

## ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	<p><u>AND</u></p> <p>C.2.2 Place the Rod Control System in a condition incapable of rod withdrawal.</p>	49 hours
D. One Power Range Neutron Flux-High channel inoperable.	<p>-----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing and setpoint adjustment of other channels. -----</p> <p>D.1.1 -----NOTE----- Only required when the Power Range Neutron Flux input to QPTR is inoperable. -----</p> <p>Perform SR 3.2.4.2.</p> <p><u>AND</u></p> <p>D.1.2 Place channel in trip <u>OR</u> D.2 Be in MODE 3.</p>	<p>12 hours from discovery of THERMAL POWER &gt; 75% RTP</p> <p><u>AND</u> Once per 12 hours thereafter</p> <p>72 hours</p> <p>78 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One channel inoperable.	<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 12 hours, or both the inoperable and the additional channel may be surveillance tested in bypass for up to 12 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 12 hours. This note is not intended to allow simultaneous testing of coincident channels on a routine basis</p>	
	E.1 Place channel in trip. <u>OR</u>	72 hours
	E.2 Be in MODE 3.	78 hours
F. One Intermediate Range Neutron Flux channel inoperable.	F.1 Reduce THERMAL POWER to < P-6. <u>OR</u>	24 hours
	F.2 Increase THERMAL POWER to > P-10.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
M. One channel inoperable.	-----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 12 hours, or both the inoperable and the additional channel may be surveillance tested in bypass for up to 12 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 12 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.	
	M.1 Place channel in trip. <u>OR</u>	72 hours
	M.2 Reduce THERMAL POWER to < P-7.	78 hours
N. One channel inoperable	N.1 Place channel in trip <u>OR</u>	6 hours
	N.2 Reduce THERMAL POWER to < P-7	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
O. One Low Auto-Stop Oil Pressure Turbine Trip channel inoperable	-----NOTE----- An inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels.	
	O.1 Place channel in trip. <u>OR</u>	72 hours
	O.2 Reduce THERMAL POWER TO < P-9	76 hours
P. One or more Turbine Stop Valve Closure, Turbine Trip channel(s) inoperable.	P.1 Place channel(s) in trip. <u>OR</u>	72 hours
	P.2 Reduce THERMAL POWER to < P-9.	76 hours
Q. One train inoperable.	-----NOTE----- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE.	
	Q.1 Restore train to OPERABLE status. <u>OR</u>	24 hours
	Q.2 Be in MODE 3.	30 hours
R. One RTB train inoperable.	-----NOTE----- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE.	
	R.1 Restore train to OPERABLE status. <u>OR</u>	24 hours
	R.2 Be in MODE 3.	30 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
S. One or more channels or trains inoperable.	S.1 Verify interlock is in required state for existing unit conditions.	1 hour
	<u>OR</u> S.2 Be in MODE 3.	7 hours
T. One or more channels or trains inoperable.	T.1 Verify interlock is in required state for existing unit conditions.	1 hour
	<u>OR</u> T.2 Be in MODE 2.	7 hours
U. One trip mechanism inoperable for one RTB.	U.1 Restore inoperable trip mechanism to OPERABLE status.	48 hours
	<u>OR</u> U.2 Be in MODE 3.	54 hours
V. Not used		
W. One channel inoperable	-----NOTE----- The inoperable channel may be bypassed for up to 72 hours for surveillance or maintenance. -----	
	W.1 Place channel in trip	6 hours
	<u>OR</u> W.2 Be in MODE 3	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
X. One or more SG Water Level Low - Low Trip Time Delay channel(s) inoperable.	<p>-----NOTE-----</p> <p>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 12 hours. This note is not intended to allow simultaneous testing of multiple TTD channels (processors) on a routine basis.</p>	
	X.1 Set the Trip Time Delay to zero seconds.	72 hours
	<u>OR</u>	
	X.2 Place the affected SG Water Level Low - Low channel(s) in trip.	72 hours
	<u>OR</u>	
	X.3 Be in MODE 3.	78 hours

## SURVEILLANCE REQUIREMENTS

### NOTE

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

SURVEILLANCE		FREQUENCY
SR 3.3.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.1.2	<p>NOTE</p> <p>Not required to be performed until 24 hours after THERMAL POWER is <math>\geq 15\%</math> RTP, but prior to exceeding 30% RTP.</p> <p>Compare results of calorimetric heat balance calculation to power range channel output. Adjust power range channel output if calorimetric heat balance calculation results exceed power range channel output by more than + 2% RTP.</p>	24 hours
SR 3.3.1.3	<p>NOTE</p> <p>Not required to be performed until 24 hours after THERMAL POWER is <math>\geq 50\%</math> RTP.</p> <p>Compare results of incore power distribution measurements to Nuclear Instrumentation System (NIS) AFD. Adjust NIS channel if absolute difference is <math>\geq 3\%</math>.</p>	31 effective full power days (EFPD)
SR 3.3.1.4	<p>NOTE</p> <p>This Surveillance must be performed on the reactor trip bypass breaker, for the local manual shunt trip only, prior to placing the bypass breaker in service.</p> <p>Perform TADOT.</p>	62 days on a STAGGERED TEST BASIS
SR 3.3.1.5	Perform ACTUATION LOGIC TEST.	92 days on a STAGGERED TEST BASIS

