

ENCLOSURE 1

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2  
NRC DOCKET NOS. 50-325 & 50-324  
OPERATING LICENSE NOS. DPR-71 & DPR-62

REQUEST FOR LICENSE AMENDMENT  
STANDBY LIQUID CONTROL SYSTEM

TYPED TECHNICAL SPECIFICATION PAGES - UNIT 1

## REACTIVITY CONTROL SYSTEMS

### 3/4.1.5 STANDBY LIQUID CONTROL SYSTEM

#### LIMITING CONDITION FOR OPERATION

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3.1.5 The standby liquid control system shall be OPERABLE with:

- a. An OPERABLE flow path from the storage tank to the reactor core, containing two pumps and two inline explosive injection valves,
- b. The contained solution volume-concentration within the limits of Figure 3.1.5-1, and
- c. The solution temperature above the limit of Figure 3.1.5-2.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2

#### ACTION:

- a. In OPERATIONAL CONDITION 1 or 2:
  1. With one pump and/or one explosive valve inoperable, restore the inoperable pump and/or explosive valve to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.
  2. With the standby liquid control system inoperable, restore the system to OPERABLE status within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours.

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION</u>	<u>VALVE GROUPS OPERATED BY SIGNAL (a)</u>	<u>MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM (b) (c)</u>	<u>APPLICABLE OPERATIONAL CONDITION</u>	<u>ACTION</u>
<u>2. SECONDARY CONTAINMENT ISOLATION</u>				
a. Reactor Building Exhaust Radiation - High	(1) 6	1 1	1, 2, 3, 5, and* 1, 2, 3	23 20
b. Drywell Pressure - High	(1) 2, 6	2 2	1, 2, 3 1, 2, 3	23 20
c. Reactor Vessel Water Level - Low, Level 2	(1) 3	2 2	1, 2, 3 1, 2, 3	23 24
<u>3. REACTOR WATER CLEANUP SYSTEM ISOLATION</u>				
a. $\Delta$ Flow - High	3	1	1, 2, 3	24
b. Area Temperature - High	3	2	1, 2, 3	24
c. Area Ventilation $\Delta$ Temperature - High	3	2	1, 2, 3	24
d. SLCS Initiation	3 <sup>m</sup>	NA	1, 2	24
e. Reactor Vessel Water Level - Low, Level 2	3	2	1, 2, 3	24
f. $\Delta$ Flow - High - Time Delay Relay	NA	1	1, 2, 3	24

TABLE 4.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED</u>
<u>2. SECONDARY CONTAINMENT ISOLATION</u>				
a. Reactor Building Exhaust Radiation - High	D	M	R	1,2,3,5, and <sup>(f)</sup>
b. Drywell Pressure - High				
Transmitter:	NA <sup>(a)</sup>	NA	R <sup>(b)</sup>	1, 2, 3
Trip Logic:	D	M	M	1, 2, 3
c. Reactor Vessel Water Level - Low, Level 2				
Transmitter:	NA <sup>(a)</sup>	NA	R <sup>(b)</sup>	1, 2, 3
Trip Logic:	D	M	M	1, 2, 3
<u>3. REACTOR WATER CLEANUP SYSTEM ISOLATION</u>				
a. $\Delta$ Flow - High	D	M	R	1, 2, 3
b. Area Temperature - High	NA	M	R	1, 2, 3
c. Area Ventilation $\Delta$ Temperature - High	NA	M	R	1, 2, 3
d. SLCS Initiation	NA	R	NA	1, 2
e. Reactor Vessel Water Level - Low, Level 2				
Transmitter:	NA <sup>(a)</sup>	NA	R <sup>(b)</sup>	1, 2, 3
Trip Logic:	D	M	M	1, 2, 3
f. $\Delta$ Flow - High - Time Delay Relay	NA	M	R	1, 2, 3

ENCLOSURE 2

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2  
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REQUEST FOR LICENSE AMENDMENT  
STANDBY LIQUID CONTROL SYSTEM

TYPED TECHNICAL SPECIFICATION PAGES - UNIT 2

## REACTIVITY CONTROL SYSTEMS

### 3/4.1.5 STANDBY LIQUID CONTROL SYSTEM

#### LIMITING CONDITION FOR OPERATION

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3.1.5 The standby liquid control system shall be OPERABLE with:

- a. An OPERABLE flow path from the storage tank to the reactor core, containing two pumps and two inline explosive injection valves,
- b. The contained solution volume-concentration within the limits of Figure 3.1.5-1, and
- c. The solution temperature above the limit of Figure 3.1.5-2.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2

#### ACTION:

- a. In OPERATIONAL CONDITION 1 or 2:
  1. With one pump and/or one explosive valve inoperable, restore the inoperable pump and/or explosive valve to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.
  2. With the standby liquid control system inoperable, restore the system to OPERABLE status within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours.

