N013A,B,C,D) (C12-LSH-4516A,B,C,D)	NA	Q	R	1, 2, 5
9. Turbine Stop Valve - Closure (EHC-SVOS-1X,2X,3X,4X)	NA	M	R[h]	1
10. Turbine Control Valve Fast Closure, Control Oil Pressure - Low (EHC-PSL-1756,1757,1758,1759)	NA	M	R	1
11. Reactor Mode Switch in Shutdown Position (C72A-S1)	NA	R	NA	1, 2, 3, 4, 5
12. Manual Scram (C72A-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 IRM 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.

(f) This calibration shall consist of the adjustment of the APRM flow-biased setpoint to conform to a calibrated flow signal.

(g) The LPRMs 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

TRIP FUNCTION AND INSTRUMENT NUMBER	VALVE GROUPS OPERATED BY SIGNAL(a)	MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM(b)(c)	APPLICABLE OPERATIONAL CONDITION	ACTION
1. PRIMARY CONTAINMENT ISOLATION				
a. Reactor Vessel Water Level -				
1. 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	20
2. 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	20
b. Drywell Pressure - High (C72-PS-N002A,B,C,D)	2, 6, 7	2	1, 2, 3	20
c. Main Steam Line				
1. Radiation - High (d) (D12-RM-K603A,B,C,D)	1	2	1, 2, 3	21
2. Pressure - Low (B21-PT-N015A,B,C,D) (B21-PTM-N015A-1,B-1,C-1,D-1)	1	2	1	22
3. Flow - High (B21-PDT-N006A,B,C,D; B21-PDT-N007A,B,C,D; B21-PDT-N008A,B,C,D; B21-PDT-N009A,B,C,D) (B21-PDTM-N006A-1,B-1,C-1,D-1; B21-PDTM-N007A-1,B-1,C-1,D-1; B21-PDTM-N008A-1,B-1,C-1,D-1; B21-PDTM-N009A-1,B-1,C-1,D-1)	1	2/line	1	22

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

TRIP FUNCTION AND INSTRUMENT NUMBER	VALVE GROUPS OPERATED BY SIGNAL(a)	MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM(b)(c)	APPLICABLE OPERATIONAL CONDITION	ACTION
4. Flow - High (B21-PDTS-N006A-2; B21-PDTS-N007B-2; B21-PDTS-N008C-2; B21-PDTS-N009D-2)	1	2	2, 3	21
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; B21-TS-N013A,B,C,D)	1	2(e)	1, 2, 3	21
e. Condenser Vacuum - Low (B21-PS-N056A,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; B21-TS-3232A,B,C,D)	1	4(e)	1, 2, 3	21
2. SECONDARY CONTAINMENT ISOLATION				
a. Reactor Building Exhaust Radiation - High (D12-RM-N010A,B)	6	1	1, 2, 3, 5, and*	23
b. Drywell Pressure - High (C72-PS-N002A,B,C,D)	2, 6, 7	2	1, 2, 3	23

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

TRIP FUNCTION AND INSTRUMENT NUMBER	VALVE GROUPS OPERATED BY SIGNAL(a)	MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM(b)(c)	APPLICABLE OPERATIONAL CONDITION	ACTION
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	23
3. REACTOR WATER CLEANUP SYSTEM ISOLATION				
a. Δ Flow - High (G31-dFS-N603-1A,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 Δ Temp. - High (G31-TS-N602A,B,C,D,E,F)	3	2	1, 2, 3	24
d. SLCS Initiation (C41A-S1)	3 (g)	NA	1, 2, 3	24
e. Reactor Vessel Water Level - Low, Level 2 (B21-LT-N024 A-1,B-1 and B21-LT-N025 A-1,B-1) (B21-LTM-N024 A-1,B-1 and B21-LTM-N025 A-1,B-1)	1, 3	2	1, 2, 3	24

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

TRIP FUNCTION AND INSTRUMENT NUMBER	VALVE GROUPS OPERATED BY SIGNAL(a)	MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM(b)(c)	APPLICABLE OPERATIONAL CONDITION	ACTION
4. CORE STANDBY COOLING SYSTEMS ISOLATION				
a. High Pressure Coolant Injection System Isolation				
1. HPCI Steam Line Flow - High (E41-dPIS-N004 and E41-dPIS-N005)	4	2	1, 2, 3	25
2. HPCI Steam Supply Pressure - Low (E41-PSL-N001A,B,C,D)	4	2	1, 2, 3	25
3. HPCI 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; E41-TS-3489)	4	2	1, 2, 3	25
4. Bus Power Monitor (E41-K55 and E41-K56)	NA(h)	1/bus	1, 2, 3	26
5. HPCI Turbine Exhaust Diaphragm Pressure - High (E41-PSH-N012A,B,C,D)	4	2	1, 2, 3	25
6. HPCI Steam Line Ambient Temperature - High (E51-TS-N603C,D)	4	2	1, 2, 3	25
7. HPCI Steam Line Area Δ Temp. - High (E51-dTS-N604C,D)	4	2	1, 2, 3	25
8. Emergency Area Cooler Temperature - High (E41-TS-N602A,B)	4	2	1, 2, 3	25

