

Table 3.3.1-1 (page 5 of 8)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL TRIP SETPOINT
20. Reactor Trip Bypass Breaker and associated Undervoltage Trip Mechanism	1 ^(l) , 2 ^(l)	1	V	SR 3.3.1.4	NA	NA
	3 ^(l) , 4 ^(l) , 5 ^(l)	1	W	SR 3.3.1.4	NA	NA
21. Automatic Trip Logic	1, 2,	2 trains	P	SR 3.3.1.5 SR 3.3.1.15	NA	NA
	3 ^(a) , 4 ^(a) , 5 ^(a)	2 trains	X	SR 3.3.1.5	NA	NA

(a) With RTBs closed and Rod Control System capable of rod withdrawal.

(l) When Reactor Trip Bypass Breakers are racked in and closed and the Rod Control System is capable of rod withdrawal.

3.3 INSTRUMENTATION

3.3.2 Engineered Safety Feature Actuation System (ESFAS) Instrumentation

LCO 3.3.2 The ESFAS instrumentation for each Function in Table 3.3.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.2-1.

[OR
In accordance with the Risk
Informed Completion Time Program]

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more required channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.2-1 for the channel(s) or train(s).	Immediately
B. One channel inoperable.	B.1 Restore channel to OPERABLE status.	48 hours
	OR	
	B.2.1 Be in MODE 3.	54 hours
	<u>AND</u>	
	B.2.2 Be in MODE 5.	84 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIREMENT	COMPLETION TIME
C. One train inoperable.	C.1 Restore train to OPERABLE status.	6 hours
	OR	
	C.2.1 Be in MODE 3.	12 hours
	AND	
	C.2.2 Be in MODE 5.	42 hours
D. One channel inoperable.	D.1 Place channel in trip.	1 hour
	OR	
	D.2.1 Be in MODE 3.	7 hours
	AND	
	D.2.2 Be in MODE 4.	13 hours
E. One or both channel(s) inoperable.	E.1 Restore channel(s) to OPERABLE status.	1 hour
	<u>OR</u>	
	E.2.1 Be in MODE 3.	7 hours
	<u>AND</u>	
	E.2.2 Be in MODE 5.	37 hours

(continued)

[OR
 ----- NOTE -----
 Not applicable to Function 2b, Containment Spray - Automatic Actuation Logic and Actuation Relays, of Table 3.3-2.

 In accordance with the Risk Informed Completion Time Program]

[OR
 ----- NOTE -----
 Not applicable to Function 2c, Containment Spray - Containment Pressure High-High, of Table 3.3-2.

 In accordance with the Risk Informed Completion Time Program]

[OR
In accordance with the Risk
Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One channel inoperable.	F.1 Restore channel to OPERABLE status.	1 hour
	OR	
	F.2.1 Be in MODE 3.	7 hours ←
	AND	
G. One train inoperable.	G.1 Restore train to OPERABLE status.	6 hours
	OR	
	G.2.1 Be in MODE 3.	12 hours ←
	AND	
H. One channel inoperable.	H.1 Place channel in trip.	6 hours
	OR	
	H.2 Be in MODE 3.	12 hours ←
I. One or more channels inoperable.	I.1 Verify interlock is in required state for existing unit condition.	1 hour
	<u>OR</u>	
	I.2.1 Be in MODE 3.	7 hours
	<u>AND</u>	
	I.2.2 Be in MODE 4.	13 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>-----NOTE----- Separate Condition entry is allowed for each AFW pump. -----</p> <p>J. One channel inoperable.</p>	<p>J.1 Restore channel to OPERABLE status.</p> <p><u>OR</u></p> <p>J.2 Declare associated AFW pump inoperable.</p>	48 hours

 INSERT NEXT PAGE

SURVEILLANCE REQUIREMENTS

-----NOTE-----
Refer to Table 3.3.2-1 to determine which SRs apply for each ESFAS Function.

SURVEILLANCE	FREQUENCY
SR 3.3.2.1 Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
<p>SR 3.3.2.2 -----NOTE----- The continuity check may be excluded. -----</p> <p>Perform ACTUATION LOGIC TEST.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.3 Perform COT.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.4 Perform MASTER RELAY TEST.	In accordance with the Surveillance Frequency Control Program

(continued)

INSERT - Section 3.3.2, ESFAS Instrument ACTIONS

K. Required Action and associated Completion Time of Condition H not met.	Be in MODE 3	6 hours
L. Required Action and associated Completion Time of Condition B or C not met.	L.1 Be in MODE 3 <u>AND</u>	6 hours
	L.2 Be in MODE 5	36 hours
M. Required Action and associated Completion Time of Condition D, F or G not met.	M.1 Be in MODE 3 <u>AND</u>	6 hours
	M.2 Be in MODE 4	12 hours

