

3.3 INSTRUMENTATION

3.3.1 Reactor Trip Instrumentation

LCO 3.3.1 The Reactor Trip instrumentation for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more divisions inoperable.	A.1 Enter the applicable Condition referenced in Table 3.3.1-1.	Immediately
B. One Input & Acquisition Logic division inoperable.	B.1 Verify Actuation Logic voting is modified.	6 hours
C. One Manual division inoperable.	C.1 Verify OPERABILITY of other Manual divisions.	6 hours
D. Two Manual divisions inoperable.	D.1 Restore one Manual division to OPERABLE status.	72 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. One Reactor Trip Breaker inoperable.</p> <p><u>OR</u></p> <p>----- NOTE ----- Separate Condition entry is allowed for each Reactor Trip Contactor Set. -----</p> <p>One Reactor Trip Contactor in a set inoperable.</p>	<p>E.1 Restore to OPERABLE status.</p>	<p>72 hours</p>
<p>F. Two or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B not met.</p>	<p>F.1 Be in MODE 1 with P2 inhibited.</p>	<p>4 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>G. Two or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Three or more Manual divisions inoperable.</p> <p><u>OR</u></p> <p>Two or more Reactor Trip Breakers inoperable.</p> <p><u>OR</u></p> <p>Two or more Reactor Trip Contactors in any set inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B, C, D, or E not met.</p>	<p>G.1 Be in MODE 3 with the RCSL not capable of withdrawing an RCCA and RCCAs fully inserted.</p>	<p>6 hours</p>
<p>H. Two or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B not met.</p>	<p>H.1 Be in MODE 2 with P5 inhibited.</p>	<p>6 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>I. Two or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B not met.</p>	<p>I.1 Be in MODE 3 with the RCSL not capable of withdrawing an RCCA and RCCAs fully inserted and with P12 validated.</p>	<p>6 hours</p>
<p>J. Two or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B not met.</p>	<p>J.1 Be in MODE 2.</p>	<p>6 hours</p>
<p>K. Two or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B not met.</p>	<p>K.1 Be in MODE 1 with P3 inhibited.</p>	<p>2 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>L. Two or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B not met.</p>	<p>L.1 Be in MODE 3.</p>	<p>6 hours</p>
<p>M. One Actuation Logic division inoperable.</p>	<p>M.1 Verify OPERABILITY of other Actuation Logic divisions.</p>	<p>6 hours</p>
<p>N. Two or more Actuation Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition M not met.</p>	<p>N.1 ----- NOTE ----- Only applicable to Functions 1, 2, 3, 4, 5, 6, 10, 12, and 15. -----</p> <p>Be in MODE 1 with P2 inhibited.</p> <p><u>AND</u></p> <p>N.2 ----- NOTE ----- Only applicable to Functions 7, 13, 14, 19, 23, 24, and 26. -----</p> <p>Be in MODE 3 with the RCSL not capable of withdrawing an RCCA and RCCAs fully inserted.</p> <p><u>AND</u></p>	<p>4 hours</p> <p>6 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>N.3 ----- NOTE ----- Only applicable to Functions 8 and 9. -----</p> <p>Be in MODE 2 with P5 inhibited.</p> <p><u>AND</u></p> <p>N.4 ----- NOTE ----- Only applicable to Functions 18 and 20. -----</p> <p>Be in MODE 3 with the RCSL not capable of withdrawing an RCCA and RCCAs fully inserted and with P12 validated.</p> <p><u>AND</u></p> <p>N.5 ----- NOTE ----- Only applicable to Function 21. -----</p> <p>Be in MODE 2.</p> <p><u>AND</u></p> <p>N.6 ----- NOTE ----- Only applicable to Function 11. -----</p> <p>Be in MODE 3 with P3 inhibited.</p> <p><u>AND</u></p>	<p>6 hours</p> <p>6 hours</p> <p>6 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>N.7 ----- NOTE ----- Only applicable to Functions 16, 17, 22, and 25. -----</p> <p>Be in MODE 3.</p>	<p>6 hours</p>

SURVEILLANCE REQUIREMENTS

----- NOTE -----
Refer to Table 3.3.1-1 to determine which SRs apply for each Function.

SURVEILLANCE	FREQUENCY
SR 3.3.1.1 ----- NOTE ----- Not required to be performed until 12 hours after THERMAL POWER \geq 20% RTP. ----- Compare results of calorimetric heat balance calculation to Power Range Detector division output.	24 hours
SR 3.3.1.2 Perform CHANNEL CHECK.	31 days
SR 3.3.1.3 Perform ACTUATING DEVICE OPERATIONAL TEST.	31 days
SR 3.3.1.4 ----- NOTES ----- 1. Not required to be performed until 24 hours after THERMAL POWER \geq 15% RTP. 2. Neutron detectors are excluded from CALIBRATION. ----- Perform CALIBRATION in accordance with the Setpoint Control Program.	31 effective full power days
SR 3.3.1.5 ----- NOTE ----- Not required to be performed until 12 hours after THERMAL POWER \geq 70% RTP. ----- Perform CALIBRATION in accordance with the Setpoint Control Program.	24 months
SR 3.3.1.6 Perform SENSOR OPERATIONAL TEST in accordance with the Setpoint Control Program.	24 months

SURVEILLANCE		FREQUENCY
SR 3.3.1.7	Perform CALIBRATION in accordance with the Setpoint Control Program.	24 months
SR 3.3.1.8	Perform EXTENDED SELF TESTS.	24 months
SR 3.3.1.9	Perform ACTUATING DEVICE OPERATIONAL TEST.	24 months
SR 3.3.1.10	Verify NTSPs properly loaded in accordance with the Setpoint Control Program.	24 months
SR 3.3.1.11	<p>----- NOTES -----</p> <ol style="list-style-type: none"> 1. Required to be performed prior to withdrawing RCCAs for startup. 2. Neutron detectors are excluded from CALIBRATION. <p>-----</p> <p>Perform CALIBRATION in accordance with the Setpoint Control Program.</p>	24 months
SR 3.3.1.12	<p>----- NOTE -----</p> <p>Neutron detectors are excluded from RESPONSE TIME testing.</p> <p>-----</p> <p>Verify RESPONSE TIME is within limits.</p>	24 months on a STAGGERED TEST BASIS

Table 3.3.1-1
Reactor Trip Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
1. Departure from Nucleate Boiling Ratio (DNBR)				
Low	1 ^(a)	4 divisions	B,F	SR 3.3.1.2 SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.12
2. DNBR with High Quality				
Low	1 ^(a)	4 divisions	B,F	SR 3.3.1.2 SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.12
3. DNBR with Imbalance or Rod Drop (1/4)				
Low	1 ^(a)	4 divisions	B,F	SR 3.3.1.2 SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.12
4. DNBR with High Quality and (Imbalance or Rod Drop (1/4))				
Low	1 ^(a)	4 divisions	B,F	SR 3.3.1.2 SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.12
5. DNBR with Rod Drop (2/4)				
Low	1 ^(a)	4 divisions	B,F	SR 3.3.1.2 SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.12
6. Linear Power Density				
High	1 ^(a)	(b)	(b)	(b)
7. Neutron Flux Rate of Change				
High (Power Range)	1,2,3 ^(c)	4 divisions	B,G	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.4 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.12

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
8. Core Power Level				
High	1,2 ^(d)	4 divisions	B,H	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.12
9. Saturation Margin				
Low	1,2 ^(d)	4 divisions	B,H	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.12
10. RCS Flow Rate				
Low in Two Loops	1 ^(a)	4 divisions	B,F	SR 3.3.1.2 SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.12
11. RCS Flow Rate				
Low-Low in One Loop	1 ^(e)	4 divisions	B,K	SR 3.3.1.2 SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.12
12. RCP Speed				
Low in Two Loops	1 ^(a)	4 divisions	B,F	SR 3.3.1.2 SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.12
13. Neutron Flux				
High (Intermediate Range)	1 ^(f) ,2,3 ^(c)	4 divisions	B,H	SR 3.3.1.2 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.11 SR 3.3.1.12
14. Doubling Time				
Low (Intermediate Range)	1 ^(f) ,2,3 ^(c)	4 divisions	B,H	SR 3.3.1.2 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.11 SR 3.3.1.12

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
15. Pressurizer Pressure				
Low	1 ^(a)	4 divisions	B,F	SR 3.3.1.2 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.12
16. Pressurizer Pressure				
High	1,2	4 divisions	B,L	SR 3.3.1.2 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.12
17. Pressurizer Level				
High	1,2 ^(g)	4 divisions	B,L	SR 3.3.1.2 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.12
18. Hot Leg Pressure				
Low	1,2,3 ^{(c)(g)}	4 divisions	B,I	SR 3.3.1.2 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.12
19. SG Pressure Drop				
Low	1,2,3 ^(c)	4 divisions	B,G	SR 3.3.1.2 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.12
20. SG Pressure				
Low	1,2,3 ^{(c)(g)}	4 divisions	B,I	SR 3.3.1.2 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.12
21. SG Pressure				
High	1	4 divisions	B,J	SR 3.3.1.2 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.12

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
22. SG Level				
Low	1,2 ^(h)	4 divisions	B,L	SR 3.3.1.2 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.12
23. SG Level				
High	1,2,3 ^{(c)(h)}	4 divisions	B,F	SR 3.3.1.2 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.12
24. Containment Pressure				
High	1,2,3 ^(c)	4 divisions	B,G	SR 3.3.1.2 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.12
25. SI Actuation				
Automatic	3 ^(c)	(k)	(k)	(k)
26. EFWS Actuation				
Low-Low SG Level	3 ^(c)	(k)	(k)	(k)
27. Manual Reactor Trip				
Manual	1,2,3 ^(c)	4 divisions	C,D,G	SR 3.3.1.2
28. Reactor Trip Breakers	1,2,3 ^(c)	2 per division, (Divisions 2 and 3)	E,G	SR 3.3.1.3 SR 3.3.1.12
29. Reactor Trip Contactors	1,2,3 ^(c)	4 per set, 23 sets, (Divisions 1 and 4)	E,G	SR 3.3.1.9 SR 3.3.1.12
30. Actuation Logic	1,2,3 ^(c)	4 divisions	M,N	SR 3.3.1.8 SR 3.3.1.9 SR 3.3.1.12

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
<ul style="list-style-type: none"> (a) With P2 validated (Power Range Flux Measurement Higher than First Setpoint). (b) See LCO 3.3.14, SPNDs for Input & Acquisition Logic division OPERABILITY, ACTION, and Surveillance Requirements. (c) With the RCSL System capable of withdrawing an RCCA or one or more RCCAs not fully inserted. (d) With P5 validated (Intermediate Range Flux Measurement Higher than Setpoint). (e) With P3 validated (Power Range Flux Measurement Higher than Second Setpoint). (f) With P6 permissive inhibited (Thermal Core Power Lower than Setpoint). (g) With P12 permissive inhibited (Pressurizer Pressure Higher than Setpoint). (h) With P13 permissive inhibited (Hot Leg Temperature Higher than Setpoint). (k) See LCO 3.3.2, Engineered Safety Feature Actuation System (ESFAS) Instrumentation for Input & Acquisition Logic division OPERABILITY, ACTION, and Surveillance Requirements. 				

