

3.3 INSTRUMENTATION

3.3.1 Distributed Control System (DCS)

LCO 3.3.1 The DCS Sensors, Function Processors, Manual Actuation Switches, and Trip Actuation Devices specified 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 type of sensor, function processor, manual actuation switch, and trip actuation device.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required sensor inoperable.	A.1 Restore required sensor to OPERABLE status.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One required reactor trip manual actuation switch inoperable.	B.1 Restore required reactor trip manual actuation switch to OPERABLE status.	48 hours
C. One required ESF/Permissive manual actuation switch inoperable.	C.1 Restore required ESF/Permissive manual actuation switch to OPERABLE status.	48 hours
D. One required trip actuation devices inoperable.	D.1 Restore required trip actuation device to OPERABLE status.	48 hours
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1 Enter the applicable Condition referenced in Table 3.3.1-1.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One or more required Acquisition and Processing Units (APUs) inoperable due to the Nominal Trip Setpoint (NTSP) for one or more Trip/ESF/Permissive functions in Table 3.3.1-2 not met.	F.1 -----NOTE----- Only applicable for NTSPs associated with ESF Functions 10.b, 10.c, and 10.d in Table 3.3.1-2. ----- Enter the Condition referenced in Table 3.3.1-2 for emergency diesel generator (EDG) Actuation function(s) with one or both subsystems inoperable due to one or more inoperable APUs within the same division.	1 hour
	<u>AND</u> F.2 -----NOTE----- Not applicable for NTSPs associated with ESF Functions 10.b, 10.c, and 10.d in Table 3.3.1-2. ----- Enter the Condition(s) referenced in Table 3.3.1-2 for Trip/ESF/Permissive function(s) with one or more required divisions inoperable due to one or more inoperable APUs in each of the required divisions.	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. One or more required APUs inoperable for reasons other than Condition F.	G.1 -----NOTE----- Only applicable to ESF Functions 10.a, 10.b, 10.c, and 10.d in Table 3.3.1-2. -----	1 hour
	Enter the Condition referenced in Table 3.3.1-2 for EDG Actuation functions with one or both subsystems inoperable due to one or more inoperable APUs within the same division.	
	<u>AND</u>	1 hour
	G.2 -----NOTE----- Not applicable to ESF Functions 10.a, 10.b, 10.c, and 10.d in Table 3.3.1-2. -----	
	Enter the Conditions referenced in Table 3.3.1-2 for Trip/ESF/Permissive functions with one or more required divisions inoperable due to one or more inoperable APUs in each of the required divisions.	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. One or more Actuation Logic Units (ALUs) inoperable.	H.1 -----NOTE----- Only applicable to ESF Functions 10.a, 10.b, 10.c, and 10.d in Table 3.3.1-2. ----- Enter the Condition referenced in Table 3.3.1-2 for EDG Actuation functions with one or both subsystems inoperable due to one or more inoperable ALUs within the same division. <u>AND</u> -----NOTE----- Not applicable to ESF Functions 10.a, 10.b, 10.c, and 10.d in Table 3.3.1-2. -----	1 hour
	H.2.1 Enter the Conditions referenced in Table 3.3.1-2 for ESF functions assigned to divisional subsystem(s) with one or both ALUs inoperable. <u>AND</u>	4 hours
	H.2.2 Open the associated division Reactor Trip Breaker.	4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. One or more required SAS Control Units inoperable due to the NTSP for one or more SAS Control functions in Table 3.3.1-3 not met. OR One or more required SAS Control Units inoperable for other reasons.	I.1 Enter the Conditions referenced in Table 3.3.1-3 for SAS Control functions with one or more required divisions inoperable due to one or more inoperable CUs in each of the required divisions.	1 hour
J. One or more required function processors inoperable for reasons other than Condition F, G, H, or I.	J.1 Restore required function processors to OPERABLE status.	6 hours
K. Required Action and associated Completion Time of Condition J not met.	K.1 Enter applicable Conditions for the function processor(s) referenced in Table 3.3.1-1.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
L. As referenced in Table 3.3.1-1.	L.1 Reduce THERMAL POWER to < 70% RTP.	2 hours
M. As referenced in Table 3.3.1-1.	M.1 Reduce THERMAL POWER to < 10% RTP.	6 hours
N. As referenced in Table 3.3.1-1.	N.1 Be in MODE 2.	6 hours
O. As referenced in Table 3.3.1-1.	O.1 Be in MODE 3.	6 hours
P. As referenced in Table 3.3.1-1.	P.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	P.2 Open the Reactor Trip Breakers.	6 hours
Q. As referenced in Table 3.3.1-1.	Q.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	Q.2 Reduce pressurizer pressure to < 2005 psia.	12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
R. As referenced in Table 3.3.1-1.	R.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	R.2 Be in MODE 4.	12 hours
S. As referenced in Table 3.3.1-1.	S.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	S.2 Be in MODE 4 without reliance upon steam generator for heat removal.	24 hours
T. As referenced in Table 3.3.1-1.	T.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	T.2 Be in MODE 5.	36 hours
U. As referenced in Table 3.3.1-1.	U.1 Be in MODE 5.	36 hours
V. As referenced in Table 3.3.1-1.	V.1 Declare associated EDG inoperable.	Immediately
	<u>AND</u>	
	V.2 Enter applicable Conditions and Required Actions of LCOs 3.8.1, "AC Sources - Operating," and 3.8.2, "AC Sources - Shutdown".	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
W. As referenced in Table 3.3.1-1.	W.1 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
X. As referenced in Table 3.3.1-1.	X.1 Suspend activities that could reduce RCS inventory.	Immediately
Y. As referenced in Table 3.3.1-1.	Y.1 Declare associated Pressurizer Safety Relief Valve(s) inoperable.	Immediately
	<u>AND</u>	
	Y.2 Enter applicable Conditions and Required Actions of LCO 3.4.11, "Low Temperature Overpressure Protection (LTOP)".	Immediately
Z. As referenced in Table 3.3.1-1.	Z.1 Declare associated Control Room Emergency Filtration trains inoperable.	Immediately
	<u>AND</u>	
	Z.2 Enter applicable Conditions and Required Actions of LCO 3.7.10, "Control Room Emergency Filtration (CREF)".	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
AA. As referenced in Table 3.3.1-1.	AA.1 Declare associated Rod Cluster Control Assembly Analog Position Indication sensor or Rod Position Measurement Unit function processor inoperable.	Immediately
	<u>AND</u> AA.2 Enter applicable Conditions and Required Actions of LCO 3.1.7, "Rod Cluster Control Assembly (RCCA) Position Indication".	Immediately
BB. As referenced in Table 3.3.1-1.	BB.1 Open associated Reactor Trip Breaker.	1 hour
CC. As referenced in Table 3.3.1-1.	CC.1 Open all Reactor Trip Breakers.	1 hour

SURVEILLANCE REQUIREMENTS

NOTES

1. Refer to Table 3.3.1-1 to determine which SRs apply for each sensor, function processor, manual actuation switch, and trip actuation device.
2. When a sensor, function processor, manual actuation switch, and trip actuation device is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Trip/ESF/Control/Permissive Function maintains the required number of sensors, function processors, manual actuation switches, or trip actuation devices.

