CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2NOTE Only required when the Power Range Neutron Flux input to QPTR is inoperable.	
	Perform SR 3.2.4.2.	12 hours from discovery of THERMAL POWER > 75% RTP
		AND
		Once per 12 hours thereafter
D. One channel inoperable.	<ul> <li>D.1NOTES</li></ul>	
	bypassed for up to 4 hours for surveillance testing of other channels.	
	Place channel in trip.	6 hours

### Cook Nuclear Plant Unit 1

3.3.1-2

Amendment No. 287,300

CONDITION		REQUIRED ACTION	COMPLETION TIME
<ol> <li>One Intermediate Range Neutron Flux channel inoperable.</li> </ol>	E.1	Reduce THERMAL POWER to < P-6.	24 hours
	E.2	Increase THERMAL POWER to > P-10.	24 hours
Two Intermediate Range Neutron Flux channels inoperable.	F.1	NOTE Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM.	
	AND	Suspend operations involving positive reactivity additions.	Immediately
	F.2	Reduce THERMAL POWER to < P-6.	2 hours
G. One Source Range Neutron Flux channel inoperable.	G.1	NOTE Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM.	
		Suspend operations involving positive reactivity additions.	Immediately
H. Two Source Range Neutron Flux channels inoperable. '	H.1	Open reactor trip breakers (RTBs).	Immediately

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ACTIONS (	(continued)

ACTIONS (continued)	· · ·		· · · · · · · · · · · · · · · · · · ·
CONDITION		REQUIRED ACTION	COMPLETION TIME
I. One Source Range Neutron Flux channel inoperable.	1.1	Restore channel to OPERABLE status.	48 hours
J. One train inoperable.	J.1	NOTE One train may be bypassed for up to 4 hours for	
		surveillance testing, provided the other train is OPERABLE.	
		Restore train to OPERABLE status.	6 hours
K. One RTB train inoperable.	К.1	NOTE One train may be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE.	
		Restore train to OPERABLE status.	24 hours
L. One or more channels inoperable.	L.1	Verify interlock is in required state for existing unit conditions.	1 hour
M. One trip mechanism inoperable for one RTB.	M.1	Restore inoperable trip mechanism to OPERABLE status.	48 hours
N. Required Action and associated Completion Time of Condition D not	N.1	Reduce THERMAL POWER to < P-7.	6 hours
met for Function 8.a, 9, 10, 11, 12, or 13.			

Cook Nuclear Plant Unit 1

### ESFAS Instrumentation 3.3.2

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One channel inoperable.	D.1NOTES 1. For Functions with installed bypass test capability, one channel may be bypassed for up to 4 hours for surveillance testing.	
	2. For Functions with no installed bypass test capability, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels.	
	Place channel in trip.	6 hours
E. One channel inoperable.	E.1NOTE One additional channel may be bypassed for up to 4 hours for surveillance testing.  Place channel in bypass.	6 hours
F. One channel per bus inoperable.	F.1 Place channel in trip.	1 hour
G. One or more channels inoperable.	G.1 Verify interlock is in required state for existing unit condition.	1 hour

Cook Nuclear Plant Unit 1

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ACTIONS (continued)

CONDITION		REQUIRED ACTION	COMPLETION TIME
H. Required Action and associated Completion	H.1	Be in MODE 3.	6 hours
Time of Condition B not met for Function 6.g.			
<u>OR</u>	· · .		
Required Action and associated Completion Time of Condition D not			
met for Function 6.f.			
	· · ·		· · · · · · · · · · · · · · · · · · ·

# ESFAS Instrumentation 3.3.2

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. Required Action and associated Completion Time of Condition B not met for Function 8.a. <u>OR</u>	<ul> <li>I.1 Be in MODE 3.</li> <li><u>AND</u></li> <li>I.2 Be in MODE 4.</li> </ul>	6 hours 12 hours
Required Action and associated Completion Time of Condition C not met for Function 4.b, 5.a, 6.a, 6.b, or 7.b. <u>OR</u>		
Required Action and associated Completion Time of Condition D not met for Function 1.c, 1.d, 1.e.(1), 1.e.(2), 4.d, 4.e, 5.b, 6.c, 7.c, or 8.c.		
<u>OR</u>		
Required Action and associated Completion Time of Condition E not met for Function 2.c, 3.b.(3), or 4.c.		
<u>OR</u>		
Required Action and associated Completion Time of Condition F not met for Function 6.e.		
<u>OR</u>		
Required Action and associated Completion Time of Condition G not met for Function 8.b.		