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.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more divisions inoperable.	A.1 Enter the applicable Condition referenced in Table 3.3.2-1.	Immediately
B. One Input & Acquisition Logic division inoperable.	B.1 Verify Actuation Logic voting is modified.	6 hours
C. One required Input & Acquisition Logic division inoperable.	C.1 Verify Actuation Logic voting is modified.	6 hours
	<u>AND</u> C.2 Restore required Input & Acquisition Logic division to OPERABLE status.	72 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two Input & Acquisition Logic divisions inoperable.	<p>D.1 ----- NOTE ----- Only applicable to Function 6. -----</p> <p>Reduce power to less than 50% RTP.</p> <p><u>AND</u></p> <p>D.2 Verify Actuation Logic voting is modified.</p> <p><u>AND</u></p> <p>D.3 Restore one Input & Acquisition Logic division to OPERABLE status.</p>	<p>4 hours</p> <p>6 hours</p> <p>72 hours</p>
E. One required Manual division inoperable.	<p>E.1 Verify OPERABILITY of other required Manual divisions.</p> <p><u>AND</u></p> <p>E.2 Restore required Manual division to OPERABLE status.</p>	<p>6 hours</p> <p>72 hours</p>
F. One Manual division inoperable.	<p>F.1 Verify OPERABILITY of other Manual divisions.</p>	<p>6 hours</p>
G. One Manual division inoperable.	<p>G.1 Enter applicable Conditions and Required Actions of LCO 3.7.4, "Main Steam Relief Trains (MSRT)" for valves(s) made inoperable by ESFAS instrumentation.</p>	<p>Immediately</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>H. Two Manual divisions inoperable.</p>	<p>H.1 Verify OPERABILITY of other Manual divisions.</p> <p><u>AND</u></p> <p>H.2 Restore one Manual division to OPERABLE status.</p>	<p>6 hours</p> <p>72 hours</p>
<p>I. One Manual division inoperable.</p>	<p>I.1 Verify OPERABILITY of other Manual divisions.</p> <p><u>AND</u></p> <p>I.2 Restore Manual division to OPERABLE status.</p>	<p>6 hours</p> <p>72 hours</p>
<p>J. Required Action and associated Completion Time of Condition I not met.</p>	<p>J.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>J.2 Be in MODE 4 without reliance upon steam generator for heat removal.</p>	<p>6 hours</p> <p>24 hours</p>
<p>K. One required Input & Acquisition Logic divisions inoperable.</p>	<p>K.1 Suspend activities that could reduce RCS inventory.</p> <p><u>AND</u></p> <p>K.2 Initiate action to restore required division to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>L. Two or more required Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Two or more required Manual divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition C or E not met.</p>	<p>L.1 Enter applicable Conditions and Required Actions of LCO 3.4.11, "Low Temperature Overpressure Protection (LTOP)" for PSRV(s) or MHSI Large Miniflow Valve(s) made inoperable by ESFAS instrumentation.</p>	<p>Immediately</p>
<p>M. Two or more required Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Two or more required Manual divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition C or E not met.</p>	<p>M.1 Suspend activities that could reduce RCS inventory.</p> <p><u>AND</u></p> <p>M.2 Initiate action to restore required division(s) to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>N. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Two or more Manual divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B, D or I not met.</p>	<p>N.1 Enter applicable Conditions and Required Actions of LCO 3.4.11, "Low Temperature Overpressure Protection (LTOP)" for PSRV(s) or MHSI Large Miniflow Valve(s) made inoperable by ESFAS instrumentation.</p>	<p>Immediately</p>
<p>O. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Three or more Manual divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>O.1 Be in MODE 3 with P12 validated.</p>	<p>6 hours</p>
<p>P. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>P.1 Be in MODE 4 with P15 validated.</p>	<p>12 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>Q. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Three or more Manual divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>Q.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>Q.2 Be in MODE 4.</p>	<p>6 hours</p> <p>12 hours</p>
<p>R. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Three or more Manual divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>R.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>R.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>S. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Three or more Manual divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>S.1 Be in MODE 3 with all main steam isolation valves closed and deactivated.</p>	<p>6 hours</p>
<p>T. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>T.1 Be in MODE 3 with all main feedwater isolation valves closed and deactivated.</p>	<p>6 hours</p>
<p>U. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Three or more Manual divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>U.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>U.2 Be in MODE 4 without reliance upon steam generator for heat removal.</p>	<p>6 hours</p> <p>24 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>V. Three or more Manual divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition F or H not met.</p>	<p>V.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>V.2 Be in MODE 5.</p> <p><u>AND</u></p> <p>V.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p>	<p>6 hours</p> <p>36 hours</p> <p>36 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>W. Two or more required Manual divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition E not met.</p>	<p>W.1 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>W.2 Suspend activities that could reduce RCS inventory.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>W.3 Enter applicable Conditions and Required Actions of LCO 3.4.11, "Low Temperature Overpressure Protection (LTOP)" for PSRV(s) or MHSI Large Miniflow Valve(s) made inoperable by ESFAS instrumentation.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>W.4.1 Place both CREF trains in emergency mode.</p>	<p>Immediately</p>
<p><u>AND</u></p>		
<p>W.4.2 Suspend movement of irradiated fuel assemblies</p>	<p>Immediately</p>	
<p><u>AND</u></p>		
<p>W.5 Initiate action to restore required division(s) to OPERABLE status.</p>	<p>Immediately</p>	

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>X. One or more required Manual division(s) inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition H not met.</p>	<p>X.1 Suspend activities that could reduce RCS inventory.</p> <p><u>AND</u></p> <p>X.2 Initiate action to restore required division(s) to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p>
<p>Y. One Actuation Logic division inoperable.</p>	<p>Y.1 ----- NOTE ----- Only applicable to Functions 2, 3, 5, 13, and 14. -----</p> <p>Verify OPERABILITY of other Actuation Logic divisions.</p>	<p>6 hours</p>
<p>Z. One Actuation Logic division inoperable.</p>	<p>Z.1 ----- NOTE ----- Only applicable to Functions 1, 4, 6, 7, 8, 9, 10, 12, 15, 16, and 18. -----</p> <p>Restore Actuation Logic division to OPERABLE status.</p>	<p>72 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>AA. One or more Actuation Logic divisions inoperable.</p>	<p>AA.1 ----- NOTE ----- Only applicable to Functions 11 and 17. -----</p> <p>Enter applicable Conditions and Required Actions of LCO 3.4.11, "Low Temperature Overpressure Protection (LTOP)" for PSRV(s) or MHSI Large Miniflow Valve(s) made inoperable by ESFAS instrumentation.</p>	<p>Immediately</p>
<p>BB. Two Actuation Logic divisions inoperable.</p>	<p>BB.1 ----- NOTE ----- Only applicable to Functions 2, 3, 5, 13, and 14. -----</p> <p>Restore one Actuation Logic division to OPERABLE status.</p>	<p>72 hours</p>
<p>CC. Two or more Actuation Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition Y, Z, or BB not met.</p>	<p>CC.1 ----- NOTE ----- Only applicable to Functions 1a and 13. -----</p> <p>Be in MODE 3 with P12 validated.</p> <p><u>AND</u></p>	<p>6 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>CC.2 ----- NOTE ----- Only applicable to Function 1b. -----</p> <p>Be in MODE 4 with P15 validated.</p> <p><u>AND</u></p> <p>----- NOTE ----- Required Actions CC.3.1 and CC.3.2 are only applicable to Functions 1c and 1d. -----</p> <p>CC.3.1 Suspend activities that could reduce RCS inventory.</p> <p><u>AND</u></p> <p>CC.3.2 Initiate action to restore division(s) to OPERABLE status.</p> <p><u>AND</u></p> <p>----- NOTE ----- Required Actions CC.4.1 and CC.4.2 are only applicable to Functions 8c, 8d, 10d, 14, and 16. -----</p> <p>CC.4.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>CC.4.2 Be in MODE 5.</p> <p><u>AND</u></p>	<p>12 hours</p> <p>Immediately</p> <p>Immediately</p> <p>6 hours</p> <p>36 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>CC.5 ----- NOTE ----- Only applicable to Function 9a. -----</p> <p>Be in MODE 3.</p> <p><u>AND</u></p> <p>----- NOTE ----- Required Actions CC.6.1 and CC.6.2 are only applicable to Functions 8a and 8b. -----</p> <p>CC.6.1 Be in MODE 3 with all main steam isolation valves closed and deactivated.</p> <p><u>OR</u></p> <p>CC.6.2 Be in MODE 4.</p> <p><u>AND</u></p> <p>----- NOTE ----- Required Actions CC.7.1 and CC.7.2 are only applicable to Function 9. -----</p> <p>CC.7.1 Be in MODE 3 with all main feedwater isolation valves closed and deactivated.</p> <p><u>OR</u></p> <p>CC.7.2 Be in MODE 4.</p> <p><u>AND</u></p>	<p>6 hours</p> <p>6 hours</p> <p>24 hours</p> <p>6 hours</p> <p>24 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>----- NOTE ----- Required Actions CC.8.1 and CC.8.2 are only applicable to Functions 4, 6, 10a, 10b, and 10c. -----</p> <p>CC.8.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>CC.8.2 Be in MODE 4 without reliance upon steam generator for heat removal.</p> <p><u>AND</u></p> <p>----- NOTE ----- Required Actions CC.9.1 and CC.9.2 are only applicable to Functions 2a, 4a, 5a, 6b, 7, 10a, 10b, and 12a. -----</p> <p>CC.9.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>CC.9.2 Be in MODE 4.</p>	<p>6 hours</p> <p>24 hours</p> <p>6 hours</p> <p>24 hours</p>
<p>DD. Three or more Actuation Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition Y, Z, or BB not met.</p>	<p>----- NOTE ----- Required Actions DD.1.1 and DD.1.2 are only applicable to Functions 8c and 8d. -----</p> <p>DD.1.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>DD.1.2 Be in MODE 5.</p> <p><u>AND</u></p>	<p>6 hours</p> <p>36 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>DD.2 ----- NOTE ----- Only applicable to Function 13. -----</p> <p>Be in MODE 3.</p> <p><u>AND</u></p> <p>----- NOTE ----- Required Actions DD.3.1 and DD.3.2 are applicable to Functions 2b, 3a, 4b, 5b, 6a, 6c, 9c, 10c, 10e, 11b, and 15a. -----</p> <p>DD.3.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>DD.3.2 Be in MODE 4 without reliance upon steam generator for heat removal.</p>	<p>6 hours</p> <p>6 hours</p> <p>24 hours</p>
<p>EE. One required Manual division inoperable.</p>	<p>EE.1 Restore required Manual division to OPERABLE status.</p>	<p>72 hours</p>
<p>FF. Two required Manual divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition EE not met.</p>	<p>FF.1 Be in MODE 4 without reliance upon steam generator for heat removal.</p>	<p>24 hours</p>

