

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. One channel inoperable.</p>	<p>-----NOTE----- For functions 6, 7, and 8.b, the inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours, or both the inoperable and the additional channel may be surveillance tested in bypass for up to 4 hours. For functions 2.b, 3.a, and 3.b, only the inoperable channel may be bypassed for surveillance testing of other channels. For function 14.a, the inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours. This note is not intended to allow simultaneous testing of coincident channels on a routine basis.</p>	
	<p>E.1 Place channel in trip. <u>OR</u></p>	<p>6 hours</p>
	<p>E.2 Be in MODE 3.</p>	<p>12 hours</p>
<p>F. One Intermediate Range Neutron Flux channel inoperable.</p>	<p>F.1 Reduce THERMAL POWER to < P-6. <u>OR</u></p>	<p>24 hours</p>
	<p>F.2 Increase THERMAL POWER to > P-10.</p>	<p>24 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>G. Two Intermediate Range Neutron Flux channels inoperable.</p>	<p>G.1 -----NOTE----- Limited boron concentration changes associated with RCS inventory control or limited plant temperature changes are allowed. ----- Suspend operations involving positive reactivity additions. ----- <u>AND</u> G.2 Reduce THERMAL POWER to < P-6.</p>	<p>Immediately 2 hours</p>
<p>H. Not used</p>		
<p>I. One Source Range Neutron Flux channel inoperable.</p>	<p>I.1 -----NOTE----- Limited boron concentration changes associated with RCS inventory control or limited plant temperature changes are allowed. ----- Suspend operations involving positive reactivity additions.</p>	<p>Immediately</p>
<p>J. Two Source Range Neutron Flux channels inoperable.</p>	<p>J.1 Open reactor trip breakers (RTBs).</p>	<p>Immediately</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
K. One Source Range Neutron Flux channel inoperable.	K.1 Restore channel to OPERABLE status.	48 hours
	<u>OR</u>	
	K.2.1 Initiate action to fully insert all rods.	48 hours
L. Required Source Range Neutron Flux channel inoperable.	<u>AND</u>	
	K.2.2 Place the Control Rod System in a condition incapable of rod withdrawal.	49 hours
	L.1 -----NOTE----- Plant temperature changes are allowed provided the temperature change is accounted for in the calculated SDM. ----- Suspend operations involving positive reactivity additions.	Immediately
	<u>AND</u>	
	L.2 Perform SR 3.1.1.1.	1 hour
		<u>AND</u> Once per 12 hours thereafter

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
M. One channel inoperable.	<p>-----NOTE----- For function 8.a, the inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours, or both the inoperable and the additional channel may be surveillance tested in bypass for up to 4 hours. For functions 9 and 10, the inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours. For functions 12 and 13, only the inoperable channel may be bypassed for surveillance testing of other channels. This note is not intended to allow simultaneous testing of coincident channels on a routine basis.</p> <p>-----</p> <p>M.1 Place channel in trip. <u>OR</u> M.2 Reduce THERMAL POWER to < P-7.</p>	<p>6 hours</p> <p>12 hours</p>
N. Not used		

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>X. One or more SG Water Level Low - Low Trip Time Delay channel(s) inoperable.</p>	<p>-----NOTE----- For function 14.b, the inoperable TTD channel (processor) and/or one additional TTD channel (processor) may be surveillance tested with the affected steam generator low-low water level channels for one TTD channel (processor) in bypass and the affected SG low-low water level channels for the other TTD channel (processor) in trip for up to 4 hours. This note is not intended to allow simultaneous testing of multiple TTD channels (processors) on a routine basis. -----</p>	
	<p>X.1 Set the Trip Time Delay to zero seconds. <u>OR</u></p>	6 hours
	<p>X.2 Place the affected SG Water Level Low - Low channel(s) in trip. <u>OR</u></p>	6 hours
	<p>X.3 Be in MODE 3.</p>	12 hours

Table 3.3.1-1 (page 4 of 7)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL ^(a) TRIP SETPOINT
16. Turbine Trip						
a. Low Auto-Stop Oil Pressure	1 ^(j)	3	O	SR 3.3.1.10 SR 3.3.1.15	≥ 46.5 psig	50 psig
b. Turbine Stop Valve Closure	1 ^(j)	4	P	SR 3.3.1.15	≥ 1% open	2% open
17. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)						
	1,2	2 trains	Q	SR 3.3.1.14	NA	NA
18. Reactor Trip System Interlocks						
a. Intermediate Range Neutron Flux, P-6	2 ^(e)	2	S	SR 3.3.1.11 SR 3.3.1.13	≥ 8E-11 amp	1E-10 amp
b. Low Power Reactor Trips Block, P-7	1	1 per train	T	SR 3.3.1.5	NA	NA
c. Power Range Neutron Flux, P-8	1	4	T	SR 3.3.1.11 SR 3.3.1.13	≤ 36.2% RTP	35% RTP

(continued)

(a) A channel is OPERABLE with an actual Trip Setpoint value outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established calibration tolerance band of the Nominal Trip Setpoint. A Trip Setpoint may be set more conservative than the Nominal Trip Setpoint as necessary in response to plant conditions.

(e) Below the P-6 (Intermediate Range Neutron Flux) interlocks.

(j) Above the P-9 (Power Range Neutron Flux) interlock.

Table 3.3.1-1 (page 5 of 7)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL ^(a) TRIP SETPOINT
18. Reactor Trip System Interlocks (cont)						
d. Power Range Neutron Flux, P-9	1	4	T	SR 3.3.1.11 SR 3.3.1.13	≤ 51.2% RTP	50% RTP
e. Power Range Neutron Flux, P-10	1,2	4	S	SR 3.3.1.11 SR 3.3.1.13	≥ 8.8% RTP and ≤ 11.2% RTP	10% RTP
f. Turbine Impulse Chamber Pressure, P-13	1	2	T	SR 3.3.1.10 SR 3.3.1.13	≤ 10.2% turbine power	10% turbine power
19. Reactor Trip Breakers ^(k) (RTBs)	1,2	2 trains	R	SR 3.3.1.4	NA	NA
	3 ^(b) , 4 ^(b) , 5 ^(b)	2 trains	C	SR 3.3.1.4	NA	NA
20. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms ^(k)	1,2	1 each per RTB	U	SR 3.3.1.4	NA	NA
	3 ^(b) , 4 ^(b) , 5 ^(b)	1 each per RTB	C	SR 3.3.1.4	NA	NA
21. Automatic Trip Logic	1,2	2 trains	Q	SR 3.3.1.5	NA	NA
	3 ^(b) , 4 ^(b) , 5 ^(b)	2 trains	C	SR 3.3.1.5	NA	NA
22. Seismic Trip	1,2	3 directions (x,y,z) in 3 locations	W	SR 3.3.1.5 SR 3.3.1.12 SR 3.3.1.14	≤ 0.43g	0.35g

(a) A channel is OPERABLE with an actual Trip Setpoint value outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established calibration tolerance band of the Nominal Trip Setpoint. A Trip Setpoint may be set more conservative than the Nominal Trip Setpoint as necessary in response to plant conditions.
(b) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.
(k) Including any reactor trip bypass breakers that are racked in and closed for bypassing an RTB.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One channel inoperable.	<p>-----NOTE----- For function 1.d, the inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours, or both the inoperable and the additional channel may be surveillance tested in bypass for up to 4 hours. For functions 1.e(1), 4.d(1), 4.d(2), and 6.d(1), the inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours. This note is not intended to allow simultaneous testing of coincident channels on a routine basis.</p> <p>-----</p> <p>D.1 Place channel in trip. <u>OR</u> D.2.1 Be in MODE 3. <u>AND</u> D.2.2 Be in MODE 4.</p>	<p>6 hours</p> <p>12 hours</p> <p>18 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. One Containment Pressure channel inoperable.</p>	<p>-----NOTE----- The inoperable channel and one additional channel may be surveillance tested in bypass for up to 4 hours only if any function 1.c channel associated with the inoperable channel is in trip. This note is not intended to allow simultaneous testing of coincident channels on a routine basis. -----</p>	
	<p>E.1 Place channel in bypass. <u>OR</u></p>	<p>6 hours</p>
	<p>E.2.1 Be in MODE 3. <u>AND</u></p>	<p>12 hours</p>
	<p>E.2.2 Be in MODE 4.</p>	<p>18 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. One channel inoperable.	<p>-----NOTE----- The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. -----</p> <p>I.1 Place channel in trip. <u>OR</u> I.2. Be in MODE 2.</p>	<p>6 hours 12 hours</p>
J. One channel inoperable	<p>-----NOTE----- The inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours. This note is not intended to allow simultaneous testing of coincident channels on a routine basis. -----</p> <p>J.1 Place channel in trip. <u>OR</u> J.2. Be in MODE 3.</p>	<p>6 hours 12 hours</p>
K. One channel inoperable	<p>K.1.1 Place the channel in cut-out. <u>AND</u> K.1.2 Return the inoperable channel to an OPERABLE status <u>OR</u> K.2.1 Be in MODE 3. <u>AND</u> K.2.2 Be in MODE 5</p>	<p>6 hours 48 hours 54 hours 84 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>L. One or more channels or trains inoperable.</p>	<p>L.1 Verify interlock is in required state for existing unit condition.</p>	<p>1 hour</p>
	<p><u>OR</u></p>	
	<p>L.2.1 Be in MODE 3.</p> <p><u>AND</u></p>	<p>7 hours</p>
<p>M. One or more SG Water Level - Low Low Trip Time Delay channel(s) inoperable.</p>	<p>-----NOTE----- The inoperable TTD channel (processor) and/or one additional TTD channel (processor) may be surveillance tested with the affected steam generator low-low water level channels for one TTD channel (processor) in bypass and the affected SG low-low water level channels for the other TTD channel (processor) in trip for up to 4 hours. This note is not intended to allow simultaneous testing of multiple TTD channels (processors) on a routine basis. -----</p>	
	<p>M.1 Set the Trip Time Delay to zero seconds.</p>	<p>6 hours</p>
	<p><u>OR</u></p>	
	<p>M.2 Place the affected SG Water Level - Low Low channel(s) in trip.</p>	<p>6 hours</p>
	<p><u>OR</u></p>	
<p>M.3.1 Be in MODE 3.</p> <p><u>AND</u></p>	<p>12 hours</p>	
<p>M.3.2 Be in MODE 4.</p>	<p>18 hours</p>	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
N. One channel inoperable.	N.1 Restore channel to OPERABLE status.	48 hours
	<u>OR</u> N.2 Declare the associated AFW pump or MSIV inoperable.	Immediately
O. One channel inoperable	-----NOTE----- The inoperable channel may be surveillance tested in bypass for up to 4 hours, or with the inoperable channel in trip, one additional channel may be surveillance tested in bypass for up to 4 hours. This note is not intended to allow simultaneous testing of coincident channels on a routine basis. -----	
	O.1 Place channel in trip.	6 hours
	<u>OR</u>	
	O.2.1 Be in MODE 3	12 hours
<u>AND</u>		
O.2.2 Be in MODE 5.	42 hours	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
P. One channel inoperable.	-----NOTE----- The inoperable channel and one additional channel may be surveillance tested in bypass for up to 4 hours only if any function 1.c channel associated with the inoperable channel is in trip. This note is not intended to allow simultaneous testing of coincident channels on a routine basis. -----	
	P.1 Place channel in bypass. <u>OR</u>	6 hours
	P.2.1 Be in MODE 3 <u>AND</u>	12 hours
	P.2.2 Be in MODE 5.	42 hours

Table 3.3.2-1 (page 4 of 7)
Engineered Safety feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL ^(a) TRIP SETPOINT
4. Steam Line Isolation (continued)						
d. Steam Line Pressure						
(1) Low	1,2 ⁽ⁱ⁾ , 3 ^{(b)(i)}	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 597.6 ^(c) psig	600 ^(c) psig
(2) Negative Rate-High	3 ^{(g)(i)}	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 102.4 ^(h) psi/sec	100 ^(h) psi/sec
e. Not used.						
f. Not used						
g. Not used						
h. Not used						
5. Feedwater Isolation						
a. Automatic Actuation Logic and Actuation Relays	1,2 ⁽ⁱ⁾	2 trains	H	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA

(continued)

- (a) A channel is OPERABLE with an actual Trip Setpoint value outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established calibration tolerance band of the Nominal Trip Setpoint. A Trip Setpoint may be set more conservative than the Nominal Trip Setpoint as necessary in response to plant conditions.
- (b) Above the P-11 (Pressurizer Pressure) interlock and below the P-11 interlock unless the Function is blocked.
- (c) Time constants used in the lead/lag compensator are $t_1 = 50$ seconds and $t_2 = 5$ seconds
- (g) Below the P-11 (Pressurizer Pressure). However, may be blocked below P-11 when Safety Injection on Steam Line Pressure-Low is not blocked.
- (h) Time constant utilized in the rate/lag compensator are $t_3 = 50$ sec and $t_4 = 50$ sec.
- (i) Except when all MSIVs are closed and de-activated.
- (j) Except when all MFIVs, MFRVs, and associated bypass valves are closed and de-activated or isolated by a closed manual valve.

Table 3.3.2-1 (page 5 of 7)
Engineered Safety feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL ^(a) TRIP SETPOINT
5. Feedwater Isolation (continued)						
b. SG Water Level-High High (P-14)	1,2 ^(j)	3 per SG	J	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 75.2%	75%
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
6. Auxiliary Feedwater						
a. Manual	1,2,3	1 sw/pp	N	SR 3.3.2.13	NA	NA
b. Automatic Actuation Logic and Actuation Relays (Solid State Protection System)	1,2,3	2 trains	G	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA
c. Not used						
d.1SG Water Level-Low Low	1,2,3	3 per SG	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 7.0%	7.2%

(continued)

- (a) A channel is OPERABLE with an actual Trip Setpoint value outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established calibration tolerance band of the Nominal Trip Setpoint. A Trip Setpoint may be set more conservative than the Nominal Trip Setpoint as necessary in response to plant conditions.
- (j) Except when all MFIVs, MFRVs, and associated bypass valves are closed and de-activated or isolated by a closed manual valve.