

INSTRUMENTATION

3/4.3.2 ISOLATION ACTUATION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

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3.3.2 The isolation actuation instrumentation channels shown in Table 3.3.2-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3.2-2 and with ISOLATION SYSTEM RESPONSE TIME as shown in Table 3.3.2-3.

APPLICABILITY: As shown in Table 3.3.2-1.

ACTION:

- a. With an isolation actuation instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3.2-2, declare the channel inoperable until the channel is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.
- b. With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement for one trip system, place that trip system in the tripped condition\* within one hour. The provisions of Specification 3.0.4 are not applicable.
- c. With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement for both trip systems, place at least one trip system\*\* in the tripped condition within one hour and take the ACTION required by Table 3.3.2-1.

\*With a design providing only one channel per trip system, an inoperable channel need not be placed in the tripped condition where this would cause the Trip Function to occur. In these cases, the inoperable channel shall be restored to OPERABLE status within 2 hours or the ACTION required by Table 3.3.2-1 for that Trip Function shall be taken.

\*\*If more channels are inoperable in one trip system than in the other, select that trip system to place in the tripped condition except when this would cause the Trip Function to occur.

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PDR ADOCK 05000373  
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*No change  
For reference only*

## INSTRUMENTATION

### SURVEILLANCE REQUIREMENTS

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4.3.2.1 Each isolation actuation instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations for the OPERATIONAL CONDITIONS and at the frequencies shown in Table 4.3.2.1-1.

4.3.2.2 LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all channels shall be performed at least once per 18 months.

4.3.2.3 The ISOLATION SYSTEM RESPONSE TIME of each isolation trip function shown in Table 3.3.2-3 shall be demonstrated to be within its limit at least once per 18 months. Each test shall include at least one channel per trip system such that all channels are tested at least once every N times 18 months, where N is the total number of redundant channels in a specific isolation trip system.

*No change.  
For reference only*

TABLE 3.3.2-1

ISOLATION ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION</u>	<u>VALVE GROUPS OPERATED BY SIGNAL (a)</u>	<u>MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM (b)</u>	<u>APPLICABLE OPERATIONAL CONDITION</u>	<u>ACTION</u>
<b>A. AUTOMATIC INITIATION</b>				
<b>1. PRIMARY CONTAINMENT ISOLATION</b>				
a. Reactor Vessel Water Level				
(1) Low, Level 3	7	2	1, 2, 3	20
(2) Low Low, Level 2	1, 2, 3	2	1, 2, 3	20
b. Drywell Pressure - High	2, 7	2	1, 2, 3	20
c. Main Steam Line				
1) Radiation - High	1	2	1, 2, 3	21
	3	2	1, 2, 3	22
2) Pressure - Low	1	2	1	23
3) Flow - High	1	2/line <sup>(d)</sup>	1, 2, 3	21
d. Main Steam Line Tunnel Temperature - High	1	2	1, 2, 3	21
e. Main Steam Line Tunnel $\Delta$ Temperature - High	1	2	1 <sup>(1)</sup> , 2 <sup>(1)</sup> , 3 <sup>(1)</sup>	21
f. Condenser Vacuum - Low	1	2	1, 2*, 3*	21
<b>2. SECONDARY CONTAINMENT ISOLATION</b>				
a. Reactor Building Vent Exhaust Plenum Radiation - High	4(c)(e)	2	1, 2, 3 and **	24
b. Drywell Pressure - High	4(c)(e)	2	1, 2, 3	24
c. Reactor Vessel Water Level - Low Low, Level 2	4(c)(e)	2	1, 2, 3, and #	24
d. Fuel Pool Vent Exhaust Radiation - High	4(c)(e)	2	1, 2, 3, and **	24

No change. For reference only

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION</u>	<u>VALVE GROUPS OPERATED BY SIGNAL (a)</u>	<u>MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM (b)</u>	<u>APPLICABLE OPERATIONAL CONDITION</u>	<u>ACTION</u>
<b>3. REACTOR WATER CLEANUP SYSTEM ISOLATION</b>				
a. $\Delta$ Flow - High	5	1	1, 2, 3	22
b. Heat Exchanger Area Temperature - High	5	1	1, 2, 3	22
c. Heat Exchanger Area Ventilation $\Delta$ T - High	5	1	1, 2, 3	22
<del>d. Pump Area Temperature - High</del>	<del>5</del>	<del>1</del>	<del>1, 2, 3</del>	<del>22</del>
<del>e. Pump Area Ventilation <math>\Delta</math>T - High</del>	<del>5</del>	<del>1</del>	<del>1, 2, 3</del>	<del>22</del>
<del>f. SLCS Initiation</del>	<del>5<sup>(f)</sup></del>	<del>NA</del>	<del>1, 2, 3</del>	<del>22</del>
<del>g. Reactor Vessel Water Level - Low Low, Level 2</del>	<del>5</del>	<del>2</del>	<del>1, 2, 3</del>	<del>22</del>
<b>4. REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION</b>				
a. RCIC Steam Line Flow - High	8	1	1, 2, 3	22
b. RCIC Steam Supply Pressure - Low	8, 9 <sup>(g)</sup>	2	1, 2, 3	22
c. RCIC Turbine Exhaust Diaphragm Pressure - High	8	2	1, 2, 3	22
d. RCIC Equipment Room Temperature - High	8	1	1, 2, 3	22
e. RCIC Steam Line Tunnel Temperature - High	8	1	1, 2, 3	22
f. RCIC Steam Line Tunnel $\Delta$ Temperature - High	8	1	1, 2, 3	22
g. Drywell Pressure - High	9 <sup>(g)</sup>	2	1, 2, 3	22