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.2.1	Perform CHANNEL CHECK.	31 days
SR 3.3.2.2	Perform SENSOR OPERATIONAL TEST in accordance with the Setpoint Control Program.	24 months
SR 3.3.2.3	Perform CALIBRATION in accordance with the Setpoint Control Program.	24 months
SR 3.3.2.4	Perform EXTENDED SELF TESTS.	24 months
SR 3.3.2.5	Perform ACTUATING DEVICE OPERATIONAL TEST.	24 months
SR 3.3.2.6	Verify NTSPs properly loaded in accordance with the Setpoint Control Program.	24 months
SR 3.3.2.7	Verify RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

Table 3.3.2-1
ESFAS Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
1. SIS Actuation				
a. Low Pressurizer Pressure	1,2,3 ^(a)	4 divisions	B,D,O	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
b. Low Delta P _{sat}	3	4 divisions	B,D,P	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
	4 ^{(b)(e)}	3 divisions	B,D,P	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
c. Low Hot Leg Loop Level	4 ^(f)	3 divisions	C,M	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
	5 ^(f) ,6 ^(f)	2 divisions	K	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
d. Manual	1,2,3	4 divisions	F,H,Q	SR 3.3.2.5
	4	3 divisions	E,M	SR 3.3.2.5
	5,6	2 divisions	X	SR 3.3.2.5
2. EFWS Actuation				
a. Low-Low SG Level (Affected SG)	1,2,3 ^(c)	4 divisions	B,D,Q	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
b. Manual (Affected SG)	1,2,3	4 divisions	I,J	SR 3.3.2.5
	4 ^{(c)(k)}	2 divisions	EE,FF	SR 3.3.2.5

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
3. Common SGBD Valve Isolation				
a. Manual (Affected SG)	1,2,3,4 ^{(c)(k)}	4 divisions	J	SR 3.3.2.5
4. EFWS Isolation				
a. High SG Level (Affected SG)	1,2,3 ^(c)	4 divisions	B,D,Q	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
b. Manual (Affected SG)	1,2,3,4 ^{(c)(k)}	4 divisions	I,J	SR 3.3.2.5
5. Partial Cooldown Actuation				
a. Automatic on SIS Actuation	1,2,3 ^(d)	4 divisions	B,D,Q	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
b. Manual	1,2,3,4 ^(k)	4 divisions	F,H,U	SR 3.3.2.5
6. Main Steam Relief Isolation Valve Opening				
a. High SG Pressure (Affected SG)	1,2,3,4 ^{(k)(u)}	4 divisions	B,D,U	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
b. Manual Reset	1,2,3	4 divisions	G	SR 3.3.2.5
c. Manual	1,2,3,4 ^(k)	4 divisions	F,H,U	SR 3.3.2.5
7. MSRT Isolation				
a. Low SG Pressure (Affected SG)	1,2,3 ^(a)	4 divisions	B,D,Q	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
b. Manual	1,2,3 ^(a)	4 divisions	F,H,Q	SR 3.3.2.5

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
8. Main Steam Isolation				
a. High SG Pressure Drop (All SGs)	1,2,3 ^(r)	4 divisions	B,D,S	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
b. Low SG Pressure (All SGs)	1,2,3 ^{(a)(r)}	4 divisions	B,D,S	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
c. High Containment Pressure (All SGs)	1,2,3,4	4 divisions	B,D,R	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
d. Manual	1,2,3,4	4 divisions	F,H,R	SR 3.3.2.5
9. Main Feedwater Full Load Isolation				
a. Reactor Trip Initiation (All SGs)	1,2,3 ^(o)	4 divisions	B,D,T	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
b. High SG Level (Affected SG)	1,2,3,4 ^(c)	4 divisions	B,D,U	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
c. Manual	1,2,3,4 ^(c)	4 divisions	I,J	SR 3.3.2.5
10. Startup and Shutdown System (SSS) Isolation				
a. High SG Pressure Drop (Affected SG)	1,2,3 ^(p)	4 divisions	B,D,Q	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
b. Low SG Pressure (Affected SG)	1,2,3 ^{(a)(p)}	4 divisions	B,D,Q	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
c. High SG Level for Period of Time (Affected SG)	1,2,3,4 ^{(c)(p)}	4 divisions	B,D,U	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
d. High Containment Pressure (All SGs)	1,2,3,4	(n)	(n)	(n)
e. Manual	1,2,3,4	4 divisions	I,J	SR 3.3.2.5
11. PSRV Opening				
a. High Hot Leg Pressure	4 ^{(g)(h)}	4 divisions	B,D,N	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
	5 ^{(g)(h)} ,6 ^{(g)(h)}	3 divisions	C,L	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
b. Manual	4 ^(h)	4 divisions	I,N	SR 3.3.2.5
	5 ^(h) ,6 ^(h)	3 divisions	E,L	SR 3.3.2.5
12. SG Isolation				
a. Manual	1,2,3 ^(c)	4 divisions	F,H,Q	SR 3.3.2.5
13. Turbine Trip on Reactor Trip Initiation				
a. Automatic	1,2	(s)	(s)	(s)
b. Manual	1,2	4 divisions	F,H,O	SR 3.3.2.5
14. Hydrogen Mixing Dampers Opening				
a. High Containment Pressure	1,2,3,4	4 divisions	B,D,R	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
b. High Containment Compartments Delta Pressure	1,2,3,4	4 divisions	B,D,R	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
c. Manual	1,2,3,4	4 divisions	F,H,R	SR 3.3.2.5

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
15. SGBD Cross-Tie Valve Opening				
a. Manual	1,2,3 ^(v)	4 divisions	I,J	SR 3.3.2.5
16. SIS Hot Leg Injection Valve Opening				
a. Manual	1,2,3 ^(w) ,4	4 divisions	F,H,R	SR 3.3.2.5
17. MHSI Large Miniflow Valves				
a. Interlock	4 ^{(g)(h)}	4 divisions	B,D,N	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
	5 ^{(g)(h)} ,6 ^{(g)(h)}	2 divisions	K,L	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.7
b. Manual	4 ^(h)	4 divisions	I,N	SR 3.3.2.5
	5 ^(h) ,6 ^(h)	3 divisions	E,L	SR 3.3.2.5
18. Extra Borating System				
a. Manual Actuation	1,2,3,4,5	2 divisions	F,H,V	SR 3.3.2.5
b. Manual Isolation	1,2,3,4,5	2 divisions	F,H,V	SR 3.3.2.5
19. Operational I&C Disable Switch				
a. Manual	1,2,3,4	4 divisions	F,H,R	SR 3.3.2.5
	5,6,(z)	3 divisions	E,W	SR 3.3.2.5
20. Actuation Logic	1,2,3,4	4 divisions	Y,Z,AA,BB, CC,DD	SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.7
	5,6,(z)	3 divisions	Z,CC	SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.7

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
(a)	With P12 inhibited		(Pressurizer Pressure Higher than Setpoint).	
(b)	With P12 validated		(Pressurizer Pressure Lower than Setpoint).	
(c)	With P13 inhibited		(Hot Leg Temperature Higher than Setpoint).	
(d)	With P14 inhibited		(Hot Leg Pressure or Hot Leg Temperature Higher than Setpoints).	
(e)	With P15 inhibited		(Hot Leg Pressure or Hot Leg Temperature Higher than Setpoints or RCP in Operation).	
(f)	With P15 validated		(Hot Leg Pressure and Hot Leg Temperature Lower than Setpoints and No RCP in Operation).	
(g)	With P17 validated		(Cold Leg Temperature Lower than Setpoint).	
(h)	When MHSI Large Miniflow Valves and PSRV OPERABILITY are required by LCO 3.4.11, Low Temperature Overpressure Protection (LTOP).			
(k)	When the SGs are relied upon for heat removal.			
(m)	Deleted.			
(n)	See LCO 3.3.4, Containment Isolation Instrumentation, for Input & Acquisition Logic division OPERABILITY, ACTION, and Surveillance Requirements.			
(o)	Except when all Main Feedwater Full Load isolation valves are closed and deactivated.			
(p)	Except when all Main Feedwater Full Load and SSS isolation valves are closed and deactivated.			
(r)	Except when all Main Steam isolation valves are closed and deactivated.			
(s)	See LCO 3.3.1, Reactor Trip Instrumentation, for Input & Acquisition Logic division OPERABILITY, ACTION, and Surveillance Requirements.			
(t)	With reactor trip initiated.			
(u)	P14 permissive is used for setpoint selection.			
(v)	With P18 validated		(Hot Leg Temperature Lower than Setpoint or Reactor Trip).	
(w)	With P16 validated		(Hot Leg Pressure Lower than Setpoint).	
(z)	During movement of irradiated fuel assemblies.			

3.3 INSTRUMENTATION

3.3.3 Permissive Instrumentation

LCO 3.3.3 The Permissive instrumentation for each Function in Table 3.3.3-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.3-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more divisions inoperable.	A.1 Enter the applicable Condition referenced in Table 3.3.3-1.	Immediately
B. One Input & Acquisition Logic division inoperable.	B.1 Verify Actuation Logic voting is modified.	6 hours
C. One required Input & Acquisition Logic division inoperable.	C.1 Verify Actuation Logic voting is modified.	6 hours
	<u>AND</u> C.2 Restore required Input & Acquisition Logic division to OPERABLE status.	72 hours
D. Two Input & Acquisition Logic divisions inoperable.	D.1 Verify Actuation Logic voting is modified.	6 hours
	<u>AND</u> D.2 Restore one Input & Acquisition Logic division to OPERABLE status.	72 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>E.1 Be in MODE 1 with P2 inhibited.</p>	<p>4 hours</p>
<p>F. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>F.1 Be in MODE 1 with P3 inhibited.</p>	<p>2 hours</p>
<p>G. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>G.1 Be in MODE 2 with P5 inhibited.</p>	<p>6 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>H. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>H.1 Verify P6 is validated.</p>	<p>6 hours</p>
<p>I. Two or more required Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition C not met.</p>	<p>I.1 Verify P7 is inhibited.</p>	<p>6 hours</p>
<p>J. Two or more required Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition C not met.</p>	<p>J.1 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p> <p><u>AND</u></p> <p>J.2 Initiate action to restore required division(s) to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>K. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>K.1 Be in MODE 3 with P8 inhibited.</p>	<p>6 hours</p>
<p>L. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>L.1 Verify P12 is inhibited.</p>	<p>6 hours</p>
<p>M. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>M.1 Be in MODE 3 with P12 validated.</p>	<p>6 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>N. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>N.1 Be in MODE 4 without reliance on steam generators for heat removal.</p>	<p>24 hours</p>
<p>O. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>O.1 Verify P14 is inhibited.</p>	<p>6 hours</p>
<p>P. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>P.1 Be in MODE 4 with P14 validated.</p>	<p>24 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>Q. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>Q.1 Verify P15 is inhibited.</p>	<p>6 hours</p>
<p>R. Two or more required Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition C not met.</p>	<p>R.1 Verify P15 is inhibited.</p>	<p>6 hours</p>
<p>S. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>S.1 Verify P15 is validated.</p>	<p>6 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>T. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>T.1 Verify P16 is validated.</p>	<p>6 hours</p>
<p>U. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>U.1 Verify P17 is inhibited.</p>	<p>6 hours</p>
<p>V. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or D not met.</p>	<p>V.1 Verify P17 is validated.</p>	<p>30 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>W. One Manual division inoperable.</p> <p><u>OR</u></p> <p>One Actuation Logic division inoperable.</p>	<p>W.1 ----- NOTE ----- Only applicable to Functions 1, 2, 3, 4, 10, and 11. -----</p> <p>Enter applicable Conditions and Required Actions of LCO 3.3.1, "Reactor Trip Instrumentation," for Actuation Logic of Functions made inoperable by Permissive instrumentation.</p>	<p>Immediately</p>
	<p><u>AND</u></p> <p>W.2 ----- NOTE ----- Only applicable to Functions 9, 12, 13, 14, 15, 16, and 17. -----</p> <p>Enter applicable Conditions and Required Actions of LCO 3.3.2, "ESFAS Instrumentation" for Actuation Logic of Functions made inoperable by Permissive instrumentation.</p>	<p>Immediately</p>
	<p><u>AND</u></p> <p>W.3 ----- NOTE ----- Only applicable to Functions 5, 6, 7, 8, and 18. -----</p> <p>Enter applicable Conditions and Required Actions of LCO 3.3.5, "CVCS Instrumentation" for Actuation Logic of Functions made inoperable by Permissive instrumentation.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

----- NOTE -----
Refer to Table 3.3.3-1 to determine which SRs apply for each Function.