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION</u>	<u>VALVE GROUPS OPERATED BY SIGNAL(a)</u>	<u>MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM(b)(c)</u>	<u>APPLICABLE OPERATIONAL CONDITION</u>	<u>ACTION</u>
<u>2. SECONDARY CONTAINMENT ISOLATION</u>				
a. Reactor Building Exhaust Radiation - High	(1)	1	1, 2, 3, 5, and *	23
	6	1	1, 2, 3	20
b. Drywell Pressure - High	(1)	2	1, 2, 3	23
	2, 6	2	1, 2, 3	20
c. Reactor Vessel Water Level - Low, Level 2	(1)	2	1, 2, 3	23
	3	2	1, 2, 3	24
<u>3. REACTOR WATER CLEANUP SYSTEM ISOLATION</u>				
a. $\Delta$ Flow - High	3	1	1, 2, 3	24
b. Area Temperature - High	3	2	1, 2, 3	24
c. Area Ventilation $\Delta$ Temperature - High	3	2	1, 2, 3	24
d. SLCS Initiation	3 <sup>(f)</sup>	NA	1, 2	24
e. Reactor Vessel Water Level - Low, Level 2	3	2	1, 2, 3	24
f. $\Delta$ Flow - High - Time Delay Relay	NA	1	1, 2, 3	24

TABLE 4.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED</u>
<u>2. SECONDARY CONTAINMENT ISOLATION</u>				
a. Reactor Building Exhaust Radiation - High	D	M	R	1,2,3,5, and <sup>(f)</sup>
b. Drywell Pressure - High	NA <sup>(a)</sup>	NA	R <sup>(b)</sup>	1, 2, 3
Transmitter:	D	M	M	1, 2, 3
Trip Logic:				
c. Reactor Vessel Water Level - Low, Level 2	NA <sup>(a)</sup>	NA	R <sup>(b)</sup>	1, 2, 3
Transmitter:	D	M	M	1, 2, 3
Trip Logic:				
<u>3. REACTOR WATER CLEANUP SYSTEM ISOLATION</u>				
a. $\Delta$ Flow - High	D	M	R	1, 2, 3
b. Area Temperature - High	NA	M	R	1, 2, 3
c. Area Ventilation $\Delta$ Temperature - High	NA	M	R	1, 2, 3
d. SLCS Initiation	NA	R	NA	1, 2
e. Reactor Vessel Water Level - Low, Level 2	NA <sup>(a)</sup>	NA	R <sup>(b)</sup>	1, 2, 3
Transmitter:	D	M	M	1, 2, 3
Trip Logic:				
f. $\Delta$ Flow - High - Time Delay Relay	NA	M	R	1, 2, 3



ENCLOSURE 3

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2  
NRC DOCKET NOS. 50-325 & 50-324  
OPERATING LICENSE NOS. DPR-71 & DPR-62

REQUEST FOR LICENSE AMENDMENT  
NUMAC STEAM LEAK DETECTION INSTRUMENTATION

TYPED TECHNICAL SPECIFICATION PAGES - UNIT 1

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION</u>	<u>VALVE GROUPS OPERATED BY SIGNAL(a)</u>	<u>MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM(b)(c)</u>	<u>APPLICABLE OPERATIONAL CONDITION</u>	<u>ACTION</u>
<u>2. SECONDARY CONTAINMENT ISOLATION</u>				
a. Reactor Building Exhaust Radiation - High	(1) 6	1 1	1, 2, 3, 5, and* 1, 2, 3	23 20
b. Drywell Pressure - High	(1) 2, 6	2 2	1, 2, 3 1, 2, 3	23 20
c. Reactor Vessel Water Level - Low, Level 2	(1) 3	2 2	1, 2, 3 1, 2, 3	23 24
<u>3. REACTOR WATER CLEANUP SYSTEM ISOLATION</u>				
a. $\Delta$ Flow - High	3	1	1, 2, 3	24
b. Area Temperature - High	3	2	1, 2, 3	24
c. Area Ventilation $\Delta$ Temperature - High	3	2	1, 2, 3	24
d. SLCS Initiation	3 <sup>m</sup>	NA	1, 2	24
e. Reactor Vessel Water Level - Low, Level 2	3	2	1, 2, 3	24
f. $\Delta$ Flow - High - Time Delay	NA	1	1, 2, 3	24
g. Piping Outside RWCU Rooms Area Temperature - High	3	1	1, 2, 3	24

TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

<u>TRIP FUNCTION</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
<u>2. SECONDARY CONTAINMENT ISOLATION</u>		
a. Reactor Building Exhaust Radiation - High	$\leq 11$ mr/hr	$\leq 11$ mr/hr
b. Drywell Pressure - High	$\leq 2$ psig	$\leq 2$ psig
c. Reactor Vessel Water Level - Low, Level 2	$\geq + 112$ inches <sup>(a)</sup>	$\geq + 112$ inches <sup>(a)</sup>
<u>3. REACTOR WATER CLEANUP SYSTEM ISOLATION</u>		
a. $\Delta$ Flow - High	$\leq 73$ gal/min	$\leq 73$ gal/min
b. Area Temperature - High	$\leq 150^{\circ}\text{F}$	$\leq 150^{\circ}\text{F}$
c. Area Ventilation $\Delta$ Temperature - High	$\leq 50^{\circ}\text{F}$	$\leq 50^{\circ}\text{F}$
d. SLCS Initiation	NA	NA
e. Reactor Vessel Water Level - Low, Level 2	$\geq + 112$ inches <sup>(a)</sup>	$\geq + 112$ inches <sup>(a)</sup>
f. $\Delta$ Flow - High - Time Delay	$\leq 30$ minutes	$\leq 30$ minutes
g. Piping Outside RWCU Rooms Area Temperature - High	$\leq 120^{\circ}\text{F}$	$\leq 120^{\circ}\text{F}$

TABLE 3.3.2-3

ISOLATION SYSTEM INSTRUMENTATION RESPONSE TIME

<u>TRIP FUNCTION</u>	<u>RESPONSE TIME (Seconds)</u> <sup>(a)(e)</sup>
<u>1. PRIMARY CONTAINMENT ISOLATION</u>	
a. Reactor Vessel Water Level -	
1. Low, Level 1	≤ 13
2. Low, Level 3	≤ 1.0 <sup>(d)</sup> ≤ 13 <sup>(f)</sup>
b. Drywell Pressure - High	≤ 13
c. Main Steam Line	
1. Radiation - High <sup>(b)</sup>	≤ 1.0 <sup>(d)</sup> ≤ 13 <sup>(f)</sup>
2. Pressure - Low	≤ 13
3. Flow - High	≤ 0.5 <sup>(d)</sup> ≤ 13 <sup>(f)</sup>
d. Main Steam Line Tunnel Temperature - High	≤ 13
e. Condenser Vacuum - Low	≤ 13
f. Turbine Building Area Temperature - High	NA
g. Main Stack Radiation - High <sup>(b)</sup>	≤ 1.0 <sup>(d)</sup>
h. Reactor Building Exhaust Radiation - High <sup>(b)</sup>	NA
<u>2. SECONDARY CONTAINMENT ISOLATION</u>	
a. Reactor Building Exhaust Radiation - High <sup>(b)</sup>	≤ 13
b. Drywell Pressure - High	≤ 13
c. Reactor Vessel Water Level - Low, Level 2	≤ 13
<u>3. REACTOR WATER CLEANUP SYSTEM ISOLATION</u>	
a. Δ Flow - High	NA
b. Area Temperature - High	NA
c. Area Ventilation Δ Temperature - High	NA
d. SLCS Initiation	NA
e. Reactor Vessel Water Level - Low, Level 2	≤ 13
f. Δ Flow - High - Time Delay	NA
g. Piping Outside RWCU Rooms Area Temperature - High	NA

TABLE 3.3.2-3 (Continued)

ISOLATION SYSTEM INSTRUMENTATION RESPONSE TIMETRIP FUNCTIONRESPONSE TIME (Seconds)<sup>(a)(e)</sup>4. CORE STANDBY COOLING SYSTEMS ISOLATION