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

TRIP FUNCTION	VALVE GROUPS OPERATED BY SIGNAL (a)	MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM (b)	APPLICABLE OPERATIONAL CONDITION	ACTION
<b>5. RHR SYSTEM STEAM CONDENSING MODE ISOLATION</b>				
a. RHR Equipment Area $\Delta$ Temperature - High	8	1	1, 2, 3	22
b. RHR Area Temperature - High	8	1	1, 2, 3	22
c. RHR Heat Exchanger Steam Supply Flow - High	8	1	1, 2, 3	22
<b>6. RHR SYSTEM SHUTDOWN COOLING MODE ISOLATION</b>				
a. Reactor Vessel Water Level - Low, Level 3	6	2	1, 2, 3	25
b. Reactor Vessel (RHR Cut-in Permissive) Pressure - High	6	1	1, 2, 3	25
c. RHR Pump Suction Flow - High	6	1	1, 2, 3	25
d. RHR Area Temperature - High	6	1	1, 2, 3	25
e. RHR Equipment Area $\Delta T$ - High	6	1	1, 2, 3	25
<b>B. MANUAL INITIATION</b>				
1. Inboard Valves	1, 2, 5, 6, 7	1/group	1, 2, 3	26
2. Outboard Valves	1, 2, 5, 6, 7	1/group	1, 2, 3	26
3. Inboard Valves	4 (c) (e)	1/group	1, 2, 3 and **, #	26
4. Outboard Valves	4 (c) (e)	1/group	1, 2, 3 and **, #	26
5. Inboard Valves	3, 8, 9	1/valve	1, 2, 3	26
6. Outboard Valves	3, 8, 9	1/valve	1, 2, 3	26
7. Outboard Valve	8 (h)	1/group	1, 2, 3	26

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No change. For reference only

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

ACTION

- ACTION 20 - Be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN with the next 24 hours.
- ACTION 21 - Be in at least STARTUP with the associated isolation valves closed within 6 hours or be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.
- ACTION 22 - Close the affected system isolation valves within 1 hour and declare the affected system inoperable.
- ACTION 23 - Be in at least STARTUP within 6 hours.
- ACTION 24 - Establish SECONDARY CONTAINMENT INTEGRITY with the standby gas treatment system operating within 1 hour.
- ACTION 25 - Lock the affected system isolation valves closed within 1 hour and declare the affected system inoperable.
- ACTION 26 - Provided that the manual initiation function is OPERABLE for each other group valve, inboard or outboard, as applicable, in each line, restore the manual initiation function to OPERABLE status within 24 hours; otherwise, restore the manual initiation function to OPERABLE status within 8 hours; otherwise:
- Be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours, or
  - Close the affected system isolation valves within the next hour and declare the affected system in operable.

NOTES

- \* May be bypassed with reactor steam pressure  $\leq$  1043 psig and all turbine stop valves closed.
- \*\* When handling irradiated fuel in the secondary containment and during CORE ALTERATIONS and operations with a potential for draining the reactor vessel.
- # During CORE ALTERATIONS and operations with a potential for draining the reactor vessel.
- See Specification 3.6.3, Table 3.6.3-1 for valves in each valve group.
  - A channel may be placed in an inoperable status for up to 2 hours for required surveillance without placing the trip system in the tripped condition provided at least one other OPERABLE channel in the same trip system is monitoring that parameter.
  - Also actuates the standby gas treatment system.
  - A channel is OPERABLE if 2 of 4 instruments in that channel are OPERABLE.
  - Also actuates secondary containment ventilation isolation dampers per Table 3.6.5.2-1.
  - Closes only RWCU system inlet outboard valve.
  - Requires RCIC steam supply pressure-low coincident with drywell pressure-high.
  - Manual initiation isolates 1E51-F008 only and only with a coincident reactor vessel water level-low, level 3, signal.
  - Both channels of each trip system may be placed in an inoperable status for up to 4 hours for required reactor building ventilation filter change and damper cycling without placing the trip system in the tripped condition provided that the ambient temperature channels in the same trip systems are operable.

TABLE 3.3.2-2

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION	TRIP SETPOINT	ALLOWABLE VALUE
<u>A. AUTOMATIC INITIATION</u>		
<u>1. PRIMARY CONTAINMENT ISOLATION</u>		
a. Reactor Vessel Water Level		
1) Low, Level 3	> 12.5 inches*	> 11.0 inches*
2) Low Low, Level 2	> -50 inches*	> -57 inches*
b. Drywell Pressure - High	< 1.69 psig	< 1.89 psig
c. Main Steam Line		
1) Radiation - High	< 3.0 x full power background	< 3.6 x full background
2) Pressure - Low	> 854 psig	> 834 psig
3) Flow - High	< 111 psid	< 116 psid
d. Main Steam Line Tunnel Temperature - High	< 140°F	< 146°F
e. Main Steam Line Tunnel Δ Temperature - High	< 36°F	< 42°F
f. Condenser Vacuum - Low	> 7 inches Hg vacuum	> 5.5 inches Hg vacuum
<u>2. SECONDARY CONTAINMENT ISOLATION</u>		
a. Reactor Building Vent Exhaust Plenum Radiation - High	< 10 mr/hr	< 15 mr/hr
b. Drywell Pressure - High	< 1.69 psig	< 1.89 psig
c. Reactor Vessel Water Level - Low Low, Level 2	> -50 inches*	> -57 inches*
d. Fuel Pool Vent Exhaust Radiation - High	< 10 mr/hr	< 15 mr/hr
<u>3. REACTOR WATER CLEANUP SYSTEM ISOLATION</u>		
a. ΔFlow - High	< 70 gpm	< 87.5 gpm
b. Heat Exchanger Area Temperature - High	< 181°F	< 187°F
c. Heat Exchanger Area Ventilation ΔT - High	< 85°F	< 91°F
<del>d. Pump Area Temperature - High</del>	<del>&lt; 116°F</del>	<del>&lt; 122°F</del>
<del>e. Pump Area Ventilation ΔT - High</del>	<del>&lt; 13°F</del>	<del>&lt; 19°F</del>
<del>f. SLCS Initiation</del>	<del>NA</del>	<del>NA</del>
<del>g. Reactor Vessel Water Level - Low Low, Level 2</del>	<del>&gt; -50 inches*</del>	<del>&gt; -57 inches*</del>