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. Adjust Power Range Detector division output if calorimetric heat balance calculations results exceed Power Range Detector division output by more than +2% RTP.	24 hours
SR 3.3.1.2	-----NOTE----- Not required to be performed until 12 hours after THERMAL POWER $\geq$ 20% RTP. ----- Perform CALIBRATION.	15 effective full power days
SR 3.3.1.3	Perform ACTUATING DEVICE OPERATIONAL TEST.	31 days
SR 3.3.1.4	Perform CALIBRATION.	92 days
SR 3.3.1.5	Perform a SENSOR OPERATIONAL TEST.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.6	Perform CALIBRATION.	24 months
SR 3.3.1.7	Perform EXTENDED SELF TESTS.	24 months
SR 3.3.1.8	Perform ACTUATING DEVICE OPERATIONAL TEST.	24 months
SR 3.3.1.9	Verify NTSPs properly loaded in APUs.	24 months
SR 3.3.1.10	Verify NTSPs properly loaded in SAS Control Units.	24 months
SR 3.3.1.11	-----NOTE----- Neutron detectors are excluded from RESPONSE TIME testing. ----- Verify RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

Table 3.3.1-1 (page 1 of 14)
DCS Sensors, Function Processors, Manual Actuation Switches, and Trip Actuation Devices

COMPONENT	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
SENSORS				
1. 6.9 kV Bus Voltage	1,2,3,4,5,6,(a)	3 per EDG	V	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
2. Boron Concentration - Chemical and Volume Control System (CVCS) Charging Line	1,2 ^(h) ,3 ⁽ⁱ⁾ ,4 ⁽ⁱ⁾	3	T	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
	5 ⁽ⁱ⁾ ,6 ^(g)	2	W	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
3. Boron Temperature - CVCS Charging Line	1,2 ^(h) ,3 ⁽ⁱ⁾ ,4 ⁽ⁱ⁾	3	T	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
	5 ⁽ⁱ⁾ ,6 ^(g)	2	W	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
4. CVCS Charging Line Flow	1,2 ^(h) ,3 ^{(f)(i)} ,4 ^{(e)(i)}	3	T	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
	5 ^{(f)(i)}	2	W	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
5. Cold Leg Temperature (Narrow Range)	1	4	N	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11

(a) During movement of irradiated fuel assemblies.

(f) With P7 permissive inhibited.

(h) With P8 permissive inhibited.

(i) With P8 permissive validated.

(q) With P7 permissive validated.

Table 3.3.1-1 (page 2 of 14)
DCS Sensors, Function Processors, Manual Actuation Switches, and Trip Actuation Devices

COMPONENT	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
6. Cold Leg Temperature (Wide Range)	1,2 ^(d) ,	4	J	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
	3 ^(f) ,	4	O,S	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
	4 ^{(f)(s)}	4	O,S	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
	5 ^{(f)(s)}	2	Q,S	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
	6 ^(s)	2	Q,S	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
7. Containment Equipment Compartment Pressure	1,2,3,4	3	T	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
8. Containment Service Compartment Pressure (Narrow Range)	1,2,3,4	3	T	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
9. Containment Service Compartment Pressure (Wide Range)	1,2,3,4	3	T	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
10. Containment Equipment Compartment/ Containment Service Compartment Delta Pressure	1,2,3,4	3	T	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11

(d) With P5 permissive validated.

(f) With P7 permissive inhibited (one or more RCPs in operation).

(s) When Pressurizer Safety Relief Valve (PSRV) OPERABILITY is required by LCO 3.4.11.

Table 3.3.1-1 (page 3 of 14)
DCS Sensors, Function Processors, Manual Actuation Switches, and Trip Actuation Devices

COMPONENT	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
11. EFWS Pump Discharge Flow	1,2,3,4 ^(t)	3	S	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
12. Hot Leg Loop Level	4 ^{(o)(u)}	3	T	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
	5 ^{(o)(u)} ,6 ^{(o)(u)}	2	X	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
13. Hot Leg Pressure (Narrow Range)	4 ^{(s)(q)}	3	Y	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
	5 ^{(s)(q)} ,6 ^{(s)(q)}	2	Y	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
14. Hot Leg Pressure (Wide Range)	1	4	N	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
	2	3	R	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
	3,4	4	T	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
	5 ^{(o)(u)} ,6 ^{(o)(u)}	2	X	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
15. Hot Leg Temperature (Narrow Range)	1	4 per loop, 4 loops	N	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
	2 ^(d)	4 per loop, 3 loops	O	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11

(d) With P5 permissive validated.

(o) With P15 permissive validated.

(q) With P17 permissive validated.

(s) When Pressurizer Safety Relief Valve (PSRV) OPERABILITY is required by LCO 3.4.11.

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

(u) With Manual SIS – Loop Level Bypass inhibited.

Table 3.3.1-1 (page 4 of 14)
DCS Sensors, Function Processors, Manual Actuation Switches, and Trip Actuation Devices

COMPONENT	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
16. Hot Leg Temperature (Wide Range)	1,2,3,4	4	T	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
	5 ^{(o)(u)} ,6 ^{(o)(u)}	2	X	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
17. Intermediate Range Detector	1 ^(e) ,2,3 ^(r)	3	P	SR 3.3.1.5 SR 3.3.1.6
18. MSRCV Position Indication	1,2,3 ^(r)	3	R	SR 3.3.1.5 SR 3.3.1.6
19. MSRV Position Indication	1,2,3,4 ^(t)	3	S	SR 3.3.1.5 SR 3.3.1.6
20. Power Range Detector	1,2,3 ^(r)	3	P	SR 3.3.1.1 SR 3.3.1.5 SR 3.3.1.6
21. Pressurizer Level (Narrow Range)	1,2,3,4 ^(p)	3	T	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
22. Pressurizer Pressure (Narrow Range)	1,2,3,4 ⁽ⁿ⁾	4	T	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
23. Radiation Monitor - Containment High Range	1,2,3,4	3	T	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11

(e) With P6 permissive inhibited.