## a. High Pressure Coolant Injection System Isolation

1. HPCI Steam Line Flow - High	≤ 13 <sup>(e)</sup>
2. HPCI Steam Line Flow - High Time Delay Relay	NA
3. HPCI Steam Supply Pressure - Low	≤ 13
4. HPCI Steam Line Tunnel Temperature - High	NA
5. Bus Power Monitor	NA
6. HPCI Turbine Exhaust Diaphragm Pressure - High	NA
7. HPCI Steam Line Ambient Temperature - High	NA
8. HPCI Steam Line Area Δ Temperature - High	NA
9. HPCI Equipment Area Temperature - High	NA
10. Drywell Pressure - High	NA

## b. Reactor Core Isolation Cooling System Isolation

1. RCIC Steam Line Flow - High	≤ 13 <sup>(e)</sup>
2. RCIC Steam Line Flow - High Time Delay Relay	NA
3. RCIC Steam Supply Pressure - Low	NA
4. RCIC Steam Line Tunnel Temperature - High	NA
5. Bus Power Monitor	NA
6. RCIC Turbine Exhaust Diaphragm Pressure - High	NA
7. RCIC Steam Line Ambient Temperature - High	NA
8. RCIC Steam Line Area Δ Temperature - High	NA
9. RCIC Equipment Room Ambient Temperature - High	NA
10. RCIC Equipment Room Δ Temperature - High	NA
11. RCIC Steam Line Tunnel Temperature - High Time Delay Relay	NA
12. Drywell Pressure - High	NA

TABLE 4.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED</u>
<u>2. SECONDARY CONTAINMENT ISOLATION</u>				
a. Reactor Building Exhaust Radiation - High	D	M	R	1,2,3,5, and <sup>(f)</sup>
b. Drywell Pressure - High Transmitter: Trip Logic:	NA <sup>(a)</sup> D	NA M	R <sup>(b)</sup> M	1, 2, 3 1, 2, 3
c. Reactor Vessel Water Level - Low, Level 2 Transmitter: Trip Logic:	NA <sup>(a)</sup> D	NA M	R <sup>(b)</sup> M	1, 2, 3 1, 2, 3
<u>3. REACTOR WATER CLEANUP SYSTEM ISOLATION</u>				
a. $\Delta$ Flow - High	NA	SA	R	1, 2, 3
b. Area Temperature - High	NA	SA	R	1, 2, 3
c. Area Ventilation $\Delta$ Temperature - High	NA	SA	R	1, 2, 3
d. SLCS Initiation	NA	R	NA	1, 2
e. Reactor Vessel Water Level - Low, Level 2 Transmitter: Trip Logic:	NA <sup>(a)</sup> D	NA M	R <sup>(b)</sup> M	1, 2, 3 1, 2, 3
f. $\Delta$ Flow - High - Time Delay	NA	SA	R	1, 2, 3
g. Piping Outside RWCU Rooms Area Temperature - High	NA	SA	R	1, 2, 3

TABLE 4.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED</u>
4. <u>CORE STANDBY COOLING SYSTEMS ISOLATION</u>				
a. High Pressure Coolant Injection System Isolation				
1. HPCI Steam Line Flow - High	NA <sup>(a)</sup> D	NA M	R <sup>(b)</sup> M	1, 2, 3
Transmitter:				1, 2, 3
Trip Logic:				
2. HPCI Steam Line High Flow	NA	R	R	1, 2, 3
Time Delay Relay				
3. HPCI Steam Supply Pressure - Low	NA	M	R	1, 2, 3
4. HPCI Steam Line Tunnel	NA	SA	Q	1, 2, 3
Temperature - High				
5. Bus Power Monitor	NA	R	NA	1, 2, 3
6. HPCI Turbine Exhaust	NA	M	Q	1, 2, 3
Diaphragm Pressure - High				
7. HPCI Steam Line Ambient	NA	SA	R	1, 2, 3
Temperature - High				
8. HPCI Steam Line Area	NA	SA	R	1, 2, 3
Δ Temperature - High				
9. HPCI Equipment Area	NA	SA	R	1, 2, 3
Temperature - High				
10. Drywell Pressure - High	NA <sup>(a)</sup> D	NA M	R <sup>(b)</sup> M	1, 2, 3
Transmitter:				1, 2, 3
Trip Logic:				