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

TRIP FUNCTION AND INSTRUMENT NUMBER	VALVE GROUPS OPERATED BY SIGNAL(a)	MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM(b)(c)	APPLICABLE OPERATIONAL CONDITION	ACTION
b. Reactor Core Isolation Cooling System Isolation				
1. RCIC Steam Line Flow - High (E51-dPIS-N017 and E51-dPIS-N018)	5	2	1, 2, 3	25
2. RCIC Steam Supply Pressure - Low (E51-PS-N019A,B,C,D)	5	2	1, 2, 3	25
3. RCIC Steam Line Tunnel Temperature - High (E51-TS-3319; E51-TS-3320; E51-TS-3321; E51-TS-3322; E51-TS-3323; E51-TS-3355; E51-TS-3487)	5	2	1, 2, 3	25
4. Bus Power Monitor (E51-K42 and E51-K43)	NA (h)	1/bus	1, 2, 3	26
5. RCIC Turbine Exhaust Diaphragm Pressure - High (E51-PS-N012A,B,C,D)	5	2	1, 2, 3	25
6. RCIC Steam Line Ambient Temp - High (E51-TS-N603A,B)	5	2	1, 2, 3	25
7. RCIC Steam Line Area Δ Temp - High (E51-dTS-N604A,B)	5	2	1, 2, 3	25
8. RCIC Equipment Room Ambient Temp - High (E51-TS-N602A,B)	5	2	1, 2, 3	25
9. RCIC Equipment Room Δ Temp - High (E51-dTS-N601A,B)	5	2	1, 2, 3	25

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

TRIP FUNCTION AND INSTRUMENT NUMBER	VALVE GROUPS OPERATED BY SIGNAL(a)	MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM(b)(c)	APPLICABLE OPERATIONAL CONDITION	ACTION
5. SHUTDOWN COOLING SYSTEM ISOLATION				
a. Reactor Vessel Water Level - 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

TABLE 3.3.2-2

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUE
1. PRIMARY CONTAINMENT ISOLATION		
a. Reactor Vessel Water Level -		
1. Low, Level 1 (B21-LTM-N017A-1,B-1,C-1,D-1)	$\geq$ + 162.5 inches*	$\geq$ + 162.5 inches*
2. Low, Level 2 (B21-LTM-N024A-1,B-1 and B21-LTM-N025A-1,B-1)	$\geq$ + 112 inches*	$\geq$ + 112 inches*
b. Drywell Pressure - High (C72-PS-N002A,B,C,D)	$\leq$ 2 psig	$\leq$ 2 psig
c. Main Steam Line		
1. Radiation - High (D12-RM-K603A,B,C,D)	$\leq$ 3 x full power background	$\leq$ 3.5 x full power background
2. Pressure - Low (B21-PTM-N015A-1,B-1,C-1,D-1)	$\geq$ 825 psig	$\geq$ 825 psig
3. Flow - High (B21-PDTM-N006A-1,B-1,C-1,D-1; B21-PDTM-N007A-1,B-1,C-1,D-1; B21-PDTM-N008A-1,B-1,C-1,D-1; B21-PDTM-N009A-1,B-1,C-1,D-1)	$\leq$ 140% of rated flow	$\leq$ 140% of rated flow
4. Flow - High (B21-PDTS-N006A-2; B21-PDTS-N007B-2; B21-PDTS-N008C-2; B21-PDTS-N009D-2)	$\leq$ 40% of rated flow	$\leq$ 40% of rated flow

TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUE
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; B21-TS-N013A,B,C,D)	$\leq$ 200°F	$\leq$ 200°F
e. Condenser Vacuum - Low (B21-PS-N056A,B,C,D)	$\geq$ 7 inches Hg vacuum	$\geq$ 7 inches Hg vacuum
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; B21-TS-3232A,B,C,D)	$\leq$ 200°F	$\leq$ 200°F
2. SECONDARY CONTAINMENT ISOLATION		
a. Reactor Building Exhaust Radiation - High (D12-RM-N010A,B)	$\leq$ 11 mr/hr	$\leq$ 11 mr/hr
b. Drywell Pressure - High (C72-PS-N002A,B,C,D)	$\leq$ 2 psig	$\leq$ 2 psig
c. Reactor Vessel Water Level - Low, Level 2 (B21-LTM-N024A-1,B-1 and B21-LTM-N025A-1,B-1)	$\geq$ + 112 inches*	$\geq$ + 112 inches*

TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUE
3. REACTOR WATER CLEANUP SYSTEM ISOLATION		
a. Δ Flow - High (G31-dFS-N603-1A,1B)	≤ 53 gal/min	≤ 53 gal/min
b. Area Temperature - High (G31-TS-N600A,B,C,D,E,F)	≤ 150°F	≤ 150°F
c. Area Ventilation Temperature Δ Temp - High (G31-TS-N602A,B,C,D,E,F)	≤ 50°F	≤ 50°F
d. SLCS Initiation (C41A-S1)	NA	NA
e. Reactor Vessel Water Level - Low, Level 2 (B21-LTM-N024A-1,B-1 and B21-LTM-N025A-1,B-1)	≥ + 112 inches*	≥ + 112 inches*
4. CORE STANDBY COOLING SYSTEMS ISOLATION		
a. High Pressure Coolant Injection System Isolation		
1. HPCI Steam Line Flow - High (E41-dPIS-N004 and E41-dPIS-N005)	≤ 300% of rated flow	≤ 300% of rated flow
2. HPCI Steam Supply Pressure - Low (E41-PSL-N001A,B,C,D)	≥ 100 psig	≥ 100 psig
3. HPCI 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; E41-TS-3489)	≤ 200°F	≤ 200°F

TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUE
4. Bus Power Monitor (E41-K55 and E41-K56)	NA	NA
5. HPCI Turbine Exhaust Diaphragm Pressure - High (E41-PSH-N012A,B,C,D)	$\leq$ 10 psig	$\leq$ 10 psig
6. HPCI Steam Line Ambient Temp - High (E51-TS-N603C,D)	$\leq$ 200°F	$\leq$ 200°F
7. HPCI Steam Line Area Δ Temp - High (E51-dTS-N604C,D)	$\leq$ 50°F	$\leq$ 50°F
8. Emergency Area Cooler Temp - High (E41-TS-N602A,B)	$\leq$ 175°F	$\leq$ 175°F
b. Reactor Core Isolation Cooling System Isolation		
1. RCIC Steam Line Flow - High (E51-dPIS-N017 and E51-dPIS-N018)	$\leq$ 300% of rated flow	$\leq$ 300% of rated flow
2. RCIC Steam Supply Pressure - Low (E51-PS-N019A,B,C,D)	$\geq$ 50 psig	$\geq$ 50 psig
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; E51-TS-3487)	$\leq$ 175°F	$\leq$ 175°F
4. Bus Power Monitor (E51-K42 and E51-K43)	NA	NA

TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUE
5. RCIC Turbine Exhaust Diaphragm Pressure - High (E51-PS-N012A,B,C,D)	$\leq$ 10 psig	$\leq$ 10 psig
6. RCIC Steam Line Ambient Temp - High (E51-TS-N603A,B)	$\leq$ 200°F	$\leq$ 200°F
7. RCIC Steam Line Area Δ Temp - High (E51-dTS-N604A,B)	$\leq$ 50°F	$\leq$ 50°F
8. RCIC Equipment Room Ambient Temp - High (E51-TS-N602A,B)	$\leq$ 175°F	$\leq$ 175°F
9. RCIC Equipment Room Δ Temp - High (E51-dTS-N601A,B)	$\leq$ 50°F	$\leq$ 50°F
5. SHUTDOWN COOLING SYSTEM ISOLATION		
a. Reactor Vessel Water Level - Low, Level 1 (B21-LTM-N017A-1,B-1,C-1,D-1)	$\geq$ + 162.5 inches*	$\geq$ + 162.5 inches*
b. Reactor Steam Dome Pressure - High (B32-PS-N018A,B)	$\leq$ 140 psig	$\leq$ 140 psig

* Vessel water levels refer to REFERENCE LEVEL ZERO.

TABLE 3.3.2-3

ISOLATION SYSTEM INSTRUMENTATION RESPONSE TIME

TRIP FUNCTION AND INSTRUMENT NUMBER	RESPONSE TIME (Seconds)#
1. PRIMARY CONTAINMENT ISOLATION	
a. Reactor Vessel Water Level -	
1. Low, Level 1 (B21-LT-N017A-1,B-1,C-1,D-1) (B21-LTM-N017A-1,B-1,C-1,D-1)	≤13
2. 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)	≤1.0**
b. Drywell Pressure - High (C72-PS-N002A,B,C,D)	≤13
c. Main Steam Line	≤1.0**
1. Radiation - High* (D12-RM-K603A,B,C,D)	
2. Pressure - Low (B21-PT-N015A,B,C,D) (B21-PTM-N015A-1,B-1,C-1,D-1)	≤13
3. Flow - High (B21-PDT-N006A,B,C,D; B21-PDT-N007A,B,C,D; B21-PDT-N008A,B,C,D; B21-PDT-N009A,B,C,D) (B21-PDTM-N006A-1,B-1,C-1,D-1; B21-PDTM-N007A-1,B-1,C-1,D-1; B21-PDTM-N008A-1,B-1,C-1,D-1; B21-PDTM-N009A-1,B-1,C-1,D-1)	≤0.5**
4. Flow - High (B21-PDTS-N006A-2; B21-PDTS-N007B-2; B21-PDTS-N008C-2; B21-PDTS-N009D-2)	≤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; B21-TS-N013A,B,C,D)	≤13
e. Condenser Vacuum - Low (B21-PS-N056A,B,C,D)	≤13

TABLE 3.3.2-3 (Continued)

ISOLATION SYSTEM INSTRUMENTATION RESPONSE TIME

TRIP FUNCTION AND INSTRUMENT NUMBER	RESPONSE TIME (Seconds)#
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
2. SECONDARY CONTAINMENT ISOLATION	
a. Reactor Building Exhaust Radiation - High* (D12-RM-N010A,B)	≤13
b. Drywell Pressure - High (C72-PS-N002A,B,C,D)	≤13
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)	≤1.0**
3. REACTOR WATER CLEANUP SYSTEM ISOLATION	
a. Δ Flow - High (G31-dFS-N603-1A,1B)	≤13
b. Area Temperature - High (G31-TS-N600A,B,C,D,E,F)	≤13
c. Area Ventilation Temperature ΔT - High (G31-TS-N602A,B,C,D,E,F)	≤13
d. SLCS Initiation (C41A-S1)	NA
e. Reactor Vessel Water Level - Low, Level 2 (B21-LT-N024 A-1,B-1 and B21-LT-N025 A-1,B-1) (B21-LTM-N024 A-1,B-1 and B21-LTM-N025 A-1,B-1)	≤1.0**

TABLE 3.3.2-3 (Continued)