(m) With P15 permissive validated.

(n) With P15 permissive inhibited.

(p) With P17 permissive inhibited.

(r) With the Reactor Control, Surveillance and Limitation (RCSL) System capable of withdrawing an RCCA or one or more RCCAs not fully inserted.

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

(u) With Manual SIS – Loop Level Bypass inhibited.

Table 3.3.1-1 (page 5 of 14)
DCS Sensors, Function Processors, Manual Actuation Switches, and Trip Actuation Devices

COMPONENT	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
24. Radiation Monitor - Control Room HVAC Intake Activity	1,2,3,4,5,6,(a)	2	Y	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
25. RCP Breaker Position Indication	3,4	4	T	SR 3.3.1.5 SR 3.3.1.6
	5 ^{(o)(u)} ,6 ^{(o)(u)}	2	W,X	SR 3.3.1.5 SR 3.3.1.6
26. RCP Bus Breaker Position Indication	3,4	3	T	SR 3.3.1.5 SR 3.3.1.6
	5 ^{(o)(u)} ,6 ^{(o)(u)}	2	W,X	SR 3.3.1.5 SR 3.3.1.6
27. RCP Delta Pressure	1,2,3,4	1 per RCP, 4 RCPs; OR 2 per RCP, 3 RCPs	T	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
28. RCP Speed	1 ^(b)	1 per RCP (RCP1 sensor only), 3 RCPs	M	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
	3,4	1 per RCP, 4 RCPs	T	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
	5 ^{(o)(u)} ,6 ^{(o)(u)}	1 per RCP, 2 RCPs	W,X	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11

(a) During movement of irradiated fuel assemblies.

(b) With P2 permissive validated.

(o) With P15 permissive validated.

(u) With Manual SIS – Loop Level Bypass inhibited.

Table 3.3.1-1 (page 6 of 14)
DCS Sensors, Function Processors, Manual Actuation Switches, and Trip Actuation Devices

COMPONENT	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
29. Reactor Coolant System (RCS) Loop Flow	1,2 ^(d)	12 ^(v)	O	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
30. Rod Cluster Control Assembly (RCCA) Analog Position Indication	1 ^(b)	66 or 67 in 3 divisions	AA	SR 3.3.1.5 SR 3.3.1.6
	1,2,3 ^(f) ,4 ^(f)	36 in 3 divisions	T	SR 3.3.1.5 SR 3.3.1.6
	5 ^(f)	24 in 2 divisions	W	SR 3.3.1.5 SR 3.3.1.6
31. Self-Powered Neutron Detectors	1 ^(b)	72	M	SR 3.3.1.2 SR 3.3.1.5

(b) With P2 permissive validated.

(d) With P5 permissive validated.

(f) With P7 permissive inhibited.

(v) The twelve OPERABLE sensors are distributed in such a manner that if one of the four sensors in a division is inoperable (e.g., sensor B2), then the corresponding sensors for the other three divisions (i.e., B1, B3, B4) are required to be OPERABLE.

Table 3.3.1-1 (page 7 of 14)
DCS Sensors, Function Processors, Manual Actuation Switches, and Trip Actuation Devices

COMPONENT	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
32. Steam Generator (SG) Level (Narrow Range)	1,2,3,4 ^{(j)(l)}	12 ^(v)	S	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
33. SG Level (Wide Range)	1,2,3,4 ^(l)	12 ^(v)	S	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11
34. SG Pressure	1,2,3,4 ^{(j)(l)}	12 ^(v)	S	SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.11

(j) With P12 permissive inhibited.

(l) With P13 permissive inhibited.

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

(v) The twelve OPERABLE sensors are distributed in such a manner that if one of the four sensors in a division is inoperable (e.g., sensor B2), then the corresponding sensors for the other three divisions (i.e., B1, B3, B4) are required to be OPERABLE.

Table 3.3.1-1 (page 8 of 14)
DCS Sensors, Function Processors, Manual Actuation Switches, and Trip Actuation Devices

COMPONENT	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
FUNCTION PROCESSORS				
1. Boron Concentration Measurement System (BCMS)	1,2 ^(h) ,3 ⁽ⁱ⁾ ,4 ⁽ⁱ⁾	3	T	SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.11
	5 ⁽ⁱ⁾ ,6 ^(g)	2	W,X	SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.11
2. Excore Instrumentation Conditioning System (EICS)	1,2,3 ^(r)	3	P	SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.11
3. Incore Instrumentation Conditioning System (IICS)	1 ^(b)	4	M	SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.11
4. Priority and Actuator Control System (PACS)	1,2,3,4	4	T	SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.11
	5,6,(a)	2	V,W,X,Y,Z,AA	SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.11
5. Rod Position Measurement Unit (RPMU)	1,2,3 ^(f) ,4 ^(f)	3	T,AA	SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.11
	5 ^(f)	2	W,AA	SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.11
6. Signal Conditioning and Distribution System (SCDS)	1,2,3,4	4	T	SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.11
	5,6,(a)	2	V,W,X,Y,Z,AA	SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.11

(a) During movement of irradiated fuel assemblies.

(b) With P2 permissive validated.

(f) With P7 permissive inhibited.

(g) With P7 permissive validated.

(i) With P8 permissive validated.

(r) With the Reactor Control, Surveillance and Limitation (RCSL) System capable of withdrawing an RCCA or one or more RCCAs not fully inserted.

Table 3.3.1-1 (page 9 of 14)
DCS Sensors, Function Processors, Manual Actuation Switches, and Trip Actuation Devices

COMPONENT	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
7. Acquisition and Processing Units (APUs)	Refer to Table 3.3.1-2	Refer to Table 3.3.1-2	D,E	SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.11
8. Actuation Logic Units (ALUs)	1,2,3	2 per subsystem, 2 subsystems per division, 4 divisions	R,V,Y,Z,BB	SR 3.3.1.7 SR 3.3.1.11
	4	2 per subsystem, 2 subsystems per division, 4 divisions	T,V,Y,Z,BB	SR 3.3.1.7 SR 3.3.1.11
	5,6,(a)	2 per subsystem, 2 subsystems per division, 2 divisions	V,W,X,Y,Z,AA	SR 3.3.1.7 SR 3.3.1.11
9. SAS Control Units (CUs)	Refer to Table 3.3.1-3	Refer to Table 3.3.1-3	Refer to Table 3.3.1-3	SR 3.3.1.7 SR 3.3.1.11

(a) During movement of irradiated fuel assemblies.