TABLE 4.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED</u>
4. <u>CORE STANDBY COOLING SYSTEMS ISOLATION</u> (Continued)				
b. Reactor Core Isolation Cooling System Isolation				
1. RCIC Steam Line Flow - High Transmitter: Trip Logic:	NA <sup>(a)</sup> D	NA M	R <sup>(b)</sup> M	1, 2, 3 1, 2, 3
2. RCIC Steam Line Flow - High Time Delay Relay	NA	R	R	1, 2, 3
3. RCIC Steam Supply Pressure - Low	NA	M	Q	1, 2, 3
4. RCIC Steam Line Tunnel Temperature High	NA	SA	R	1, 2, 3
5. Bus Power Monitor	NA	R	NA	1, 2, 3
6. RCIC Turbine Exhaust Diaphragm Pressure - High	NA	M	R	1, 2, 3
7. RCIC Steam Line Ambient Temperature - High	NA	SA	R	1, 2, 3
8. RCIC Steam Line Area $\Delta$ Temperature - High	NA	SA	R	1, 2, 3
9. RCIC Equipment Room Ambient Temperature - High	NA	SA	R	1, 2, 3
10. RCIC Equipment Room $\Delta$ Temperature - High	NA	SA	R	1, 2, 3
11. RCIC Steam Line Tunnel Temperature - High Time Delay Relay	NA	SA	R	1, 2, 3
12. Drywell Pressure - High Transmitter: Trip Logic:	NA <sup>(a)</sup> D	NA M	R <sup>(b)</sup> M	1, 2, 3 1, 2, 3



ENCLOSURE 4

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2  
NRC DOCKET NOS. 50-325 & 50-324  
OPERATING LICENSE NOS. DPR-71 & DPR-62

REQUEST FOR LICENSE AMENDMENT  
NUMAC STEAM LEAK DETECTION INSTRUMENTATION

TYPED TECHNICAL SPECIFICATION PAGES - UNIT 2

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION</u>	<u>VALVE GROUPS OPERATED BY SIGNAL(a)</u>	<u>MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM(b)(c)</u>	<u>APPLICABLE OPERATIONAL CONDITION</u>	<u>ACTION</u>
<u>2. SECONDARY CONTAINMENT ISOLATION</u>				
a. Reactor Building Exhaust Radiation - High	(1)	1	1, 2, 3, 5, and *	23
	6	1	1, 2, 3	20
b. Drywell Pressure - High	(1)	2	1, 2, 3	23
	2, 6	2	1, 2, 3	20
c. Reactor Vessel Water Level - Low, Level 2	(1)	2	1, 2, 3	23
	3	2	1, 2, 3	24
<u>3. REACTOR WATER CLEANUP SYSTEM ISOLATION</u>				
a. $\Delta$ Flow - High	3	1	1, 2, 3	24
b. Area Temperature - High	3	2	1, 2, 3	24
c. Area Ventilation $\Delta$ Temperature - High	3	2	1, 2, 3	24
d. SLCS Initiation	3 <sup>m</sup>	NA	1, 2	24
e. Reactor Vessel Water Level - Low, Level 2	3	2	1, 2, 3	24
f. $\Delta$ Flow - High - Time Delay	NA	1	1, 2, 3	24
g. Piping Outside RWCU Rooms Area Temperature - High	3	1	1, 2, 3	24

TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

<u>TRIP FUNCTION</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
<u>2. SECONDARY CONTAINMENT ISOLATION</u>		
a. Reactor Building Exhaust Radiation - High	$\leq 11$ mr/hr	$\leq 11$ mr/hr
b. Drywell Pressure - High	$\leq 2$ psig	$\leq 2$ psig
c. Reactor Vessel Water Level - Low, Level 2	$\geq + 112$ inches <sup>(a)</sup>	$\geq + 112$ inches <sup>(a)</sup>
<u>3. REACTOR WATER CLEANUP SYSTEM ISOLATION</u>		
a. $\Delta$ Flow - High	$\leq 73$ gal/min	$\leq 73$ gal/min
b. Area Temperature - High	$\leq 150^{\circ}\text{F}$	$\leq 150^{\circ}\text{F}$
c. Area Ventilation Temperature $\Delta$ Temp - High	$\leq 50^{\circ}\text{F}$	$\leq 50^{\circ}\text{F}$
d. SLCS Initiation	NA	NA
e. Reactor Vessel Water Level - Low, Level 2	$\geq + 112$ inches <sup>(a)</sup>	$\geq + 112$ inches <sup>(a)</sup>
f. $\Delta$ Flow - High - Time Delay	$\leq 30$ minutes	$\leq 30$ minutes
g. Piping Outside RWCU Rooms Area Temperature - High	$\leq 120^{\circ}\text{F}$	$\leq 120^{\circ}$