ISOLATION SYSTEM INSTRUMENTATION RESPONSE TIME

TRIP FUNCTION AND INSTRUMENT NUMBER	RESPONSE TIME (Seconds)#
4. CORE STANDBY COOLING SYSTEMS ISOLATION	
a. High Pressure Coolant Injection System Isolation	
1. HPCI Steam Line Flow - High (E41-dPIS-N004 and E41-dPIS-N005)	≤13
2. HPCI Steam Supply Pressure - Low (E41-PSL-N001A,B,C,D)	≤13
3. HPCI 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; E41-TS-3489)	≤13
4. Bus Power Monitor (E41-K55 and E41-K56)	NA
5. HPCI Turbine Exhaust Diaphragm Pressure - High (E41-PSH-N012A,B,C,D)	NA
6. HPCI Steam Line Ambient Temperature - High (E51-TS-N603C,D)	NA
7. HPCI Steam Line Area (E51-dTS-N604C,D)	NA
8. Emergency Area Cooler Temperature - High (E41-TS-602A,B)	NA
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; E51-TS-3487)	NA
4. Bus Power Monitor (E51-K42 and E51-K43)	NA

TABLE 3.3.2-3 (Continued)

ISOLATION SYSTEM INSTRUMENTATION RESPONSE TIME

TRIP FUNCTION AND INSTRUMENT NUMBER	RESPONSE TIME (Seconds)#
5. RCIC Turbine Exhaust Diaphram 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 Δ Temp - High (E51-dTS-N604A,B)	NA
8. Emergency Area Cooler Temperature - High (E51-TS-N602A,B)	NA
9. RCIC Equipment Room Δ Temp - High (E51-dTS-N601A,B)	NA
5. SHUTDOWN COOLING SYSTEM ISOLATION	
a. Reactor Vessel Water Level - Low, Level 1 (B21-LT-N017A-1,B-1,C-1,D-1) (B21-LTM-N017A-1,B-1,C-1,D-1)	NA
b. Reactor Steam Dome Pressure - High (B32-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.

Isolation system instrumentation response time specified for the Trip Function actuating each valve group shall be added to isolation time shown in Table 3.6.3-1 and Table 3.6.5.2-1 for valves in each valve group to obtain ISOLATION SYSTEM RESPONSE TIME for each valve.

TABLE 4.3.2-1

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION AND INSTRUMENT NUMBER	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
1. PRIMARY CONTAINMENT ISOLATION				
a. Reactor Vessel Water Level -				
1. Low, Level 1				
(B21-LT-N017A-1,B-1,C-1,D-1)	NA[a]	NA	R[b]	1, 2, 3
(B21-LTM-N017A-1,B-1,C-1,D-1)	D	M	M	1, 2, 3
2. Low, Level 2				
(B21-LT-N024A-1,B-1 and B21-LT-N025A-1,B-1)	NA[a]	NA	R[b]	1, 2, 3
(B21-LTM-N024A-1,B-1 and B21-LTM-N025A-1,B-1)	D	M	M	1, 2, 3
b. Drywell Pressure - High (C72-PS-N002A,B,C,D)	NA	M	Q	1, 2, 3
c. Main Steam Line				
1. Radiation - High (D12-RM-K603A,B,C,D)	D	W	R	1, 2, 3
2. Pressure - Low				
(B21-PT-N015A,B,C,D)	NA[a]	NA	R[b]	1
(B21-PTM-N015A-1,B-1,C-1,D-1)	D	M	M	1
3. Flow - High				
(B21-PDT-N006A,B,C,D; B21-PDT-N007A,B,C,D; B21-PDT-N008A,B,C,D; B21-PDT-N009A,B,C,D)	NA[a]	NA	R[b]	1
(B21-PDTM-N006A-1,B-1,C-1,D-1; B21-PDTM-N007A-1,B-1,C-1,D-1; B21-PDTM-N008A-1,B-1,C-1,D-1; B21-PDTM-N009A-1,B-1,C-1,D-1)	D	M	M	1

TABLE 4.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION AND INSTRUMENT NUMBER	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
4. Flow - High (B21-PDTS-N006A-2; B21-PDTS-N007B-2; B21-PDTS-N008C-2; B21-PDTS-N009D-2)	D	M	M	2, 3
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; B21-TS-N013A,B,C,D)	NA	M	R	1, 2, 3
e. Condenser Vacuum - Low (B21-PS-N056A,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; B21-TS-3232A,B,C,D)	NA	M	R	1, 2, 3
2. SECONDARY CONTAINMENT ISOLATION				
a. Reactor Building Exhaust Radiation - High (D12-RM-N010A,B)	D	M	R	1,2,3,5, and *

TABLE 4.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION AND INSTRUMENT NUMBER	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
b. Drywell Pressure - High (C72-PS-N002A,B,C,D)	NA	M	Q	1, 2, 3
c. Reactor Vessel Water Level - Low, Level 2 (B21-LT-N024 A-1,B-1 and B21-LT-N025 A-1,B-1)	NA(a)	NA	R(b)	1, 2, 3
(B21-LTM-N024 A-1,B-1 and B21-LTM-N025 A-1,B-1)	D	M	M	1, 2, 3
3. REACTOR WATER CLEANUP SYSTEM ISOLATION				
a. Δ Flow - High (G31-dFS-N603-1A,1B)	D	M	R	1, 2, 3
b. Area Temperature - High (G31-TS-N600A,B,C,D,E,F)	NA	M	R	1, 2, 3
c. Area Ventilation Δ Temp - High (G31-TS-N602A,B,C,D,E,F)	NA	M	R	1, 2, 3
d. SLCS Initiation (C41A-S1)	NA	R	NA	1, 2, 3
e. Reactor Vessel Water Level - Low, Level 2 (B21-LT-N024 A-1,B-1 and B21-LT-N025 A-1,B-1)	NA(a)	NA	R(b)	1, 2, 3
(B21-LTM-N024 A-1,B-1 and B21-LTM-N025 A-1,B-1)	D	M	M	1, 2, 3