Table 3.3.2-1 (page 1 of 4)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL TRIP SETPOINT
1. Safety Injection						
a. Manual Initiation	1,2,3,4	2	B	SR 3.3.2.7	NA	NA
b. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.5	NA	NA
c. Containment Pressure—High	1,2,3	3	D	SR 3.3.2.1 SR 3.3.2.3 ^(f) SR 3.3.2.8 ^(f)	≤ 5.1 psig	4.8 psig
d. Pressurizer Pressure—Low	1,2,3 ^(a)	3	D	SR 3.3.2.1 SR 3.3.2.3 ^(f) SR 3.3.2.8 ^(f)	≥ 1730 psig	1735 psig
e. Steam Line Pressure—Low	1,2,3 ^(b)	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.3 ^(f) SR 3.3.2.8 ^(f)	≥ 535 ^(c) psig	545 psig
2. Containment Spray						
a. Manual Initiation	1,2,3,4	2	E	SR 3.3.2.7	NA	NA
b. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.5	NA	NA
c. Containment Pressure—High High	1,2,3	2 sets of 3	D	SR 3.3.2.1 SR 3.3.2.3 ^(f) SR 3.3.2.8 ^(f)	≤ 28 psig	25 psig

(continued)

- (a) Pressurizer Pressure > 2000 psig.
- (b) Pressurizer Pressure > 2000 psig, except during Reactor Coolant System hydrostatic testing.
- (c) Time constants used in the lead/lag controller are $t_1 \geq 18$ seconds and $t_2 \leq 2$ seconds.
- (f) Table 3.3.2-1 Notes 1 and 2 are applicable.

Table 3.3.2-1 (page 2 of 4)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL TRIP SETPOINT
3. Containment Isolation						
a. Manual Initiation	1,2,3,4	2	B	SR 3.3.2.7	NA	NA
b. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.4 SR 3.3.2.5	NA	NA
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements, except Manual SI initiation.					
4. Steam Line Isolation						
a. Manual Initiation						
	1,2 ^(d) ,3 ^(d)	1/loop	F	SR 3.3.2.7	NA	NA
b. Automatic Actuation Logic and Actuation Relays	1,2 ^(d) ,3 ^(d)	2 trains	G	SR 3.3.2.2 SR 3.3.2.5	NA	NA
c. Containment Pressure—High High	1,2 ^(d) ,3 ^(d)	3	D	SR 3.3.2.1 SR 3.3.2.3 ^(f) SR 3.3.2.8 ^(f)	≤ 18 psig	15 psig
d. High Steam Flow	1,2 ^(d) ,3 ^(d)	2 per steam line	D	SR 3.3.2.1 SR 3.3.2.3 ^(f) SR 3.3.2.8 ^(f)	≤ Δp corresponding to 0.8 x 10 ⁶ lb/hr at 1005 psig	Δp corresponding to 0.52 x 10 ⁶ lb/hr at 1005 psig
Coincident with Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
and						
Coincident with T _{avg} —Low	1,2 ^(d) ,3 ^(d)	3	D	SR 3.3.2.1 SR 3.3.2.3 ^(f) SR 3.3.2.8 ^(f)	≥ 542°F	543°F
e. High High Steam Flow	1,2 ^(d) ,3 ^(d)	2 per steam line	D	SR 3.3.2.1 SR 3.3.2.3 ^(f) SR 3.3.2.8 ^(f)	≤ Δp corresponding to 4.9 x 10 ⁶ lb/hr at 586 psig	Δp corresponding to 4.85 x 10 ⁶ lb/hr at 586 psig
Coincident with Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					

(continued)

(d) Except when all MSIVs are closed and de-activated.
(f) Table 3.3.2-1 Notes 1 and 2 are applicable.

Table 3.3.2-1 (page 3 of 4)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL TRIP SETPOINT
5. Feedwater Isolation						
a. Automatic Actuation Logic and Actuation Relays	1,2(e),3(e)	2 trains	G	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.5	NA	NA
b. SG Water Level—High	1,2(e),3(e)	3 per SG	D	SR 3.3.2.1 SR 3.3.2.3 ^(f) SR 3.3.2.8 ^(f)	≤ 90%	78%
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
6. Auxiliary Feedwater						
a. Automatic Actuation Logic and Actuation Relays	1,2,3	2 trains	G	SR 3.3.2.2	NA	NA
b. SG Water Level—Low Low	1,2,3	3 per SG	D	SR 3.3.2.1 SR 3.3.2.3 ^(f) SR 3.3.2.8 ^(f)	≥ 29.5%	31%
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
d. Undervoltage Bus A01 and A02	1,2	2 per bus	H	SR 3.3.2.6 SR 3.3.2.8 ^(f)	≥ 3120 V	3255 V
e. AFW Pump Suction Transfer on Suction Pressure - Low	1,2,3	1 per pump	J	SR 3.3.2.1 SR 3.3.2.3 ^(f) SR 3.3.2.8 ^(f)	≥ 5.8 psig	6.1 psig
7. SI Block-Pressurizer Pressure	1,2,3	3	I	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.8	≤ 2005 psig	2000 psig

(e) Except when all MFIVs, MFRVs and associated bypass valves are closed and de-activated.