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Amendment No. 18

TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

<u>TRIP FUNCTION</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
<b>4. <u>REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION</u></b>		
a. RCIC Steam Line Flow - High	< 290% of rated flow, 178" H <sub>2</sub> O	< 295% of rated flow, 185" H <sub>2</sub> O
b. RCIC Steam Supply Pressure - Low	≥ 57 psig	≥ 53 psig
c. RCIC Turbine Exhaust Diaphragm Pressure - High	≤ 10.0 psig	≤ 20.0 psig
d. RCIC Equipment Room Temperature - High	≤ 200°F	≤ 206°F
e. RCIC Steam Line Tunnel Temperature - High	≤ 200°F	≤ 206°F
f. RCIC Steam Line Tunnel Δ Temperature - High	≤ 117°F	≤ 123°F
g. Drywell Pressure - High	≤ 1.69 psig	≤ 1.89 psig
<b>5. <u>RHR SYSTEM STEAM CONDENSING MODE ISOLATION</u></b>		
a. RHR Equipment Area Δ Temperature - High	≤ 50°F	≤ 56°F
b. RHR Area Cooler Temperature - High	≤ 200°F	≤ 206°F
c. RHR Heat Exchanger Steam Supply Flow - High	≤ 123" H <sub>2</sub> O	≤ 128" H <sub>2</sub> O

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Amendment No. 18

No change. For reference only.



TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

<u>TRIP FUNCTION</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
6. <u>RHR SYSTEM SHUTDOWN COOLING MODE ISOLATION</u>		
a. Reactor Vessel Water Level - Low, Level 3	$\geq 12.5$ inches*	$\geq 11.0$ inches*
b. Reactor Vessel (RHR Cut-in Permissive) Pressure - High	$\leq 135$ psig**	$\leq 145$ psig**
c. RHR Pump Suction Flow - High	$\leq 180$ " H <sub>2</sub> O	$\leq 186$ " H <sub>2</sub> O
d. RHR Area Cooler Temperature - High	$\leq 200$ °F	$\leq 206$ °F
e. RHR Equipment Area $\Delta T$ - High	$\leq 50$ °F	$\leq 56$ °F
B. <u>MANUAL INITIATION</u>	Not Applicable	Not Applicable
1. Inboard Valves		
2. Outboard Valves		
3. Inboard Valves		
4. Outboard Valves		
5. Inboard Valves		
6. Outboard Valves		
7. Outboard Valve		

\*See Bases Figure B 3/4 3-1.

\*\*Corrected for cold water head with reactor vessel flooded.

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Amendment No. 18

No change. For reference only.

TABLE 3.3.2-3

ISOLATION SYSTEM INSTRUMENTATION RESPONSE TIME

<u>TRIP FUNCTION</u>	<u>RESPONSE TIME (Seconds)#</u>
<b>A. <u>AUTOMATIC INITIATION</u></b>	
<b>1. <u>PRIMARY CONTAINMENT ISOLATION</u></b>	
a. Reactor Vessel Water Level	NA
1) Low, Level 3	$\leq 1.0^*/\leq 13^{(a)**}$
2) Low Low, Level 2	$\leq 13^{(a)}$
b. Drywell Pressure - High	
c. Main Steam Line	
1) Radiation - High <sup>(b)</sup>	$\leq 1.0^*/\leq 13^{(a)**}$
2) Pressure - Low	$\leq 1.0^*/\leq 13^{(a)**}$
3) Flow - High	$\leq 0.5^*/\leq 13^{(a)**}$
d. Main Steam Line Tunnel Temperature - High	NA
e. Condenser Vacuum - Low	NA
f. Main Steam Line Tunnel $\Delta$ Temperature - High	NA
<b>2. <u>SECONDARY CONTAINMENT ISOLATION</u></b>	
a. Reactor Building Vent Exhaust Plenum Radiation - High <sup>(b)</sup>	$\leq 13^{(a)}$
b. Drywell Pressure - High	$\leq 13^{(a)}$
c. Reactor Vessel Water Level - Low, Level <sup>(2)</sup>	$\leq 13^{(a)}$
d. Fuel Pool Vent Exhaust Radiation - High <sup>(b)</sup>	$\leq 13^{(a)}$
<b>3. <u>REACTOR WATER CLEANUP SYSTEM ISOLATION</u></b>	
a. $\Delta$ Flow - High	$\leq 13^{(a)**}$
b. Heat Exchanger Area Temperature - High	NA
c. Heat Exchanger Area Ventilation $\Delta T$ -High	NA
<del>d. Pump Area Temperature - High</del>	<del>NA</del>
<del>e. Pump Area Ventilation <math>\Delta T</math> - High</del>	<del>NA</del>
<del>f. d. SLCS Initiation</del>	<del>NA</del>
<del>g. d. Reactor Vessel Water Level - Low Low, Level 2</del>	<del><math>\leq 13^{(a)}</math></del>
<b>4. <u>REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION</u></b>	
a. RCIC Steam Line Flow - High	$\leq 13^{(a)###}$
b. RCIC Steam Supply Pressure - Low	$\leq 13^{(a)}$
c. RCIC Turbine Exhaust Diaphragm Pressure - High	NA
d. RCIC Equipment Room Temperature - High	NA
e. RCIC Steam Line Tunnel Temperature - High	NA
f. RCIC Steam Line Tunnel $\Delta$ Temperature - High	NA
g. Drywell Pressure - High	NA
<b>5. <u>RHR SYSTEM STEAM CONDENSING MODE ISOLATION</u></b>	
a. RHR Equipment Area $\Delta$ Temperature - High	NA
b. RHR Area Cooler Temperature - High	NA
c. RHR Heat Exchanger Steam Supply Flow High	NA

TABLE 3.3.2-3 (Continued)

ISOLATION SYSTEM INSTRUMENTATION RESPONSE TIME

<u>TRIP FUNCTION</u>	<u>RESPONSE TIME (Seconds)<sup>#</sup></u>
<u>6. RHR SYSTEM SHUTDOWN COOLING MODE ISOLATION</u>	
a. Reactor Vessel Water Level - Low, Level 3	≤ 13 <sup>(a)</sup>
b. Reactor Vessel (RHR Cut-In Permissive) Pressure - High	N.A.
c. RHR Pump Suction Flow - High	N.A.
d. RHR Area Cooler Temperature High	N.A.
e. RHR Equipment Area ΔT High	N.A.
<u>B. MANUAL INITIATION</u>	N.A.
1. Inboard Valves	
2. Outboard Valves	
3. Inboard Valves	
4. Outboard Valves	
5. Inboard Valves	
6. Outboard Valves	
7. Outboard Valve	

(a) The isolation system instrumentation response time shall be measured and recorded as a part of the ISOLATION SYSTEM RESPONSE TIME. Isolation system instrumentation response time specified includes the delay for diesel generator starting assumed in the accident analysis.