Table 3.3.1-1 (page 10 of 14)
DCS Sensors, Function Processors, Manual Actuation Switches, and Trip Actuation Devices

COMPONENT	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
MANUAL ACTUATION SWITCHES				
1. Reactor Trip	1,2	3	O	SR 3.3.1.8
	3 ^(r) ,4 ^(r)	3	CC	SR 3.3.1.8
	5 ^(r)	2	CC	SR 3.3.1.8
2. Containment Isolation (Stage 1)	1,2,3,4	3	T	SR 3.3.1.8
3. Containment Isolation (Stage 2)	1,2,3,4	3	T	SR 3.3.1.8
4. CVCS Charging Isolation	1,2,3,4 ^(p)	1 per division, (Divisions 1 and 4)	T	SR 3.3.1.8
5. CVCS Isolation on ADM	1,2 ^(h) ,3 ⁽ⁱ⁾ ,4 ⁽ⁱ⁾	1 per division, (Divisions 1 and 4)	T	SR 3.3.1.8
	5 ⁽ⁱ⁾ ,6 ^(g)	1 per division, (Divisions 1 and 4)	W	SR 3.3.1.8
6. EDG Actuation	1,2,3,4	2 per EDG, 4 divisions	V	SR 3.3.1.8
	5,6,(a)	2 per EDG, 2 divisions	W,X	SR 3.3.1.8

(a) During movement of irradiated fuel assemblies.

(g) With P7 permissive validated.

(h) With P8 permissive inhibited.

(i) With P8 permissive validated.

(p) With P17 permissive inhibited.

(r) With the Reactor Control, Surveillance and Limitation (RCSL) System capable of withdrawing an RCCA or one or more RCCAs not fully inserted.

Table 3.3.1-1 (page 11 of 14)
DCS Sensors, Function Processors, Manual Actuation Switches, and Trip Actuation Devices

COMPONENT	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
7. EFWS Actuation	1,2,3,4 ^{(b)(l)}	1 per division, 4 divisions	S	SR 3.3.1.8
8. EFWS Isolation	1,2,3,4 ^{(b)(l)}	1 per division, 4 divisions	S	SR 3.3.1.8
9. Extra Borating System Isolation	1,2,3,4	2 per division (Divisions 1 and 4)	T	SR 3.3.1.8
	5	2 per division (Divisions 1 and 4)	W	SR 3.3.1.8
10. HMD Opening	1,2,3,4	3	T	SR 3.3.1.8
11. Main Control Room Air Conditioning System Isolation and Filtering	1,2,3,4,5,6,(a)	1 per division, (Divisions 2 and 3)	T,Z	SR 3.3.1.8
12. Main Steam Isolation	1,2,3,4	3	S	SR 3.3.1.8
13. MFW Isolation	1,2,3,4	2 per division, 4 divisions	T	SR 3.3.1.8
14. MSRV Opening	1,2,3,4 ^(l)	2 per SG, 4 divisions	S	SR 3.3.1.8
15. MSRT Isolation	1,2,3,4 ^(j)	2 per SG, 4 divisions	R	SR 3.3.1.8
16. Partial Cooldown Actuation	1,2,3,4 ^(l)	3	S	SR 3.3.1.8
17. PSRV Opening	4 ^{(r)(q)}	1 per division, 4 divisions	Y	SR 3.3.1.8
	5 ^{(r)(q)} , 6 ^{(r)(q)}	1 per division, 4 divisions	Y	SR 3.3.1.8

(a) During movement of irradiated fuel assemblies.

(j) With P12 permissive inhibited.

(l) With P13 permissive inhibited.

(q) With P17 permissive validated.

(r) With the Reactor Control, Surveillance and Limitation (RCSL) System capable of withdrawing an RCCA or one or more RCCAs not fully inserted.

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

Table 3.3.1-1 (page 12 of 14)
DCS Sensors, Function Processors, Manual Actuation Switches, and Trip Actuation Devices

COMPONENT	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
18. RCP Trip	1,2,3,4	2 per division, 4 divisions	T	SR 3.3.1.8
19. Safety Injection System (SIS) Actuation	1,2,3,4	3	T	SR 3.3.1.8
	5,6	2	X	SR 3.3.1.8
20. SIS Loop Level Bypass	4 ^(o)	3	T	SR 3.3.1.8
	5 ^(o) ,6 ^(o)	2	X	SR 3.3.1.8
21. SG Isolation	1,2,3,4 ^{(t)(l)}	(w)	S	SR 3.3.1.8
22. Turbine Trip	1,2	3	O	SR 3.3.1.8
23. P6 permissive Validation	1	4	M	SR 3.3.1.8
24. P12 permissive Validation	3,4 ⁽ⁿ⁾	4	T	SR 3.3.1.8
25. P13 permissive Validation	4	4	T	SR 3.3.1.8
26. P14 permissive Inhibition	4	4	T	SR 3.3.1.8
27. P14 permissive Validation	4	4	T	SR 3.3.1.8
28. P15 permissive Validation	4	4	T	SR 3.3.1.8
	5,6	2	X	SR 3.3.1.8

(l) With P13 permissive inhibited.

(n) With P15 permissive inhibited.

(o) With P15 permissive validated.

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

(w) The twelve OPERABLE switches are distributed in such a manner that if one of the four switches in a division is inoperable (e.g., switch B2), then the corresponding switches for the other three divisions (i.e., B1, B3, B4) are required to be OPERABLE.

Table 3.3.1-1 (page 13 of 14)
DCS Sensors, Function Processors, Manual Actuation Switches, and Trip Actuation Devices

COMPONENT		APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
28.	P16 permissive Inhibition	4	4	T	SR 3.3.1.8
30.	P16 permissive Validation	4	4	T	SR 3.3.1.8
31.	P17 permissive Validation	4 ^(s)	4	T	SR 3.3.1.8
		5 ^(s) , 6 ^(s)	2	Y	SR 3.3.1.8
32.	Operational I&C Disable	1,2,3,4	4	T	SR 3.3.1.8
		5,6	2	V,W,X,Y,Z,AA	SR 3.3.1.8

(s) When PSRV OPERABILITY is required by LCO 3.4.11.