TABLE 3.3.2-3

## ISOLATION SYSTEM INSTRUMENTATION RESPONSE TIME

TRIP FUNCTION	RESPONSE TIME (Seconds) <sup>(a)(e)</sup>
<u>1. PRIMARY CONTAINMENT ISOLATION</u>	
a. Reactor Vessel Water Level -	
1. Low, Level 1	≤ 13
2. Low, Level 3	≤ 1.0 <sup>(d)</sup> ≤ 13 <sup>(f)</sup>
b. Drywell Pressure - High	≤ 13
c. Main Steam Line	
1. Radiation - High <sup>(b)</sup>	≤ 1.0 <sup>(d)</sup> ≤ 13 <sup>(f)</sup>
2. Pressure - Low	≤ 13
3. Flow - High	≤ 0.5 <sup>(d)</sup> ≤ 13 <sup>(f)</sup>
4. Flow - High	≤ 0.5 <sup>(d)</sup> ≤ 13 <sup>(f)</sup>
d. Main Steam Line Tunnel Temperature - High	≤ 13
e. Condenser Vacuum - Low	≤ 13
f. Turbine Building Area Temperature - High	NA
g. Main Stack Radiation - High <sup>(b)</sup>	≤ 1.0 <sup>(d)</sup>
h. Reactor Building Exhaust Radiation - High <sup>(b)</sup>	NA
<u>2. SECONDARY CONTAINMENT ISOLATION</u>	
a. Reactor Building Exhaust Radiation - High <sup>(b)</sup>	≤ 13
b. Drywell Pressure - High	≤ 13
c. Reactor Vessel Water Level - Low, Level 2	≤ 13
<u>3. REACTOR WATER CLEANUP SYSTEM ISOLATION</u>	
a. Δ Flow - High	NA
b. Area Temperature - High	NA
c. Area Ventilation Δ Temperature - High	NA
d. SLCS Initiation	NA
e. Reactor Vessel Water Level - Low, Level 2	≤ 13
f. Δ Flow - High - Time Delay	NA
g. Piping Outside RWCU Rooms Area Temperature - High	NA

TABLE 3.3.2-3 (Continued)

ISOLATION SYSTEM INSTRUMENTATION RESPONSE TIME

<u>TRIP FUNCTION</u>	<u>RESPONSE TIME (Seconds)</u> <sup>(a)(e)</sup>
<u>4. CORE STANDBY COOLING SYSTEMS ISOLATION</u>	
a. High Pressure Coolant Injection System Isolation	
1. HPCI Steam Line Flow - High	≤ 13 <sup>(e)</sup>
2. HPCI Steam Line Flow - High Time Delay Relay	NA
3. HPCI Steam Supply Pressure - Low	≤ 13
4. HPCI Steam Line Tunnel Temperature - High	NA
5. Bus Power Monitor	NA
6. HPCI Turbine Exhaust Diaphragm Pressure - High	NA
7. HPCI Steam Line Ambient Temperature - High	NA
8. HPCI Steam Line Area Δ Temperature - High	NA
9. HPCI Equipment Area Temperature - High	NA
10. Drywell Pressure - High	NA
b. Reactor Core Isolation Cooling System Isolation	
1. RCIC Steam Line Flow - High	≤ 13 <sup>(e)</sup>
2. RCIC Steam Line Flow - High Time Delay Relay	NA
3. RCIC Steam Supply Pressure - Low	NA
4. RCIC Steam Line Tunnel Temperature - High	NA
5. Bus Power Monitor	NA
6. RCIC Turbine Exhaust Diaphragm Pressure - High	NA
7. RCIC Steam Line Ambient Temperature - High	NA
8. RCIC Steam Line Area Δ Temperature - High	NA
9. RCIC Equipment Room Ambient Temperature - High	NA
10. RCIC Equipment Room Δ Temperature - High	NA
11. RCIC Steam Line Tunnel Temperature - High Time Delay Relay	NA
12. Drywell Pressure - High	NA