(b) Radiation detectors 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 system instrumentation response time for MSIVs only. No diesel generator delays assumed.

\*\* Isolation system instrumentation response time for associated valves except MSIVs.

# 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 3.6.5.2-1 for valves in each valve group to obtain ISOLATION SYSTEM RESPONSE TIME for each valve.

## Without 45±1 second time delay.

### Without ≤ 5 second time delay.

N.A. Not Applicable.

*No change. For reference only*

TABLE 4.3.2.1-1  
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 FOR WHICH SURVEILLANCE REQUIRED</u>
<b>A. AUTOMATIC INITIATION</b>				
<b>1. PRIMARY CONTAINMENT ISOLATION</b>				
a. Reactor Vessel Water Level				
1) Low, Level 3	S	M	R	1, 2, 3
2) Low Low, Level 2	S	M	R	1, 2, 3
b. Drywell Pressure - High	NA	M	Q	1, 2, 3
c. Main Steam Line				
1) Radiation - High	S	M	R	1, 2, 3
2) Pressure - Low	NA	M	Q	1
3) Flow - High	S	M	R	1, 2, 3
d. Main Steam Line Tunnel				
Temperature - High	NA	M	R	1, 2, 3
e. Condenser Vacuum - Low	NA	M	Q	1, 2*, 3*
f. Main Steam Line Tunnel				
$\Delta$ Temperature - High	NA	M	R	1, 2, 3
<b>2. SECONDARY CONTAINMENT ISOLATION</b>				
a. Reactor Building Vent Exhaust				
Plenum Radiation - High	S	M	R	1, 2, 3 and **
b. Drywell Pressure - High	NA	M	Q	1, 2, 3
c. Reactor Vessel Water				
Level - Low Low, Level 2	S	M	R	1, 2, 3, and #
d. Fuel Pool Vent Exhaust				
Radiation - High	S	M	R	1, 2, 3 and **
<b>3. REACTOR WATER CLEANUP SYSTEM ISOLATION</b>				
a. $\Delta$ Flow - High	S	M	R	1, 2, 3
b. Heat Exchanger Area				
Temperature - High	NA	M	Q	1, 2, 3
c. Heat Exchanger Area				
Ventilation $\Delta T$ - High	NA	M	Q	1, 2, 3
<del>d. Pump Area Temperature - High</del>	<del>NA</del>	<del>M</del>	<del>Q</del>	<del>1, 2, 3</del>
<del>e. Pump Area Ventilation <math>\Delta</math> Temperature - High</del>	<del>NA</del>	<del>M</del>	<del>Q</del>	<del>1, 2, 3</del>
<del>id</del> SICCS Initiation	NA	R	NA	1, 2, 3
<del>ye</del> Reactor Vessel Water				
Level - Low Low, Level 2	S	M	R	1, 2, 3

TABLE 4.3.2.1-1 (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 FOR WHICH SURVEILLANCE REQUIRED</u>
<b>4. <u>REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION</u></b>				
a. RCIC Steam Line Flow - High	NA	M	Q	1, 2, 3
b. RCIC Steam Supply Pressure - Low	NA	M	Q	1, 2, 3
c. RCIC Turbine Exhaust Diaphragm Pressure - High	NA	M	Q	1, 2, 3
d. RCIC Equipment Room Temperature - High	NA	M	Q	1, 2, 3
e. RCIC Steam Line Tunnel Temperature - High	NA	M	Q	1, 2, 3
f. RCIC Steam Line Tunnel $\Delta$ Temperature - High	NA	M	Q	1, 2, 3
g. Drywell Pressure - High	NA	M	Q	1, 2, 3
<b>5. <u>RIIR SYSTEM STEAM CONDENSING MODE ISOLATION</u></b>				
a. RIIR Equipment Area $\Delta$ Temperature - High	NA	M	Q	1, 2, 3
b. RIIR Area Cooler Temperature - High	NA	M	Q	1, 2, 3
c. RIIR Heat Exchanger Steam Supply Flow - High	NA	M	Q	1, 2, 3

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No change. For reference only

TABLE 4.3.2.1-1 (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 FOR WHICH SURVEILLANCE REQUIRED</u>
6. <u>RIIR SYSTEM SHUTDOWN COOLING MODE ISOLATION</u>				
a. Reactor Vessel Water Level - Low, Level 3	S	M	R	1, 2, 3
b. Reactor Vessel (RIIR Cut-in Permissive) Pressure - High	NA	M	Q	1, 2, 3
c. RIIR Pump Suction Flow - High	NA	M	Q	1, 2, 3
d. RIIR Area Temperature - High	NA	M	Q	1, 2, 3
e. RIIR Equipment Area $\Delta T$ - High	NA	M	Q	1, 2, 3
B. <u>MANUAL INITIATION</u>				
1. Inboard Valves	NA	R	NA	1, 2, 3
2. Outboard Valves				1, 2, 3
3. Inboard Valves				1, 2, 3 and **, #
4. Outboard Valves				1, 2, 3 and **, #
5. Inboard Valves				1, 2, 3
6. Outboard Valves				1, 2, 3
7. Outboard Valve				1, 2, 3

\*When reactor steam pressure > 1043 psig and/or any turbine stop valve is open.

\*\*When handling irradiated fuel in the secondary containment and during CORE ALTERATIONS and operations with a potential for draining the reactor vessel.

#During CORE ALTERATIONS and operations with a potential for draining the reactor vessel.

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No Change. For reference only.

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## INSTRUMENTATION

### 3/4.3.2 ISOLATION ACTUATION INSTRUMENTATION

#### LIMITING CONDITION FOR OPERATION

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3.3.2 The isolation actuation instrumentation channels shown in Table 3.3.2-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3.2-2 and with ISOLATION SYSTEM RESPONSE TIME as shown in Table 3.3.2-3.

APPLICABILITY: As shown in Table 3.3.2-1.

#### ACTION:

- a. With an isolation actuation instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3.2-2, declare the channel inoperable until the channel is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.
- b. With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement for one trip system, place that trip system in the tripped condition\* within one hour. The provisions of Specification 3.0.4 are not applicable.
- c. With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement for both trip systems, place at least one trip system\*\* in the tripped condition within one hour and take the ACTION required by Table 3.3.2-1.

\*With a design providing only one channel per trip system, an inoperable channel need not be placed in the tripped condition where this would cause the Trip Function to occur. In these cases, the inoperable channel shall be restored to OPERABLE status within 2 hours or the ACTION required by Table 3.3.2-1 for that Trip Function shall be taken.

\*\*If more channels are inoperable in one trip system than in the other, select that trip system to place in the tripped condition except when this would cause the Trip Function to occur.

*No change. For reference only.*

## INSTRUMENTATION

### SURVEILLANCE REQUIREMENTS

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4.3.2.1 Each isolation actuation instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations for the OPERATIONAL CONDITIONS and at the frequencies shown in Table 4.3.2.1-1.

4.3.2.2 LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all channels shall be performed at least once per 18 months.

4.3.2.3 The ISOLATION SYSTEM RESPONSE TIME of each isolation trip function shown in Table 3.3.2-3 shall be demonstrated to be within its limit at least once per 18 months. Each test shall include at least one channel per trip system such that all channels are tested at least once every N times 18 months, where N is the total number of redundant channels in a specific isolation trip system.

*No change For reference only.*



TABLE 3.3.2-1

ISOLATION ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION</u>	<u>VALVE GROUPS OPERATED BY SIGNAL (a)</u>	<u>MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM (b)</u>	<u>APPLICABLE OPERATIONAL CONDITION</u>	<u>ACTION</u>
A. <u>AUTOMATIC INITIATION</u>				
1. <u>PRIMARY CONTAINMENT ISOLATION</u>				
a. Reactor Vessel Water Level				
(1) Low, Level 3	7	2	1, 2, 3	20
(2) Low Low, Level 2	1, 2, 3	2	1, 2, 3	20
b. Drywell Pressure - High	2, 7	2	1, 2, 3	20
c. Main Steam Line				
1) Radiation - High	1	2	1, 2, 3	21
	3	2	1, 2, 3	22
2) Pressure - Low	1	2	1	23
3) Flow - High	1	2/line <sup>(d)</sup>	1, 2, 3	21
d. Main Steam Line Tunnel Temperature - High	1	2	1, 2, 3	21
e. Main Steam Line Tunnel $\Delta$ Temperature - High	1	2	1(1), 2(1), 3(1)	21
f. Condenser Vacuum - Low	1	2	1, 2*, 3*	21
2. <u>SECONDARY CONTAINMENT ISOLATION</u>				
a. Reactor Building Vent Exhaust Plenum Radiation - High	4(c)(e)	2	1, 2, 3 and **	24
b. Drywell Pressure - High	4(c)(e)	2	1, 2, 3	24
c. Reactor Vessel Water Level - Low Low, Level 2	4(c)(e)	2	1, 2, 3, and #	24
d. Fuel Pool Vent Exhaust Radiation - High	4(c)(e)	2	1, 2, 3, and **	24

FOR REFERENCE ONLY

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION</u>	<u>VALVE GROUPS OPERATED BY SIGNAL (a)</u>	<u>MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM (b)</u>	<u>APPLICABLE OPERATIONAL CONDITION</u>	<u>ACTION</u>
<b>3. REACTOR WATER CLEANUP SYSTEM ISOLATION</b>				
a. $\Delta$ Flow - High	5	1	1, 2, 3	22
b. Heat Exchanger Area Temperature - High	5	1	1, 2, 3	22
c. Heat Exchanger Area Ventilation $\Delta T$ - High	5	1	1, 2, 3	22
<del>d. Pump Area Temperature - High</del>	<del>5</del>	<del>1</del>	<del>1, 2, 3</del>	<del>22</del>
<del>e. Pump Area Ventilation <math>\Delta T</math> - High</del>	<del>5</del>	<del>1</del>	<del>1, 2, 3</del>	<del>22</del>
<i>r.d.</i> SLCS Initiation	5 <sup>(f)</sup>	NA	1, 2, 3	22
<i>g.e.</i> Reactor Vessel Water Level - Low Low, Level 2	5	2	1, 2, 3	22
<b>4. REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION</b>				
a. RCIC Steam Line Flow - High	8	1	1, 2, 3	22
b. RCIC Steam Supply Pressure - Low	8, 9 <sup>(g)</sup>	2	1, 2, 3	22
c. RCIC Turbine Exhaust Diaphragm Pressure - High	8	2	1, 2, 3	22
d. RCIC Equipment Room Temperature - High	8	1	1, 2, 3	22
e. RCIC Steam Line Tunnel Temperature - High	8	1	1, 2, 3	22
f. RCIC Steam Line Tunnel $\Delta$ Temperature - High	8	1	1, 2, 3	22
g. Drywell Pressure - High	9 <sup>(g)</sup>	2	1, 2, 3	22