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	Perform CHANNEL CHECK.	31 days
SR 3.3.3.2	<p>----- NOTES -----</p> <ol style="list-style-type: none"> 1. Not required to be performed until 24 hours after THERMAL POWER is \geq 15% RTP. 2. Neutron detectors are excluded from CALIBRATION. <p>-----</p> <p>Perform CALIBRATION in accordance with the Setpoint Control Program.</p>	31 effective full power days
SR 3.3.3.3	<p>----- NOTE -----</p> <p>Not required to be performed until 12 hours after THERMAL POWER \geq 70% RTP.</p> <p>-----</p> <p>Perform CALIBRATION in accordance with the Setpoint Control Program.</p>	24 months
SR 3.3.3.4	Perform SENSOR OPERATIONAL TEST in accordance with the Setpoint Control Program.	24 months
SR 3.3.3.5	Perform CALIBRATION in accordance with the Setpoint Control Program.	24 months
SR 3.3.3.6	Perform EXTENDED SELF TESTS.	24 months
SR 3.3.3.7	Perform ACTUATING DEVICE OPERATIONAL TEST.	24 months
SR 3.3.3.8	Verify NTSPs properly loaded in accordance with the Setpoint Control Program.	24 months

SURVEILLANCE	FREQUENCY
<p>SR 3.3.3.9</p> <p>----- NOTES -----</p> <ol style="list-style-type: none"> 1. Required to be performed prior to withdrawing RCCAs for startup. 2. Neutron detectors are excluded from CALIBRATION. <p>-----</p> <p>Perform CALIBRATION in accordance with the Setpoint Control Program.</p>	<p>24 months</p>

Table 3.3.3-1
Permissive Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
1. P2 Automatic Validation				
a. Power Range Flux Measurement Higher than First Setpoint	1	4 divisions	B,D,E	SR 3.3.3.1 SR 3.3.3.2 SR 3.3.3.4 SR 3.3.3.5 SR 3.3.3.6 SR 3.3.3.8
2. P3 Automatic Validation				
a. Power Range Flux Measurement Higher than Second Setpoint	1	4 divisions	B,D,F	SR 3.3.3.1 SR 3.3.3.2 SR 3.3.3.4 SR 3.3.3.5 SR 3.3.3.6 SR 3.3.3.8
3. P5 Automatic Validation				
a. Intermediate Range Flux Measurement Higher than Setpoint	2	4 divisions	B,D,G	SR 3.3.3.1 SR 3.3.3.3 SR 3.3.3.4 SR 3.3.3.5 SR 3.3.3.6 SR 3.3.3.8
4. P6 Automatic Inhibition				
a. Thermal Core Power Lower than Setpoint	1	4 divisions	B,D,H	SR 3.3.3.1 SR 3.3.3.4 SR 3.3.3.5 SR 3.3.3.6 SR 3.3.3.8 SR 3.3.3.9
5. P7 Automatic Validation				
a. No RCPs in Operation	5	3 divisions	C,I	SR 3.3.3.1 SR 3.3.3.4 SR 3.3.3.5 SR 3.3.3.6 SR 3.3.3.8 SR 3.3.3.9
6. P7 Automatic Inhibition				
a. RCP in Operation	5	3 divisions	C,J	SR 3.3.3.1 SR 3.3.3.4 SR 3.3.3.5 SR 3.3.3.6 SR 3.3.3.8 SR 3.3.3.9

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
7. P8 Automatic Validation				
a. Shutdown RCCA Position Lower than Setpoint	3	4 divisions	B,D,K	SR 3.3.3.1 SR 3.3.3.4 SR 3.3.3.5 SR 3.3.3.6 SR 3.3.3.8
8. P8 Automatic Inhibition				
a. Shutdown RCCA Position Higher than Setpoint	2	4 divisions	B,D,K	SR 3.3.3.1 SR 3.3.3.4 SR 3.3.3.5 SR 3.3.3.6 SR 3.3.3.8
9. P12 Manual Validation				
a. Pressurizer Pressure Lower than Setpoint	3	4 divisions	B,D,L	SR 3.3.3.1 SR 3.3.3.4 SR 3.3.3.5 SR 3.3.3.6 SR 3.3.3.8
b. Manual	3	4 divisions	W	SR 3.3.3.7
10. P12 Automatic Inhibition				
a. Pressurizer Pressure Higher than Setpoint	3	4 divisions	B,D,M	SR 3.3.3.1 SR 3.3.3.4 SR 3.3.3.5 SR 3.3.3.6 SR 3.3.3.8
11. P13 Automatic Inhibition				
a. Hot Leg Temperature Higher than Setpoint	4	4 divisions	B,D,N	SR 3.3.3.1 SR 3.3.3.4 SR 3.3.3.5 SR 3.3.3.6 SR 3.3.3.8
12. P14 Manual Validation				
a. Hot Leg Pressure and Hot Leg Temperature Lower than Setpoints	4	4 divisions	B,D,O	SR 3.3.3.1 SR 3.3.3.4 SR 3.3.3.5 SR 3.3.3.6 SR 3.3.3.8
b. Manual	4	4 divisions	W	SR 3.3.3.7
13. P14 Manual Inhibition				
a. Hot Leg Pressure or Hot Leg Temperature Higher than Setpoints	4	4 divisions	B,D,P	SR 3.3.3.1 SR 3.3.3.4 SR 3.3.3.5 SR 3.3.3.6 SR 3.3.3.8
b. Manual	4	4 divisions	W	SR 3.3.3.7

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
14. P15 Manual Validation				
a. Hot Leg Pressure and Hot Leg Temperature Lower than Setpoints and No RCP in Operation	4	4 divisions	B,D,Q	SR 3.3.3.1 SR 3.3.3.4 SR 3.3.3.5 SR 3.3.3.6 SR 3.3.3.8 SR 3.3.3.9
	5	3 divisions	C,R	SR 3.3.3.1 SR 3.3.3.4 SR 3.3.3.5 SR 3.3.3.6 SR 3.3.3.8 SR 3.3.3.9
b. Manual	4	4 divisions	W	SR 3.3.3.7
	5	3 divisions	W	SR 3.3.3.7
15. P15 Automatic Inhibition				
a. Hot Leg Pressure or Hot Leg Temperature Higher than Setpoints or RCP in Operation	4	4 divisions	B,D,S	SR 3.3.3.1 SR 3.3.3.4 SR 3.3.3.5 SR 3.3.3.6 SR 3.3.3.8 SR 3.3.3.9
16. P16 Manual Inhibition				
a. Hot Leg Pressure Lower than Setpoint	4	4 divisions	B,D,T	SR 3.3.3.1 SR 3.3.3.4 SR 3.3.3.5 SR 3.3.3.6 SR 3.3.3.8
b. Manual	4	4 divisions	W	SR 3.3.3.7
17. P17 Manual Validation				
a. Cold Leg Temperature Lower than Setpoint	4 ^(a)	4 divisions	B,D,U	SR 3.3.3.1 SR 3.3.3.4 SR 3.3.3.5 SR 3.3.3.6 SR 3.3.3.8
b. Manual	4 ^(a)	4 divisions	W	SR 3.3.3.7
18. P17 Automatic Inhibition				
a. Cold Leg Temperature Higher than Setpoint	4	4 divisions	B,D,V	SR 3.3.3.1 SR 3.3.3.4 SR 3.3.3.5 SR 3.3.3.6 SR 3.3.3.8

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
19. P18 Automatic Inhibition				
a. Hot Leg Temperature Higher than Setpoint and No Reactor Trip	4 ^(b)	4 divisions	B,D,N	SR 3.3.3.1 SR 3.3.3.4 SR 3.3.3.5 SR 3.3.3.6 SR 3.3.3.8
20. Actuation Logic	1,2,3,4	4 divisions	W	SR 3.3.3.6
	5,6	3 divisions	W	SR 3.3.3.6

(a) When MHSI Large Miniflow Valves and PSRV OPERABILITY are required by LCO 3.4.11, Low Temperature Overpressure Protection (LTOP).

(b) When the SGs are relied upon for heat removal.

3.3 INSTRUMENTATION

3.3.4 Containment Isolation Instrumentation

LCO 3.3.4 The Containment Isolation instrumentation for each Function in Table 3.3.4-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.4-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more divisions inoperable.	A.1 Enter the applicable Condition referenced in Table 3.3.4-1.	Immediately
B. One Input & Acquisition Logic division inoperable.	B.1 Verify Actuation Logic voting is modified.	6 hours
C. Two required Input & Acquisition Logic divisions inoperable.	C.1 Verify Actuation Logic voting is modified. <u>AND</u> C.2 Restore one Input & Acquisition Logic division to OPERABLE status.	6 hours 72 hours
D. One Manual division inoperable. <u>OR</u> One Actuation Logic division inoperable.	D.1 Restore division to OPERABLE status.	72 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Two or more Manual divisions inoperable.</p> <p><u>OR</u></p> <p>Two or more Actuation Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B, C, or D not met.</p>	<p>E.1 Enter applicable Conditions and Required Actions of LCO 3.6.3, "Containment Isolation Valves" for containment isolation valve(s) made inoperable by Containment Isolation instrumentation.</p>	<p>Immediately</p>
<p>F. One or more required Manual divisions inoperable.</p>	<p>F.1 Enter applicable Conditions and Required Actions of LCO 3.9.7, "Containment Penetrations" for containment isolation valve(s) made inoperable by Containment Isolation instrumentation.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

----- NOTE -----
 Refer to Table 3.3.4-1 to determine which SRs apply for each Function.