Table 3.3.1-1 (page 14 of 14)
DCS Sensors, Function Processors, Manual Actuation Switches, and Trip Actuation Devices

COMPONENT	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER	CONDITIONS	SURVEILLANCE REQUIREMENTS
TRIP ACTUATION DEVICES				
1. Reactor Coolant Pump Circuit Breakers	1,2,3,4	1 per pump, 4 divisions	T	SR 3.3.1.8 SR 3.3.1.11
2. Reactor Coolant Pump Bus Supply Circuit Breakers	1,2,3,4	1 per pump, 4 divisions	T	SR 3.3.1.8 SR 3.3.1.11
3. Reactor Trip Breakers	1,2	2 per division, (Divisions 2 and 3)	P	SR 3.3.1.3 SR 3.3.1.10
	3 ^(r) ,4 ^(r)	2 per division, (Divisions 2 and 3)	CC	SR 3.3.1.3 SR 3.3.1.10
	5 ^(r)	2 per division, (Divisions 2 and 3)	CC	SR 3.3.1.3 SR 3.3.1.10
4. Reactor Trip Contactors	1,2	4 per set, 23 sets, (Divisions 1 and 4)	P	SR 3.3.1.3 SR 3.3.1.10
	3 ^(r) ,4 ^(r)	4 per set, 23 sets, (Divisions 1 and 4)	CC	SR 3.3.1.3 SR 3.3.1.10
	5 ^(r)	4 per set, 23 sets, (Divisions 1 and 4)	CC	SR 3.3.1.3 SR 3.3.1.10

(r) With the Reactor Control, Surveillance and Limitation (RCSL) System capable of withdrawing an RCCA or one or more RCCAs not fully inserted.

Table 3.3.1-2 (page 1 of 9)
Acquisition and Processing Unit Requirements Referenced from Table 3.3.1-1

TRIP / ESF / PERMISSIVE FUNCTION	APPLICABLE APU ⁽²⁾	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED DIVISIONS of APUs	[NOMINAL TRIP SETPOINT]	CONDITIONS
REACTOR TRIP FUNCTIONS					
1.a. Low Departure from Nucleate Boiling Ratio (DNBR)	[A1]	1 ^(b)	3 divisions	[(x)]	M
1.b. Low DNBR - Imbalance or Rod Drop (1/4)	[A2]	1 ^(b)	3 divisions	[(x)]	M
1.c. Low DNBR - Rod Drop (2/4)	[A3]	1 ^(b)	3 divisions	[(x)]	M
1.d. Low DNBR - High Quality	[B1]	1 ^(b)	3 divisions	[(x)]	M
1.e. Low DNBR - High Quality and (Imbalance or Rod Drop (1/4))	[B2]	1 ^(b)	3 divisions	[(x)]	M
2. High Linear Power Density	[A1]	1 ^(b)	3 divisions	[(x)]	M
3. High Neutron Flux Rate of Change (Power Range)	[A2]	1,2,3 ^(r)	3 divisions	[11% RTP]	P
4. High Core Power Level	[A3]	1,2 ^(d)	3 divisions	[105% RTP]	O
5. Low Saturation Margin	[B1]	1,2 ^(d)	3 divisions	[30 Btu/lb]	O
6.a. Low-Low Reactor Coolant System (RCS) Flow Rate in One Loop	[B2]	1 ^(c)	3 divisions	[54% nominal flow]	L
(b) With P2 permissive validated. (c) With P3 permissive validated. (d) With P5 permissive validated. (r) With the RCSL System capable of withdrawing an RCCA or one or more RCCAs not fully inserted. (x) As specified in the Core Operating Limits Report (COLR). (z) Partial trigger signals generated by APUs A1, A2, and A3 (B1 and B2) are sent to redundant ALUs A1 and A2 (B1 and B2) in all four divisions. ALU inoperability affects all functions assigned to the corresponding APUs in the associated divisional subsystem					

Table 3.3.1-2 (page 2 of 9)
Acquisition and Processing Unit Requirements Referenced from Table 3.3.1-1

TRIP / ESF / PERMISSIVE FUNCTION	APPLICABLE APU ^(z)	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED DIVISIONS of APUs	[NOMINAL TRIP SETPOINT]	CONDITIONS
6.b. Low RCS Flow Rate in Two Loops	[A1]	1 ^(b)	3 divisions	[90% nominal flow]	M
7. Low Reactor Coolant Pump (RCP) Speed	[A2]	1 ^(b)	3 divisions	[93% nominal speed]	M
8. High Neutron Flux (Intermediate Range)	[A3]	1 ^(e) , 2, 3 ^(r)	3 divisions	[25% RTP]	CC
9. Low Doubling Time	[B1]	1 ^(e) , 2, 3 ^(r)	3 divisions	[20 sec.]	CC
10. Low Pressurizer Pressure	[B2]	1 ^(b)	3 divisions	[2005 psia]	M
11. High Pressurizer Pressure	[A1]	1, 2	3 divisions	[2415 psia]	O
12. High Pressurizer Level	[A2]	1, 2, 3 ^(j)	3 divisions	[75% measuring range]	O
13. Low Hot Leg Pressure	[A3]	1, 2, 3 ^{(e)(j)}	3 divisions	[2005 psia]	Q
14. Steam Generator (SG) Pressure Drop	[B1]	1, 2, 3 ^(r)	3 divisions	[29 psi/min; 102 psi < steady state; Max 1088 psia]	P
15. Low SG Pressure	[B2]	1, 2, 3 ^{(e)(j)}	3 divisions	[725 psia]	Q
16. High SG Pressure	[A1]	1	3 divisions	[1385 psia]	N
17. Low SG Level	[A2]	1, 2 ^(l)	3 divisions	[20% narrow range]	O
18. High SG Level	[A3]	1, 2 ^(l)	3 divisions	[69% narrow range]	O
(b) With P2 permissive validated.					
(e) With P6 permissive inhibited.					
(j) With P12 permissive inhibited.					
(l) With P13 permissive inhibited.					
(r) With the RCSL System capable of withdrawing an RCCA or one or more RCCAs not fully inserted.					
(z) Partial trigger signals generated by APUs A1, A2, and A3 (B1 and B2) are sent to redundant ALUs A1 and A2 (B1 and B2) in all four divisions. ALU inoperability affects all functions assigned to the corresponding APUs in the associated divisional subsystem					

Table 3.3.1-2 (page 3 of 9)
Acquisition and Processing Unit Requirements Referenced from Table 3.3.1-1

TRIP / ESF / PERMISSIVE FUNCTION	APPLICABLE APU ^(z)	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED DIVISIONS of APUs	[NOMINAL TRIP SETPOINT]	CONDITIONS
19. High Containment Pressure	[A3]	1,2	3 divisions	[18.7 psia]	P
20. Automatic SIS Actuation	[B1]	1,2	3 divisions	[NA]	P
21. EFWS Actuation on Low-Low SG Level	[B2]	1,2	3 divisions	[NA]	S
ENGINEERED SAFETY FEATURES FUNCTIONS					
1. Turbine Trip on Reactor Trip (RT) Initiation	[A1]	1,2	3 divisions	[1 sec. time delay]	O
2.a. Main Feedwater Full Load Isolation on Reactor Trip Initiation (All SGs)	[A2]	1,2	3 divisions	[NA]	R
2.b. Main Feedwater Full Load Isolation on High SG Level (Affected SG)	[A3]	1,2,3,4 ^{(t)(q)}	3 divisions	[69% narrow range]	R
2.c. Startup and Shutdown System (SSS) Isolation on SG Pressure Drop (Affected SG)	[B1]	1,2,3	3 divisions	[29 psi/min; 247 psi < steady state; Max 943 psia]	R
2.d. SSS Isolation on Low SG Pressure (Affected SG)	[B2]	1,2,3	3 divisions	[580 psia]	R
2.e. SSS Isolation on High SG Level for Period of Time (Affected SG)	[A1]	1,2,3,4 ^{(t)(q)}	3 divisions	[65% narrow range; 10 sec. time delay]	R
2.f. SSS Isolation on High Containment Pressure (All SGs)	[A2]	1,2,3,4	3 divisions	[18.7 psia]	T

(q) With P13 permissive inhibited.

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

(z) Partial trigger signals generated by APUs A1, A2, and A3 (B1 and B2) are sent to redundant ALUs A1 and A2 (B1 and B2) in all four divisions. ALU inoperability affects all functions assigned to the corresponding APUs in the associated divisional subsystem

Table 3.3.1-2 (page 4 of 9)
Acquisition and Processing Unit Requirements Referenced from Table 3.3.1-1

TRIP / ESF / PERMISSIVE FUNCTION	APPLICABLE APU ^(z)	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED DIVISIONS of APUs	[NOMINAL TRIP SETPOINT]	CONDITIONS
3.a. SIS Actuation on Low Pressurizer Pressure	[A3]	1,2,3 ^(j)	3 divisions	[1668 psia]	R
3.b. SIS Actuation on Low Delta P _{sat}	[B1]	3,4 ^{(k)(n)}	3 divisions	[220 psi]	S
3.c. SIS Actuation on Low Hot Leg Loop Level	[B2]	4 ^{(o)(u)}	3 divisions	[18.9 in.]	T
		5 ^{(o)(u)} , 6 ^{(o)(u)}	2 divisions		X
4.a. RCP Trip on Low Delta Pressure across RCP and SIS Actuation	[A1]	1,2,3,4	3 divisions	[80% nominal pressure]	T
4.b. RCP Trip on Low Delta Pressure across RCP and SIS Actuation or Containment Isolation (Stage 2) for a Period of Time	[A2]	1,2,3,4	3 divisions	[80% nominal pressure; 0.05 sec. time delay]	T
4.c. RCP Trip on Containment Isolation (Stage 2)	[A3]	1,2,3,4	3 divisions	[36.3 psia]	T
5.a. Partial Cooldown Actuation on SIS Actuation	[B1]	1,2,3,4 ^{(t)(m)}	3 divisions	[NA]	S
5.b. Partial Cooldown Actuation on Reactor Trip Initiation	[B2]	1,2	3 divisions	[NA]	S
6.a. Emergency Feedwater System (EFWS) Actuation on Low-Low SG Level (Affected SG)	[A1]	1,2,3,4 ^{(t)(l)}	3 divisions	[40% wide range]	S
6.b. EFWS Actuation on Loss of Offsite Power (LOOP) and SIS Actuation (All SGs)	[A2]	1,2,3,4 ^{(t)(l)}	3 divisions	[NA]	O

(j) With P12 permissive inhibited.

(k) With P12 permissive validated.

(l) With P13 permissive inhibited.

(m) With P14 permissive inhibited.

(n) With P15 permissive inhibited.

(o) With P15 permissive validated.

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

(u) With Manual SIS - Loop Level Bypass inhibited.

(z) Partial trigger signals generated by APUs A1, A2, and A3 (B1 and B2) are sent to redundant ALUs A1 and A2 (B1 and B2) in all four divisions. ALU inoperability affects all functions assigned to the corresponding APUs in the associated divisional subsystem

Table 3.3.1-2 (page 5 of 9)
Acquisition and Processing Unit Requirements Referenced from Table 3.3.1-1

TRIP / ESF / PERMISSIVE FUNCTION	APPLICABLE APU ^(z)	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED DIVISIONS of APUs	[NOMINAL TRIP SETPOINT]	CONDITIONS
6.c. Emergency Feedwater System (EFWS) Isolation on High SG Level (Affected SG)	[A3]	1,2,3,4 ^(t)	3 divisions	[89% wide range]	S
7.a. Main Steam Relief Isolation Valve Opening on High SG Pressure (Affected SG)	[B1]	1,2,3,4 ^(t)	3 divisions	[1385 psia]	S
7.b. MSRT Isolation on Low SG Pressure (Affected SG)	[B2]	1,2,3,4 ⁽ⁱ⁾	3 divisions	[580 psia]	T
8.a. Main Steam Isolation on SG Pressure Drop (All SGs)	[A1]	1,2,3	3 divisions	[29 psi/min; 102 psi < steady state; Max 1088 psia]	R
8.b. Main Steam Isolation on Low SG Pressure (All SGs)	[A2]	1,2,3 ⁽ⁱ⁾	3 divisions	[725 psia]	R
8.c. Main Steam Isolation on High Containment Pressure (All SGs)	[A3]	1,2,3,4	3 divisions	[18.7 psia]	T
9.a. Containment Isolation (Stage 1) on High Containment Pressure	[B1]	1,2,3,4	3 divisions	[18.7 psia]	T
9.b. Containment Isolation (Stage 1) on SIS Actuation	[B2]	1,2,3,4	3 divisions	[NA]	T
9.c. Containment Isolation (Stage 2) on High-High Containment Pressure	[A1]	1,2,3,4	3 divisions	[36.3 psia]	T
9.d. Containment Isolation (Stage 1) on High Containment Radiation	[A2]	1,2,3,4	3 divisions	[100 x background]	T
(j)	With P12 permissive inhibited.				
(l)	With P13 permissive inhibited.				
(t)	When the SGs are relied upon for heat removal.				
(z)	Partial trigger signals generated by APUs A1, A2, and A3 (B1 and B2) are sent to redundant ALUs A1 and A2 (B1 and B2) in all four divisions. ALU inoperability affects all functions assigned to the corresponding APUs in the associated divisional subsystem				