ACTIONS /	(continued)	
ACTIONS (	continuea	)

r	CONDITION	REQUIRED ACTION	COMPLETION TIME
J.	Required Action and associated Completion Time of Condition B not met for Function 1.a, 2.a, 3.a.(1), 3.b.(1), or 7.a. <u>OR</u>	J.1 Be in MODE 3. AND J.2 Be in MODE 5.	6 hours 36 hours
	Required Action and associated Completion Time of Condition C not met for Function 1.b, 2.b, 3.a.(2), or 3.b.(2).		
К.	Required Action and associated Completion Time of Condition B not met for Function 4.a.	K.1 Declare associated steam generator stop valve (SGSV) inoperable.	Immediately

#### SURVEILLANCE REQUIREMENTS

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

	SURVEILLANCE	FREQUENCY
SR 3.3.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.2.2	NOTE Verification of relay setpoints not required.	
	Perform TADOT.	31 days

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<u> </u>	EQUIREMENTS (continued)	
	SURVEILLANCE	FREQUENCY
SR 3.3.2.3	Perform ACTUATION LOGIC TEST.	92 days on a STAGGERED TEST BASIS
SR 3.3.2.4	Perform MASTER RELAY TEST.	92 days on a STAGGERED TEST BASIS
SR 3.3.2.5	NOTENOTENOTENOTENOTENOTENOTENOTENOTENOTE	
	Perform TADOT.	92 days
SR 3.3.2.6	NOTE For Functions 1.c, 2.c, 3.b.(3), 4.c, and 7.c, the associated transmitters shall be exercised during the performance of SR 3.3.2.6.	
	Perform COT.	184 days
SR 3.3.2.7	Perform CHANNEL CALIBRATION.	184 days
SR 3.3.2.8	Perform SLAVE RELAY TEST.	24 months
SR 3.3.2.9	Perform TADOT.	<sup>-</sup> 24 months
SR 3.3.2.10	Perform CHANNEL CALIBRATION	24 months
SR 3.3.2.11	Perform ACTUATION LOGIC TEST.	24 months

Cook Nuclear Plant Unit 1

Amendment No. <del>287</del>, 300

SURVEILLANCE REQUIREMENTS (continued)

	SÜRVEILLANCE	FREQUENCY
SR 3.3.2.12	NOTENOTENOTENOTENOTENOTENOTENOTENOTE	
	Verify ESF RESPONSE TIMES are within limit.	24 months on a STAGGERED TEST BASIS

· · ·		MC FUNCTION	APPLICABLE DDES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1.	Saf	ety Injection (SI)	<u> </u>			· · · · ·	<u> </u>
	a.	Manual Initiation	1,2,3,4	1 per train	В	SR 3.3.2.9	NA
•	b.	Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	С	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
	<b>c.</b>	Containment Pressure - High	1,2,3	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 1.17 psig
•	d.	Pressurizer Pressure - Low	1,2,3 <sup>(a)</sup>	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 1765 psig
	e.	Steam Line Pressure		· . · ·			
	•	(1) Low	1,2,3 <sup>(b)</sup>	1 per steam line	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 481.3 <sup>(c)</sup> psig
		(2) High Differential Pressure Between Steam Lines (per steam line)	1,2,3 <sup>(b)</sup>	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10	≤ 112 psig
2.	Cor	ntainment Spray					
	a.	Manual Initiation	1,2,3,4	1 per train	В	SR 3.3.2.9	NA
• •	b.,	Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
	c.	Containment Pressure - High High	1,2,3	4	E	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 2.97 psig

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

(a) Above the P-11 (Pressurizer Pressure) interlock.

(b) Above the P-12 ( $T_{avg}$  - Low Low) interlock.