SURVEILLANCE		FREQUENCY
SR 3.3.4.1	Perform CHANNEL CHECK.	31 days
SR 3.3.4.2	Perform SENSOR OPERATIONAL TEST in accordance with the Setpoint Control Program.	24 months
SR 3.3.4.3	Perform CALIBRATION in accordance with the Setpoint Control Program.	24 months
SR 3.3.4.4	Perform EXTENDED SELF TESTS.	24 months
SR 3.3.4.5	Perform ACTUATING DEVICE OPERATIONAL TEST.	24 months
SR 3.3.4.6	Verify NTSPs properly loaded in accordance with the Setpoint Control Program.	24 months
SR 3.3.4.7	Verify RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

Table 3.3.4-1
Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
1. Containment Isolation (Stage 1)				
a. SIS Actuation	1,2,3,4	(a)	(a)	(a)
b. High Containment Pressure	1,2,3,4	4 divisions	B,C,E	SR 3.3.4.1 SR 3.3.4.2 SR 3.3.4.3 SR 3.3.4.4 SR 3.3.4.6 SR 3.3.4.7
c. High Containment Radiation	1,2,3,4	4 divisions	B,C,E	SR 3.3.4.1 SR 3.3.4.2 SR 3.3.4.3 SR 3.3.4.4 SR 3.3.4.6 SR 3.3.4.7
d. Manual	1,2,3,4	4 divisions	D,E	SR 3.3.4.5
	5 ^{(b)(c)} ,6 ^{(b)(d)}	3 divisions	F	SR 3.3.4.5
2. Containment Isolation (Stage 2)				
a. High-High Containment Pressure	1,2,3,4	4 divisions	B,C,E	SR 3.3.4.1 SR 3.3.4.2 SR 3.3.4.3 SR 3.3.4.4 SR 3.3.4.6 SR 3.3.4.7
b. Manual	1,2,3,4	4 divisions	D,E	SR 3.3.4.5
3. Actuation Logic	1,2,3,4	4 divisions	D,E	SR 3.3.4.4 SR 3.3.4.5 SR 3.3.4.7
	5 ^{(b)(c)} ,6 ^{(b)(d)}	3 divisions	F	SR 3.3.4.4 SR 3.3.4.5 SR 3.3.4.7

- (a) See LCO 3.3.2, Engineered Safety Feature Actuation System (ESFAS) Instrumentation, for Input & Acquisition Logic division OPERABILITY, ACTION, and Surveillance Requirements.
- (b) Only required for containment isolation valves providing direct access from the containment atmosphere to the outside atmosphere.
- (c) With RCS loops not filled.
- (d) With the refueling cavity water level < 23 ft above the top of the reactor vessel flange.

3.3 INSTRUMENTATION

3.3.5 Chemical and Volume Control System (CVCS) Isolation Instrumentation

LCO 3.3.5 The CVCS Isolation instrumentation for each Function in Table 3.3.5-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more divisions inoperable.	A.1 Enter the applicable Condition referenced in Table 3.3.5-1.	Immediately
B. One Input & Acquisition Logic division inoperable.	B.1 Verify Actuation Logic voting is modified.	6 hours
C. One required Input & Acquisition Logic division inoperable.	C.1 Verify Actuation Logic voting is modified.	6 hours
	<u>AND</u> C.2 Restore Input & Acquisition Logic division to OPERABLE status.	72 hours
D. Two Input & Acquisition Logic divisions inoperable.	D.1 Verify Actuation Logic voting is modified.	6 hours
	<u>AND</u> D.2 Restore one Input & Acquisition Logic division to OPERABLE status.	72 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. One Manual division inoperable.</p> <p><u>OR</u></p> <p>One Actuation Logic division inoperable.</p>	<p>E.1 Restore division to OPERABLE status.</p>	<p>72 hours</p>
<p>F. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Two or more Manual divisions inoperable.</p> <p><u>OR</u></p> <p>Two or more Actuation Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B, D, or E not met.</p>	<p>F.1 Enter applicable Conditions and Required Actions of LCO 3.1.8, "Anti-Dilution Mitigation (ADM)" for CVCS Volume Control Tank (VCT) or letdown isolation valve(s) made inoperable by CVCS Isolation instrumentation.</p>	<p>Immediately</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>G. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Two or more Manual divisions inoperable.</p> <p><u>OR</u></p> <p>Two or more Actuation Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B, D, or E not met.</p>	<p>G.1 Enter applicable Conditions and Required Actions of LCO 3.4.9, "Pressurizer" or LCO 3.6.3, "Containment Isolation Valves" for CVCS charging line isolation valve(s) made inoperable by CVCS Isolation instrumentation.</p>	<p>Immediately</p>
<p>H. Two or more required Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>One required Manual division inoperable.</p> <p><u>OR</u></p> <p>One required Actuation Logic division inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition C not met.</p>	<p>H.1 Enter applicable Conditions and Required Actions of LCO 3.1.8, "Anti-Dilution Mitigation (ADM)" for CVCS VCT or letdown isolation valve(s) made inoperable by CVCS Isolation instrumentation.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

----- NOTE -----
 Refer to Table 3.3.5-1 to determine which SRs apply for each Function.

SURVEILLANCE		FREQUENCY
SR 3.3.5.1	Perform CHANNEL CHECK.	31 days
SR 3.3.5.2	Perform CALIBRATION in accordance with the Setpoint Control Program.	31 effective full power days
SR 3.3.5.3	Perform SENSOR OPERATIONAL TEST in accordance with the Setpoint Control Program.	24 months
SR 3.3.5.4	Perform CALIBRATION in accordance with the Setpoint Control Program.	24 months
SR 3.3.5.5	Perform EXTENDED SELF TESTS.	24 months
SR 3.3.5.6	Perform ACTUATING DEVICE OPERATIONAL TEST.	24 months
SR 3.3.5.7	Verify NTSPs properly loaded in accordance with the Setpoint Control Program.	24 months
SR 3.3.5.8	Verify RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

Table 3.3.5-1
CVCS Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
1. CVCS Charging Line Isolation				
a. High-High Pressurizer Level	1,2,3,4 ^(a)	4 divisions	B,D,F	SR 3.3.5.1 SR 3.3.5.3 SR 3.3.5.4 SR 3.3.5.5 SR 3.3.5.7 SR 3.3.5.8
b. Manual	1,2,3,4	2 divisions (Divisions 1 and 4 only)	E,F	SR 3.3.5.5
2. CVCS Isolation				
a. ADM at Power	1,2 ^(b)	4 divisions	B,D,G	SR 3.3.5.1 SR 3.3.5.2 SR 3.3.5.3 SR 3.3.5.4 SR 3.3.5.5 SR 3.3.5.7 SR 3.3.5.8
b. ADM at Power with Calculation	1,2 ^(b)	4 divisions	B,D,G	SR 3.3.5.1 SR 3.3.5.2 SR 3.3.5.3 SR 3.3.5.4 SR 3.3.5.5 SR 3.3.5.7 SR 3.3.5.8
c. ADM at Shutdown with RCP in Operation	3 ^{(c)(d)} ,4 ^{(c)(d)}	4 divisions	B,D,G	SR 3.3.5.1 SR 3.3.5.2 SR 3.3.5.3 SR 3.3.5.4 SR 3.3.5.5 SR 3.3.5.7 SR 3.3.5.8
	5 ^{(c)(d)}	3 divisions	C,H	SR 3.3.5.1 SR 3.3.5.2 SR 3.3.5.3 SR 3.3.5.4 SR 3.3.5.5 SR 3.3.5.7 SR 3.3.5.8

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
d. ADM at Shutdown with RCP in Operation with Calculation	3 ^{(c)(d)} , 4 ^{(c)(d)}	4 divisions	B,D,G	SR 3.3.5.1 SR 3.3.5.2 SR 3.3.5.3 SR 3.3.5.4 SR 3.3.5.5 SR 3.3.5.7 SR 3.3.5.8
	5 ^{(c)(d)}	3 divisions	C,H	SR 3.3.5.1 SR 3.3.5.2 SR 3.3.5.3 SR 3.3.5.4 SR 3.3.5.5 SR 3.3.5.7 SR 3.3.5.8
e. ADM at Shutdown with No RCP in Operation	4 ^(e)	4 divisions	B,D,G	SR 3.3.5.1 SR 3.3.5.2 SR 3.3.5.3 SR 3.3.5.4 SR 3.3.5.5 SR 3.3.5.7 SR 3.3.5.8
	5 ^(e) , 6 ^(e)	3 divisions	C,H	SR 3.3.5.1 SR 3.3.5.2 SR 3.3.5.3 SR 3.3.5.4 SR 3.3.5.5 SR 3.3.5.7 SR 3.3.5.8
f. Manual	1,2,3,4	2 divisions (Divisions 1 and 4 only)	E,G	SR 3.3.5.5
	5,6	1 division (Division 1 or 4)	H	SR 3.3.5.5
3. Actuation Logic	1,2,3,4	2 divisions (Divisions 1 and 4 only)	E,G	SR 3.3.5.5 SR 3.3.5.6 SR 3.3.5.8
	5,6 ^(e)	1 division (Division 1 or 4)	H	SR 3.3.5.5 SR 3.3.5.6 SR 3.3.5.8

- (a) With P17 inhibited (Cold Leg Temperature Higher than Setpoint).
- (b) With P8 inhibited (Shutdown RCCA Position Higher than Setpoint).
- (c) With P7 inhibited (RCP in Operation).
- (d) With P8 validated (Shutdown RCCA Position Lower than Setpoint).
- (e) With P7 validated (No RCP in Operation).

3.3 INSTRUMENTATION

3.3.6 Reactor Coolant Pump (RCP) Trip Instrumentation

LCO 3.3.6 The RCP Trip instrumentation for each Function in Table 3.3.6-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more divisions inoperable.	A.1 Enter the applicable Condition referenced in Table 3.3.6-1.	Immediately
B. One Input & Acquisition Logic division inoperable.	B.1 Verify Actuation Logic voting is modified.	6 hours
C. Two Input & Acquisition Logic divisions inoperable.	C.1 Verify Actuation Logic voting is modified.	6 hours
	<u>AND</u> C.2 Restore one Input & Acquisition Logic division to OPERABLE status.	72 hours
D. One RCP Breaker inoperable.	D.1 Restore RCP Breaker to OPERABLE status.	72 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. One Manual division inoperable.</p> <p><u>OR</u></p> <p>One Actuation Logic division inoperable.</p>	<p>E.1 Restore division to OPERABLE status.</p>	<p>72 hours</p>
<p>F. Three or more Input & Acquisition Logic divisions inoperable.</p> <p><u>OR</u></p> <p>One or more RCPs with two RCP Breakers inoperable.</p> <p><u>OR</u></p> <p>Two or more Manual divisions inoperable.</p> <p><u>OR</u></p> <p>Two or more Actuation Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B, C, D, or E not met.</p>	<p>F.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>F.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

SURVEILLANCE REQUIREMENTS

----- NOTE -----
 Refer to Table 3.3.6-1 to determine which SRs apply for each Function.