Table 3.3.1-2 (page 6 of 9)
Acquisition and Processing Unit Requirements Referenced from Table 3.3.1-1

TRIP / ESF / PERMISSIVE FUNCTION	APPLICABLE APU ^(z)	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED DIVISIONS of APUs	[NOMINAL TRIP SETPOINT]	CONDITIONS
10.a. Emergency Diesel Generator (EDG) Actuation on SIS Actuation	[A3]	1,2,3,4	4 divisions	[N/A]	T
		5,6,(a)	2 divisions		W,X
10.b. EDG Actuation on Degraded Grid Voltage and SIS Actuation	[A3]	1,2,3,4	4 divisions	[6290 V; 9 sec. time delay]	T
		5,6,(a)	2 divisions		W,X
10.c. EDG Actuation on Degraded Grid Voltage	[A3]	1,2,3,4	4 divisions	[6290 V; 9 sec. time delay; 300 sec. time delay]	T
		5,6,(a)	2 divisions		W,X
10.d. EDG Actuation on Loss of Voltage	[A3]	1,2,3,4	4 divisions	[4900 V; 0.5 sec. time delay]	T
		5,6,(a)	2 divisions		W,X
11.a. Chemical and Volume Control System (CVCS) Charging Line Isolation on High-High Pressurizer Level	[B1]	1,2,3,4 ^(p)	3 divisions	[80% measuring range]	T
11.b. CVCS Isolation on Anti-Dilution Mitigation (ADM) at Shutdown Conditions	[B1]	3 ^(g) ,4 ^(g)	3 divisions	[927 ppm]	T
		5 ^(g) ,6 ^(g)	2 divisions		W

(a) During movement of irradiated fuel assemblies.

(g) With P7 permissive validated.

(p) With P17 permissive inhibited.

(z) Partial trigger signals generated by APUs A1, A2, and A3 (B1 and B2) are sent to redundant ALUs A1 and A2 (B1 and B2) in all four divisions. ALU inoperability affects all functions assigned to the corresponding APUs in the associated divisional subsystem

Table 3.3.1-2 (page 7 of 9)
Acquisition and Processing Unit Requirements Referenced from Table 3.3.1-1

TRIP / ESF / PERMISSIVE FUNCTION	APPLICABLE APU ^(z)	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED DIVISIONS of APUs	[NOMINAL TRIP SETPOINT]	CONDITIONS
11.c. CVCS Isolation on ADM at Standard Shutdown Conditions	[B1]	3 ^{(f)(i)} , 4 ^{(f)(i)}	3 divisions	[(x)]	U
		5 ^{(f)(i)}	2 divisions		W
11.d. CVCS Isolation on ADM at Standard Shutdown Conditions with Manual Calculation	[B1]	3 ^{(f)(i)} , 4 ^{(f)(i)}	3 divisions	[(x)]	U
		5 ^{(f)(i)}	2 divisions		W
11.e. CVCS Isolation on ADM at Power	[B1]	1, 2 ^(h)	3 divisions	[(x)]	O
11.f. CVCS Isolation on ADM at Power with Manual Calculation	[B1]	1, 2 ^(h)	3 divisions	[(x)]	O
12.a. Pressurizer Safety Relief Valve (PSRV) Opening - First Valve	[B2]	4 ^{(s)(q)}	3 divisions	[(y)]	S
		5 ^{(s)(q)} , 6 ^{(s)(q)}	2 divisions		X
12.b. PSRV Opening - Second Valve	[B2]	4 ^{(s)(q)}	3 divisions	[(y)]	S
		5 ^{(s)(q)} , 6 ^{(s)(q)}	2 divisions		X
13.a. Main Control Room Air Conditioning System Isolation and Filtering on High Intake Activity	[A1]	1, 2, 3, 4	3 divisions	[3 x background]	T, Y
		5, 6, (a)	2 divisions		Y
13.b. Main Control Room Air Conditioning Air Conditioning System Isolation and Filtering on Containment Isolation (Stage 1)	[A2]	1, 2, 3, 4	3 divisions	[18.7 psia]	T, Z
(a) During movement of irradiated fuel assemblies.					
(f) With P7 permissive inhibited.					
(h) With P8 permissive inhibited.					
(i) With P8 permissive validated.					
(q) With P17 permissive validated.					
(s) When PSRV OPERABILITY is required by LCO 3.4.11.					
(x) As specified in the Core Operating Limits Report (COLR).					
(y) As specified in the Pressure and Temperature Limits Report.					
(z) Partial trigger signals generated by APUs A1, A2, and A3 (B1 and B2) are sent to redundant ALUs A1 and A2 (B1 and B2) in all four divisions. ALU inoperability affects all functions assigned to the corresponding APUs in the associated divisional subsystem					

Table 3.3.1-2 (page 8 of 9)
Acquisition and Processing Unit Requirements Referenced from Table 3.3.1-1

TRIP / ESF / PERMISSIVE FUNCTION	APPLICABLE APU ^(z)	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED DIVISIONS of APUs	[NOMINAL TRIP SETPOINT]	CONDITIONS
14.a. Hydrogen Mixing Dampers Opening on High Containment Pressure	[A3]	1,2,3,4	3 divisions	[17.4 psia]	T
14.b. Hydrogen Mixing Dampers Opening on High Containment Compartments Delta Pressure	[B1]	1,2,3,4	3 divisions	[0.5 psi]	T
PERMISSIVE FUNCTIONS					
P2 - Flux (Power Range) Measurement Higher than First Threshold	[B2]	1	3 divisions	[10% RTP]	M
P3 - Flux (Power Range) Measurement Higher than Second Threshold	[A1]	1	3 divisions	[70% RTP]	L
P5 - Flux (Intermediate Range) Measurement Higher than Threshold	[A2]	1,2	3 divisions	[10 ⁻⁵ % RTP]	O
P6 - Thermal Core Power Higher than Threshold	[A3]	1	3 divisions	[10% RTP]	M
P7 - RCPs Not in Operation	[B1]	3,4	3 divisions	[90% nominal speed; 600 sec. time delay]	S
		5,6	2 divisions		W
P8 - Shutdown Rod Cluster Control Assembly Position Lower than Threshold	[B2]	1,2,3 ^(f) ,4 ^(f)	3 divisions	[2 in.]	S
		5 ^(f)	2 divisions		W
(f) With P7 permissive inhibited.					
(z) Partial trigger signals generated by APUs A1, A2, and A3 (B1 and B2) are sent to redundant ALUs A1 and A2 (B1 and B2) in all four divisions. ALU inoperability affects all functions assigned to the corresponding APUs in the associated divisional subsystem					

Table 3.3.1-2 (page 9 of 9)
Acquisition and Processing Unit Requirements Referenced from Table 3.3.1-1

TRIP / ESF / PERMISSIVE FUNCTION	APPLICABLE APU ^(z)	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED DIVISIONS of APUs	[NOMINAL TRIP SETPOINT]	CONDITIONS
P12 - Pressurizer Pressure Lower than Threshold	[A1]	1,2,3,4 ⁽ⁿ⁾	3 divisions	[2005 psia]	U
P13 - Hot Leg Temperature Lower than Threshold	[A2]	4	3 divisions	[200°F]	T
P14 - Hot Leg Pressure and Hot Leg Temperature Lower than Thresholds	[A3]	1,2,3,4 ^(t)	3 divisions	[350°F; 464 psia]	S
P15 - Hot Leg Pressure and Hot Leg Temperature Lower than Thresholds and RCPs Shutdown	[B1]	4	3 divisions	[350°F; 464 psia; 90% nominal speed; 600 sec. time delay]	T
		5,6	2 divisions		W
P16 - Hot Leg Pressure Lower than Threshold	[B2]	1,2,3,4	3 divisions	[290 psia]	T
P17 - Cold Leg Temperature Lower than Threshold	[A1]	1,2,3,4 ^(s)	3 divisions	[248°F]	T,X
		5 ^(s) ,6 ^(s)	2 divisions		X
P18 - Hot Leg Temperature Lower than Threshold or Reactor Trip	[A2]	3,4 ^(t)	3 divisions	[194°F]	S

(n) With P15 permissive inhibited.

(s) When PSRV OPERABILITY is required by LCO 3.4.11.

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

(z) Partial trigger signals generated by APUs A1, A2, and A3 (B1 and B2) are sent to redundant ALUs A1 and A2 (B1 and B2) in all four divisions. ALU inoperability affects all functions assigned to the corresponding APUs in the associated divisional subsystem

Table 3.3.1-3 (page 1 of 1)
SAS Control Unit Requirements Referenced from Table 3.3.1-1

CONTROL FUNCTION	APPLICABLE CU	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED NUMBER ^(a)	[NOMINAL TRIP SETPOINT]	CONDITIONS
1. EFWS SG Level Control	[C1]	1,2,3,4 ^(t)	3 divisions	[82.2% wide range]	S
2. EFWS Pump Flow Protection	[C2]	1,2,3,4 ^(t)	3 divisions	[490 gpm]	S
3. MSRCV Standby Position Control	[C1]	1,2,3 ^(r)	3 divisions	[N/A]	R
4. MSRCV Pressure Control	[C2]	1,2,3,4 ^{(t)(m)}	3 divisions	[N/A]	S

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

(r) With the RCSL System capable of withdrawing an RCCA or one or more RCCAs not fully inserted.

(m) With P14 permissive inhibited.

3.3 INSTRUMENTATION

3.3.2 Post Accident Monitoring (PAM) Instrumentation

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

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one required channel inoperable.	A.1 Restore required 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 or more Functions with two required 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 Condition referenced in Table 3.3.2-1 for the channel.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. As required by Required Action D.1 and referenced in Table 3.3.2-1.	E.1 Be in MODE 3.	6 hours
	<u>AND</u> E.2 Be in MODE 4.	12 hours
-----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 required Functions have less than the minimum required channels OPERABLE. ----- [F. As required by Required Action D.1 and referenced in Table 3.3.2-1.	F.1 Initiate action in accordance with Specification 5.6.5.	Immediately]

SURVEILLANCE REQUIREMENTS

-----NOTE-----
This SR applies to each PAM instrumentation Function.

SURVEILLANCE	FREQUENCY
SR 3.3.2.1 Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.2	-----NOTE----- Neutron detectors are excluded from CALIBRATION. -----	24 months
	Perform CALIBRATION	

Table 3.3.2-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

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

(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) Note that more restrictive operability requirements for the associated components are contained in LCO 3.3.1, "Distributed Control System" (i.e., LCO 3.3.1 requires three sensors for OPERABILITY. The PAM LCO only requires two sensors).

(d) A channel consists of three Core Outlet Thermocouples (Wide Range).

(e) Note that additional operability requirements are contained in LCO 3.3.1, "Distributed Control System".

3.3 INSTRUMENTATION

3.3.3 Remote Shutdown Station (RSS)

LCO 3.3.3 The RSS shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more MCR-RSS Transfer Switch inoperable.	A.1 Restore to OPERABLE status.	30 days
-----NOTE----- Separate Condition entry is allowed for each RSS manual actuation switch. ----- B. One or more RSS manual actuation switch referenced in Table 3.3.3-1 inoperable.	B.1 Restore to OPERABLE status.	30 days
C. RSS hardware and software 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.	6 hours
	<u>AND</u> D.2 Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	Perform ADOT on MCR-RSS Transfer Switch.	24 months
SR 3.3.3.2	Perform ADOT on RSS manual actuation switch.	24 months
SR 3.3.3.3	Verify the OPERABILITY of the RSS hardware and software.	24 months

Table 3.3.3-1
RSS Manual Actuation Switches

	FUNCTION	NUMBER OF SWITCHES
1.	Reactor Trip	4
2.	EFWS Actuation Reset	4
3.	EFWS Isolation Reset	4
4.	MSRIV Opening Reset	4
5.	MSRT Isolation Reset	4
6.	Safety Injection System Actuation Reset	4
7.	Steam Generator Isolation Reset	4
8.	P6 permissive Validation	4
9.	P12 permissive Validation	4
10.	P13 permissive Validation	4
11.	P14 permissive Inhibition	4
12.	P14 permissive Validation	4
13.	P15 permissive Validation	4
14.	P16 permissive Inhibition	4
15.	P16 permissive Validation	4
16.	P17 permissive Validation	4