(f) Table 3.3.2-1 Notes 1 and 2 are applicable.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.11 Pressurizer Power Operated Relief Valves (PORVs)

LCO 3.4.11 Each PORV and associated block valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, MODE 3 with RCS average temperature (T_{avg})
 $\geq 500^{\circ}\text{F}$.

[OR
 In accordance with the Risk
 Informed Completion Time Program]

ACTIONS

-----NOTE-----
 Separate Condition entry is allowed for each PORV and each block valve.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more PORVs inoperable and capable of being manually cycled.	A.1 Close and maintain power to associated block valve.	1 hour
B. One PORV inoperable and not capable of being manually cycled.	B.1 Close associated block valve.	1 hour
	<u>AND</u>	
	B.2 Remove power from associated block valve.	1 hour
	<u>AND</u>	
	B.3 Restore PORV to OPERABLE status.	72 hours

(continued)

[OR
In accordance with the Risk
Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One block valve inoperable.	<p>-----NOTE----- Required Actions C.1 and C.2 do not apply when block valve is inoperable solely as a result of complying with Required Actions B.2 or E.2 -----</p> <p>C.1 Place associated PORV in manual control.</p> <p><u>AND</u></p> <p>C.2 Restore block valve to OPERABLE status.</p>	<p>1 hour</p> <p>72 hours ←</p>
D. Required Action and associated Completion Time of Condition A, B, or C not met.	<p>D.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>D.2 Reduce T_{avg} to $< 500^{\circ}\text{F}$.</p>	<p>6 hours</p> <p>12 hours</p>
E. Two PORVs inoperable and not capable of being manually cycled.	<p>E.1 Close associated block valves.</p> <p><u>AND</u></p> <p>E.2 Remove power from associated block valves.</p> <p><u>AND</u></p> <p>E.3 Be in MODE 3.</p> <p><u>AND</u></p> <p>E.4 Reduce T_{avg} to $< 500^{\circ}\text{F}$.</p>	<p>1 hour</p> <p>1 hour</p> <p>6 hours</p> <p>12 hours</p>

(continued)

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.2 ECCS – Operating

LCO 3.5.2 Two ECCS trains shall be OPERABLE.

-----NOTE-----
In MODE 3, both safety injection (SI) pump flow paths may be isolated by closing the isolation valves for up to 2 hours to perform pressure isolation valve testing per SR 3.4.14.1.

APPLICABILITY: MODES 1, 2, and 3.

[OR
In accordance with the Risk
Informed Completion Time Program]

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ECCS train inoperable.	A.1 Restore train to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.5.2.1 -----NOTE----- Not required to be met for system vent flow paths opened under administrative controls. ----- Verify each ECCS manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program

(continued)

3.6 CONTAINMENT SYSTEMS

3.6.2 Containment Air Locks

LCO 3.6.2 Two containment air locks shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

-----NOTES-----

1. Entry and exit is permissible to perform repairs on the affected air lock components.
 2. Separate Condition entry is allowed for each air lock.
 3. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when air lock leakage results in exceeding the overall containment leakage rate.
-

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more containment air locks with one bulkhead inoperable.</p>	<p style="text-align: center;">-----NOTES-----</p> <ol style="list-style-type: none"> 1. Required Actions A.1, A.2, and A.3 are not applicable if both bulkheads in the same air lock are inoperable and Condition C is entered. 2. Entry and exit is permissible for 7 days under administrative controls if both air locks are inoperable. <p style="text-align: center;">-----</p>	<p>(continued)</p>

[OR
In accordance with the Risk
Informed Completion Time Program]

ACTIONS		
CONDITIONS	REQUIRED ACTION	COMPLETION TIME
B. (continued)	<p>B.3 -----NOTE----- Bulkhead doors and equalizing valves in high radiation areas may be verified locked closed by administrative means. -----</p> <p>Verify the bulkhead door and equalizing valve on an OPERABLE bulkhead in the affected airlock are locked closed.</p>	Once per 31 days
C. One or more containment air locks inoperable for reasons other than Condition A or B.	C.1 Initiate action to evaluate overall containment leakage rate per LCO 3.6.1.	Immediately
	<u>AND</u>	
	C.2 Verify a bulkhead door and associated equalizing valve are closed in the affected air lock.	1 hour
	<u>AND</u>	
	C.3 Restore air lock to OPERABLE status.	36 hours
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	D.2 Be in MODE 5.	36 hours



3.6 CONTAINMENT SYSTEMS

3.6.3 Containment Isolation Valves

LCO 3.6.3 Each containment isolation valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

[OR
In accordance with the Risk
Informed Completion Time Program]

ACTIONS

-----NOTES-----

1. Penetration flow path(s) except for the purge supply and exhaust flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by containment isolation valves.
4. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when isolation valve leakage results in exceeding the overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Only applicable to penetration flow paths with two containment isolation valves. ----- One or more penetration flow paths with one containment isolation valve inoperable.</p>	<p>A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.</p> <p style="text-align: center;"><u>AND</u></p>	<p>4 hours</p> <p style="text-align: right;">←</p> <p style="text-align: right;">(continued)</p>