SURVEILLANCE		FREQUENCY
SR 3.3.6.1	Perform CHANNEL CHECK.	31 days
SR 3.3.6.2	Perform SENSOR OPERATIONAL TEST in accordance with the Setpoint Control Program.	24 months
SR 3.3.6.3	Perform CALIBRATION in accordance with the Setpoint Control Program.	24 months
SR 3.3.6.4	Perform EXTENDED SELF TESTS.	24 months
SR 3.3.6.5	Perform ACTUATING DEVICE OPERATIONAL TEST.	24 months
SR 3.3.6.6	Verify NTSPs properly loaded in accordance with the Setpoint Control Program.	24 months
SR 3.3.6.7	Verify RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

Table 3.3.6-1
RCP Trip Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
1. RCP Trip				
a. Low Delta Pressure across RCP and SIS Actuation for a Period of Time	1,2,3,4	4 divisions,(a)	B,G,F	SR 3.3.6.1 SR 3.3.6.2 SR 3.3.6.3 SR 3.3.6.4 SR 3.3.6.6 SR 3.3.6.7
b. Manual	1,2,3,4	4 divisions	E,F	SR 3.3.6.5
2. RCP Breakers	1,2,3,4	2 per pump	D,F	SR 3.3.6.5 SR 3.3.6.7
3. Actuation Logic	1,2,3,4	4 divisions	E,F	SR 3.3.6.4 SR 3.3.6.5 SR 3.3.6.7

(a) See LCO 3.3.2, Engineered Safety Feature Actuation System (ESFAS) Instrumentation for Input & Acquisition Logic division OPERABILITY, ACTION, and Surveillance Requirements.

3.3 INSTRUMENTATION

3.3.7 Control Room Emergency Filtration (CREF) Instrumentation

LCO 3.3.7 The CREF instrumentation for each Function in Table 3.3.7-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.7-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more divisions inoperable.	A.1 Enter the applicable Condition referenced in Table 3.3.7-1.	Immediately
B. One Input & Acquisition Logic division inoperable. <u>OR</u> One Manual division inoperable. <u>OR</u> One Actuation Logic division inoperable.	B.1. Restore division to OPERABLE status.	72 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Two Input & Acquisition Logic divisions inoperable.</p> <p style="text-align: center;"><u>OR</u></p> <p>Two or more Manual divisions inoperable.</p> <p style="text-align: center;"><u>OR</u></p> <p>Two or more Actuation Logic divisions inoperable.</p> <p style="text-align: center;"><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B not met.</p>	<p>C.1 Place both CREF trains in emergency mode.</p> <p style="text-align: center;"><u>AND</u></p> <p>C.2 Suspend movement of irradiated fuel assemblies.</p> <p style="text-align: center;"><u>AND</u></p> <p>C.3 Initiate action to restore one division to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>
<p>D. One or more required Input & Acquisition Logic divisions inoperable.</p> <p style="text-align: center;"><u>OR</u></p> <p>One required Manual division inoperable.</p> <p style="text-align: center;"><u>OR</u></p> <p>One or more required Actuation Logic divisions inoperable.</p>	<p>D.1 Place both CREF trains in emergency mode.</p> <p style="text-align: center;"><u>AND</u></p> <p>D.2 Suspend movement of irradiated fuel assemblies.</p> <p style="text-align: center;"><u>AND</u></p> <p>D.3 Initiate action to restore one division to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

SURVEILLANCE REQUIREMENTS

----- NOTE -----
 Refer to Table 3.3.7-1 to determine which SRs apply for each Function.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1	Perform CHANNEL CHECK.	31 days
SR 3.3.7.2	Perform SENSOR OPERATIONAL TEST in accordance with the Setpoint Control Program.	24 months
SR 3.3.7.3	Perform CALIBRATION in accordance with the Setpoint Control Program.	24 months
SR 3.3.7.4	Perform EXTENDED SELF TESTS.	24 months
SR 3.3.7.5	Perform ACTUATING DEVICE OPERATIONAL TEST.	24 months
SR 3.3.7.6	Verify NTSPs properly loaded in accordance with the Setpoint Control Program.	24 months
SR 3.3.7.7	Verify RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

Table 3.3.7-1
CREF Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
1. Control Room Emergency Filtration				
a. High Intake Activity	1,2,3,4	4 divisions	B,C	SR 3.3.7.1 SR 3.3.7.2 SR 3.3.7.3 SR 3.3.7.4 SR 3.3.7.6 SR 3.3.7.7
	5,6,(a)	3 divisions	D	SR 3.3.7.1 SR 3.3.7.2 SR 3.3.7.3 SR 3.3.7.4 SR 3.3.7.6 SR 3.3.7.7
b. Manual	1,2,3,4	2 divisions (Divisions 2 and 3 only)	B,C	SR 3.3.7.5
	5,6,(a)	1 division (Division 2 or 3)	D	SR 3.3.7.5
2. Actuation Logic				
	1,2,3,4	4 divisions	B,C	SR 3.3.7.4 SR 3.3.7.5 SR 3.3.7.7
	5,6,(a)	3 divisions	D	SR 3.3.7.4 SR 3.3.7.5 SR 3.3.7.7

(a) During movement of irradiated fuel assemblies.

3.3 INSTRUMENTATION

3.3.8 Emergency Diesel Generator (EDG) Actuation Instrumentation

LCO 3.3.8 The EDG Actuation instrumentation for each Function in Table 3.3.8-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.8-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more divisions inoperable.	A.1 Enter the applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating," or LCO 3.8.2, "AC Sources - Shutdown" for EDG made inoperable by EDG Actuation instrumentation.	Immediately

SURVEILLANCE REQUIREMENTS

----- NOTE -----
 Refer to Table 3.3.8-1 to determine which SRs apply for each Function.

SURVEILLANCE		FREQUENCY
SR 3.3.8.1	Perform CHANNEL CHECK.	31 days
SR 3.3.8.2	Perform SENSOR OPERATIONAL TEST in accordance with the Setpoint Control Program.	24 months
SR 3.3.8.3	Perform CALIBRATION in accordance with the Setpoint Control Program.	24 months
SR 3.3.8.4	Perform EXTENDED SELF TESTS.	24 months
SR 3.3.8.5	Perform ACTUATING DEVICE OPERATIONAL TEST.	24 months
SR 3.3.8.6	Verify NTSPs properly loaded in accordance with the Setpoint Control Program.	24 months
SR 3.3.8.7	Verify RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

Table 3.3.8-1
EDG Actuation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
1. EDG Actuation				
a. EDG Actuation on Degraded Grid Voltage	1,2,3,4	4 divisions	A	SR 3.3.8.1 SR 3.3.8.2 SR 3.3.8.3 SR 3.3.8.4 SR 3.3.8.6 SR 3.3.8.7
	5,6,(a)	2 divisions in the same divisional pair	A	SR 3.3.8.1 SR 3.3.8.2 SR 3.3.8.3 SR 3.3.8.4 SR 3.3.8.6 SR 3.3.8.7
b. EDG Actuation on Loss of Voltage	1,2,3,4	4 divisions	A	SR 3.3.8.1 SR 3.3.8.2 SR 3.3.8.3 SR 3.3.8.4 SR 3.3.8.6 SR 3.3.8.7
	5,6,(a)	2 divisions in the same divisional pair	A	SR 3.3.8.1 SR 3.3.8.2 SR 3.3.8.3 SR 3.3.8.4 SR 3.3.8.6 SR 3.3.8.7
c. EDG Actuation on SIS Actuation	1,2,3,4	(b)	(b)	(b)
	5,6,(a)	(b)	(b)	(b)
d. Manual	1,2,3,4	4 divisions	A	SR 3.3.8.5
	5,6,(a)	2 divisions in the same divisional pair	A	SR 3.3.8.5
2. Actuation Logic				
	1,2,3,4	4 divisions	A	SR 3.3.8.4 SR 3.3.8.5 SR 3.3.8.7
	5,6,(a)	2 divisions in the same divisional pair	A	SR 3.3.8.4 SR 3.3.8.5 SR 3.3.8.7

(a) During movement of irradiated fuel assemblies.

(b) See LCO 3.3.2, Engineered Safety Feature Actuation System (ESFAS) Instrumentation for Input & Acquisition Logic division OPERABILITY, ACTION, and Surveillance Requirements.

3.3 INSTRUMENTATION

3.3.9 Engineered Safety Feature (ESF) Control Instrumentation

LCO 3.3.9 The ESF Control instrumentation for each Function in Table 3.3.9-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.9-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more divisions inoperable.	A.1 Enter the applicable Condition referenced in Table 3.3.9-1.	Immediately
B. One or more Logic Input divisions inoperable.	B.1 Enter applicable Conditions and Required Actions of LCO 3.7.5, "Emergency Feedwater (EFW) System" for division(s) made inoperable by ESF Control instrumentation.	Immediately
C. One or more Logic Input divisions inoperable.	C.1 Enter applicable Conditions and Required Actions of LCO 3.7.4, "Main Steam Relief Trains (MSRT)" for valves(s) made inoperable by ESF Control instrumentation.	Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. One or more Manual divisions inoperable.</p> <p style="text-align: center;"><u>OR</u></p> <p>One or more Control Logic divisions inoperable.</p>	<p>D.1 ----- NOTE ----- Only applicable to Functions 1b, 2 and 5. -----</p> <p>Enter applicable Conditions and Required Actions of LCO 3.7.5, "Emergency Feedwater (EFW) System" for division(s) made inoperable by ESF Control instrumentation.</p>	Immediately
	<p style="text-align: center;"><u>AND</u></p> <p>D.2 ----- NOTE ----- Only applicable to Functions 4b and 5. -----</p> <p>Enter applicable Conditions and Required Actions of LCO 3.7.4, "Main Steam Relief Trains (MSRT)" for valves(s) made inoperable by ESF Control instrumentation.</p>	
<p>E. Required Action and associated Completion Time of Condition B, C, or D not met.</p>	<p>E.1 Be in MODE 3.</p>	6 hours
	<p style="text-align: center;"><u>AND</u></p> <p>E.2 Be in MODE 5.</p>	36 hours
<p>F. One required Manual division inoperable.</p>	<p>F.1 Restore required Manual division to OPERABLE status.</p>	72 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>G. Two required Manual divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition F not met.</p>	<p>G.1 Be in MODE 4 without reliance upon steam generator for heat removal.</p>	<p>24 hours</p>

SURVEILLANCE REQUIREMENTS

----- NOTE -----
 Refer to Table 3.3.9-1 to determine which SRs apply for each Function.

SURVEILLANCE		FREQUENCY
SR 3.3.9.1	Perform CHANNEL CHECK.	31 days
SR 3.3.9.2	Perform SENSOR OPERATIONAL TEST.	24 months
SR 3.3.9.3	Perform CALIBRATION.	24 months
SR 3.3.9.4	Perform EXTENDED SELF TESTS.	24 months
SR 3.3.9.5	Perform ACTUATING DEVICE OPERATIONAL TEST.	24 months

Table 3.3.9-1
ESF Control Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
1. Emergency Feedwater System (EFWS) Pump Flow Protection				
a. Automatic	1,2,3	4 divisions	B,E	SR 3.3.9.1 SR 3.3.9.2 SR 3.3.9.3
b. Manual	1,2,3	4 divisions	D,E	SR 3.3.9.5
	4 ^(a)	2 divisions	F,G	SR 3.3.9.5
2. EFWS Level Control				
a. Manual	1,2,3	4 divisions	D,E	SR 3.3.9.5
3. Main Steam Relief Control Valve Standby (MSRCV) Standby Position Control				
a. Automatic	1,2,3,4 ^(a)	4 divisions	C,E	SR 3.3.9.1 SR 3.3.9.2 SR 3.3.9.3
4. MSRCV Pressure Control				
a. Automatic	1,2,3	4 divisions	C,E	SR 3.3.9.1 SR 3.3.9.2 SR 3.3.9.3
b. Manual	1,2,3,4 ^(a)	4 divisions	D,E	SR 3.3.9.5
5. Control Logic	1,2,3,4 ^(a)	4 divisions	D,E	SR 3.3.9.4 SR 3.3.9.5

(a) When the Steam Generators are relied upon for heat removal.