TABLE 4.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION AND INSTRUMENT NUMBER	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
4. CORE STANDBY COOLING SYSTEMS ISOLATION				
a. High Pressure Coolant Injection System Isolation				
1. HPCI Steam Line Flow - High (E41-dPIS-N004 and E41-dPIS-N005)	D	M	Q	1, 2, 3
2. HPCI Steam Supply Pressure - Low (E41-PSL-N001A,B,C,D)	NA	M	R	1, 2, 3
3. HPCI 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-3388; E41-TS-3489)	NA	M	Q	1, 2, 3
4. Bus Power Monitor (E41-K55 and E41-K56)	NA	R	NA	1, 2, 3
5. HPCI Turbine Exhaust Diaphragm Pressure - High (E41-PSH-N012A,B,C,D)	NA	M	Q	1, 2, 3
6. HPCI Steam Line Ambient Temp - High (E51-TS-N603C,D)	NA	M	R	1, 2, 3
7. HPCI Steam Line Area Δ Temp - High (E51-dTS-N604C,D)	NA	M	R	1, 2, 3

TABLE 4.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION AND INSTRUMENT NUMBER	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
8. Emergency Area Cooler Temp - High (E41-TS-N602A,B)	NA	M	Q	1, 2, 3
b. Reactor Core Isolation Cooling System Isolation				
1. RCIC Steam Line Flow - High (E51-dPIS-N017 and E51-dPIS-N018)	NA	M	Q	1, 2, 3
2. RCIC Steam Supply Pressure - Low (E51-PS-N019A,B,C,D)	NA	M	Q	1, 2, 3
3. RCIC Steam Line Tunnel High Temperature (E51-TS-3319; E51-TS-3320; E51-TS-3321; E51-TS-3322; E51-TS-3323; E51-TS-3355; E51-TS-3487)	NA	M	R	1, 2, 3
4. Bus Power Monitor (E51-K42 and E51-K43)	NA	R	NA	1, 2, 3
5. RCIC Turbine Exhaust Diaphragm Pressure - High (E51-PS-N012A,B,C,D)	NA	M	R	1, 2, 3

TABLE 4.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION AND INSTRUMENT NUMBER	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
6. RCIC Steam Line Ambient Temp - High (E51-TS-N603A,B)	NA	M	R	1, 2, 3
7. RCIC Steam Line Area Δ Temp - High (E51-dTS-N604A,B)	NA	M	R	1, 2, 3
8. RCIC Equipment Room Ambient Temp - High (E51-TS-N602A,B)	NA	M	Q	1, 2, 3
9. RCIC Equipment Room Δ Temp - High (E51-dTS-N601A,B)	NA	M	Q	1, 2, 3
5. SHUTDOWN COOLING SYSTEM ISOLATION				
a. Reactor Vessel Water Level - Low, Level 1 (B21-LT-NO17A-1,B-1,C-1,D-1)	NA(a)	NA	R(b)	1, 2, 3
(B21-LTM-NO17A-1,B-1,C-1,D-1)	D	M	M	1, 2, 3
b. Reactor Steam Dome Pressure - High (B32-PS-NO18A,B)	NA	S/U(c), M	R	1, 2, 3

* When handling irradiated fuel in the secondary containment.
\# When reactor steam pressure $\geq$ 500 psig.
(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.
(c) If not performed within the previous 31 days.

TABLE 3.3.3-1

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

TRIP FUNCTION AND INSTRUMENT NUMBER	MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM	APPLICABLE OPERATIONAL CONDITIONS	ACTION
1. CORE SPRAY SYSTEM			
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-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 (E21-K16A,B)	1	1, 2, 3, 4, 5	31
e. Bus Power Monitor# (E21-K1A,B)	1/bus	1, 2, 3, 4, 5	32
2. LPCI MODE OF RHR SYSTEM			
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*, 5*	30
c. Reactor Vessel Shroud Level (Drywell Spray Permissive) (B21-LT-N036 and B21-LT-N037) (B21-LTM-N036-1 and B21-LTM-N037-1)	1	1, 2, 3, 4*, 5*	31
d. Reactor Steam Dome Pressure - Low (Injection Permissive) (B21-PT-N021A,B,C,D) (B21-PTM-N021A-1,B-1,C-1,D-1) (B21-PTS-N021A-2,B-2,C-2,D-2)			
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

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
e. RHR Pump Start - Time Delay Relay (STR-2A1,2 and STR-2B1,2)	1	1, 2, 3, 4*, 5*	31
f. Bus Power Monitor# (E11-K106A,B)	1/bus	1, 2, 3, 4*, 5*	32
3. HPCI SYSTEM			
a. Reactor Vessel Water Level - Low, Level 2 (B21-LT-N031A,B,C,D) (B21-LTS-N031A-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-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
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-LT-N031A,B,C,D) (B21-LTS-N031A-3,B-3,C-3,D-3)	2	1, 2, 3	30

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
c. Reactor Vessel Water Level - Low, Level 1 (B21-LT-N042A,B) (B21-LTM-N042A-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

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##,5##	34
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage)	3/bus	2/bus	2/bus	1,2,3,4##,5##	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 3.3.3-2