TABLE 4.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED</u>
<u>2. SECONDARY CONTAINMENT ISOLATION</u>				
a. Reactor Building Exhaust Radiation - High	D	M	R	1,2,3,5, and <sup>(f)</sup>
b. Drywell Pressure - High Transmitter: Trip Logic:	NA <sup>(a)</sup> D	NA M	R <sup>(b)</sup> M	1, 2, 3 1, 2, 3
c. Reactor Vessel Water Level - Low, Level 2 Transmitter: Trip Logic:	NA <sup>(a)</sup> D	NA M	R <sup>(b)</sup> M	1, 2, 3 1, 2, 3
<u>3. REACTOR WATER CLEANUP SYSTEM ISOLATION</u>				
a. $\Delta$ Flow - High	NA	SA	R	1, 2, 3
b. Area Temperature - High	NA	SA	R	1, 2, 3
c. Area Ventilation $\Delta$ Temperature - High	NA	SA	R	1, 2, 3
d. SLCS Initiation	NA	R	NA	1, 2
e. Reactor Vessel Water Level - Low, Level 2 Transmitter: Trip Logic:	NA <sup>(a)</sup> D	NA M	R <sup>(b)</sup> M	1, 2, 3 1, 2, 3
f. $\Delta$ Flow - High - Time Delay	NA	SA	R	1, 2, 3
g. Piping Outside RWCU Rooms Area Temperature - High	NA	SA	R	1, 2, 3

TABLE 4.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED</u>
<u>4. CORE STANDBY COOLING SYSTEMS ISOLATION</u>				
a. High Pressure Coolant Injection System Isolation				
1. HPCI Steam Line Flow - High	NA <sup>(a)</sup>	NA	R <sup>(b)</sup>	1, 2, 3
Transmitter:	D	M	M	1, 2, 3
Trip Logic:				
2. HPCI Steam Line Flow - High	NA	R	R	1, 2, 3
Time Delay Relay				
3. HPCI Steam Supply Pressure - Low	NA	M	R	1, 2, 3
4. HPCI Steam Line Tunnel				
Temperature - High	NA	SA	Q	1, 2, 3
5. Bus Power Monitor	NA	R	NA	1, 2, 3
6. HPCI Turbine Exhaust				
Diaphragm Pressure - High	NA	M	Q	1, 2, 3
7. HPCI Steam Line Ambient				
Temperature - High	NA	SA	R	1, 2, 3
8. HPCI Steam Line Area				
Δ Temperature - High	NA	SA	R	1, 2, 3
9. HPCI Equipment Area				
Temperature - High	NA	SA	R	1, 2, 3
10. Drywell Pressure - High				
Transmitter:	NA <sup>(a)</sup>	NA	R <sup>(b)</sup>	1, 2, 3
Trip Logic:	D	M	M	1, 2, 3

TABLE 4.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED</u>
4. <u>CORE STANDBY COOLING SYSTEMS ISOLATION</u> (Continued)				
b. Reactor Core Isolation Cooling System Isolation				
1. RCIC Steam Line Flow - High Transmitter: Trip Logic:	NA <sup>(a)</sup> D	NA M	R <sup>(b)</sup> M	1, 2, 3 1, 2, 3
2. RCIC Steam Line High - Flow Time Delay Relay	NA	R	R	1, 2, 3
3. RCIC Steam Supply Pressure - Low	NA	M	Q	1, 2, 3
4. RCIC Steam Line Tunnel Temperature - High	NA	SA	R	1, 2, 3
5. Bus Power Monitor	NA	R	NA	1, 2, 3
6. RCIC Turbine Exhaust Diaphragm Pressure - High	NA	M	R	1, 2, 3
7. RCIC Steam Line Ambient Temperature - High	NA	SA	R	1, 2, 3
8. RCIC Steam Line Area $\Delta$ Temperature - High	NA	SA	R	1, 2, 3
9. RCIC Equipment Room Ambient Temperature - High	NA	SA	R	1, 2, 3
10. RCIC Equipment Room $\Delta$ Temperature - High	NA	SA	R	1, 2, 3
11. RCIC Steam Line Tunnel Tempera- ture - High Time Delay Relay	NA	SA	R	1, 2, 3
12. Drywell Pressure - High Transmitter: Trip Logic:	NA <sup>(a)</sup> D	NA M	R <sup>(b)</sup> M	1, 2, 3 1, 2, 3