3.3 INSTRUMENTATION

3.3.10 Essential Auxiliary Support (EAS) Control Instrumentation

LCO 3.3.10 The EAS Control instrumentation for each Function in Table 3.3.10-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.10-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more divisions inoperable.	A.1 Enter the applicable Condition referenced in Table 3.3.10-1.	Immediately
B. One or more Logic Input divisions inoperable. <u>OR</u> One or more Control Logic divisions inoperable.	B.1 Enter applicable Conditions and Required Actions of LCO 3.6.7, "Annulus Ventilation System (AVS)" for division(s) made inoperable by EAS instrumentation.	Immediately

ACTIONS (continued)

CONDITION	ACTION	COMPLETION TIME
<p>C. One or more Logic Input divisions inoperable.</p> <p><u>OR</u></p> <p>One or more Control Logic divisions inoperable.</p>	<p>C.1 Enter applicable Conditions and Required Actions of LCO 3.7.7, "Component Cooling Water (CCW) System" for division(s) made inoperable by EAS instrumentation.</p>	<p>Immediately</p>
<p>D. One or more Logic Input divisions inoperable.</p> <p><u>OR</u></p> <p>One or more Control Logic divisions inoperable.</p>	<p>D.1 Enter applicable Conditions and Required Actions of LCO 3.7.8, "Essential Service Water (ESW) System" for division(s) made inoperable by EAS instrumentation.</p>	<p>Immediately</p>
<p>E. One or more Logic Input divisions inoperable.</p> <p><u>OR</u></p> <p>One or more Control Logic divisions inoperable.</p>	<p>E.1 Enter applicable Conditions and Required Actions of LCO 3.5.5, "Extra Borating System (EBS)" for division(s) made inoperable by EAS instrumentation.</p>	<p>Immediately</p>

ACTIONS (continued)

CONDITION	ACTION	COMPLETION TIME
<p>F. One or more required Logic Input divisions inoperable.</p> <p><u>OR</u></p> <p>One or more Control Logic divisions inoperable.</p>	<p>F.1 Enter applicable Conditions and Required Actions of LCO 3.7.10, "Control Room Emergency Filtration (CREF)" for division(s) made inoperable by EAS instrumentation.</p>	<p>Immediately</p>
<p>G. One or more required Logic Input divisions inoperable.</p> <p><u>OR</u></p> <p>One or more Control Logic divisions inoperable.</p>	<p>G.1 Enter applicable Conditions and Required Actions of LCO 3.7.11, "Control Room Air Conditioning System (CRACS)" for division(s) made inoperable by EAS instrumentation.</p>	<p>Immediately</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>H. One or more Logic Input divisions inoperable.</p> <p><u>OR</u></p> <p>One or more Control Logic divisions inoperable.</p>	<p>H.1 Enter applicable Conditions and Required Actions of LCO 3.5.2, "ECCS - Operating" and LCO 3.5.3, "ECCS - Shutdown, MODE 4" for division(s) made inoperable by EAS instrumentation.</p>	<p>Immediately</p>
<p>I. One or more Logic Input divisions inoperable.</p> <p><u>OR</u></p> <p>One or more Control Logic divisions inoperable.</p>	<p>I.1 Enter applicable Conditions and Required Actions of LCO 3.7.13, "Safeguard Building Ventilation System Electrical Division (SBVSED)" for division(s) made inoperable by EAS instrumentation.</p>	<p>Immediately</p>
<p>J. One or more Logic Input divisions inoperable.</p> <p><u>OR</u></p> <p>One or more Control Logic divisions inoperable.</p>	<p>J.1 Enter applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating" for division(s) made inoperable by EAS instrumentation.</p>	<p>Immediately</p>

ACTIONS (continued)

CONDITION	ACTION	COMPLETION TIME
<p>K. One or more Logic Input divisions inoperable.</p> <p><u>OR</u></p> <p>One or more Control Logic divisions inoperable.</p>	<p>K.1 Enter applicable Conditions and Required Actions of LCO 3.7.5, "Emergency Feedwater (EFW) System" for division(s) made inoperable by EAS instrumentation.</p>	<p>Immediately</p>
<p>L. One or more Logic Input divisions inoperable.</p> <p><u>OR</u></p> <p>One or more Control Logic divisions inoperable.</p>	<p>L.1 Enter applicable Conditions and Required Actions of LCO 3.7.9, "Safety Chilled Water (SCW) System" for division(s) made inoperable by EAS instrumentation.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

----- NOTE -----
Refer to Table 3.3.10-1 to determine which SRs apply for each Function.

SURVEILLANCE		FREQUENCY
SR 3.3.10.1	Perform CHANNEL CHECK.	31 days
SR 3.3.10.2	Perform SENSOR OPERATIONAL TEST.	24 months
SR 3.3.10.3	Perform CALIBRATION.	24 months
SR 3.3.10.4	Perform EXTENDED SELF TESTS.	24 months
SR 3.3.10.5	Perform ACTUATING DEVICE OPERATIONAL TEST.	24 months

Table 3.3.10-1
EAS Control Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
1. Annulus Ventilation System				
a. Accident Filtration Train Heater Control	1,2,3,4	2 divisions	B	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
b. Accident Train Isolation on Containment Isolation	1,2,3,4	2 divisions	B	SR 3.3.10.2
2. Component Cooling Water System				
a. Common Header 1.b & 2.b Automatic Backup Switchover	1,2,3,4	4 divisions	C	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
b. Emergency Temperature Control	1,2,3,4	4 divisions	C	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
c. Emergency Leak Detection	1,2,3,4	4 divisions	C	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
d. Emergency Leak Detection - Switchover Valves Leakage or Failure	1,2,3,4	4 divisions	C	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
e. Switchover Valves Interlock	1,2,3,4	4 divisions	C	SR 3.3.10.2
f. RCP Thermal Barrier Containment Isolation Valves Interlock	1,2,3,4	4 divisions	C	SR 3.3.10.2
g. RCP Thermal Barrier Containment Isolation Valves Opening Interlock	1,2,3,4	4 divisions	C	SR 3.3.10.2
h. SCWS Condenser Supply Water Flow Control	1,2,3,4	2 divisions	C	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
3. ESWS Pump Building Ventilation System				
a. ESWS Pump Rooms Temperature Control	1,2,3,4	4 divisions	D	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
4. Fuel Building Ventilation System				
a. EBS Rooms Heater Control	1,2,3,4,5	2 divisions	E	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
b. EBS Pump Rooms Heat Removal	1,2,3,4,5	2 divisions	E	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
5. Main Control Room Air Conditioning System				
a. CREF Iodine Filtration Train Heater Control	1,2,3,4,5,6,(a)	2 divisions	F	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
b. CREF Heater Control for Outside Inlet Air	1,2,3,4,5,6,(a)	2 divisions	F	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
c. CRACS Pressure Control	1,2,3,4,5,6,(a)	2 divisions	G	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
d. CRACS Cooler Temperature Control	1,2,3,4	4 divisions	G	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
	5,6,(a)	3 divisions	G	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
6. Safeguard Building Controlled Area Ventilation System				
a. SIS / RHRS Pump Rooms Heat Removal	1,2,3,4	4 divisions	H	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
b. CCWS / EFWS Valve Rooms Heat Removal	1,2,3,4	4 divisions	C	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
c. Safeguards Building HVAC Reconfiguration on High Exhaust Activity	1,2,3,4	4 divisions	C	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
d. Safeguards Building HVAC Reconfiguration on Containment Isolation	1,2,3,4	(b)	(b)	(b)
e. Fuel Building Isolation on Containment Isolation	1,2,3,4	(b)	(b)	(b)
7. Safeguard Building Ventilation System Electrical Division				
a. Supply and Recirculation-Exhaust Air Flow Control	1,2,3,4	4 divisions	I	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
b. Supply Fan Safe Shut-Off	1,2,3,4	4 divisions	I	SR 3.3.10.2
c. Recirculation Fan Safe Shut-Off	1,2,3,4	4 divisions	C,K	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
d. Exhaust Fan Safe Shut-Off	1,2,3,4	4 divisions	C,K	SR 3.3.10.2
e. Supply Air Temperature Heater Control	1,2,3,4	4 divisions	I	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
f. Supply Air Temperature Control for Supply Air Cooling	1,2,3,4	4 divisions	I	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
g. Battery Room Heater Control	1,2,3,4	4 divisions	J	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
h. Battery Room Supply Air Temperature Control	1,2,3,4	4 divisions	J	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
i. EFWS Pump Room Heat Removal	1,2,3,4	4 divisions	K	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
j. CCWS Pump Room Heat Removal	1,2,3,4	4 divisions	C	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
8. Safety Chilled Water System				
a. SCWS Train Switchover on Low Evaporator Flow / Chiller Blackbox Internal Fault / SCWS Chiller Evaporator Water Flow Control / LOOP Re-Start Failure Interlock	1,2,3,4	4 divisions	L	SR 3.3.10.1 SR 3.3.10.2 SR 3.3.10.3
9. Safety Injection / Residual Heat Removal System				
a. RHR Suction Valve Interlock	1,2,3,4	4 divisions	H	SR 3.3.10.2
10. Control Logic	1,2,3,4	4 divisions	B,C,D,E,F,G, H,I,J,K,L	SR 3.3.10.4 SR 3.3.10.5
	5,6,(a)	3 divisions	G	SR 3.3.10.4 SR 3.3.10.5

(a) During movement of irradiated fuel assemblies.

3.3 INSTRUMENTATION

3.3.11 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.11 The PAM instrumentation for each Function in Table 3.3.11-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Function with one channel inoperable.	A.1 Restore channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action in accordance with Specification 5.6.5.	Immediately
C. One Function with two channels inoperable.	C.1 Restore one channel to OPERABLE status.	7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the applicable Condition referenced in Table 3.3.11-1 for the channel.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. As required by Required Action D.1 and referenced in Table 3.3.11-1.</p>	<p>E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 4.</p>	<p>6 hours 12 hours</p>
<p>---- REVIEWER'S NOTE ---- This Condition applies to plants that have developed a pre-planned alternate method of monitoring the normal Function when one or more Functions have less than the minimum required channels OPERABLE. ----- [F. As required by Required Action D.1 and referenced in Table 3.3.11-1.</p>	<p>F.1 Initiate action in accordance with Specification 5.6.5.</p>	<p>Immediately]</p>

SURVEILLANCE REQUIREMENTS

----- NOTE -----
 These SRs applies to each PAM instrumentation Function.