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUE
1. CORE SPRAY SYSTEM		
a. Reactor Vessel Water Level - Low, Level 3 (B21-LTS-N031A-4,B-4,C-4,D-4)	$\geq$ + 2.5 inches*	$\geq$ + 2.5 inches*
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 (E21-K16A,B)	14 $\leq$ t $\leq$ 16 secs	14 $\leq$ t $\leq$ 16 secs
e. Bus Power Monitor (E21-K1A,B)	NA	NA
2. LPCI MODE OF RHR SYSTEM		
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*	$\geq$ + 2.5 inches*
c. Reactor Vessel Shroud Level (B21-LTM-N036-1 and B21-LTM-N037-1)	$\geq$ - 53 inches*	$\geq$ - 53 inches*
d. Reactor Steam Dome Pressure - Low		
1. RHR Pump Start and LCPI Valve Actuation (B21-PTS-N021A-2,B-2,C-2,D-2)	410 $\pm$ 15 psig	410 $\pm$ 15 psig
2. Recirculation Pump Discharge Valve Actuation (B21-PTM-N021A-1,B-1,C-1,D-1)	310 $\pm$ 15 psig	310 $\pm$ 15 psig

TABLE 3.3.3-2 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUE
e. RHR Pump Start - Time Delay Relay (STR-2A1,2 and STR-2B1,2)	9 ≤ t ≤ 11 seconds	9 ≤ t ≤ 11 seconds
f. Bus Power Monitor (E11-K106A,B)	NA	NA
3. HPCI SYSTEM		
a. Reactor Vessel Water Level - Low, Level 2 (B21-LTS-N031A-2,B-2,C-2,D-2)	≥ + 112 inches*	≥ + 112 inches*
b. Drywell Pressure - High (E11-PS-N011A,B,C,D)	≤ 2 psig	≤ 2 psig
c. Condensate Storage Tank Level - Low (E41-LS-N002; E41-LS-N003)	≥ 23 feet 4 inches	≥ 23 feet 4 inches
d. Suppression Chamber Water Level - High (E41-LSH-N015A,B)	≤ -2 feet**	≤ -2 feet**
e. Bus Power Monitor (E41-K55 and E41-K56)	NA	NA
4. ADS		
a. Drywell Pressure-High (E11-PS-N010A,B,C,D)	≤ 2 psig	≤ 2 psig
b. Reactor Vessel Water Level - Low, Level 3 (B21-LTS-N031A-3,B-3,C-3,D-3)	≥ + 2.5 inches*	≥ + 2.5 inches*
c. Reactor Vessel Water Level - Low, Level 1 (B21-LTM-N042A-1,B-1)	≥ + 162.5 inches*	≥ + 162.5 inches*
d. ADS Timer (B21-TDPU-K5A,B)	≤ 120 seconds	≤ 120 seconds

TABLE 3.3.3-2 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER		TRIP SETPOINT	ALLOWABLE VALUE
e.	Core Spray Pump Discharge Pressure - High (E21-PS-N008A,B and E21-PS-N009A,B)	$\geq$ 100 psig	$\geq$ 100 psig
f.	RHR (LPCI MODE) Pump Discharge Pressure - High (E11-PS-N016A,B,C,D and E11-PS-N020A,B,C,D)	$\geq$ 100 psig	$\geq$ 100 psig
g.	Bus Power Monitor (B21-K1A,B)	NA	NA
5.	LOSS OF POWER		
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. $\leq$ 10 sec. time delay	2940 ± 315 volts 84 ± 9 volts $\leq$ 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 volts 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.

* Vessel water levels refer to REFERENCE LEVEL ZERO.

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

TABLE 4.3.3-1

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
1. CORE SPRAY SYSTEM				
a. Reactor Vessel Water Level - Low, Level 3				
(B21-LT-N031A,B,C,D)	NA[a]	NA	R[b]	1, 2, 3, 4, 5
(B21-LTS-N031A-4,B-4,C-4,D-4)	D	M	M	1, 2, 3, 4, 5
b. Reactor Steam Dome Pressure - Low				
(B21-PT-N021A,B,C,D)	NA[a]	NA	R[b]	1, 2, 3, 4, 5
(B21-PTS-N021A-2,B-2,C-2,D-2)	D	M	M	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 (E21-K16A,B)	NA	R	R	1, 2, 3, 4, 5
e. Bus Power Monitor (E21-K1A,B)	NA	R	NA	1, 2, 3, 4, 5
2. LPCI MODE OF RHR SYSTEM				
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-LT-N031A,B,C,D)	NA[a]	NA	R[b]	1, 2, 3, 4*, 5*
(B21-LTS-N031A-4,B-4,C-4,D-4)	D	M	M	1, 2, 3, 4*, 5*
c. Reactor Vessel Shroud Level				
(B21-LT-N036 and B21-LT-N037)	NA[a]	NA	R[b]	1, 2, 3, 4*, 5*
(B21-LTM-N036-1 and B21-LTM-N037-1)	D	M	M	1, 2, 3, 4*, 5*

TABLE 4.3.3-1 (Continued)