(c) Time constants used in the lead/lag controller are  $t_1 \ge 50$  seconds and  $t_2 \le 5$  seconds.

**ESFAS** Instrumentation

3.3.2

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

• •	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
•	Containment Isolation					
	a. Phase A Isolation			· · ·	· · · · ·	
	(1) Manual Initiation	1,2,3,4	1 per train	В	SR 3.3.2.9	NA
	(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	С	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
	(3) SI Input from ESFAS	1,2,3,4	Refer to Function Reference for the second s	tion 1 (Safety I	njection) for all initi	ation functions and
•	b. Phase B Isolation					
	(1) Manual Initiation	1,2,3,4	1 per train	В	SR 3.3.2.9	NA
	(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
	(3) Containment Pressure – High High	1,2,3	4	E	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10	≤ 2.97 psig
	Steam Line Isolation		•		• •	
	a. Manual Initiation (per steam line)	1,2 <sup>(d)</sup> ,3 <sup>(d)</sup>	2	В	SR 3.3.2.9	NÁ
	b. Automatic Actuation Logic and Actuation Relays	1,2 <sup>(d)</sup> ,3 <sup>(d)</sup>	2 trains	С	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
	c. Containment Pressure - High High	1,2 <sup>(d)</sup> ,3 <sup>(d)</sup>	4	E	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 2.97 psig
	d. Steam Line Pressure - Low	1,2 <sup>(d)</sup> ,3 <sup>(b)(d)</sup>	1 per steam line	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 481.3 <sup>(c)</sup> psig

(b) Above the P-12 ( $T_{avg}$  - Low Low) interlock.

(c) Time constants used in the lead/lag controller are  $t_1 \ge 50$  seconds and  $t_2 \le 5$  seconds.

(d) Except when all SGSVs are closed.

3.3.2-9

Table 3.3.2-1 (page 3 of 4)

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Engineere	u Salely	realure A	<i>ACLUATION</i>	System.	instrumentation

  	· · · ·	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4.	Ste	am Line Isolation	······································		· ·		
	e.	High Steam Flow in Two Steam Lines (per steam line)	1,2 <sup>(d)</sup> ,3 <sup>(b)(d)</sup>	2	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10	(e)
:		Coincident with T <sub>avg</sub> - Low Low	1,2 <sup>(d)</sup> ,3 <sup>(b)(d)</sup>	1 per loop	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10	≥ 538.8°F
5.		bine Trip and Feedwater lation		er Territoria Territoria			
•	a.	Automatic Actuation Logic and Actuation Relays	1,2 <sup>(f)</sup> ,3 <sup>(f)</sup>	2 trains	С	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
	b.	SG Water Level - High High (per SG)	1,2 <sup>(f)</sup> ,3 <sup>(f)</sup>	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 68.0%
	С.	SI Input from ESFAS	1,2 <sup>(f)</sup> ,3 <sup>(f)</sup>	Refer to Func requirements		njection) for all initi	ation functions and
6 <sub>.</sub>	Aux	kiliary Feedwater				· .	
•	а.	Automatic Actuation Logic and Actuation Relays (Solid State Protection System)	1,2,3	2 trains	<b>C</b>	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
·	b.	Automatic Actuation Logic and Actuation Relays (Balance of Plant ESFAS)	1,2,3	2 trains	с	SR 3.3.2.11	NA

(b) Above the P-12 (T<sub>avg</sub> - Low Low) interlock.

(d) Except when all SGSVs are closed.

(e) Less than or equal to a function defined as △P corresponding to 1.56E6 lb/hr below 20% load, △P increasing linearly from 1.56E6 lb/hr at 20% load to 3.93E6 lb/hr at 100% load.

(f) Except when all main feedwater isolation valves or main feedwater regulating valves are closed and de-activated or isolated by a closed manual valve.

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

· ·		FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
6.	Aux	kiliary Feedwater					
	C.	SG Water Level - Low Low (per SG)	1,2,3	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 4.0%
	d.	SI Input from ESFAS	1,2,3	Refer to Func requirements	tion 1 (Safety I	njection) for all initi	ation functions and
	е.	Loss of Voltage (per bus)	1,2,3	3	F	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.7 SR 3.3.2.12	≥ 3238.9 V and ≤ 3332.6 V with ≥ 1.8 sec and ≤ 2.2 sec time delay
	f.	Undervoltage Reactor Coolant Pump	1,2	1 per bus	• D •	SR 3.3.2.5 SR 3.3.2.7 SR 3.3.2.12	≥ 2725 V
	<b>g.</b> .	Trip of all Main Feedwater Pumps (per pump)	1,2	2	В	SR 3.3.2.9 SR 3.3.2.12	NA
7.	Red	ntainment Air circulation/Hydrogen mmer (CEQ) System					
	a.	Manual Initiation	1,2,3,4	1 per train	В	SR 3.3.2.9	NA
•.	b.	Automatic Actuation Logic and Actuation Relays	1,2,3	2 trains	С	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
•	С.	Containment Pressure – High	1,2,3	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 1.17 psig
8.	ES	FAS Interlocks					
	a.	Reactor Trip, P-4	1,2,3	1 per train	В	SR 3.3.2.9	NA
	b.	Pressurizer Pressure, P-11	1,2,3	3	G	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10	≤ 1915 psig
•	C.	T <sub>avg</sub> - Low Low, P-12	1,2,3 <sup>(b)</sup>	1 per loop	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10	≥ 538.8°F

(b) Above the P-12 (T $_{avg}$  - Low Low) interlock.

Cook Nuclear Plant Unit 1

3.3.2-11

Amendment No. 287, 300

CONDITION		REQUIRED ACTION	COMPLETION TIME
	C.2	NOTE Only required when the Power Range Neutron Flux input to QPTR is inoperable.	
		 Perform SR 3.2.4.2.	12 hours from discovery of THERMAL POWER
			> 75% RTP
			AND Once per 12 hours
			thereafter
D. One channel inoperable.	D.1	NOTES	
		1. For Functions with installed bypass test	
	· · · · · · · · · · · · · · · · · · ·	capability, one channel may be bypassed for up to 4 hours for	
		surveillance testing and setpoint adjustment.	
		2 Fas Functions with us	
		<ol> <li>For Functions with no installed bypass test capability, the</li> </ol>	
		installed bypass test capability, the inoperable channel, except for Function 11 channel, may be bypassed for up to 4 hours for surveillance	
		installed bypass test capability, the inoperable channel, except for Function 11 channel, may be bypassed for up to	

CONDITION	н. 1. Ц	REQUIRED ACTION	COMPLETION TIME
E. One Intermediate Range Neutron Flux channel inoperable.	<b>E.1</b>	Reduce THERMAL POWER to < P-6.	24 hours
	<u>OR</u>		
	E.2	Increase THERMAL POWER to > P-10.	24 hours
F. Two Intermediate Range Neutron Flux channels inoperable.	F.1	NOTE Limited plant cooldown or boron dilution is allowed	
		provided the change is accounted for in the calculated SDM.	
		Suspend operations involving positive reactivity additions.	Immediately
	AND		
	F.2	Reduce THERMAL POWER to < P-6.	2 hours
G. One Source Range Neutron Flux channel inoperable.	G.1	Limited plant cooldown or boron dilution is allowed	
		provided the change is accounted for in the calculated SDM.	
	· · ·	Suspend operations involving positive reactivity additions.	Immediately
H. Two Source Range Neutron Flux channels	H.1	Open reactor trip breakers (RTBs).	Immediately

ACTI	ONS (continued)	· ·		1 <sup></sup>
· ·	CONDITION		REQUIRED ACTION	COMPLETION TIME
	One Source Range Neutron Flux channel inoperable.	<b>I.1</b>	Restore channel to OPERABLE status.	48 hours
J.	One train inoperable.	J.1	One train may be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE. Restore train to OPERABLE status.	6 hours
	One RTB train inoperable.	K.1	NOTE One train may be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE.	
			Restore train to OPERABLE status.	24 hours
L.	One or more channels inoperable.	L.1	Verify interlock is in required state for existing unit conditions.	1 hour
М.	One trip mechanism inoperable for one RTB.	M.1	Restore inoperable trip mechanism to OPERABLE status.	48 hours
	Required Action and associated Completion Time of Condition D not met for Function 8.a, 9, 10, 11, 12, or 13.	N.1	Reduce THERMAL POWER to < P-7.	6 hours

Cook Nuclear Plant Unit 2

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One channel inoperable.	D.1NOTES 1. For Functions with	
	installed bypass test capability, one channel may be bypassed for up	
	to 4 hours for surveillance testing.	
	<ol> <li>For Functions with no installed bypass test</li> </ol>	
	capability, the inoperable channel may be bypassed for up to	
	4 hours for surveillance testing of other channels.	
	Place channel in trip.	6 hours
E. One channel inoperable.	E.1NOTE	
	One additional channel may be bypassed for up to 4 hours for surveillance	
	testing.	
	Place channel in bypass.	6 hours
F. One channel per bus inoperable.	F.1 Place channel in trip.	1 hour
G. One or more channels inoperable.	G.1 Verify interlock is in required state for existing unit condition.	1 hour

### ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. Required Action and associated Completion Time of Condition B not met for Function 6.g.	H.1 Be in MODE 3.	6 hours
OR		
Required Action and associated Completion Time of Condition D not met for Function 6.f.		

# ESFAS Instrumentation 3.3.2

CC	NDITION		REQUIRED	ACTION	COMPLETI	ON TIME
	ed Action and	I.1	Be in MODE	3.	6 hours	
Time of	ated Completion f Condition B not Function 8.a.	AND				
<u>OR</u>		1.2	Be in MODE	4.	12 hours	
associa Time o met for	ed Action and ated Completion f Condition C not Function 4.b, a, 6.b, or 7.b.					
<u>OR</u>						an a
associa Time o met for 1.e.(1),	ed Action and ated Completion f Condition D not Function 1.c, 1.d, 1.e.(2), 4.d, 4.e, c, 7.c, or 8.c.					· · · ·
OR				• •	· · · · ·	e K
associa Time o	ed Action and ated Completion f Condition E not Function 2.c, or 4.c.					
<u>OR</u>						
associa Time o	ed Action and ated Completion f Condition F not Function 6.e.					
OR						
associa Time o	ed Action and ated Cómpletion f Condition G not Function 8.b.					
<u></u>	······································	-1	· .			· · ·
	ar Plant Unit 2		3.3.2-4	ал <sup>а</sup> -	Amondma	ent No. <del>269</del> , 28

ACTIONS (continued)		· · · · · · · · · · · · · · · · · · ·
CONDITION	REQUIRED, ACTION	COMPLETION TIME
J. Required Action and associated Completion Time of Condition B not met for Function 1.a,	J.1 Be in MODE 3. AND J.2 Be in MODE 5.	6 hours
2.a, 3.a.(1), 3.b.(1), or 7.a. <u>OR</u> Required Action and associated Completion Time of Condition C not met for Function 1.b, 2.b, 3.a.(2), or 3.b.(2).	J.2 Be in MODE 5.	36 hours
K. Required Action and associated Completion Time of Condition B not met for Function 4.a.	K.1 Declare associated steam generator stop valve (SGSV) inoperable.	Immediately

#### SURVEILLANCE REQUIREMENTS

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

	SURVEILLANCE	FREQUENCY
SR 3.3.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.2.2	NOTENOTENOTENOTENOTENOTE	
•	Perform TADOT.	31 days

ESFAS Instrumentation 3.3.2

	SURVEILLANCE	FREQUENCY
SR 3.3.2.3	Perform ACTUATION LOGIC TEST.	92 days on a STAGGERED TEST BASIS
SR 3.3.2.4	Perform MASTER RELAY TEST.	92 days on a STAGGERED TEST BASIS
00.005	NOTE	
SR 3.3.2.5	NOTE Verification of relay setpoints not required.	
	Perform TADOT.	92 days
SR 3.3.2.6	NOTE	
	For Functions 1.c, 2.c, 3.b.(3), 4.c, and 7.c, the	· ·
	associated transmitters shall be exercised during the performance of SR 3.3.2.6.	
	Perform COT.	184 days
SR 3.3.2.7	Perform CHANNEL CALIBRATION.	184 days
SR 3.3.2.8	Perform SLAVE RELAY TEST.	24 months
SR 3.3.2.9	Perform TADOT.	24 months
SR 3.3.2.10	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.2.11	Perform ACTUATION LOGIC TEST.	24 months

### Cook Nuclear Plant Unit 2

3.3.2

### SURVEILLANCE REQUIREMENTS (continued)

(

	SURVEILLANCE	FREQUENCY
SR 3.3.2.12	NOTE Not required to be performed for the turbine driven AFW pump until 24 hours after ≥ 850 psig in the steam generator.	
	Verify ESF RESPONSE TIMES are within limit.	24 months on a STAGGERED TEST BASIS

#### Table 3.3.2-1 (page 1 of 4)

Engineered Safety Feature Actuation System Instrumentation

• •		FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
	Saf	ety Injection (SI)			·····	· · · · · · · · · · · · · · · · · · ·	
•	a. <sub>.</sub>	Manual Initiation	1,2,3,4	1 per train	В	SR 3.3.2.9	NA
	b.	Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	С	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
	C.	Containment Pressure - High	1,2,3	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 1.17 psig
	d.	Pressurizer Pressure - Low	1,2,3 <sup>(a)</sup>	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 1765 psig
	e.	Steam Line Pressure			,		
		(1) Low	1,2,3 <sup>(b)</sup>	1 per steam line	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 481.3 <sup>(c)</sup> psig
	•	(2) High Differential Pressure Between Steam Lines (per steam line)	1,2,3 <sup>(b)</sup>	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10	≤ 112 psig
2.	Cor	ntainment Spray					
	a.	Manual Initiation	1,2,3,4	1 per train	Β.	SR 3.3.2.9	NA
	þ.	Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
	C.	Containment Pressure - High High	1,2,3	4	E	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 2.97 psig

(a) Above the P-11 (Pressurizer Pressure) interlock.

(b) Above the P-12 (T<sub>avg</sub> - Low Low) interlock.

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(c) Time constants used in the lead/lag controller are  $t_1 \ge 50$  seconds and  $t_2 \le 5$  seconds.

3.3.2

· <u>·</u>	· · ·	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3.	Со	ntainment Isolation					
	a.	Phase A Isolation		· . · .	 		
		(1) Manual Initiation	1,2,3,4	1 per train	В	SR 3.3.2.9	NA
	- • . . •	(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	С	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
•	н Ч. н.	(3) SI Input from ESFAS	1,2,3,4	Refer to Func requirements.		njection) for all initia	ation functions and
	þ. '	Phase B Isolation		e tra anna anna anna anna anna anna anna			
		(1) Manual Initiation	1,2,3,4	1 per train	В	SR-3.3.2.9	NA
		(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	· C	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
		(3) Containment Pressure – High High	1,2,3	4	È.	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10	≤ 2.97 psig
4.	Ste	am Line Isolation			•		
	a.	Manual Initiation (per steam line)	1,2 <sup>(d)</sup> ,3 <sup>(d)</sup>	2	В	SR 3.3.2.9	NA
	b.	Automatic Actuation Logic and Actuation Relays	1,2 <sup>(d)</sup> ,3 <sup>(d)</sup>	2 trains	С	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
	. C.	Containment Pressure - High High	1,2 <sup>(d)</sup> ,3 <sup>(d)</sup>	4	E	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 2.97 psig
•	d.	Steam Line Pressure - Low	1,2 <sup>(d)</sup> ,3 <sup>(b)(d)</sup>	1 per steam line	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 481.3 <sup>(c)</sup> psig

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

(b) Above the P-12 (T<sub>avg</sub> - Low Low) interlock.

(c) Time constants used in the lead/lag controller are  $t_1 \ge 50$  seconds and  $t_2 \le 5$  seconds.

(d) Except when all SGSVs are closed.

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**ESFAS** Instrumentation 3.3.2

	Table 3.3.2-1	(page 3 of 4)	· .