SURVEILLANCE		FREQUENCY
SR 3.3.11.1	Perform CHANNEL CHECK for each instrumentation channel that is normally energized.	31 days
SR 3.3.11.2	----- NOTE ----- Neutron detectors are excluded from CALIBRATION. ----- Perform CALIBRATION.	24 months

Table 3.3.11-1
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION D.1
1.	Cold Leg Temperature (Wide Range)	2	E
2.	Containment Isolation Valve Position Indication	2 per penetration flow path ^{(a)(b)}	E, [F]
3.	Containment Service Compartment Pressure (Wide Range)	2	E
4.	Core Outlet Thermocouples (Wide Range)	2 per quadrant ^(c)	E, [F]
5.	EFW Flow to SG	2 per train	E, [F]
6.	Hot Leg Pressure (Wide Range)	2	E
7.	Hot Leg Temperature (Wide Range)	2	E
8.	Intermediate Range Detector Flux	2	E
9.	Low Head Safety Injection Flow (Wide Range)	2 per train	E, [F]
10.	Medium Head Safety Injection Flow (Wide Range)	2 per train	E, [F]
11.	Pressurizer Level (Narrow Range)	2	E
12.	Radiation Monitor - Annulus Ventilation System Gamma Activity	2	E, [F]
13.	Radiation Monitor - Containment High Range	2	E
14.	Radiation Monitor - Main Steam Line	2 per line	E, [F]
15.	Steam Generator Level (Wide Range)	2 per SG	E
16.	Steam Generator Pressure	2 per SG	E
17.	Source Range Detector Flux	2	E, [F]
18.	Subcooling Margin	2	E, [F]
[19.	Site-specific variables]

(a) Not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

(b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(c) CHANNEL consists of three Core Outlet Thermocouples (Wide Range).

3.3 INSTRUMENTATION

3.3.12 Remote Shutdown Station (RSS)

LCO 3.3.12 The RSS shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

----- NOTE -----
 Separate Condition entry is allowed for each Main Control Room (MCR)-RSS Transfer Switch or Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more MCR-RSS Transfer Switches inoperable.	A.1 Restore to OPERABLE status.	30 days
B. One or more Functions referenced in Table 3.3.12-1 inoperable.	B.1 Restore to OPERABLE status.	30 days
C. RSS Process Information and Control System (PICS) inoperable.	C.1 Restore to OPERABLE status.	30 days
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.12.1	Perform ACTUATING DEVICE OPERATIONAL TEST on MCR-RSS Transfer Switches.	24 months
SR 3.3.12.2	Perform ACTUATING DEVICE OPERATIONAL TEST on RSS Safety Information and Control System (SICS) manual actuation switches.	24 months
SR 3.3.12.3	Verify that the RSS communicates controls and indications with each division of PICS.	24 months

Table 3.3.12-1
RSS SICS Manual Actuation Switches

	FUNCTION	NUMBER OF SWITCHES
1.	Reactor Trip	4
2.	Emergency Feedwater System (EFWS) Actuation Reset	4
3.	EFWS Isolation Reset	4
4.	Main Steam Relief Isolation Valve Opening Reset	4
5.	Main Steam Relief Train Isolation Reset	4
6.	Safety Injection System Actuation Reset	4
7.	Steam Generator Isolation Reset	4
8.	P12 Validation	4
9.	P14 Validation	4
10.	P14 Inhibition	4
11.	P15 Validation	4
12.	P17 Validation	4

3.3 INSTRUMENTATION

3.3.13 Diverse Actuation Instrumentation

LCO 3.3.13 The Diverse Actuation instrumentation for each Function specified in Table 3.3.13-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.13-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more divisions inoperable.	A.1 Enter the applicable Condition referenced in Table 3.3.13-1.	Immediately
B. One Logic Input division inoperable. <u>OR</u> One Diverse Logic division inoperable.	B.1 Restore division to OPERABLE status.	30 days
C. Two Logic Input divisions inoperable. <u>OR</u> Two Diverse Logic divisions inoperable.	C.1 Restore one division to OPERABLE status.	72 hours
D. One or more Manual Component Switch divisions inoperable.	D.1 Restore Manual Component Switch division(s) to OPERABLE status.	30 days

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. Three or more Logic Input divisions inoperable.</p> <p><u>OR</u></p> <p>Three or more Diverse Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B or C not met.</p>	<p>E.1 Be in MODE 1 with D3 inhibited.</p>	<p>2 hours</p>
<p>F. Three or more Logic Input divisions inoperable.</p> <p><u>OR</u></p> <p>Three or more Diverse Logic divisions inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B, C or D not met.</p>	<p>F.1 Be in MODE 1 with D2 inhibited.</p>	<p>6 hours</p>

SURVEILLANCE REQUIREMENTS

----- NOTE -----
Refer to Table 3.3.13-1 to determine which SRs apply for each Function.

SURVEILLANCE		FREQUENCY
SR 3.3.13.1	Perform CALIBRATION.	24 months
SR 3.3.13.2	Perform SENSOR OPERATIONAL TEST.	24 months
SR 3.3.13.3	Perform ACTUATION LOGIC TEST.	24 months
SR 3.3.13.4	Perform ACTUATING DEVICE OPERATIONAL TEST.	24 months
SR 3.3.13.5	<p>----- NOTE ----- Neutron detectors are excluded from RESPONSE TIME testing. -----</p> <p>Verify RESPONSE TIME is within limits.</p>	24 months on a STAGGERED TEST BASIS

Table 3.3.13-1
Diverse Actuation Functions

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
1. Reactor Trip				
a. High Neutron Flux (Power Range)	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.1 SR 3.3.13.2 SR 3.3.13.5
b. Low-Low Reactor Coolant System (RCS) Flow Rate in One Loop	1 ^(b)	4 divisions	B,C,F	SR 3.3.13.1 SR 3.3.13.2 SR 3.3.13.5
c. Low RCS Flow Rate in Two Loops	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.1 SR 3.3.13.2 SR 3.3.13.5
d. High Pressurizer Pressure	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.1 SR 3.3.13.2 SR 3.3.13.5
e. Low Hot Leg Pressure	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.1 SR 3.3.13.2 SR 3.3.13.5
f. Low Steam Generator (SG)Pressure	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.1 SR 3.3.13.2 SR 3.3.13.5
g. Low SG Level	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.1 SR 3.3.13.2 SR 3.3.13.5
h. High SG Level	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.1 SR 3.3.13.2 SR 3.3.13.5
i. Manual	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.4
j. Reactor Trip Breakers Shunt Trip Coils	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.4 SR 3.3.13.5
2. Turbine Trip				
a. Reactor Trip Initiation	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.1 SR 3.3.13.2 SR 3.3.13.5
3. Safety Injection System Actuation				
a. Low Pressurizer Pressure	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.1 SR 3.3.13.2 SR 3.3.13.5
b. Manual	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.4

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
4. Feedwater Isolation				
a. Full Load Isolation on High SG Level (Affected SG)	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.1 SR 3.3.13.2 SR 3.3.13.5
b. SSS Isolation on Low SG Pressure (Affected SG)	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.1 SR 3.3.13.2 SR 3.3.13.5
5. Emergency Feedwater System (EFWS) Actuation				
a. Low SG Level (Affected SG)	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.1 SR 3.3.13.2 SR 3.3.13.5
b. Manual	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.4
6. Main Steam Isolation				
a. Low SG Pressure	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.1 SR 3.3.13.2 SR 3.3.13.5
7. Containment Isolation (Stage 1)				
a. High Containment Radiation	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.1 SR 3.3.13.2 SR 3.3.13.5
b. Manual	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.4
8. Hydrogen Mixing Dampers Opening				
a. High Containment Pressure	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.1 SR 3.3.13.2 SR 3.3.13.5
b. High Containment Compartments Delta Pressure	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.1 SR 3.3.13.2 SR 3.3.13.5
c. Manual	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.4
9. Station Blackout (SBO) Diesel Actuation				
a. Loss of Voltage	1 ^(a)	4 divisions	B,C,F	SR 3.3.13.1 SR 3.3.13.2 SR 3.3.13.5
10. Permissives				
a. D2 - Power Range Flux Measurement Higher than First Setpoint	1	4 divisions	B,C,F	SR 3.3.13.1 SR 3.3.13.2
b. D3 - Power Range Flux Measurement Higher than Second Setpoint	1	4 divisions	B,C,F	SR 3.3.13.1 SR 3.3.13.2
11. Diverse Logic	1 ^(a)	4 divisions	B,C,E,F	SR 3.3.13.3 SR 3.3.13.5

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
12. Manual Component Switches				
a. Manual actuation of Extra Borating System	1 ^(a)	2 divisions	D,F	SR 3.3.13.4
b. Manual control of Medium Head Safety Injection	1 ^(a)	4 divisions	D,F	SR 3.3.13.4
c. Manual Main Control Room HVAC Reconfiguration	1 ^(a)	2 divisions	D,F	SR 3.3.13.4
d. Manual Chemical Volume Control System Isolation	1 ^(a)	2 divisions	D,F	SR 3.3.13.4
e. Manual Depressurize Reactor Coolant System with Pressurizer Sprays	1 ^(a)	2 divisions	D,F	SR 3.3.13.4
f. Manual Diesel Generator Loading (Emergency Diesel Generators (EDGs) or SBOs)	1 ^(a)	4 divisions	D,F	SR 3.3.13.4
g. Manual EDG Start	1 ^(a)	4 divisions	D,F	SR 3.3.13.4
h. Manual Feedwater Isolation (Main Feedwater Water and Emergency Feedwater Water)	1 ^(a)	4 divisions	D,F	SR 3.3.13.4
i. Manual Main Steam Isolation Valve Closure	1 ^(a)	4 divisions	D,F	SR 3.3.13.4
j. Manual Main Steam Relief Train Control	1 ^(a)	4 divisions	D,F	SR 3.3.13.4
k. Manual Operation of EFWS for SG Level Control	1 ^(a)	4 divisions	D,F	SR 3.3.13.4
l. Manual Safety Injection Switchover to RCS Hot Leg Injection	1 ^(a)	4 divisions	D,F	SR 3.3.13.4
m. Manually Extend Partial Cooldown	1 ^(a)	4 divisions	D,F	SR 3.3.13.4

(a) With D2 permissive validated.

(b) With D3 permissive validated.

3.3 Instrumentation

3.3.14 Self-Powered Neutron Detectors (SPND)

LCO 3.3.14 Seventy-two SPNDs shall be OPERABLE.

APPLICABILITY: MODE 1 with THERMAL POWER \geq 10% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One, two, three, four, or five SPNDs inoperable.</p>	<p>A.1 Verify that penalty corresponding to inoperable SPND(s) described in COLR is implemented in LCO 3.3.1, "Reactor Trip Instrumentation" for Functions 1, 2, 3, 4, 5, and 6.</p>	<p>6 hours</p>
<p>B. Six or more SPNDs inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition A not met.</p>	<p>B.1 Be in MODE 1 with P2 inhibited.</p>	<p>4 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.14.1</p> <p>----- NOTE ----- Not required to be performed until 12 hours after THERMAL POWER \geq 20% RTP. -----</p> <p>Perform CALIBRATION in accordance with Setpoint Control Program.</p>	<p>15 effective full power days</p>