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
d. Reactor Steam Dome Pressure - Low (B21-PT-NO21A,B,C,D)	NA[a]	NA	R[b]	1, 2, 3, 4*, 5*
1. RHR Pump Start and LPCI Injection Valve Actuation (B21-PTS-NO21A-2,B-2,C-2,D-2)	D	M	M	1, 2, 3, 4*, 5*
2. Recirculation Loop Pump Discharge Valve Actuation (B21-PTM-NO21A-1,B-1,C-1,D-1)	D	M	M	1, 2, 3, 4*, 5*
e. RHR Pump Start - Time Delay Relay (STR-2A1,2 and STR-2B1,2)	NA	R	R	1, 2, 3, 4*, 5*
f. Bus Power Monitor (E11-K106A,B)	NA	R	NA	1, 2, 3, 4*, 5*
3. HPCI SYSTEM				
a. Reactor Vessel Water Level - Low, Level 2				
(B21-LT-NO31A,B,C,D)	NA[a]	NA	R[b]	1, 2, 3
(B21-LTS-NO31A-2,B-2,C-2,D-2)	D	M	M	1, 2, 3
b. Drywell Pressure - High (E11-PS-NO11A,B,C,D)	NA	M	Q	1, 2, 3
c. Condensate Storage Tank Level - Low (E41-LS-NO02; E41-LS-NO03)	NA	M	Q	1, 2, 3
d. Suppression Chamber Water Level - High (E41-LSH-NO15A,B)	NA	M	Q	1, 2, 3
e. Bus Power Monitor (E41-K55 and E41-K56)	NA	R	NA	1, 2, 3

TABLE 4.3.3-1 (Continued)

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
4. ADS				
a. Drywell Pressure - High (E11-PS-N010A,B,C,D)	NA	M	Q	1, 2, 3
b. Reactor Vessel Water Level - Low, Level 3				
(B21-LT-N031A,B,C,D)	NA(a)	NA	R(b)	1, 2, 3
(B21-LTS-N031A-3,B-3,C-3,D-3)	D	M	M	1, 2, 3
c. Reactor Vessel Water Level - Low, Level 1				
(B21-LT-N042A,B)	NA(a)	NA	R(b)	1, 2, 3
(B21-LTM-N042A-1,B-1)	D	M	M	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	M	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	M	Q	1, 2, 3
g. Bus Power Monitor (B21-K1A,B)	NA	R	NA	1, 2, 3

TABLE 4.3.3-1 (Continued)

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
5. LOSS OF POWER				
a. 4.16 kv Emergency Bus Undervoltage (Loss 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.

(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 3.3.5.3-1

POST-ACCIDENT MONITORING INSTRUMENTATION

	INSTRUMENT AND INSTRUMENT NUMBER	MINIMUM NO. OF OPERABLE INSTRUMENT CHANNELS
1.	Reactor Vessel Pressure (B21-PI-R004A,B; C32-LPR-R608; and C32-PT-N005A,B)	2
2.	Reactor Vessel Water Level (B21-LITS-N026A,B; B21-LR-R615; B21-LI-R604A,B; B21-LT-N037; and B21-LTM-N037-1)	2
3.	Suppression Chamber Water Level (CAC-LT-2601; CAC-LY-2601-1; CAC-LI-2601-3) (CAC-LT-2602; CAC-LR-2602)	2
4.	Suppression Chamber Water Temperature (CAC-TR-1258-14, 21; and C91-P602)	2
5.	Suppression Chamber Atmosphere Temperature (CAC-TR-1258-17 thru 20; and C91-P602)	2
6.	Drywell Pressure (CAC-PI-4176; CAC-PT-4176; CAC-PR-1257-1; and CAC-PT-4175)	2
7.	Drywell Temperature (CAC-TR-1258-1 thru 13, 22, 23, 24; and C91-P602)	2
8.	Drywell 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.	Drywell Oxygen (CAC-AT-1259-2; CAC-AR-1259; CAC-AT-1263-2; and CAC-AR-1263)	2
10.	Drywell Hydrogen (CAC-AT-1259-1; CAC-AR-1259; CAC-AT-1263-1; and CAC-AR-1263)	2
11.	Safety Relief Valve Position Indication: a. Primary - Sonic (B21-FY-4157 thru 4167) b. 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 Pressure (B21-PI-R004A,B; C32-LPR-R608; and C32-PT-N005A,B)	M	R
2. Reactor Vessel Water Level (B21-LITS-N026A,B; B21-LR-R615; B21-LI-R604A,B; B21-LT-N037; and B21-LTM-N037-1)	M	R
3. Suppression Chamber Water Level (CAC-LT-2601; CAC-LY-2601-1; CAC-LI-2601-3; CAC-LT-2602; CAC-LR-2602)	M	R
4. Suppression Chamber Water Temperature (CAC-TR-1258-14, 21; and C91-P602)	M	R
5. Suppression Chamber Atmosphere Temperature (CAC-TR-1258-17 thru 20; and C91-P602)	M	R
6. Drywell Pressure (CAC-PI-4176; CAC-PT-4176; CAC-PR-1257-1; and CAC-PT-4175)	M	R
7. Drywell Temperature (CAC-TR-1258-1 thru 13, 22, 23, 24; and C91-P602)	M	R
8. Drywell 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)	M	R
9. Drywell Oxygen Concentration (CAC-AT-1259-2; CAC-AR-1259; CAC-AT-1263-2; and CAC-AR-1263)	M	R
10. Drywell Hydrogen Concentration (CAC-AT-1259-1; CAC-AR-1259; CAC-AT-1263-1; and CAC-AR-1263)	M	R
11. Safety Relief Valve Position Indication		
a. Primary - Sonic (B21-FY-4157 thru 4167)	M	R
b. Secondary - Temp. (B21-TR-R614, points 1-11)	M	R

TABLE 3.3.6.1-1

ATWS RECIRCULATION PUMP TRIP SYSTEM INSTRUMENTATION

TRIP FUNCTION AND INSTRUMENT NUMBER	MINIMUM NUMBER OPERABLE TRIP SYSTEMS PER OPERATING PUMP
1. Reactor Vessel Water Level - 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