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TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION</u>	<u>VALVE GROUPS OPERATED BY SIGNAL (a)</u>	<u>MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM (b)</u>	<u>APPLICABLE OPERATIONAL CONDITION</u>	<u>ACTION</u>
<b>5. <u>RHR SYSTEM STEAM CONDENSING MODE ISOLATION</u></b>				
a. RHR Equipment Area $\Delta$ Temperature - High	8	1	1, 2, 3	22
b. RHR Area Temperature - High	8	1	1, 2, 3	22
c. RHR Heat Exchanger Steam Supply Flow - High	8	1	1, 2, 3	22
<b>6. <u>RHR SYSTEM SHUTDOWN COOLING MODE ISOLATION</u></b>				
a. Reactor Vessel Water Level - Low, Level 3	6	2	1, 2, 3	25
b. Reactor Vessel (RHR Cut-in Permissive) Pressure - High	6	1	1, 2, 3	25
c. RHR Pump Suction Flow - High	6	1	1, 2, 3	25
d. RHR Area Temperature - High	6	1	1, 2, 3	25
e. RHR Equipment Area $\Delta T$ - High	6	1	1, 2, 3	25
<b>B. <u>MANUAL INITIATION</u></b>				
1. Inboard Valves	1, 2, 5, 6, 7	1/group	1, 2, 3	26
2. Outboard Valves	1, 2, 5, 6, 7	1/group	1, 2, 3	26
3. Inboard Valves	4 (c) (e)	1/group	1, 2, 3 and **, #	26
4. Outboard Valves	4 (c) (e)	1/group	1, 2, 3 and **, #	26
5. Inboard Valves	3, 8, 9	1/valve	1, 2, 3	26
6. Outboard Valves	3, 8, 9	1/valve	1, 2, 3	26
7. Outboard Valve	8(h)	1/group	1, 2, 3	26

FOR REFERENCE ONLY

FOR REFERENCE ONLY

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

ACTION STATEMENTS

- ACTION 20 - Be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN with the next 24 hours.
- ACTION 21 - Be in at least STARTUP with the associated isolation valves closed within 6 hours or be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.
- ACTION 22 - Close the affected system isolation valves within 1 hour and declare the affected system inoperable.
- ACTION 23 - Be in at least STARTUP within 6 hours.
- ACTION 24 - Establish SECONDARY CONTAINMENT INTEGRITY with the standby gas treatment system operating within 1 hour.
- ACTION 25 - Lock the affected system isolation valves closed within 1 hour and declare the affected system inoperable.
- ACTION 26 - Provided that the manual initiation function is OPERABLE for each other group valve, inboard or outboard, as applicable, in each line, restore the manual initiation function to OPERABLE status within 24 hours; otherwise, restore the manual initiation function to OPERABLE status within 8 hours; otherwise:
  - a. Be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours, or
  - b. Close the affected system isolation valves within the next hour and declare the affected system in operable.

TABLE NOTATIONS

- \* May be bypassed with reactor steam pressure  $\leq$  1043 psig and all turbine stop valves closed.
- \*\* When handling irradiated fuel in the secondary containment and during CORE ALTERATIONS and operations with a potential for draining the reactor vessel.
- # During CORE ALTERATIONS and operations with a potential for draining the reactor vessel.
  - (a) See Specification 3.6.3, Table 3.6.3-1 for valves in each valve group.
  - (b) A channel may be placed in an inoperable status for up to 2 hours for required surveillance without placing the trip system in the tripped condition provided at least one other OPERABLE channel in the same trip system is monitoring that parameter.
  - (c) Also actuates the standby gas treatment system.
  - (d) A channel is OPERABLE if 2 of 4 instruments in that channel are OPERABLE.
  - (e) Also actuates secondary containment ventilation isolation dampers per Table 3.6.5.2-1.
  - (f) Closes only RWCU system inlet outboard valve.
  - (g) Requires RCIC steam supply pressure-low coincident with drywell pressure-high.
  - (h) Manual initiation isolates 2E51-F008 only and only with a coincident reactor vessel water level-low, level 3, signal.
  - (i) Both channels of each trip system may be placed in an inoperable status for up to 4 hours for required reactor building ventilation filter change and damper cycling without placing the trip system in the tripped condition provided that the ambient temperature channels in the same trip systems are OPERABLE.

TABLE 3.3.2-2

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION	TRIP SETPOINT	ALLOWABLE VALUE
<u>AUTOMATIC INITIATION</u>		
1. <u>PRIMARY CONTAINMENT ISOLATION</u>		
a. Reactor Vessel Water Level		
1) Low, Level 3	> 12.5 inches*	> 11.0 inches*
2) Low Low, Level 2	> -50 inches*	> -57 inches*
b. Drywell Pressure - High	< 1.69 psig	< 1.89 psig
c. Main Steam Line		
1) Radiation - High	< 3.0 x full power background	< 3.6 x full background
2) Pressure - Low	> 854 psig	> 834 psig
3) Flow - High	< 111 psid	< 116 psid
d. Main Steam Line Tunnel Temperature - High	< 140°F	< 146°F
e. Main Steam Line Tunnel Δ Temperature - High	< 36°F	< 42°F
f. Condenser Vacuum - Low	> 7 inches Hg vacuum	> 5.5 inches Hg vacuum
2. <u>SECONDARY CONTAINMENT ISOLATION</u>		
a. Reactor Building Vent Exhaust Plenum Radiation - High	< 10 mr/h	< 15 mr/h
b. Drywell Pressure - High	< 1.69 psig	< 1.89 psig
c. Reactor Vessel Water Level - Low Low, Level 2	> -50 inches*	> -57 inches*
d. Fuel Pool Vent Exhaust Radiation - High	< 10 mr/h	< 15 mr/h
3. <u>REACTOR WATER CLEANUP SYSTEM ISOLATION</u>		
a. ΔFlow - High	< 70 gpm	< 87.5 gpm
b. Heat Exchanger Area Temperature - High	< 181°F	< 187°F
c. Heat Exchanger Area Ventilation ΔT - High	< 85°	< 91°F
<del>d. Pump Area Temperature - High</del>	<del>&lt; 116°F</del>	<del>&lt; 122°F</del>
<del>e. Pump Area Ventilation ΔT - High</del>	<del>&lt; 13°</del>	<del>&lt; 19°F</del>
f. SLCS Initiation	N.A.	N.A.
g. Reactor Vessel Water Level - Low Low, Level 2	> -50 inches*	> -57 inches*

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TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