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.6	-----NOTE----- Not required to be performed until 72 hours after THERMAL POWER $\geq$ 75% RTP.	92 EFPD
	Calibrate excore channels to agree with incore power distribution measurements.	
SR 3.3.1.7	-----NOTE----- 3. Not required to be performed for source range instrumentation prior to entering MODE 3 from MODE 2 until 4 hours after entry into MODE 3.  4. For source range instrumentation, this Surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions.	184 days
	Perform COT.	

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.8	-----NOTE----- This Surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions. -----	-----NOTE----- Only required when not performed within previous 184 days -----
	Perform COT.	Prior to reactor startup <u>AND</u> 12 hours after reducing power below P-10 for power and intermediate instrumentation <u>AND</u> Four hours after reducing power below P-6 for source range instrumentation <u>AND</u> Every 184 days thereafter
SR 3.3.1.9	-----NOTE----- Verification of setpoint is not required. -----	92 days
	Perform TADOT.	
SR 3.3.1.10	-----NOTE----- This Surveillance shall include verification that the time constants are adjusted to the prescribed values. -----	24 months
	Perform CHANNEL CALIBRATION.	

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Table 3.3.1-1 (page 3 of 7)  
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL <sup>(a)</sup> TRIP SETPOINT
10. Reactor Coolant Flow—Low	1 <sup>(g)</sup>	3 per loop	M	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ 89.8% of measured loop flow	90% of measured loop flow
11. Reactor Coolant Pump (RCP) Breaker Position	1 <sup>(g)</sup>	1 per RCP	N	SR 3.3.1.14	NA	NA
12. Undervoltage RCPs	1 <sup>(g)</sup>	2 per bus	M	SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.16	≥ 7877 V each bus	8050 V each bus
13. Underfrequency RCPs	1 <sup>(g)</sup>	3 per bus	M	SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.16	≥ 53.9 Hz each bus	54.0 Hz each bus
14. a. Steam Generator (SG) Water Level—Low Low	1,2	3 per SG	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ 7.0%	7.2%
b. SG Water Level - Low Low Trip Time Delay (TTD)	1,2	4	X	SR 3.3.1.7 SR 3.3.1.10	TTD ≤ 1.01 TD (Note 3) for RCS loop ΔT variable input ≤ 50.7% RTP and TTD=0 for RCS loop ΔT variable input > 50.7 % RTP	TTD ≤ TD (Note 3) for RCS loop ΔT variable input 50% RTP TTD=0 for RCS loop ΔT variable input 50% RTP
15. Not used						

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- (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.
- (g) Above the P-7 (Low Power Reactor Trips Block) interlock.

### 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 required channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.2-1 for the channel(s) or train(s).	Immediately
B. One channel or train inoperable.	B.1 Restore channel or train to OPERABLE status.	48 hours
	<u>OR</u> B.2.1 Be in MODE 3.	54 hours
	<u>AND</u> B.2.2 Be in MODE 5.	84 hours
C. One train inoperable.	-----NOTE----- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE.	
	C.1 Restore train to OPERABLE status.	24 hours
	<u>OR</u> C.2.1 Be in MODE 3.	30 hours
	<u>AND</u> C.2.2 Be in MODE 5.	60 hours

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One channel inoperable.	<p>-----NOTE-----</p> <p>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 12 hours, or both the inoperable and the additional channel may be surveillance tested in bypass for up to 12 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 12 hours. This note is not intended to allow simultaneous testing of coincident channels on a routine basis.</p>	
	D.1 Place channel in trip.	72 hours
	<u>OR</u>	
	D.2.1 Be in MODE 3.	78 hours
	<u>AND</u>	
	D.2.2 Be in MODE 4.	84 hours

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One Containment Pressure channel inoperable.	-----NOTE-----  The inoperable channel and one additional channel may be surveillance tested in bypass for up to 12 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.  -----	
	E.1 Place channel in bypass. <u>OR</u>	72 hours
	E.2.1 Be in MODE 3. <u>AND</u>	78 hours
	E.2.2 Be in MODE 4.	84 hours

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One channel or train inoperable.	F.1 Restore channel or train to OPERABLE status.	48 hours
	<u>OR</u>	
	F.2.1 Be in MODE 3.	54 hours
	<u>AND</u>	
	F.2.2 Be in MODE 4.	60 hours
G. One train inoperable.	-----NOTE----- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. -----	
	G.1 Restore train to OPERABLE status.	24 hours
	<u>OR</u>	
	G.2.1 Be in MODE 3.	30 hours
	<u>AND</u>	
	G.2.2 Be in MODE 4.	36 hours
H. One train inoperable.	-----NOTE----- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. -----	
	H.1 Restore train to OPERABLE status.	24 hours
	<u>OR</u>	
	H.2 Be in MODE 3.	30 hours