TABLE 3.3.6.1-2

ATWS RECIRCULATION PUMP TRIP SYSTEM INSTRUMENTATION SETPOINTS

TRIP FUNCTION AND INSTRUMENT NUMBER	TRIP SETPOINT	ALLOWABLE VALUE
1. Reactor Vessel, Water Level - Low, Level 2 (B21-LTM-NO24A-2,B-2; B21-LTM-NO25A-2,B-2)	$\geq$ + 112 inches*	$\geq$ + 112 inches*
2. Reactor Vessel Pressure - High (B21-PS-NO45A,B,C,D)	$\leq$1120 psig	$\leq$1120 psig

*Vessel water levels refer to REFERENCE LEVEL ZERO.

TABLE 4.3.6.1-1

ATWS RECIRCULATION PUMP TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION AND INSTRUMENT NUMBER	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION
1. Reactor Vessel Water Level - Low, Level 2 (B21-LT-NO24A-2,B-2 and B21-LT-NO25A-2,B-2)	NA(a)	NA	R(b)
(B21-LTM-NO24A-2,B-2 and B21-LTM-NO25A-2,B-2)	D	M	M
2. Reactor Vessel Pressure - High (B21-PS-NO45A, B, C, D)	NA	M	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.

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 2A-1 $\geq$ 1056.42 amperes,
2) Battery 2A-2 $\geq$ 1211.90 amperes,
3) Battery 2B-1 $\geq$ 1089.06 amperes, and
4) Battery 2B-2 $\geq$ 1042.67 amperes.

b) During the remainder of the first 30 minutes of the test:

1) Battery 2A-1 $\geq$ 243.19 amperes,
2) Battery 2A-2 $\geq$ 159.10 amperes,
3) Battery 2B-1 $\geq$ 176.79 amperes, and
4) Battery 2B-2 $\geq$ 216.67 amperes.

c) During the remainder of the 8-hour test:

1) Battery 2A-1 $\geq$ 89.52 amperes,
2) Battery 2A-2 $\geq$ 50.34 amperes,
3) Battery 2B-1 $\geq$ 53.39 amperes,
4) Battery 2B-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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 53 TO FACILITY LICENSE NO. DPR-71 AND

AMENDMENT NO. 78 TO FACILITY LICENSE NO. DPR-62

CAROLINA POWER & LIGHT COMPANY

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2

DOCKET NOS. 50-325 AND 50-324

1.0 Introduction

By letter dated November 12, 1982, the Carolina Power & Light Company (the licensee) submitted proposed changes to the Technical Specifications appended to Facility Operating License Nos. DPR-71 and DPR-62 for the Brunswick Steam Electric Plant (BSEP), Units 1 and 2. The proposed changes revise the Technical Specifications to reflect certain digital to analog instrument replacements, revise instrumentation formats, and correct miscellaneous typographical errors.

2.0 Evaluation

On November 19, 1979 the licensee submitted a request for Technical Specification changes to replace certain digital instrumentation with analog equipment. In response, the staff issued License Amendment Nos. 26 and 50 on March 14, 1980. The Safety Evaluation (SE) attached to those amendments found the proposed modifications to be technically acceptable and established a procedure wherby the licensee would periodically submit administrative Technical Specification changes to revise instrument designations for those systems that had been modified. The licensee now proposes certain instrument designation Technical Specification changes in accordance with the procedures of the previously issued SE. Therefore, since the technical acceptability of the modifications has been previously reviewed and approved and since the licensee is following previously established instrument designation Technical Specification change procedure, we find the proposed designation changes to be acceptable.

With respect to the proposed instrumentation table format changes, we have reviewed the proposed changes and found them to be consistent with the BWR Standard Technical Specifications, NUREG-0123, Revision 3, which we recognize as an acceptable format. We, therefore, consider the proposed format to be acceptable.

3.0 Environmental Considerations

We have determined that the amendments do not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendments involve an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR 51.5(d)(4),

that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

4.0 Conclusions

We have concluded, based on the considerations discussed above, that: (1) because the amendments do not involve a significant increase in the probability or consequences of an accident previously evaluated, do not create the possibility of an accident of a type different from any evaluated previously, and do not involve a significant reduction in a margin of safety, the amendments do not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Date: December 20, 1982

Principal Contributor: James A. Van Vliet

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NOS. 50-325 AND 50-324

CAROLINA POWER & LIGHT COMPANY

NOTICE OF ISSUANCE OF AMENDMENTS TO FACILITY OPERATING LICENSES

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment Nos. 53 and 78 to Facility Operating License Nos. DPR-71 and DPR-62 issued to Carolina Power & Light Company (the licensee) which revised the Technical Specifications for operation of the Brunswick Steam Electric Plant, Units 1 and 2 (the facility), located in Brunswick County, North Carolina. The amendments are effective as of the date of issuance.

The amendments revise the Technical Specifications to reflect certain digital to analog instrument replacements, revise instrumentation formats, and correct miscellaneous typographical errors.

The application for the amendments complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendments. Prior public notice of these amendments was not required since the amendments do not involve a significant hazards consideration.

The Commission has determined that the issuance of these amendments will not result in any significant environmental impact and that pursuant to 10 CFR 51.5(d)(4) an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of the amendments.

3. This license amendment is effective as of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Domenic B. Vassallo, Chief
Operating Reactors Branch #2
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 20, 1982