<u>TRIP FUNCTION</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
<b>4. <u>REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION</u></b>		
a. RCIC Steam Line Flow - High	$\leq 290\%$ of rated flow, 178" H <sub>2</sub> O	$\leq 295\%$ of rated flow, 185" H <sub>2</sub> O
b. RCIC Steam Supply Pressure - Low	$\geq 57$ psig	$\geq 53$ psig
c. RCIC Turbine Exhaust Diaphragm Pressure - High	$\leq 10.0$ psig	$\leq 20.0$ psig
d. RCIC Equipment Room Temperature - High	$\leq 200^{\circ}\text{F}$	$\leq 206^{\circ}\text{F}$
e. RCIC Steam Line Tunnel Temperature - High	$\leq 200^{\circ}\text{F}$	$\leq 206^{\circ}\text{F}$
f. RCIC Steam Line Tunnel $\Delta$ Temperature - High	$\leq 117^{\circ}\text{F}$	$\leq 123^{\circ}\text{F}$
g. Drywell Pressure - High	$\leq 1.69$ psig	$\leq 1.89$ psig
<b>5. <u>RHR SYSTEM STEAM CONDENSING MODE ISOLATION</u></b>		
a. RHR Equipment Area $\Delta$ Temperature - High	$\leq 50^{\circ}\text{F}$	$\leq 56^{\circ}\text{F}$
b. RHR Area Cooler Temperature - High	$\leq 200^{\circ}\text{F}$	$\leq 206^{\circ}\text{F}$
c. RHR Heat Exchanger Steam Supply Flow - High	$\leq 125$ " H <sub>2</sub> O	$\leq 128$ " H <sub>2</sub> O

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FOR REFERENCE ONLY

TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

<u>TRIP FUNCTION</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
6. <u>RHR SYSTEM SHUTDOWN COOLING MODE ISOLATION</u>		
a. Reactor Vessel Water Level - Low, Level 3	$\geq 12.5$ inches*	$\geq 11.0$ inches*
b. Reactor Vessel (RHR Cut-in Permissive) Pressure - High	$\leq 135$ psig**	$\leq 145$ psig**
c. RHR Pump Suction Flow - High	$\leq 180$ " H <sub>2</sub> O	$\leq 186$ " H <sub>2</sub> O
d. RHR Area Cooler Temperature - High	$\leq 200$ °F	$\leq 206$ °F
e. RHR Equipment Area $\Delta T$ - High	$\leq 50$ °F	$\leq 56$ °F
B. <u>MANUAL INITIATION</u>	N.A.	N.A.
1. Inboard Valves		
2. Outboard Valves		
3. Inboard Valves		
4. Outboard Valves		
5. Inboard Valves		
6. Outboard Valves		
7. Outboard Valve		

\*See Bases Figure B 3/4 3-1.

\*\*Corrected for cold water head with reactor vessel flooded.

N.A. - Not Applicable.

TABLE 3.3.2-3

ISOLATION SYSTEM INSTRUMENTATION RESPONSE TIME

<u>TRIP FUNCTION</u>	<u>RESPONSE TIME (Seconds)#</u>
<b>A. <u>AUTOMATIC INITIATION</u></b>	
<b>1. <u>PRIMARY CONTAINMENT ISOLATION</u></b>	
a. Reactor Vessel Water Level	N.A.
1) Low, Level 3	< 1.0*/< 13(a)**
2) Low Low, Level 2	< 13(a)
b. Drywell Pressure - High	< 13(a)
c. Main Steam Line	
1) Radiation - High <sup>(b)</sup>	< 1.0*/< 13(a)**
2) Pressure - Low	< 1.0*/< 13(a)**
3) Flow - High	< 0.5*/< 13(a)**
d. Main Steam Line Tunnel Temperature - High	N.A.
e. Condenser Vacuum - Low	N.A.
f. Main Steam Line Tunnel Δ Temperature - High	N.A.
<b>2. <u>SECONDARY CONTAINMENT ISOLATION</u></b>	
a. Reactor Building Vent Exhaust Plenum Radiation - High <sup>(b)</sup>	< 13(a)
b. Drywell Pressure - High	< 13(a)
c. Reactor Vessel Water Level - Low, Level <sup>(b)</sup>	< 13(a)
d. Fuel Pool Vent Exhaust Radiation - High <sup>(b)</sup>	< 13(a)
<b>3. <u>REACTOR WATER CLEANUP SYSTEM ISOLATION</u></b>	
a. Δ Flow - High	< 13(a)##
b. Heat Exchanger Area Temperature - High	N.A.
c. Heat Exchanger Area Ventilation ΔT-High	N.A.
<del>d. Pump Area Temperature - High</del>	<del>N.A.</del>
<del>e. Pump Area Ventilation ΔT - High</del>	<del>N.A.</del>
<del>f. SLCS Initiation</del>	<del>N.A.</del>
<del>g. Reactor Vessel Water Level - Low Low, Level 2</del>	<del>&lt; 13(a)</del>
<b>4. <u>REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION</u></b>	
a. RCIC Steam Line Flow - High	< 13(a)###
b. RCIC Steam Supply Pressure - Low	< 13(a)
c. RCIC Turbine Exhaust Diaphragm Pressure - High	N.A.
d. RCIC Equipment Room Temperature - High	N.A.
e. RCIC Steam Line Tunnel Temperature - High	N.A.
f. RCIC Steam Line Tunnel Δ Temperature - High	N.A.
g. Drywell Pressure - High	N.A.
<b>5. <u>RHR SYSTEM STEAM CONDENSING MODE ISOLATION</u></b>	
a. RHR Equipment Area Δ Temperature - High	N.A.
b. RHR Area Cooler Temperature - High	N.A.
c. RHR Heat Exchanger Steam Supply Flow High	N.A.



TABLE 3.3.2-3 (Continued)

ISOLATION SYSTEM INSTRUMENTATION RESPONSE TIME

<u>TRIP FUNCTION</u>	<u>RESPONSE TIME (Seconds)#</u>
<b>6. <u>RHR SYSTEM SHUTDOWN COOLING MODE ISOLATION</u></b>	
a. Reactor Vessel Water Level - Low, Level 3	$\leq 13^{(a)}$
b. Reactor Vessel (RHR Cut-In Permissive) Pressure - High	N.A.
c. RHR Pump Suction Flow - High	N.A.
d. RHR Area Cooler Temperature High	N.A.
e. RHR Equipment Area $\Delta T$ High	N.A.
<b>B. <u>MANUAL INITIATION</u></b>	N.A.
1. Inboard Valves	
2. Outboard Valves	
3. Inboard Valves	
4. Outboard Valves	
5. Inboard Valves	
6. Outboard Valves	
7. Outboard Valve	

TABLE NOTATIONS

- (a) The isolation system instrumentation response time shall be measured and recorded as a part of the ISOLATION SYSTEM RESPONSE TIME. Isolation system instrumentation response time specified includes the delay for diesel generator starting assumed in the accident analysis.
- (b) Radiation detectors 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 system instrumentation response time for MSIVs only. No diesel generator delays assumed.
- \*\* Isolation system instrumentation response time for associated valves except MSIVs.
- # 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 3.6.5.2-1 for valves in each valve group to obtain ISOLATION SYSTEM RESPONSE TIME for each valve.
- ## Without  $45 \pm 1$  second time delay.
- ### Without  $\leq 5$  second time delay.
- N.A. Not Applicable.

TABLE 4.3.2.1-1

## ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED
<b>A. AUTOMATIC INITIATION</b>				
<b>1. PRIMARY CONTAINMENT ISOLATION</b>				
a. Reactor Vessel Water Level				
1) Low, Level 3	S	M	R	1, 2, 3
2) Low Low, Level 2	S	M	R	1, 2, 3
b. Drywell Pressure - High	NA	M	Q	1, 2, 3
c. Main Steam Line				
1) Radiation - High	S	M	R	1, 2, 3
2) Pressure - Low	NA	M	Q	1
3) Flow - High	S	M	R	1, 2, 3
d. Main Steam Line Tunnel				
Temperature - High	NA	M	R	1, 2, 3
e. Condenser Vacuum - Low	NA	M	Q	1, 2*, 3*
f. Main Steam Line Tunnel				
Δ Temperature - High	NA	M	R	1, 2, 3
<b>2. SECONDARY CONTAINMENT ISOLATION</b>				
a. Reactor Building Vent Exhaust				
Plenum Radiation - High	S	M	R	1, 2, 3 and **
b. Drywell Pressure - High	NA	M	Q	1, 2, 3
c. Reactor Vessel Water				
Level - Low Low, Level 2	S	M	R	1, 2, 3, and #
d. Fuel Pool Vent Exhaust				
Radiation - High	S	M	R	1, 2, 3 and **
<b>3. REACTOR WATER CLEANUP SYSTEM ISOLATION</b>				
a. Δ Flow - High	S	M	R	1, 2, 3
b. Heat Exchanger Area				
Temperature - High	NA	M	Q	1, 2, 3
c. Heat Exchanger Area				
Ventilation ΔT - High	NA	M	Q	1, 2, 3
<del>d. Pump Area Temperature - High</del>	<del>NA</del>	<del>M</del>	<del>Q</del>	<del>1, 2, 3</del>
<del>e. Pump Area Ventilation - Δ</del>	<del>NA</del>	<del>M</del>	<del>Q</del>	<del>1, 2, 3</del>
<del>    Temperature High</del>	<del>NA</del>	<del>M</del>	<del>Q</del>	<del>1, 2, 3</del>
<del>f. SLCS Initiation</del>	<del>NA</del>	<del>R</del>	<del>NA</del>	<del>1, 2, 3</del>
<del>g. Reactor Vessel Water</del>	<del>S</del>	<del>M</del>	<del>R</del>	<del>1, 2, 3</del>
<del>    Level - Low Low, Level 2</del>	<del>S</del>	<del>M</del>	<del>R</del>	<del>1, 2, 3</del>

FOR REFERENCE ONLY

TABLE 4.3.2.1-1 (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 FOR WHICH SURVEILLANCE REQUIRED</u>
<b>4. <u>REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION</u></b>				
a. RCIC Steam Line Flow - High	NA	M	Q	1, 2, 3
b. RCIC Steam Supply Pressure - Low	NA	M	Q	1, 2, 3
c. RCIC Turbine Exhaust Diaphragm Pressure - High	NA	M	Q	1, 2, 3
d. RCIC Equipment Room Temperature - High	NA	M	Q	1, 2, 3
e. RCIC Steam Line Tunnel Temperature - High	NA	M	Q	1, 2, 3
f. RCIC Steam Line Tunnel $\Delta$ Temperature - High	NA	M	Q	1, 2, 3
g. Drywell Pressure - High	NA	M	Q	1, 2, 3
<b>5. <u>RHR SYSTEM STEAM CONDENSING MODE ISOLATION</u></b>				
a. RHR Equipment Area $\Delta$ Temperature - High	NA	M	Q	1, 2, 3
b. RHR Area Cooler Temperature - High	NA	M	Q	1, 2, 3
c. RHR Heat Exchanger Steam Supply Flow - High	NA	M	Q	1, 2, 3

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TABLE 4.3.2.1-1 (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 FOR WHICH SURVEILLANCE REQUIRED</u>
<b>6. <u>RHR SYSTEM SHUTDOWN COOLING MODE ISOLATION</u></b>				
a. Reactor Vessel Water Level - Low, Level 3	S	M	R	1, 2, 3
b. Reactor Vessel (RHR Cut-in Permissive) Pressure - High	NA	M	Q	1, 2, 3
c. RHR Pump Suction Flow - High	NA	M	Q	1, 2, 3
d. RHR Area Temperature - High	NA	M	Q	1, 2, 3
e. RHR Equipment Area ΔT - High	NA	M	Q	1, 2, 3
<b>B. <u>MANUAL INITIATION</u></b>				
1. Inboard Valves	NA	R	NA	1, 2, 3
2. Outboard Valves				1, 2, 3
3. Inboard Valves				1, 2, 3 and **, #
4. Outboard Valves				1, 2, 3 and **, #
5. Inboard Valves				1, 2, 3
6. Outboard Valves				1, 2, 3
7. Outboard Valve				1, 2, 3

\*When reactor steam pressure > 1043 psig and/or any turbine stop valve is open.

\*\*When handling irradiated fuel in the secondary containment and during CORE ALTERATIONS and operations with a potential for draining the reactor vessel.

#During CORE ALTERATIONS and operations with a potential for draining the reactor vessel.

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