Engineered	Safety I	Feature /	Actuation	System	Instrumentation
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	· · · · · · · · · · · · · · · · · · ·	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4.	Ste	am Line Isolation					, <u>, , , , , , , , , , , , , , , , , , </u>
	e.	High Steam Flow in Two Steam Lines (per steam line)	1,2 <sup>(d)</sup> ,3 <sup>(b)(d)</sup>	2	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10	(e)
		Coincident with T <sub>avg</sub> - Low Low	1,2 <sup>(d)</sup> ,3 <sup>(b)(d)</sup>	1 per loop	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10	≥ 538.8°F
5.	Tur Isol	bine Trip and Feedwater lation		· · ·			
	а.	Automatic Actuation Logic and Actuation Relays	1,2 <sup>(f)</sup> ,3 <sup>(f)</sup>	2 trains	С	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
	b.	SG Water Level - High High (per SG)	1,2 <sup>(f)</sup> ,3 <sup>(f)</sup>	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 71.6%
	<b>C.</b>	SI Input from ESFAS	1,2 <sup>(f)</sup> ,3 <sup>(f)</sup>	Refer to Fund requirements		njection) for all ini	itiation functions and
6.	Aux	kiliary Feedwater	(	•			
	a.	Automatic Actuation Logic and Actuation Relays (Solid State Protection System)	1,2,3	2 trains	C	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
	b.	Automatic Actuation Logic and Actuation Relays (Balance of Plant ESFAS)	1,2,3	2 trains	С	SR 3.3.2.11	NA

(b) Above the P-12 (T<sub>avg</sub> - Low Low) interlock.

(d) Except when all SGSVs are closed.

- (e) Less than or equal to a function defined as △P corresponding to 1.75E6 lb/hr below 20% load, △P increasing linearly from 1.75E6 lb/hr at 20% load to 4.55E6 lb/hr at 100% load.
- (f) Except when all main feedwater isolation valves or main feedwater regulating valves are closed and de-activated or isolated by a closed manual valve.

### Table 3.3.2-1 (page 4 of 4)

Engineered Sa	fety Feature	Actuation Syst	tem Instrumenta	ation
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		APPLICABLE ODES OR OTHER SPECIFIED	REQUIRED		SURVEILLANCE	
	FUNCTION	CONDITIONS	CHANNELS	CONDITIONS	REQUIREMENTS	ALLOWABLE VALUE
6.	Auxiliary Feedwater					
	c. SG Water Level - Low Low (per SG)	1,2,3	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 20.8%
	d. SI Input from ESFAS	1,2,3	Refer to Func requirements.			ation functions and
:	e. Loss of Voltage (per bus)	1,2,3	3	F	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.7 SR 3.3.2.12	≥ 3207.2 V and ≤ 3302.7 V with ≥ 1.8 sec and ≤ 2.2 sec time delay
	f. Undervoltage Reactor Coolant Pump	1,2	1 per bus	D	SR 3.3.2.5 SR 3.3.2.7 SR 3.3.2.12	≥ 2725 V
	<ul> <li>g. Trip of all Main Feedwater Pumps (per pump)</li> </ul>	1,2	· 1 .	В	SR 3.3.2.9 SR 3.3.2.12	NA
7.	Containment Air Recirculation/Hydrogen Skimmer (CEQ) System				. *	
	a. Manual Initiation	1,2,3,4	1 per train	В	SR 3.3.2.9	NA
	b. Automatic Actuation Logic and Actuation Relays	1,2,3	2 trains	С	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
	c. Containment Pressure – High	1,2,3	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 1.17 psig
8.	ESFAS Interlocks					
•	a. Reactor Trip, P-4	1,2,3	1 per train	В	SR 3.3.2.9	NA
1	<ul> <li>b. Pressurizer Pressure, P-11</li> </ul>	1,2,3	3	G	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10	≤ 1915 psig
	c. T <sub>avg</sub> - Low Low, P-12	1,2,3 <sup>(b)</sup>	1 per loop	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10	≥ 538.8°F

(b) Above the P-12 (T<sub>avg</sub> - Low Low) interlock.

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