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. One channel inoperable.	-----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. -----	
	I.1 Place channel in trip. <u>OR</u>	72 hours
	I.2. Be in MODE 2.	78 hours
J. One channel inoperable	-----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 12 hours. This note is not intended to allow simultaneous testing of coincident channels on a routine basis. -----	
	J.1 Place channel in trip. <u>OR</u>	72 hours
	J.2. Be in MODE 3.	78 hours
K. One channel inoperable	K.1.1 Place the channel in cut-out. <u>AND</u>	6 hours
	K.1.2 Return the inoperable channel to an OPERABLE status <u>OR</u>	48 hours
	K.2.1 Be in MODE 3. <u>AND</u>	54 hours
	K.2.2 Be in MODE 5	84 hours

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
L. One or more channels or trains inoperable.	L.1 Verify interlock is in required state for existing unit condition.	1 hour
	<u>OR</u>	
	L.2.1 Be in MODE 3. <u>AND</u> L.2.2 Be in MODE 4.	7 hours 13 hours
M. One or more SG Water Level - Low Low Trip Time Delay channel(s) inoperable.	-----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 12 hours. This note is not intended to allow simultaneous testing of multiple TTD channels (processors) on a routine basis. -----	
	M.1 Set the Trip Time Delay to zero seconds.	72 hours
	<u>OR</u>	
	M.2 Place the affected SG Water Level - Low Low channel(s) in trip.	72 hours
	<u>OR</u>	
	M.3.1 Be in MODE 3. <u>AND</u> M.3.2 Be in MODE 4.	78 hours 84 hours

(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 12 hours, or with the inoperable channel in trip, one additional channel may be surveillance tested in bypass for up to 12 hours. This note is not intended to allow simultaneous testing of coincident channels on a routine basis. -----	
	O.1 Place channel in trip. <u>OR</u>	72 hours
	O.2.1 Be in MODE 3 <u>AND</u>	78 hours
	O.2.2 Be in MODE 5.	108 hours

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
P. One channel inoperable.	<p>-----NOTE-----  The inoperable channel and one additional channel may be surveillance tested in bypass for up to 12 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.1 Place channel in bypass.	72 hours
	<u>OR</u>	
	P.2.1 Be in MODE 3	78 hours
	<u>AND</u>	
	P.2.2 Be in MODE 5.	108 hours

# SURVEILLANCE REQUIREMENTS

-----NOTE-----  
Refer to Table 3.3.2-1 to determine which SRs apply for each ESFAS Function.  
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SURVEILLANCE		FREQUENCY
SR 3.3.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.2.2	Perform ACTUATION LOGIC TEST.	92 days on a STAGGERED TEST BASIS
SR 3.3.2.3	Not used.	
SR 3.3.2.4	Perform MASTER RELAY TEST.	92 days on a STAGGERED TEST BASIS
SR 3.3.2.5	Perform COT.	184 days
SR 3.3.2.6	Perform SLAVE RELAY TEST.	24 months
SR 3.3.2.7	Not used.	
SR 3.3.2.8	-----NOTE----- Verification of setpoint not required for manual initiation functions. ----- Perform TADOT.	24 months
SR 3.3.2.9	-----NOTE----- This Surveillance shall include verification that the time constants are adjusted to the prescribed values. ----- Perform CHANNEL CALIBRATION.	24 months
SR 3.3.2.10	-----NOTE----- Not required to be performed for the turbine driven AFW pump until 24 hours after SG pressure is $\geq$ 650 psig. ----- Verify ESF RESPONSE TIMES are within limits.	24 months on a STAGGERED TEST BASIS

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## SURVEILLANCE REQUIREMENTS

## -----NOTE-----

Refer to Table 3.3.6-1 to determine which SRs apply for each Containment Ventilation Isolation Function.

SURVEILLANCE		FREQUENCY
SR 3.3.6.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.6.2	-----NOTE----- This surveillance is only applicable to the actuation logic of the ESFAS Instrumentation. ----- Perform ACTUATION LOGIC TEST.	92 days on a STAGGERED TEST BASIS
SR 3.3.6.3	-----NOTE----- This surveillance is only applicable to the master relays of the ESFAS Instrumentation. ----- Perform MASTER RELAY TEST.	92 days on a STAGGERED TEST BASIS
SR 3.3.6.4	Perform CFT.	92 days
SR 3.3.6.5	Perform SLAVE RELAY TEST.	24 months
SR 3.3.6.6	Not used	
SR 3.3.6.7	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.6.8	Verify ESF Containment Ventilation Isolation RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS