Table 3.3.1-1 (page 4 of 8)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TA3.3-176 ~~TRIP SETPOINT~~ ~~(a)~~
11. Loss of Reactor Coolant Pump (RCP) ~~Breaker Position~~ CL3.3-195						
a. RCP Breaker Open~~Single Loop~~	1 ~~(h)~~	1 per RCP	~~M~~	SR 3.3.1.14	NA	~~NA~~
b. Underfrequency 4 kV Buses 11 and 12 (21 and 22) ~~Two Loops~~ CL3.3-196	1 ~~(i)~~	2 per bus~~1 per RCP~~	CL3.3-156 ~~M~~	SR 3.3.1.9 SR 3.3.1.10 ~~SR 3.3.1.14~~	CL3.3-197 ≥ 58.2 Hz~~NA~~	~~NA~~
12. Undervoltage on 4 kV Buses 11 and 12 (21 and 22) ~~RCPs~~ CL3.3-201	1 ~~(g)~~	CL3.3-202 2~~(3)~~ per bus	CL3.3-156 ~~M~~	SR 3.3.1.9 SR 3.3.1.10 CL3.3-186 ~~SR 3.3.1.16~~	X3.3-177 ≥ 76% rated bus voltage~~(4760) V~~	~~≥ (4030) V~~
~~13. Underfrequency RCPs~~ CL3.3-195	~~1 (g)~~	~~(3) per bus~~	~~M~~	~~SR 3.3.1.9~~ ~~SR 3.3.1.10~~ ~~SR 3.3.1.16~~	~~≥ (57.1) Hz~~	~~≥ (57.5) Hz~~
13~~4~~. Steam Generator (SG) Water Level - Low Low	1,2	~~(34 per SG)~~	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 CL3.3-186 ~~SR 3.3.1.16~~	CL3.3-203 ≥ 11.3~~(30.4)~~%	~~≥ (32.3)%~~
~~15. SG Water Level - Low~~	~~1,2~~	~~2 per SG~~	~~E~~	~~SR 3.3.1.1~~ ~~SR 3.3.1.7~~ ~~SR 3.3.1.10~~ ~~SR 3.3.1.16~~	CL3.3-204 ~~≥ (30.4)%~~	~~≥ (32.3)%~~
~~Coincident with Steam Flow/ Feedwater Flow Mismatch~~	~~1,2~~	~~2 per SG~~	~~E~~	~~SR 3.3.1.1~~ ~~SR 3.3.1.7~~ ~~SR 3.3.1.10~~ ~~SR 3.3.1.16~~	~~≤ (42.5)% full steam flow at RTP~~	~~≤ (40)% full steam flow at RTP~~

R-4

R-4

R-12

R-13

(continued)

~~(a) Reviewer's Note: Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ TA3.3-176

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One or more Containment Pressure channel(s) inoperable.	~~E.1~~ --------NOTE-------- One ~~additional~~ channel may be bypassed for up to ~~[~~4~~]~~ hours for surveillance testing. ----------	PA3.3-153 CL3.3-222 R-13
	E.1.1 Place inoperable channel(s) in trip~~bypass~~.	6 hours
	AND	
	E.1.2 Verify one channel per pair OPERABLE.	6 hours
	OR	R-13
	E.2.1 Be in MODE 3.	12 hours
	AND	
	E.2.2 Be in MODE 4.	18 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One channel or train inoperable.	F.1 Restore channel or train to OPERABLE status.	48 hours
	OR	
	F.2.1 Be in MODE 3.	54 hours
	AND	
	F.2.2 Be in MODE 4.	60 hours

(continued)

G. One train inoperable.	~~G.1~~ --------NOTE--------- One train may be bypassed for up to 8~~[4]~~ hours for surveillance testing provided the other train is OPERABLE. ----------	PA3.3-153 CL3.3-224
	G.1 Restore train to OPERABLE status.	6 hours
	OR	
	G.2.1 Be in MODE 3.	12 hours
	AND	
	G.2.2 Be in MODE 4.	18 hours

R-13

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~H. One train inoperable.~~	~~H.1 --------NOTE--------~~ ~~One train may be bypassed for up to [4] hours for surveillance testing provided the other train is OPERABLE.~~ ~~----------~~	CL3.3-225
	~~Restore train to OPERABLE status.~~	~~6 hours~~
	~~OR~~	
	~~H.2 Be in MODE 3.~~	~~12 hours~~

(continued)

~~H~~I. One channel inoperable.	~~I.1~~ --------NOTE-------- The inoperable channel may be bypassed for up to ~~[~~4~~]~~ hours for surveillance testing of other channels. ----------	PA3.3-153
	H.1 Place channel in trip.	6 hours
	OR	
	~~H~~I.2 Be in MODE 3.	12 hours

R-13

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I~~J~~. One or both~~Main Feedwater Pumps trip~~ channel(s) inoperable on one bus.	----------NOTE---------- One inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. ----------	CL3.3-226
	I~~J~~.1 Place channel(s) in trip~~Restore channel to OPERABLE status~~.	6~~48~~ hours
	OR	
	I~~J~~.2 Be in MODE 3.	12~~54~~ hours
J~~K~~. One ~~channel~~train inoperable.	J~~K~~.1 --------NOTE--------- One ~~additional channel~~train may be bypassed for up to 8~~[4]~~ hours for surveillance testing provided the other train is OPERABLE. ----------	R-13 CL3.3-227 Immediately ~~6 hours~~
	Enter applicable Condition(s) and Required Action(s) for Auxiliary Feedwater (AFW) train made inoperable by ESFAS instrumentation ~~Place channel in bypass~~.	R-6 (continued) R-12
	~~OR~~	

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~K. (continued)~~	~~K.2.1 Be in MODE 3.~~ ~~AND~~ ~~K.2.2 Be in MODE 5.~~	~~12 hours~~ ~~42 hours~~
K~~L~~. One channel inoperable.	K~~L~~.1 Enter applicable Condition(s) and Required Action(s) for Auxiliary Feedwater (AFW) pump made inoperable by ESFAS instrumentation ~~Verify interlock is in required state for existing unit condition~~. ~~OR~~ ~~L.2.1 Be in MODE 3.~~ ~~AND~~ ~~L.2.2 Be in MODE 4.~~	CL3.3-228 Immediately ~~1 hour~~ R-13 R-12 R-6 ~~7 hours~~ ~~13 hours~~

SURVEILLANCE REQUIREMENTS

----------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	Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS
~~SR 3.3.2.3~~	~~----------NOTE---------- The continuity check may be excluded. ----------~~	CL3.3-232
	~~Perform ACTUATION LOGIC TEST.~~	~~31 days on a STAGGERED TEST BASIS~~
SR 3.3.2.~~74~~	Perform MASTER RELAY TEST.	CL3.3-233 24 months~~31 days on a STAGGERED TEST BASIS~~ R-13
SR 3.3.2.~~35~~	Perform COT.	92 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.8~~6~~	Perform SLAVE RELAY TEST.	CL3.3-233 24 months ~~[92] days~~ R-13
		(continued)
~~SR 3.3.2.7~~	~~----------NOTE----------~~ ~~Verification of relay setpoints not required.~~ ~~----------~~ ~~Perform TADOT.~~	CL3.3-234 ~~[92] days~~
SR 3.3.2.4~~8~~	----------NOTE---------- Verification of setpoint not required~~ for manual initiation functions~~. ---------- Perform TADOT.	CL3.3-235 CL3.3-172 R-2 24~~[18]~~ months
SR 3.3.2.5	----------NOTE---------- Verification of setpoint not required. ---------- Perform TADOT.	CL3.3-236 24 months on a STAGGERED TEST BASIS

Table 3.3.2-1 (page 1 of 8)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TA3.3-176 ~~TRIP SETPOINT~~ ~~(a)~~
1. Safety Injection				CL3.3-236		
a. Manual Initiation	1,2,3,4	2	B	SR 3.3.2.5~~8~~	NA	~~NA~~
b. Automatic Actuation Relay Logic ~~and Actuation Relays~~ CL3.3-238	1,2,3,4	2 trains	C	SR 3.3.2.2 ~~SR 3.3.2.4~~ SR 3.3.2.8~~6~~	NA CL3.3-233	~~NA~~
c. High Containment Pressure – ~~High 1~~ PA3.3-241	1,2,3	3	D	SR 3.3.2.1 SR 3.3.2.3~~5~~ SR 3.3.2.6~~9~~ ~~SR 3.3.2.10~~ CL3.3-237	≤ 4.0~~[3.86]~~ psig	~~≤ [3.6] psig~~
d. Pressurizer Low Pressure – ~~Low~~ PA3.3-241	1,2,3~~(ab)~~	~~[3]~~	D	SR 3.3.2.1 SR 3.3.2.3~~5~~ SR 3.3.2.6~~9~~ ~~SR 3.3.2.10~~ CL3.3-237	X3.3-177 ≥ 1760~~[1839]~~ psig	~~≥ [1850] psig~~
e. Steam Line Low Pressure						
~~(1) Low~~	1,2,3~~[(ab)]~~	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.3~~5~~ SR 3.3.2.6~~9~~ ~~SR 3.3.2.10~~ CL3.3-237	CL3.3-242 ≥ 500~~[635]~~(b~~c~~) psig	~~≥ [675]~~ ~~(c)~~ ~~psig~~
~~(2) High Differential Pressure Between Steam Lines~~	~~1,2,3~~	~~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~~	CL3.3-244 ~~≤ [106] psig~~	~~≤ [97] psig~~
~~f. High Steam Flow in Two Steam Lines~~	~~1,2,3~~ ~~(d)~~	~~2 per steam line~~	~~D~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.5~~ ~~SR 3.3.2.9~~ ~~SR 3.3.2.10~~	CL3.3-244 ~~(e)~~	~~(f)~~
~~Coincident with T_{avg} – Low Low~~	~~1,2,3~~ ~~(d)~~	~~1 per loop~~	~~D~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.5~~ ~~SR 3.3.2.9~~ ~~SR 3.3.2.10~~	~~≥ [550.6] °F~~	~~≥ [553] °F~~

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Table 3.3.2-1 (page 2 of 8)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TA3.3-176 ~~TRIP SETPOINT~~ ~~(a)~~
~~1. Safety Injection (continued)~~						
~~g. High Steam Flow in Two Steam Lines~~	~~1,2,3~~ ~~(d)~~	~~2 per steam line~~	~~B~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.5~~ ~~SR 3.3.2.9~~ ~~SR 3.3.2.10~~	CL3.3-244 ~~(e)~~	~~(f)~~
~~Coincident with Steam Line Pressure – Low~~	~~1,2,3~~ ~~(d)~~	~~1 per steam line~~	~~B~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.5~~ ~~SR 3.3.2.9~~ ~~SR 3.3.2.10~~	~~≥ [635]~~ ~~(e~~ ~~†~~ ~~psig~~	~~≥ [675]~~ ~~psig~~
2. Containment Spray						
a. Manual Initiation	1,2,3,4	2 ~~per~~ CL3.3-246 ~~train, 2 trains~~	B	SR 3.3.2.4~~8~~	NA	~~NA~~
b. Automatic Actuation Relay Logic ~~and Actuation Relays~~ CL3.3-238	1,2,3,4	2 trains	C	SR 3.3.2.2 ~~SR 3.3.2.4~~ SR 3.3.2.8~~6~~	NA CL3.3-233	~~NA~~ R-13
c. High-High Containment Pressure ~~High – 3 (High High)~~	~~1,2,3~~	~~4~~	~~E~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.5~~ ~~SR 3.3.2.9~~ ~~SR 3.3.2.10~~	CL3.3-247 ~~≤ [12.31]~~ ~~psig~~	~~≤ [12.05]~~ ~~psig~~
~~High – 3 (Two Loop Plants)~~	1,2,3	~~[3]~~ sets of ~~[2]~~	E CL3.3-222	SR 3.3.2.1 SR 3.3.2.3~~5~~ SR 3.3.2.6~~9~~ CL3.3-237 ~~SR 3.3.2.10~~	≤ 23~~[12.31]~~ psig	~~≤ [12.05]~~ ~~†~~ ~~psig~~ R-13

(continued)

~~(a) Reviewer's Note: Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ TA3.3-176

~~(c) Time constants used in the lead/lag controller are $t_1 \geq$ [50] seconds and $t_2 \leq$ [5] seconds.~~ Not used on this page

~~(d) Above the P-12 (T_{avg} – Low Low) interlock.~~

~~(e) Less than or equal to a function defined as ΔP corresponding to [44]% full steam flow below [20]% load, and ΔP increasing linearly from [44]% full steam flow at [20]% load to [114]% full steam flow at [100]% load, and ΔP corresponding to [114]% full steam flow above 100% load.~~ CL3.3-244

~~(f) Less than or equal to a function defined as ΔP corresponding to [40]% full steam flow between [0]% and [20]% load and then a ΔP increasing linearly from [40]% steam flow at [20]% load to [110]% full steam flow at [100]% load.~~

Table 3.3.2-1 (page 3 of 8)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TA3.3-176 ~~TRIP SETPOINT~~ ~~(a)~~
3. Containment Isolation						
~~a. Phase A Isolation~~						
a. ~~(1)~~ Manual Initiation	1,2,3,4	2	B	SR 3.3.2.4~~8~~	NA	~~NA~~
b. ~~(2)~~ Automatic Actuation Relay Logic ~~and Actuation Relays~~	1,2,3,4	2 trains	C	SR 3.3.2.2 ~~SR 3.3.2.4~~ SR 3.3.2.8~~6~~	NA CL3.3-233	~~NA~~ R-13
c. ~~(3)~~ Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
~~b. Phase B Isolation~~						
~~(1) Manual Initiation~~	~~1,2,3,4~~	~~2 per train, 2 trains~~	~~B~~	~~SR 3.3.2.8~~	CL3.3-252 ~~NA~~	~~NA~~
~~(2) Automatic Actuation Logic and Actuation Relays~~	~~1,2,3,4~~	~~2 trains~~	~~C~~	~~SR 3.3.2.2~~ ~~SR 3.3.2.4~~ ~~SR 3.3.2.6~~	~~NA~~	~~NA~~
~~(3) Containment Pressure~~						
~~High - 3 (High High)~~	~~1,2,3~~	~~[4]~~	~~E~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.5~~ ~~SR 3.3.2.9~~ ~~SR 3.3.2.10~~	~~≤ [12.31] psig~~	~~≤ [12.05] psig~~
4. Steam Line Isolation						
a. Manual Initiation	1,2(c~~i~~), 3(c~~i~~)	1/loop~~-2~~	F	SR 3.3.2.4~~8~~	NA	~~NA~~ R-13

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TA3.3-176 ~~TRIP SETPOINT~~ ~~(a)~~
b. Automatic Actuation Relay Logic ~~and Actuation Relays~~ CL3.3-238	1,2 (c~~i~~), 3 (c~~i~~)	2 trains	G	SR 3.3.2.2 CL3.3-233 SR 3.3.2.7~~4~~ ~~SR 3.3.2.6~~	NA CL3.3-501	~~NA~~

R-13

~~(a) Reviewer's Note: Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ TA3.3-176

(c~~i~~) Except when both~~all~~ Main Steam Isolation Valves (MSIVs) are closed~~ and [de-activated]~~. CL3.3-254

Table 3.3.2-1 (page 4 of 8)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TA3.3-176 ~~TRIP SETPOINT~~ ~~(a)~~
4. Steam Line Isolation (continued)						
c. High-High Containment Pressure – ~~High 2~~ CL3.3-241	1,2 (c~~i~~), 3 (c~~i~~)	CL3.3-253 3~~[4]~~	D	SR 3.3.2.1 SR 3.3.2.3~~5~~ SR 3.3.2.6~~9~~ CL3.3-237 ~~SR 3.3.2.10~~	≤ 17~~[6.61]~~ ~~†~~ psig	~~≤ [6.35]~~ ~~psig~~ R-13
~~d. Steam Line Pressure~~					CL3.3-255	
~~(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~~	~~≥ [635] (e) † psig~~	~~≥ [675] (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~~	~~≤ [121.6] (h)~~ ~~psi/sec~~	~~≤ [110] (h)~~ ~~psi/sec~~
~~e. High Steam Flow in Two Steam Lines~~	~~1,2 (i), 3 (i)~~	~~2 per steam line~~	~~D~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.5~~ ~~SR 3.3.2.9~~ ~~SR 3.3.2.10~~	~~(e)~~	~~(f)~~
~~Coincident with T_{avg} – Low Low~~	~~1,2 (i), 3 (d) (i)~~	~~1 per loop~~	~~D~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.5~~ ~~SR 3.3.2.9~~ ~~SR 3.3.2.10~~	~~≥ [550.6] °F~~	~~≥ [553] °F~~

(continued)

~~(a) Reviewer's Note: Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ TA3.3-176

(a~~b~~) ~~Above the P-11 (~~Pressurizer Pressure~~) interlock~~ ≥ 2000 psig. Not used this page

(b~~c~~) Time constants used in the lead/lag controller are t_1 ≥ [50] seconds and t_2 ≤ [5] seconds.

~~(d) Above the P-12 (T_{avg} – Low Low) interlock.~~

~~(e) Less than or equal to a function defined as ΔP corresponding to [44]% full steam flow below [20]% load, ΔP increasing linearly from [44]% full steam flow at [20]% load to [114]% full steam flow at [100]% load, and ΔP corresponding to [114]% full steam flow above 100% load.~~ CL3.3-244

~~(f) Less than or equal to a function defined as ΔP corresponding to [40]% full steam flow between [0]% and [20]% load and then a ΔP increasing linearly from [40]% steam flow at [20]% load to [110]% full steam flow at [100]% load.~~

~~(g) Below the P-11 (Pressurizer Pressure) interlock.~~

~~(h) Time constant utilized in the rate/lag controller is ≤ [50] seconds.~~

(c~~i~~) Except when both~~all~~ MSIVs are closed~~ and [de-activated]~~. CL3.3-254

Table 3.3.2-1 (page 5 of 8)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TA3.3-176 ~~TRIP SETPOINT (a)~~
4. Steam Line Isolation (continued)						
~~f. High Steam Flow in Two Steam Lines~~	~~1,2(i), 3(i)~~	~~2 per steam line~~	~~D~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.5~~ ~~SR 3.3.2.9~~ ~~SR 3.3.2.10~~	~~(e)~~	~~(f)~~
~~Coincident with Steam Line Pressure – Low~~	~~1,2,(i) 3(i)~~	~~1 per steam line~~	~~D~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.5~~ ~~SR 3.3.2.9~~ ~~SR 3.3.2.10~~	~~≥ [635](e) psig~~	~~≥ [675](e) psig~~
d~~g~~. High Steam Flow	CL3.3-256 1,2(c~~i~~), 3(c~~i~~)(d)	2 per steam line	D	SR 3.3.2.1 SR 3.3.2.3~~5~~ SR 3.3.2.6~~9~~ CL3.3-237 ~~SR 3.3.2.10~~	X3.3-177 ≤ 9.18E5 lb/hr at 1005 psig~~[25]% of full steam flow at no load steam pressure~~	~~≤ [ ] full steam flow at no load steam pressure~~
Coincident with Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
and						
Coincident with Low-Low T_{avg} – ~~Low Low~~	1,2(c~~i~~), 3(c)(d)~~(i)~~ CL3.3-256	4 ~~[2] per loop~~ CL3.3-253	D	SR 3.3.2.1 SR 3.3.2.3~~5~~ SR 3.3.2.6~~9~~ CL3.3-237 ~~SR 3.3.2.10~~	X3.3-177 ≥ 536 ~~[550.6]~~°F	~~≥ [553]° F~~

R-13

R-7

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TA3.3-176 ~~TRIP SETPOINT (a)~~
~~eh~~. High High Steam Flow	1,2 (~~ci~~), 3 (~~ci~~)	2 per steam line	D	SR 3.3.2.1 SR 3.3.2.3~~5~~ SR 3.3.2.6~~9~~ CL3.3-237 ~~SR 3.3.2.10~~	CL3.3-242 ≤ 4.5E6 lb/hr at 735 psig~~[130]% of full steam flow at full load steam pressure~~	~~≤ [ ] of full stea~~ m ~~flow at full load steam pressure~~ R-13
Coincident with Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					

(continued)

~~(a) Reviewer's Note: Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ TA3.3-176

(~~ci~~) CL3.3-254
Except when both~~all~~ MSIVs are closed~~ and [de-activated]~~.

(~~dd~~) CL3.3-256
Reactor Coolant System (RCS) T_{avg} ≥~~Above~~ 520 °F~~the P-12 (T_{avg} – Low Low) interlock~~.

Table 3.3.2-1 (page 6 of 8)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TA3.3-176 ~~TRIP SETPOINT (a)~~
5. ~~Turbine Trip and~~ Feedwater Isolation CL3.3-257						
a. Automatic Actuation Relay Logic ~~and Actuation Relays~~ CL3.3-238	1,2~~(e)~~, ~~(3)~~ ~~(e)~~	2 trains	CL3.3-225 ~~H (G)~~	SR 3.3.2.2 SR 3.3.2.7~~4~~ ~~SR 3.3.2.6~~	NA CL3.3-501	~~NA~~ R-13
b. High-High Steam Generator (SG) Water Level ~~– High High (P-14)~~ CL3.3-241	1,2~~(e)~~, CL3.3-258 ~~(3)~~ ~~(j)~~	~~(3)~~ per SG	CL3.3-225 ~~H (D)~~	SR 3.3.2.1 SR 3.3.2.3~~5~~ SR 3.3.2.6~~9~~ ~~SR 3.3.2.10~~ CL3.3-237	X3.3-261 ≤ 90~~(84.2)~~%	~~≤ (82.4)~~ % R-13
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
6. Auxiliary Feedwater						
~~a. 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~~	CL3.3-262 ~~NA~~	~~NA~~
~~a~~b. Automatic Actuation Relay Logic ~~and Actuation Relays (Balance of Plant ESFAS)~~ CL3.3-238	1,2,3	2 trains	CL3.3-227 ~~J~~G	CL3.3-232 SR 3.3.2.2~~3~~ CL3.3-500	NA	~~NA~~ R-13

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TA3.3-176 ~~TRIP SETPOINT (a)~~
b~~e~~. Low-Low SG Water Level CL3.3-241 ~~– Low Low~~	1,2,3	~~{~~3~~}~~ per SG	D	SR 3.3.2.1 SR 3.3.2.3~~5~~ SR 3.3.2.6~~9~~ ~~SR 3.3.2.10~~ CL3.3-237	CL3.3-203 ≥ 11.3~~{30.4}~~%	~~≥ {32.2}%~~

R-13

(continued)

~~(a) Reviewer's Note: Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ TA3.3-176

(e~~f~~) Except when all ~~MFIVs,~~ Main Feedwater Regulation Valves (MFRVs)~~,~~ ~~{~~and MFRV~~associated~~ bypass valves~~}~~ are closed and ~~{~~de-activated~~}~~ ~~{~~for isolated by a closed manual valve~~}~~. CL3.3-273

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Table 3.3.2-1 (page 7 of 8)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TA3.3-176 ~~TRIP SETPOINT~~ ~~(a)~~
6. Auxiliary Feedwater (continued)						
~~c~~d. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
~~e. Loss of Offsite Power~~	~~1,2,3~~	~~[3] per bus~~	~~F~~	~~SR 3.3.2.7~~ ~~SR 3.3.2.9~~ ~~SR 3.3.2.10~~	CL3.3-263 ~~≥ [2912] V with ≤ 0.0 sec time delay~~	~~≥ [2975] V with ≤ 0.0 sec time delay~~
~~d~~f. Undervoltage on 4 kV Buses 11 and 12 (21 and 22) ~~Reactor Coolant Pump~~ ~~(f)~~ CL3.3-241	1,2	CL3.3-202 2 ~~[3]~~ per bus	CL3.3-226 I	CL3.3-237 SR 3.3.2.4~~7~~ SR 3.3.2.6~~9~~ ~~SR 3.3.2.10~~	X3.3-177 ≥ 76 ~~[69]~~% rated bus voltage	~~≥ [70]% bus voltage~~ R-12 R-13
~~e~~g. Trip of both ~~all~~ Main Feedwater Pumps CL3.3-241	1,2 ~~(g)~~	~~[2]~~ per pump	CL3.3-227 K~~J~~	SR 3.3.2.4~~0~~ CL3.3-265 ~~SR 3.3.2.9~~ ~~SR 3.3.2.10~~	CL3.3-265 NA ~~≥ [ ] psig~~	~~≥ [ ] psig~~ R-13
~~h. Auxiliary Feedwater Pump Suction Transfer on Suction Pressure – Low~~	~~1,2,3~~	~~[2]~~	~~F~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.7~~ ~~SR 3.3.2.9~~	CL3.3-266 ~~≥ [20.53] [psia]~~	~~≥ [ ] [psia]~~
~~7. Automatic Switchover to Containment Sump~~						
~~a. Automatic Actuation Logic and Actuation Relays~~	~~1,2,3,4~~	~~2 trains~~	~~C~~	~~SR 3.3.2.2~~ ~~SR 3.3.2.4~~ ~~SR 3.3.2.6~~	CL3.3-267 ~~NA~~	~~NA~~

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TA3.3-176 ~~TRIP SETPOINT~~ ~~(a)~~
~~b. Refueling Water Storage Tank (RWST) Level – Low Low~~	~~1,2,3,4~~	~~4~~	~~K~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.5~~ ~~SR 3.3.2.9~~ ~~SR 3.3.2.10~~	~~≥ [15]% and ≤ [ ]%~~	~~≥ [ ] and ≤ [ ]~~
~~Coincident with Safety Injection~~	~~Refer to Function 1 (Safety Injection) for all initiation functions and requirements.~~					

(continued)

~~(a) Reviewer's Note. Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ TA3.3-176 CL3.3-271

(f) Start of Turbine Driven Pump only.

(g) This Function may be bypassed during alignment and operation of the AFW System for SG level control. CL3.3-272

Table 3.3.2-1 (page 8 of 8)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TA3.3-176 ~~TRIP SETPOINT~~ ~~(a)~~
~~7. Automatic Switchover to Containment Sump (continued)~~					CL3.3-267	
~~c. RWST Level – Low Low~~	~~1,2,3,4~~	~~4~~	~~K~~	~~SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10~~	~~≥ [15]%~~	~~≥ [10]%~~
~~Coincident with Safety Injection~~	~~Refer to Function 1 (Safety Injection) for all initiation functions and requirements.~~					
~~and~~						
~~Coincident with Containment Sump Level – High~~	~~1,2,3,4~~	~~4~~	~~K~~	~~SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10~~	~~≥ [30] in. above el. [703] ft~~	~~≥ [ ] in. above el. [ ]ft~~
~~8. ESFAS Interlocks~~					CL3.3-231	
~~a. Reactor Trip, P-4~~	~~1,2,3~~	~~1 per train, 2 trains~~	~~P~~	~~SR 3.3.2.11~~	~~NA~~	~~NA~~
~~b. Pressurizer Pressure, P-11~~	~~1,2,3~~	~~3~~	~~L~~	~~SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9~~	~~≤ [1996] psig~~	~~≤ [ ] psig~~
~~c. T_{avg} – Low Low, P-12~~	~~1,2,3~~	~~[1] per loop~~	~~L~~	~~SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9~~	~~≥ [550.6]° F~~	~~≥ [553]°F~~

~~(a) Reviewer's Note. Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ TA3.3-176

SURVEILLANCE REQUIREMENTS

----------NOTE----------
SR 3.3.3.1 and SR 3.3.3.2 apply to each EPAM instrumentation Function in Table 3.3.3-1.
---------- R-13

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
SR 3.3.3.2	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ----------	CL3.3-172 R-2
	Perform CHANNEL CALIBRATION.	24~~[18]~~ months

R-13

3.3 INSTRUMENTATION

PA3.3-311

3.3.4~~5~~ 4 kV Safeguards Bus Voltage~~Loss of Power (LOP) Diesel Generator (DG) Start~~ Instrumentation

LCO 3.3.4~~5~~ The following 4 kV safeguards bus voltage instrumentation Functions shall be OPERABLE: CL3.3-313

a. Four~~[Three]~~ channels per bus of the under~~loss of~~ voltage Function;~~ and~~ R-13

b. Four~~[three]~~ channels per bus of the degraded voltage Function~~ shall be OPERABLE~~; and R-13

c. One automatic load sequencer per bus. R-13

X3.3-312

APPLICABILITY: MODES 1, 2, 3, and 4,
When associated Diesel Generator (DG) is required to be OPERABLE by LCO 3.8.2, "AC Sources – Shutdown."

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. --------NOTE--------- Only applicable to Functions a and b. ---------- One or more Functions with one channel per bus inoperable.	A.1 ~~--------NOTE--------- The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. ----------~~ Place channel in bypass~~trip~~.	6 hours R-7 CL3.3-315
B. --------NOTE--------- Only applicable to Functions a and b. ---------- One or more Functions with two ~~or more~~ channels per bus inoperable.	B.1 Place one channel in bypass and place one channel in trip~~Restore all but one channel to OPERABLE status~~.	~~1~~6 hours CL3.3-478
	AND	
	B.2 Verify all channels associated with redundant load sequencer are OPERABLE.	6 hours R-13

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. -------NOTE--------- Only applicable in MODE 1, 2, 3, or 4. ---------- Required Action and associated Completion Time of Condition A or B not met. OR Function a or b or both with three channels per bus inoperable.	C.1 ~~Enter applicable Condition(s) and Required Action(s) for the associated DG made inoperable by LOP DG start instrumentation.~~ Perform SR 3.3.4.2 for OPERABLE automatic load sequencer.	~~Immediately~~ 6 hours R-13 AND CL3.3-317 Once per 24 hours thereafter R-13 R-13

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
			X3.3-312
C. (continued) OR	AND		R-13
One required automatic load sequencer inoperable.	C.2	Establish offsite paths block loading capability for associated 4 kV safeguards bus.	8 hours R-13
	AND		
	C.3	Verify offsite paths for associated 4kV safeguards bus OPERABLE.	8 hours AND Once per 8 hours thereafter R-13
	AND		
	C.4	Declare required feature(s) supported by the affected inoperable DG inoperable when its required redundant feature(s) is inoperable.	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s) R-13
	C.5	Restore automatic load sequencer to OPERABLE status.	7 days R-13

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	X3.3-312 6 h ours 36 hours
E. ---------NOTE--------- Only applicable in MODES 5 or 6. ---------- Required Action and associated Completion Time of Condition A or B not met. OR Function a or b or both with three channels per bus inoperable. OR One required automatic load sequencer inoperable.	E.1 Enter applicable Condition(s) and Required Action(s) of LCO 3.8.2, "AC Sources-Shutdown" for the DG made inoperable from inoperable 4kV safeguards bus voltage instrumentation.	Immediately X3.3-312

R-13

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		CL3.3-321 FREQUENCY
~~SR 3.3.5.1~~	~~Perform CHANNEL CHECK.~~	~~12 hours~~ CL3.3-322
SR 3.3.4~~5~~.1~~2~~	Perform C~~TAD~~OT on each undervoltage and degraded voltage channel.	~~[~~31 days~~]~~ R-13
SR 3.3.4.2	Perform ACTUATION LOGIC TEST on each automatic load sequencer.	CL3.3-322 31 days R-13

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
		(continued) CL3.3-172
SR 3.3.4~~5~~.3	Perform CHANNEL CALIBRATION on undervoltage and degraded voltage channels with ~~[setpoint~~ Allowable Value~~] [Trip Setpoint and Allowable Value]~~ as follows: a. Under~~Loss of~~ voltage Allowable Value ≥ 3016~~[2912]~~ V and ≤ 3224 V with an undervoltage time delay of 4~~[0.8]~~ ± 1.5~~[ ]~~ seconds. b. ~~Loss of voltage Trip Setpoint ≥ [2975] V with a time delay of [0] ± [ ] sec.~~ Degraded voltage Allowable Value ≥ 3944~~[3683]~~ V and ≤ 4002 V with a degraded voltage time delay of 8~~[20]~~ ± 0.5~~[ ]~~ seconds and degraded voltage DG start time delay of 7.5 to 63 seconds. ~~Degraded voltage Trip Setpoint ≥ [3746] V with a time delay of [20] ± [ ] seconds.~~	24~~[18]~~ months R-2 R-12 CL3.3-323 R-13

3.3 INSTRUMENTATION

3.3.5~~6~~ Containment Ventilation ~~Purge and Exhaust~~ Isolation Instrumentation

CL3.3-331

LCO 3.3.5~~6~~ The Containment Ventilation ~~Purge and Exhaust~~ Isolation instrumentation for each Function in Table 3.3.5~~6~~-1 shall be OPERABLE.

CL3.3-331

APPLICABILITY: According to Table 3.3.5-1~~MODES 1, 2, 3, and 4, During CORE ALTERATIONS, During movement of irradiated fuel assemblies within containment~~.

TA3.3-332

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required radiation monitoring channel inoperable.	A.1 Restore the affected channel to OPERABLE status.	4 hours

CL3.3-333

R-13

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. ---------NOTE--------- Only applicable in MODE 1, 2, 3, or 4 when the Containment Inservice Purge System is not isolated. ---------- One or more Functions with one or more manual or automatic actuation trains inoperable. <u>OR</u> Two required ~~or more~~ radiation monitoring channels inoperable. <u>OR</u> Required Action and associated Completion Time of Condition A not met.	B.1 Enter applicable Conditions and Required Actions of LCO 3.6.3, "Containment Isolation Valves," for containment inservice (low flow) purge ~~and exhaust isolation~~ valves made inoperable by isolation instrumentation.	Immediately R-13 CL3.3-333 CL3.3-344 R-13 CL3.3-331 R-13

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ---------NOTE--------- Only applicable during ~~CORE ALTERATIONS or~~ movement of irradiated fuel assemblies within containment when the Containment Purge or Inservice Purge Systems are not isolated. ---------- One or more Functions with one or more manual or automatic actuation trains inoperable. <u>OR</u> Two required ~~or more~~ radiation monitoring channels inoperable. <u>OR</u> Required Action and associated Completion Time for Condition A not met.	C.1 Place and maintain containment purge (high flow) and inservice (low flow) purge ~~and exhaust~~ valves in closed position. <u>OR</u> C.2 Enter applicable Conditions and Required Actions of LCO 3.9.4, "Containment Penetrations," for containment purge (high flow) and inservice (low flow) purge ~~and exhaust isolation~~ valves made inoperable by isolation instrumentation.	Immediately CL3.3-331 TA3.3-479 R-12 R-13 CL3.3-344 R-12 Immediately R-13 CL3.3-333 R-12 R-13

SURVEILLANCE REQUIREMENTS

----------NOTE----------
Refer to Table 3.3.5~~6~~-1 to determine which SRs apply for each Containment Ventilation ~~Purge and Exhaust~~ Isolation Function. CL3.3-331

SURVEILLANCE		FREQUENCY
SR 3.3.5~~6~~.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.5~~6~~.2	Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS
~~SR 3.3.6.3~~	~~Perform MASTER RELAY TEST.~~	~~31 days on a STAGGERED TEST BASIS~~ CL3.3-233
SR 3.3.5~~6~~.3~~4~~	Perform COT.	~~92~~ CL3.3-335 31 days
SR 3.3.5~~6~~.4~~5~~	Perform SLAVE RELAY TEST.	24 months~~[92] days~~
SR 3.3.5~~6~~.5~~6~~	----------NOTE---------- Verification of setpoint is not required. ---------- Perform TADOT.	CL3.3-172 24 ~~[18]~~ months

R-13

SURVEILLANCE	FREQUENCY
SR 3.3.5~~6~~.6~~7~~ Perform CHANNEL CALIBRATION.	CL3.3-172 24~~[18]~~ months R-13

Table 3.3.5~~6~~-1 (page 1 of 1)
Containment Ventilation ~~Purge and Exhaust~~ Isolation Instrumentation

R-12 R-7

	FUNCTION	TA3.3-332 APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE(d) ~~TRIP SETPOINT~~ TA3.3-176
1.	Manual Initiation	1[a], 2[a], 3[a], 4[a] (b)	2	SR 3.3.5~~6.56~~	NA
2.	Automatic Actuation Rekay Logic ~~and Actuation Relays~~	1[a], 2[a], 3[a], 4[a] (b)	2 trains	SR 3.3.5~~6~~.2 ~~SR 3.3.6.3~~ SR 3.3.5~~6~~.45	~~NA~~
3.	High Radiation in Exhaust Air ~~Containment Radiation~~	1[a], 2[a], 3[a], 4[a] (b)	CL3.3-333 2	SR 3.3.5.1 SR 3.3.5.3 SR 3.3.5.6	(c) CL3.3-341
	~~a. Gaseous~~		~~[1]~~	~~SR 3.3.6.1~~ ~~SR 3.3.6.4~~ ~~SR 3.3.6.7~~	~~≤ [2 x background]~~
	~~b. Particulate~~		~~[1]~~	~~SR 3.3.6.1~~ ~~SR 3.3.6.4~~ ~~SR 3.3.6.7~~	~~≤ [2 x background]~~
	~~c. Iodine~~		~~[1]~~	~~SR 3.3.6.1~~ ~~SR 3.3.6.4~~ ~~SR 3.3.6.7~~	~~≤ [2 x background]~~
	~~d. Area Radiation~~		~~[1]~~	~~SR 3.3.6.1~~ ~~SR 3.3.6.4~~ ~~SR 3.3.6.7~~	~~≤ [2 x background]~~
4.	Manual Containment Isolation ~~— Phase A~~	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 3.a., for ~~all~~ initiation functions and requirements.			TA3.3-332 CL3.3-342
5.	Safety Injection	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 1, for initiation functions and requirements.			CL3.3-343
6.	Manual Containment Spray	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 2, for initiation functions and requirements.			CL3.3-343

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(a) When the Containment Inservice Purge System is not isolated. CL3.3-344

(b) During movement of irradiated fuel assemblies within containment when the Containment Purge or Inservice Purge Systems are not isolated. CL3.3-341

(c) ≤ count rate corresponding to 500 mrem/year whole body and 3000 mrem/year skin due to noble gases at the site boundary.

(d) Not developed in accordance with PI Setpoint Methodology.

R-7

R-13

3.3 INSTRUMENTATION

CL3.3-352

3.3.6~~7~~ Control Room Special Ventilation~~Emergency Filtration~~ System (CRSV~~EF~~S) Actuation Instrumentation

LCO 3.3.7 The CRSV~~EF~~S actuation instrumentation for each Function in Table 3.3.6~~7~~-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6-1 ~~MODES 1, 2, 3, 4, [5, and 6,]~~
~~During movement of irradiated fuel assemblies,~~
~~[During CORE ALTERATIONS].~~

TA3.3-332

TA3.3-479

ACTIONS

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

R-13

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel ~~or train~~ inoperable.	A.1 ~~--------NOTE-------- Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable. ----------~~	CL3.3-480
	Place one CRSV~~EF~~S train in operation~~emergency [radiation protection] mode~~ and close the opposite train outside air dampers.	7 days

R-13

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more Functions with two channels ~~or two trains~~ inoperable.	~~NOTE~~ ~~Place in the toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.~~	CL3.3-480
	~~B.1.1 Place one CREFS train in emergency [radiation protection] mode.~~	Immediately
	~~AND~~	
	B.1~~.2~~ Enter applicable Conditions and Required Actions for two~~one~~ CRSV~~EF~~S trains made inoperable by inoperable CRSV~~EF~~S actuation instrumentation.	Immediately
	OR	
	B.2 Place both trains in operation~~emergency [radiation protection] mode~~.	Immediately

R-13

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time for Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours
D. Required Action and associated Completion Time for Condition A or B not met during movement of irradiated fuel assemblies ~~[or during CORE ALTERATIONS]~~.	~~D.1 Suspend CORE ALTERATIONS.~~ ~~AND~~ D.1~~[2]~~ Suspend movement of irradiated fuel assemblies.	~~Immediately~~ Immediately **TA3.3-479**
~~E. Required Action and associated Completion Time for Condition A or B not met in MODE 5 or 6.~~	~~E.1 Initiate action to restore one CREFS train to OPERABLE status.~~	~~Immediately~~ **CL3.3-481**

(continued)

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SURVEILLANCE REQUIREMENTS

----------NOTE----------
Refer to Table 3.3.6~~7~~-1 to determine which SRs apply for each CRSV~~EF~~S Actuation Function.

SURVEILLANCE	FREQUENCY
SR 3.3.6~~7~~.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.6~~7~~.2 Perform COT.	92 days

(continued)

~~SR 3.3.7.3 Perform ACTUATION LOGIC TEST.~~	~~31 day~~ CL3.3-482 ~~s on a STAGGERED TEST BASIS~~
~~SR 3.3.7.4 Perform MASTER RELAY TEST.~~	~~31~~ CL3.3-482 ~~days on a STAGGERED TEST BASIS~~

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
~~SR 3.3.7.5~~	~~Perform SLAVE RELAY TEST.~~	CL3.3-482 ~~[92] days~~
SR 3.3.6~~7~~.3~~6~~	----------NOTE---------- Verification of setpoint is not required. ---------- Perform TADOT.	24~~[18]~~ months PA3.3-485
SR 3.3.6~~7~~.4~~-7~~	Perform CHANNEL CALIBRATION.	24~~[~~ PA3.3-485 ~~18]~~ months

R-13

Table 3.3.6~~7~~-1 (page 1 of 1)
CRSV~~EF~~S Actuation Instrumentation

	FUNCTION	TA3.3-332 APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TA3.3-176 ALLOWABLE VALUE (b) ~~TRIP SETPOINT~~
1.	Manual Initiation	1, 2, 3, 4 (a)	2 ~~trains~~	SR 3.3.6~~7~~.3~~6~~	~~NA~~
~~2.~~	~~Automatic Actuation Logic and Actuation Relays~~		~~2 trains~~	~~SR 3.3.7.3~~ ~~SR 3.3.7.4~~ ~~SR 3.3.7.5~~	CL3.3-482 ~~NA~~
~~2~~3.	Control Room Radiation - Atmosphere	1, 2, 3, 4 (a)	2	SR 3.3.6.1 SR 3.3.6.2 SR 3.3.6.4	XXX
	~~a. Control Room Atmosphere~~		~~[2]~~	~~SR 3.3.7.1~~ ~~SR 3.3.7.2~~ ~~SR 3.3.7.7~~	~~≤ [2] mR/hr~~
	~~b. Control Room Air Intakes~~		~~[2]~~	~~SR 3.3.7.1~~ ~~SR 3.3.7.2~~ ~~SR 3.3.7.7~~	~~≤ [2] mR/hr~~
3~~4~~.	Safety Injection	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 1, for all initiation functions and requirements.			

(a) During movement of irradiated fuel assemblies.
(b) Not developed in accordance with PI Setpoint Methodology

CL3.3-481

R-13

3.3 INSTRUMENTATION

3.3.7~~8~~ Spent Fuel Pool Special Ventilation ~~Building Air Cleanup~~ System (SFPSV~~BACS~~) Actuation Instrumentation

CL3.3-489

LCO 3.3.7~~8~~ The SFPSVS~~BACS~~ actuation instrumentation for each Function in Table 3.3.8-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.7~~8~~-1.

ACTIONS

CL3.3-490

----------NOTE----------
LCO 3.0.3 is not applicable. ~~Separate Condition entry is allowed for each Function.~~

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ~~or more Functions with one~~ channel ~~or train~~ inoperable.	A.1 Place one SFPSVS ~~FBACS~~train in operation.	7 days CL3.3-491

R-13

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. ~~One or more Functions with t~~Two channels ~~or two trains~~ inoperable.	B.1.1 Place one SFPSVS~~FBACS~~ train in operation.	Immediately CL3.3-489
	AND	CL3.3-491
	B.1.2 Enter applicable Conditions and Required Actions of LCO 3.7.13, "Spent Fuel Pool Special Ventilation ~~Building Air Cleanup~~ System (SFPSVS~~FBACS~~)," for one train made inoperable by inoperable actuation instrumentation.	Immediately CL3.3-492
	OR	~~(continued)~~
~~B. (continued)~~	B.2 Place both trains in operation~~emergency [radiation protection] mode~~.	Immediately CL3.3-493
C. Required Action and associated Completion Time for Condition A or B not met during movement of irradiated fuel assemblies in the fuel pool enclosure.	C.1 Suspend movement of irradiated fuel assemblies in the fuel pool enclosure.	Immediately

R-13

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~D. Required Action and associated Completion Time for Condition A or B not met in MODE 1, 2, 3, or 4.~~	~~D.1 Be in MODE 3.~~ ~~AND~~ ~~D.2 Be in MODE 5.~~	~~6 hours~~ CL3.3-490 ~~36 hours~~

SURVEILLANCE REQUIREMENTS

CL3.3-494

~~NOTE~~

~~Refer to Table 3.3.8-1 to determine which SRs apply for each FBACS Actuation Function.~~

SURVEILLANCE	FREQUENCY
SR 3.3.7~~8~~.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.7~~8~~.2 Perform COT.	92 days

(continued)

R-13

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
~~SR 3.3.8.3 Perform ACTUATION LOGIC TEST.~~	~~31 days on a STAGGERED TEST BASIS~~ CL3.3-495
~~SR 3.3.8.4 ----------NOTE---------- Verification of setpoint is not required. ----------~~ ~~Perform TADOT.~~	CL3.3-496 ~~[18] months~~
SR 3.3.7~~8~~.3~~5~~ Perform CHANNEL CALIBRATION.	X3.3-497 24[~~18]~~ months

R-13

Table 3.3.7~~-8~~-1 (page 1 of 1)
SFPSVS Actuation Instrumentation

FUNCTION	APPLICABLE MODES OR SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE ~~TRIP SETPOINT~~
1. ~~Manual Initiation~~	~~[1,2,3,4]~~ ~~(a)~~	~~2~~ ~~2~~	~~SR 3.3.8.4~~ ~~SR 3.3.8.4~~	~~NA~~ ~~NA~~ CL3.3-492
~~2. Automatic Actuation Logic and Actuation Relays~~	~~1,2,3,4~~ ~~(a)~~	~~2 trains~~ ~~-~~	~~SR 3.3.8.3~~	~~NA~~ CL3.3-495
~~3.~~ Fuel ~~Building~~Pool Enclosure Radiation				CL3.3-490
~~a. Gaseous~~	[1,2,3,4] (a)	1 per train~~[2]~~	SR 3.3.7~~8~~.1 SR 3.3.7~~8~~.2 SR 3.3.7~~8~~.~~5~~3	(b)~~≤ [2] mR/hr~~
~~b. Particulate~~	~~[1,2,3,4]~~ ~~(a)~~	~~[2]~~	~~SR 3.3.8.1~~ ~~SR 3.3.8.2~~ ~~SR 3.3.8.5~~	~~≤ [2] mR/hr~~ CL3.3-492

(a) During movement of irradiated fuel assemblies in the fuel pool enclosure ~~building~~.
(b) This value provided by the ODCM.

R-13

BASES

PA3.3-356

Each ~~SSPS~~relay logic train has ~~a~~ built in test~~ing device that can automatically~~ features that allow testing the decision logic matrix and some master relay functions~~ and the actuation devices~~ while the unit is at power. When any one train is taken out of service for testing, the other train is capable of providing unit monitoring and protection until the testing has been completed.~~ The testing device is semiautomatic to minimize testing time.~~

CL3.3-364

R-13

~~The actuation of ESF components is accomplished through master and slave relays. The SSPS energizes the master relays appropriate for the condition of the unit. Each master relay then energizes one or more slave relays, which then cause actuation of the end devices. The master and slave relays are routinely tested to ensure operation. The test of the master relays energizes the relay, which then operates the contacts and applies a low voltage to the associated slave relays. The low voltage is not sufficient to actuate the slave relays but only demonstrates signal path continuity. The SLAVE RELAY TEST actuates the devices if their operation will not interfere with continued unit operation. For the latter case, actual component operation is prevented by the SLAVE RELAY TEST circuit, and slave relay contact operation is verified by a continuity check of the circuit containing the slave relay.~~

CL3.3-233

~~Reviewer's Note: No one unit ESFAS incorporates all of the Functions listed in Table 3.3.2-1. In some cases (e.g., Containment Pressure - High 3, Function 2.c), the table reflects several different implementations of the same Function. Typically, only one of these implementations are used at any specific unit.~~

(continued)

BASES

PA3.3-356

a. Steam Line Isolation – Manual Initiation

Manual initiation of Steam Line Isolation can be accomplished from the control room. There are two switches in the control room, one for each MSIV~~and either switch can initiate action to immediately close all MSIVs~~. The LCO requires one~~two~~ channel~~s~~ per loop to be OPERABLE.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

b. Steam Line Isolation – Automatic Actuation Relay Logic ~~and Actuation Relays~~

CL3.3-238

R-13

The steam line isolation~~Automatic~~ actuation logic~~ and actuation relays~~ consists of all circuitry housed within the ESF relay logic cabinets for the steam line isolation subsystem~~the same features and operate~~ in the same manner as described for ESFAS Function 1.b.

PA3.3-403

Manual and automatic initiation of steam line isolation must be OPERABLE in MODES 1, 2, and 3 when there is sufficient energy in the RCS and SGs to have an SLB~~ or other accident~~. This could result in the release of significant quantities of energy and cause a cooldown of the primary system. The Steam Line Isolation Function is required in MODES 2 and 3 unless both~~all~~ MSIVs are closed~~ and [de-activated]~~. In MODES 4, 5, and 6, there is insufficient energy in the RCS and SGs to experience an SLB~~ or other accident~~ releasing significant quantities of energy.

CL3.3-418

CL3.3-254

c. Steam Line Isolation – High High Containment Pressure ~~– High 2~~

R-13

(continued)

PA3.3-356

BASES

~~These Functions must be OPERABLE in MODES 1 and 2, and in MODE 3, when a secondary side break or stuck open valve could result in the rapid depressurization of the steam lines unless all MSIVs are closed and [de-activated]. These Functions are not required to be OPERABLE in MODES 4, 5, and 6 because there is insufficient energy in the secondary side of the unit to have an accident.~~

d~~g~~. Steam Line Isolation – High Steam Flow Coincident With Safety Injection and Coincident With Low Low T_{avg} – ~~Low Low (Two Loop Units)~~

R-13

This Function provides closure of the MSIVs during an SLB or inadvertent opening of an SG ~~relief or~~ safety valve to maintain at least one unfaulted SG as a heat sink for the reactor~~, and to limit the mass and energy release to containment~~.

CL3.3-419

CL3.3-418

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

~~g.~~ ~~Steam Line Isolation – High Steam Flow Coincident With Safety Injection and Coincident With T_{avg} – Low Low (Two Loop Units) (continued)~~

Two steam line flow channels per steam line are required OPERABLE for this Function. These are combined in a one-out-of-two logic to indicate high steam flow in one steam line. The steam flow transmitters provide control inputs, but the control function cannot cause the events that the function must protect against. Therefore, two channels are sufficient to satisfy redundancy requirements. The one-out-of-two configuration allows online testing because trip of one high steam flow channel is not sufficient to cause initiation.

(continued)

R-7

PA3.3-356

BASES

two-out-of-four configuration ensures no single random failure disables the Low Low T_{avg} ~~Low Low~~ Function. The T_{avg} channels provide control inputs, but the control function cannot initiate events that the Function acts to mitigate. Therefore, additional channels are not required to address control protection interaction issues.

With the T_{avg} resistance temperature detectors (RTDs) located inside the containment, it is possible for them to experience adverse environmental conditions during an SLB event. Therefore, the Allowable Value~~Trip Setpoint~~ reflects both steady state and adverse environmental instrumental uncertainties. TA3.3-176

This Function must be OPERABLE in MODES 1 and 2, and in MODE 3, when T_{avg} is above 520 °F~~the P-12 setpoint~~, when a secondary side break or stuck open valve could result in rapid depressurization of the steam lines. ~~Below P-12 this Function is not required to be OPERABLE because the High High Steam Flow coincident with SI Function provides the required protection.~~ The Steam Line Isolation Function is required to be OPERABLE in MODES 2 and 3 unless both~~all~~ MSIVs are closed ~~and [de-activated]~~. This Function is not required to be OPERABLE in MODES 4, 5, and 6 because there is insufficient energy in the secondary side of the unit to have an accident. CL3.3-256 CL3.3-420 CL3.3-254

~~e~~h. Steam Line Isolation – High High Steam Flow Coincident With Safety Injection ~~(Two Loop Units)~~ R-13

This Function provides closure of the MSIVs during a SLB~~steam line break (or inadvertent opening of a relief or safety valve)~~ to maintain CL3.3-419 CL3.3-418

(continued)

PA3.3-356

BASES

testing, provided the other train is OPERABLE. This allowance is based on the reliability analysis assumption of WCAP-10271-P-A (Ref. 58) that 48 hours is the average time required to perform relay logic train~~channel~~ surveillance.

D.1, D.2.1, and D.2.2

Condition D applies to:

- High Containment Pressure – ~~High 1~~;
- Pressurizer Low Pressure – ~~Low (two, three, and four loop units)~~;
- Steam Line Low Pressure – ~~Low~~;
- ~~Steam Line Differential Pressure – High;~~
- ~~High Steam Flow in Two Steam Lines Coincident With T_{avg} – Low Low or Coincident With Steam Line Pressure – Low~~;

CL3.3-255

R-13

ACTIONS

D.1, D.2.1, and D.2.2 (continued)

- Steam Line Isolation High High Containment Pressure – ~~High 2~~;
- ~~Steam Line Pressure – Negative Rate – High;~~
- High Steam Flow Coincident With Safety Injection Coincident With Low Low T_{avg} – ~~Low Low;~~
- High High Steam Flow Coincident With Safety Injection; and

CL3.3-255

R-13

(continued)

BASES

PA3.3-356

ACTIONS (continued)

E.1.1, E.1.2, E.2.1, and E.2.2

Condition E applies to~~:~~

- ~~Containment Spray~~CS High High Containment Pressure ~~- High 3 (High, High) (two, three, and four loop units); and~~ CL3.3-252

- ~~Containment Phase B Isolation Containment Pressure - High 3 (High, High)~~ which is a one-out-of-two channels, three-out-of-three sets logic.

R-13

~~None of these signals has input to a control function. Thus, two-out-of-three logic is necessary to meet acceptable protective requirements. However, a two-out-of-three design would require tripping a failed channel.~~Condition E addresses the situation where containment pressure channels are inoperable. With channel(s) tripped, one or more of the three sets may be actuated. ~~This is undesirable because a single failure would then cause spurious containment spray initiation. Spurious spray actuation is undesirable because of the cleanup problems presented. Therefore, these channels are designed with two-out-of-four logic so that a failed channel may be bypassed rather than tripped. Note that one channel may be bypassed and still satisfy the single failure criterion. Furthermore, with one channel bypassed, a single instrumentation channel failure will not spuriously initiate containment spray.~~

CL3.3-401

CL3.3-222

R-13

CL3.3-222

~~To avoid the inadvertent actuation of containment spray and Phase B containment isolation, the inoperable channel should not be placed in the tripped condition. Instead it is bypassed.~~ Restoring the channel to OPERABLE status, or placing the inoperable channel in the trip~~bypass~~ condition and verifying one channel in each pair remains OPERABLE within 6 hours, is sufficient to assure that the

R-13

(continued)

BASES

PA3.3-356

Function remains OPERABLE~~ and minimizes the time that the Function may be in a partial trip condition (assuming the inoperable channel has failed high)~~. The Completion Time is further justified based on the low probability of an event occurring during this interval. Failure to restore the inoperable channel(s) to OPERABLE status, or place it in the trippedbypassed condition within 6 hours, requires the unit be placed in MODE 3 within the following 6 hours and MODE 4 within the next 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. In MODE 4, thiese Function~~s~~ is a~~re~~ no longer required OPERABLE.

R-13

~~ACTIONS~~ ~~E.1, E.2.1, and E.2.2 (continued)~~

CL3.3-222

The Required Actions are modified by a Note that allows one ~~additional~~ channel to be bypassed at any time for up to ~~[4]~~ hours for surveillance testing. Placing a ~~second~~ channel in the bypass condition for up to 4 hours for testing purposes is acceptable based on the results of Reference 5~~8~~.

R-13

F.1, F.2.1, and F.2.2

Condition F applies to~~:~~

~~• Manual Initiation of Steam Line Isolation;~~

~~• Loss of Offsite Power;~~

CL3.3-263

R-13

(continued)

BASES

PA3.3-356

~~• Auxiliary Feedwater Pump Suction Transfer on Suction Pressure - Low; and~~ CL3.3-266

~~• P-4 Interlock.~~ CL3.3-231

~~For the Manual Initiation and the P-4 Interlock Functions, this action addresses the train orientation of the SSPS. For the Loss of Offsite Power Function, this action recognizes the lack of manual trip provision for a failed channel. For the AFW System pump suction transfer channels, this action recognizes that placing a failed channel in trip during operation is not necessarily a conservative action. Spurious trip of this function could align the AFW System to a source that is not immediately capable of supporting pump suction.~~ If a train or channel is inoperable, 48 hours are~~is~~ allowed to return it to OPERABLE status. The specified Completion Time is reasonable considering the nature of this~~these~~ Function~~s, the available redundancy,~~ and the low probability of an event occurring during this interval. If the Function cannot be returned to OPERABLE status, the unit must be placed in MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power in an orderly manner and without challenging unit systems. In MODE 4, the unit does not have any analyzed transients or conditions that require the explicit use of the protection functions noted above.

ACTIONS (continued)

G.1, G.2.1 and G.2.2 CL3.3-238

Condition G applies to the automatic actuation relay logic ~~and actuation relays~~ for the Steam Line Isolation ~~[,Turbine Trip~~ and Feedwater Isolation~~,]~~ ~~and AFW actuation~~ Functions. R-13 CL3.3-227

(continued)

BASES

PA3.3-356

ACTIONS

~~the following 6 hours. The Completion Time for restoring a train to OPERABLE status is reasonable considering that there is another train OPERABLE, and the low probability of H.1 and H.2 (continued)~~

~~an event occurring during this interval. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. These Functions are no longer required in MODE 3. Placing the unit in MODE 3 removes all requirements for OPERABILITY of the protection channels and actuation functions. In this MODE, the unit does not have analyzed transients or conditions that require the explicit use of the protection functions noted above.~~

~~The Required Actions are modified by a Note that allows one train to be bypassed for up to [4] hours for surveillance testing provided the other train is OPERABLE. This allowance is based on the reliability analysis (Ref. 8) assumption that 4 hours is the average time required to perform channel surveillance.~~

CL3.3-225

~~H~~I.1 and ~~H~~I.2

Condition ~~H~~I applies to~~:~~

R-13

- High High SG Water Level ~~– High High (P-14) (two, three, and four loop units); and~~

- ~~Undervoltage Reactor Coolant Pump~~.

CL3.3-226

If one channel is inoperable, 6 hours are allowed to restore one channel to OPERABLE status or to place it in the tripped condition. If placed in the tripped condition, the Function

(continued)

BASES

PA3.3-356

is then in a partial trip condition where one-out-of-two ~~or one-out-of-three~~ logic will result in actuation. The 6 hour Completion Time is justified in Reference ~~58~~. Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 6 hours requires the unit to be placed in MODE 3 within the following 6 hours. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. In MODE 3, thie~~se~~ Function~~s~~ is~~are~~ no longer required OPERABLE.

ACTIONS

~~H~~I.1 and ~~H~~I.2 (continued)

R-13

The Required Actions are modified by a Note that allows the inoperable channel to be bypassed for up to ~~[~~4~~]~~ hours for surveillance testing of other channels. The 6 hours allowed to place the inoperable channel in the tripped condition, and the 4 hours allowed for a second channel to be in the bypassed condition for testing, are justified in Reference ~~58~~.

I.1 and I.2

Condition I applies to Undervoltage on Buses 11 and 12 (21 and 22).

CL3.3-226

R-13

If one or both channel(s) on one bus is inoperable, 6 hours are allowed to restore the channel(s) to OPERABLE status or to place it in the tripped condition. If placed in the tripped condition, the Function is then in a partial trip condition where one-out-of-two channels on the other bus will result in actuation. The 6 hour Completion Time is justified in Reference 5. Failure to restore the inoperable channel(s) to OPERABLE status or place it in the tripped

(continued)

BASES

PA3.3-356

condition within 6 hours requires the unit to be placed in MODE 3 within the following 6 hours. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. In MODE 3, this Function is no longer required OPERABLE.

The Required Actions are modified by a Note that allows the inoperable channel to be bypassed for up to 4 hours for surveillance testing of other channels. The 6 hours allowed to place the inoperable channel in the tripped condition, and the 4 hours allowed for a second channel to be in the bypassed condition for testing, are justified in Reference 5.

J.1 and K~~J~~.~~2~~1

CL3.3-227

Conditions J and K apply~~ies~~ to the AFW automatic actuation relay logic function and to the AFW pump start on trip of both~~all~~ MFW pumps function.

R-13

R-6

~~This action addresses the train orientation of the SSPS for the auto start function of the AFW System on loss of all MFW pumps.~~ The OPERABILITY of the AFW System must be assured by allowing automatic start of the AFW System pumps. If a logic train or channel is inoperable, ~~48 hours are allowed to return it to an OPERABLE status. If the function cannot be returned to an OPERABLE status, 6 hours are allowed to place the unit in MODE 3. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. In MODE 3, the unit does not have any analyzed transients or conditions that require the explicit use of the protection function noted above. The allowance of 48 hours to return the train to an OPERABLE status is~~

CL3.3-402

R-6

(continued)

BASES

PA3.3-356

~~justified in Reference 8.~~ the applicable Condition(s) and Required Action(s) of LCO 3.7.5, "Auxiliary Feedwater (AFW) System," are entered for the associated AFW train or pump.

Required Action J.1 is modified by a Note that allows placing a train in the bypass condition for up to 8 hours for surveillance testing provided the other train is OPERABLE. This is necessary to allow testing reactor trip system logic which is in the same cabinet with AFW logic. This is acceptable since the other AFW system train is OPERABLE and the probability for an event requiring AFW during this time is low.

R-13

CL3.3-227

~~K.1, K.2.1 and K.2.2~~

CL3.3-267

~~Condition K applies to:~~

- ~~RWST Level - Low Low Coincident with Safety Injection; and~~
- ~~RWST Level - Low Low Coincident with Safety Injection and Coincident with Containment Sump Level - High.~~

~~RWST Level - Low Low Coincident With SI and Coincident With Containment Sump Level - High provides actuation of switchover to the containment sump. Note that this Function requires the bistables to energize to perform their required action. The failure of up to two channels will not prevent the operation of this Function. However, placing a failed channel in the tripped condition could result in a premature switchover to the sump, prior to the injection of the minimum volume from the RWST. Placing the inoperable channel in bypass results in a two-out-of-three logic configuration, which satisfies the requirement to allow another failure without disabling actuation of the switchover when required. Restoring the channel to OPERABLE status or placing the inoperable channel in the bypass condition within 6 hours is sufficient to ensure that the Function remains OPERABLE, and minimizes the time that the~~

(continued)

BASES

PA3.3-356

each ESFAS~~protection~~ function. The test includes actuation of master and slave relays whose contact outputs remain within the relay logic. The test condition inhibits actuation of the master and slave relays whose contact outputs provide direct ESF equipment actuation. Where the relays are not actuated, the test circuitry provides a continuity check of the relay coil~~In addition, the master relay coil is pulse tested for continuity~~. This verifies that the logic ~~modules are~~is OPERABLE and that there is a~~n~~ ~~intact voltage~~ signal path to the output~~master~~ relay coils.

CL3.3-233

Functions which do not test the master and slave relays with the logic specify separate master and slave relay tests in Table 3.3.2-1.

The Frequency of every 31 days on a STAGGERED TEST BASIS is adequate. It is based on industry operating experience, considering instrument reliability and operating history data.

R-13

~~SR 3.3.2.3~~

CL3.3-232

~~SR 3.3.2.3 is the performance of an ACTUATION LOGIC TEST as described in SR 3.3.2.2, except that the semiautomatic~~

~~SURVEILLANCE REQUIREMENTS~~

~~SR 3.3.2.3 (continued)~~

~~tester is not used and the continuity check does not have to be performed, as explained in the Note. This SR is applied to the balance of plant actuation logic and relays that do not have the SSPS test circuits installed to utilize the semiautomatic tester or perform the continuity check. This test is also performed every 31 days on a STAGGERED TEST BASIS. The Frequency is adequate based on industry operating experience, considering instrument reliability and operating history data.~~

CL3.3-233

SR 3.3.2.7~~4~~

R-13

(continued)

BASES

PA3.3-356

SR 3.3.2.~~74~~ is the performance of a MASTER RELAY TEST. The MASTER RELAY TEST is the energizing of the master relay, verifying contact operation~~ and a low voltage continuity check of the slave relay coil~~. ~~Upon master relay contact operation, a low voltage is injected to the slave relay coil. This voltage is insufficient to pick up the slave relay, but large enough to demonstrate signal path continuity.~~ This test is performed every 24 months~~31 days on a STAGGERED TEST BASIS~~. ~~The time allowed for the testing (4 hours) and the surveillance interval are justified in Reference 8.~~

R-13

R-13

SR 3.3.2.~~5~~3

SR 3.3.2.~~5~~3 is the performance of a COT.

A COT is performed on each required channel to ensure the entire channel will perform the intended Function. Setpoints must be found within the Allowable Values specified in Table 3.3.2~~1~~-1. A successful test of the required contact(s) of a channel (logic input) relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL OPERATIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

TA3.3-395

The difference between the current "as found" values and the previous test "as left" values must be consistent with the drift allowance used in the setpoint methodology. The setpoint shall be left set consistent with the assumptions of the current unit specific setpoint methodology.

(continued)

BASES

PA3.3-356

The "as found" and "as left" values must also be recorded and reviewed for consistency with the assumptions of the

~~SURVEILLANCE REQUIREMENTS~~

~~SR 3.3.2.5 (continued)~~

surveillance interval extension analysis (Ref. 58) when applicable.

The Frequency of 92 days is justified in Reference 58.

SR 3.3.2.8~~6~~

CL3.3-233

SR 3.3.2.8~~6~~ is the performance of a SLAVE RELAY TEST. The SLAVE RELAY TEST is the energizing of the slave relays. Contact operation is verified in one of two ways. Actuation equipment that may be operated in the design mitigation MODE is either allowed to function, or is placed in a condition where the relay contact operation can be verified without operation of the equipment. ~~Actuation equipment that may not be operated in the design mitigation MODE is prevented from operation by the SLAVE RELAY TEST circuit. For this latter case, contact operation is verified by a continuity check of the circuit containing the slave relay.~~ This test is performed every 24 months~~[92] days. The Frequency is adequate, based on industry operating experience, considering instrument reliability and operating history data.~~

R-13

R-13

~~SR 3.3.2.7~~

CL3.3-234

~~SR 3.3.2.7 is the performance of a TADOT every [92] days. This test is a check of the Loss of Offsite Power, Undervoltage RCP, and AFW Pump Suction Transfer on Suction~~

(continued)

BASES

PA3.3-356

~~Pressure - Low Functions. Each Function is tested up to, and including, the master transfer relay coils.~~

~~The test also includes trip devices that provide actuation signals directly to the SSPS. The SR is modified by a Note that excludes verification of setpoints for relays. Relay setpoints require elaborate bench calibration and are verified during CHANNEL CALIBRATION. The Frequency is adequate. It is based on industry operating experience, considering instrument reliability and operating history data.~~

~~SURVEILLANCE~~ REQUIREMENTS (continued)

SR 3.3.2.~~8~~4

SR 3.3.2.~~8~~4 is the performance of a TADOT. This SR~~test~~ is a check of the ~~Manual Actuation Functions and AFW pump start on trip of all MFW pumps~~following ESFAS Instrumentation Functions: PA3.3-422

1. CS Manual Initiation;

2. CI Manual Initiation;

3. Manual isolation of the steam lines;

4. AFW pump start on Undervoltage on Buses 11 and 12 (21 and 22); and, CL3.3-234

5. AFW pump start on trip of both MFW pumps.

R-13

This SR~~. It~~ is performed every ~~[18]~~24 months.~~ Each Manual Actuation Function is tested up to, and including, the master relay coils. In some instances, the test includes actuation of the end device (i.e., pump starts, valve cycles, etc.).~~ CL3.3-172 PA3.3-422 A successful test of the required contact(s) of a channel (logic input) TA3.3-395

(continued)

BASES

PA3.3-356

relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The Frequency is adequate, based on industry operating experience and is consistent with the typical refueling cycle. The SR is modified by a Note that excludes verification of setpoints during the TADOT ~~for manual initiation Functions~~. The ~~manual initiation~~ Functions, except the undervoltage start of the AFW pumps, have no associated setpoints. For the undervoltage start of the AFW pumps, setpoint verification is covered by other SR's. CL3.3-235

SR 3.3.2.5 CL3.3-236

This SR is the performance of a TADOT to check the Safety Injection Manual Initiation Function. It is performed every 24 months on a STAGGERED TEST BASIS. The Frequency is adequate, based on industry operating experience and is consistent with a typical refueling cycle.

The SR is modified by a Note that excludes verification of setpoints during the TADOT. The manual initiation Function has no associated setpoints.

R-2

SR 3.3.2.~~9~~6

SR 3.3.2.~~9~~6 is the performance of a CHANNEL CALIBRATION. CL3.3-172

A CHANNEL CALIBRATION is performed every ~~[18]~~24 months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor.

(continued)

BASES

PA3.3-356

The test verifies that the channel responds to measured parameter within the necessary range and accuracy.

CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the unit specific setpoint methodology. The difference between the current "as found" values and the previous test "as left" values must be consistent with the drift allowance used in the setpoint methodology. R-2

The Frequency of ~~[18]~~24 months is based on the assumption of a~~n~~ ~~[18]~~24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint methodology. CL3.3-172

This SR is modified by a Note stating that this test should include verification that the time constants are adjusted to the prescribed values where applicable.

~~SR 3.3.2.10~~ CL3.3-237
~~This SR ensures the individual channel ESF RESPONSE TIMES are less than or equal to the maximum values assumed in the accident analysis. Response Time testing acceptance criteria are included in the Technical Requirements Manual, Section 15 (Ref. 9). Individual component response times are not modeled in the analyses. The analyses model the overall or total elapsed time, from the point at which the parameter exceeds the Trip Setpoint value at the sensor, to the point at which the equipment in both trains reaches the required functional state (e.g., pumps at rated discharge pressure, valves in full open or closed position).~~
~~For channels that include dynamic transfer functions (e.g., lag, lead/lag, rate/lag, etc.), the response time test may be performed with the transfer functions set to one with the resulting measured response time compared to the appropriate FSAR response time. Alternately, the response time test can be performed with the time constants set to their nominal value provided the required response time is analytically~~

(continued) R-2

PA3.3-356 CL3.3-281

BASES

~~G~~J.1

~~At this unit,~~ ~~a~~Alternate means (e.g., CETs) of monitoring Reactor Vessel Water Level and Containment Area Radiation have been developed and tested. These alternate means may be temporarily installed if the normal ~~PA~~EM channel cannot be restored to OPERABLE status within the allotted time. If these alternate means are used, the Required Action is not to shut down the unit but rather to follow the directions of Specification 5.6.8, in the Administrative Controls section of the TS. The report provided to the NRC should discuss the alternate means used, describe the degree to which the alternate means are equivalent to the installed ~~PA~~EM channels, justify the areas in which they are not equivalent, and provide a schedule for restoring the normal ~~PA~~EM channels.

CL3.3-474

R-7

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that SR 3.3.3.1 and SR 3.3.3.2 apply to each ~~P~~EM instrumentation Function in Table 3.3.3-1.

R-13

SR 3.3.3.1

Performance of the CHANNEL CHECK once every 31 days ensures that a gross instrumentation failure has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an

~~REQUIREMENTS~~

(continued)

PA3.3-356 CL3.3-281

BASES

operating experience and consistency with the typical PI~~industry~~ refueling cycle.

R-13

REFERENCES

1. ~~[Unit specific document (e.g., FSAR, NRC Regulatory Guide 1.97 SER letter).]~~ USAR Section 7.10.

2. Regulatory Guide 1.97, ~~[date]~~ Revision 2.

~~3. NUREG-0737, Supplement 1, "TMI Action Items."~~

3. NRC approved LAR 121 dated November 9,1995.

PA3.3-356 PA3.3-311 X3.3-312

BASES

LCO

The LCO for 4 kV safeguards bus voltage~~LOP DG start~~ instrumentation requires that four~~[three]~~ channels per bus of both the UV~~loss of voltage~~ and DV~~degraded voltage~~ Functions, and one automatic load sequencer per bus, shall be OPERABLE in MODES 1, 2, 3, and 4~~ when the LOP DG start instrumentation supports safety systems associated with the ESFAS~~. In MODES 5 and 6, the four~~[three]~~ channels and the associated load sequencer must be OPERABLE whenever the associated DG is required to be OPERABLE to ensure that the automatic start of the DG is available when needed. A UV or DV channel is OPERABLE when it is capable of actuating the load sequencer. Loss of the 4 kV Safeguards Bus Voltage~~LOP DG Start~~ Instrumentation Function could result in the delay of safety systems initiation when required. This could lead to unacceptable consequences during accidents.~~ During the loss of offsite power the DG powers the motor driven auxiliary feedwater pumps. Failure of these pumps to start would leave only one turbine driven pump, as well as an increased potential for a loss of decay heat removal through the secondary system.~~

R-13 R-13 R-7 CL3.3-318

A channel is OPERABLE with a trip setpoint outside its calibration tolerance band provided the trip setpoint "as-found" value does not exceed its associated Allowable Value and provided the trip setpoint "as-left" value is adjusted to within the calibration tolerance band.

TA3.3-324

APPLICABILITY

The 4 kV Safeguards Bus Voltage~~LOP DG Start~~ Instrumentation Functions are required in MODES 1, 2, 3, and 4 because ESF Functions are designed to provide protection in these MODES. Actuation in MODE 5 or 6 is required whenever the required DG must be OPERABLE so that it can perform its function on an UV ~~LOP~~ or degraded power to the ~~vital~~safeguards bus.

(continued)

PA3.3-356 PA3.3-311 X3.3-312

BASES

~~A Note is added to allow bypassing an inoperable channel for up to 4 hours for surveillance testing of other channels. This allowance is made where bypassing the channel does not cause an actuation and where at least two other channels are monitoring that parameter~~. CL3.3-315

The specified Completion Time and time allowed for bypassing one channel are reasonable considering the Function will operate ~~remains fully OPERABLE~~ on every bus and the low probability of an event occurring during these intervals.

Condition A has been modified by a Note indicating that this Condition is only applicable to Functions a and b. R-7

B.1 and B.2 CL3.3-478

Condition B applies when one or more Functions with two channels per bus inoperable~~than one loss of voltage or more than one degraded voltage channel on a single bus is inoperable~~.

Required Action B.1 requires placing one channel in bypass and the other inoperable channel in trip~~restoring all but one channel to OPERABLE status~~. Required Action B.2 requires the verification that all channels associated with the redundant load sequencer are OPERABLE. The ~~1~~6 hour Completion Time should allow ample time to repair most failures and takes into account
the low probability of an event requiring a DG~~an LOP~~ start occurring during this interval.

Condition B has been modified by a Note indicating that this Condition is only applicable to Functions a and b.

R-13

(continued)

PA3.3-356 PA3.3-311 X3.3-312

BASES

ACTIONS (continued)

C.1

CL3.3-317

R-13

~~Condition C applies to each of the LOP DG start Functions when the Required Action and associated Completion Time for Condition A or B are not met.~~

CL3.3-317

Condition C applies in MODE 1, 2, 3, or 4 when Required Action and associated Completion Time of Condition A or B are not met, when Functions a or b or both with three channels per bus inoperable, or when one required load sequencer is inoperable.

R-13

Required Action C.1 requires the performance of SR 3.3.4.2 for the OPERABLE automatic load sequencer. The 6 hour Completion Time provides a reasonable time for performance of the SR. Performance of this SR on a more frequent basis, once per 24 hours thereafter, ensures that the OPERABLE load sequencer remains OPERABLE while in this Condition. If the redundant train load sequencer fails to pass the SR it is inoperable and Condition D must then be entered.

R-13

C.2 and C.3

R-13

To ensure a highly reliable power source remains with an inoperable load sequencer, the offsite paths for the associated 4 kV safeguards bus must be capable of accepting the block loading that could result from an SI signal and availability must be verified on a more frequent basis. The 8 hour Completion Time is consistent with the Completion Time for an inoperable 4 kV safeguards bus, as required in LCO 3.8.9, "Distribution Systems - Operating." The verification of the operability of the offsite paths for associated 4kV safeguards on a more frequent basis, once per 8 hours thereafter, ensures that the OPERABLE paths remain OPERABLE while in this Condition.

CL3.3-317

(continued)

PA3.3-356 PA3.3-311 X3.3-312

BASES

An inoperable load sequencer results in associated DG unavailability for automatic start, connection to the bus and load reception. In Condition C, the remaining OPERABLE DG and offsite paths are adequate to supply electrical power to the onsite Safeguards AC Distribution System. R-13

Offsite power block loading capability is established by administrative control of selected distribution system loads to reduce potential starting inrush.

C.4

Required Action C.4 is intended to provide assurance that a loss of offsite power, during the period that a load sequencer is inoperable and the associated DG is inoperable for automatic start, does not result in a complete loss of safety function of critical systems. These features are designed with redundant safety related trains. Redundant required feature failures consist of inoperable features associated with a train, redundant to the train that has an inoperable DG. R-13

The Completion Time for Required Action C.4 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both: R-13

CL3.3-317

a. An inoperable DG exists; and

b. A required feature on the other train (Train A or Train B) is inoperable.

(continued)

PA3.3-356 PA3.3-311 X3.3-312

BASES

If at any time during the existence of this Condition (one DG inoperable) a required feature subsequently becomes inoperable, this Completion Time would begin to be tracked.

Discovering one required DG inoperable coincident with one or more inoperable required support or supported features, or both, that are associated with the OPERABLE DG, results in starting the Completion Time for the Required Action. Four hours from the discovery of these events existing concurrently is acceptable because it minimizes risk while allowing time for restoration before subjecting the unit to transients associated with shutdown.

In this Condition, the remaining OPERABLE DG and paths are adequate to supply electrical power to the onsite Safeguards Distribution System. Thus, on a component basis, single failure protection for the required feature's function may have been lost; however, function has not been lost. The 4 hour Completion Time takes into account the OPERABILITY of the redundant counterpart to the inoperable required feature. Additionally, the 4 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

C.5

Required Action C.5 requires that the automatic load sequencer be restored to OPERABLE status. The 7 day Completion Time allows a reasonable time to repair the inoperable load sequencer. The Completion Time is consistent with the Completion Time to restore an inoperable DG, as required in LCO 3.8.1, "AC Sources - Operating." R-13

(continued)

PA3.3-356 PA3.3-311 X3.3-312

BASES

~~In these circumstances the Conditions specified in LCO 3.8.1, "AC Sources - Operating," or LCO 3.8.2, "AC Sources - Shutdown," for the DG made inoperable by failure of the LOP DG start instrumentation are required to be entered immediately. The actions of those LCOs provide for adequate compensatory actions to assure unit safety.~~

X3.3-312

D.1

Condition D applies when the Required Action and associated Completion Time of Condition C are not met. The unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours.

R-13

E.1

Required Action E.1 requires that LCO 3.8.2, "AC Sources - Shutdown" Condition(s) and Required Action(s) for the DG made inoperable from inoperable 4kV safeguards bus voltage instrumentation be entered immediately when Required Action and Completion Time of Condition A or B is not met, or Functions a and b or both with three channels per bus inoperable, or when one required automatic load sequencer is inoperable in MODE 5 or 6. The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required AC electrical power sources should be completed as quickly as possible in order to minimize the time during which the unit safety systems may be without sufficient power.

R-13

R-13

(continued)

PA3.3-356 PA3.3-311 X3.3-312

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.4~~5~~.1

CL3.3-321

~~Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION.~~

~~Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.~~

~~The Frequency is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.~~

(continued)

PA3.3-356 PA3.3-311 X3.3-312

BASES

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SR 3.3.5.2~~

CL3.3-322

SR 3.3.4~~5~~.1~~2~~ is the performance of a ~~TAD~~COT~~. This test is performed~~ every ~~[~~31 days~~]~~.

A COT is performed on each required undervoltage and degraded voltage relay channel to ensure they will perform the intended function.~~ The test checks trip devices that provide actuation signals directly, bypassing the analog process control equipment.~~ For these tests, the relay t~~T~~rip s~~S~~etpoints are verified and adjusted as necessary. The Frequency is based on the known reliability of the relays and load sequencers~~controls~~ and the multichannel redundancy available, and has been shown to be acceptable through operating experience.

R-12

CL3.3-322

SR 3.3.4.2

SR 3.3.4.2 is the performance of an ACTUATION LOGIC TEST on each required load sequencer every 31 days.

The test verifies that the logic functions provided by the load sequencer for voltage and load restoration are OPERABLE. The Frequency is based on the known reliability of the load sequencers and has been shown to be acceptable through operating experience.

R-2

SR 3.3.4 ~~5~~.3

SR 3.3.4~~5~~.3 is the performance of a CHANNEL CALIBRATION on the undervoltage and degraded voltage channels.

The setpoints, as well as the response to a UV~~loss of voltage~~ and a DV~~degraded voltage~~ test, shall include a single point verification that an actuation~~the trip~~ occurs within the required time delay, as shown in Reference 1. The first degraded voltage time delay of 8 ± 0.5 seconds has been shown by testing and analysis to be long enough to allow for normal transients (i.e., motor starting

R-12

R-13

PA3.3-356 PA3.3-311 X3.3-312

BASES

and fault clearing). It is also longer than the time required to start the safety injection pump at minimum voltage. Following this delay, an alarm in the control room alerts the operator to the degraded condition. The subsequent occurrence of a safety injection actuation signal would immediately separate the affected bus or buses from the offsite power system. The degraded voltage DG start time delay range of 7.5 to 63 seconds is a limited duration such that the permanently connected Class 1E loads will not be damaged. Following this delay, if the operator has failed to restore adequate voltages, the affected bus or buses would be automatically separated from the offsite power system. The second time delay is specified here as an allowable range to be longer than the first time delay and shorter than the time which could cause damage to the permanently connected Class 1E loads. CL3.3-172

A CHANNEL CALIBRATION is performed every 24~~[18]~~ months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the voltage relay channel~~instrument loop, including the sensor~~. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy. R-13 CL3.3-172

The Frequency of 24~~[18]~~ months is based on operating experience and consistency with the typical PI~~industry~~ refueling cycle and is justified by the assumption of a~~n~~ 24~~[18]~~ month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

PA3.3-356 PA3.3-311 X3.3-312

BASES

REFERENCES

1. UFSAR, Section ~~[~~8.4~~3]~~.

2. "Engineering Manual Section 3.3.4.1,Engineering Design Standard for Instrument Setpoint/Uncertainty Calculations".~~FSAR, Chapter [15]~~.

3. USAR, Section 14.~~Unit Specific RTS/ESFAS Setpoint Methodology Study.~~

R-2

=

PA3.3-356 CL3.3-331

BASES

2. Automatic Actuation Relay Logic~~ and Actuation Relays~~
The LCO requires two trains of CVI~~Automatic Actuation~~ Relay Logic~~ and Actuation Relays~~ OPERABLE to ensure that no single random failure can prevent automatic actuation. CL3.3-337

~~Automatic Actuation~~ The CVI Relay Logic ~~and Actuation Relays~~ consists of the same features and operate in the same manner as described for ESFAS Function 1.b, SI, and ESFAS Function 3.~~a~~b, Containment ~~Phase A~~ Isolation. The applicable MODES and specified conditions for the CVI~~ containment purge isolation~~ portion of these Functions are different and less restrictive than those for their containment~~ Phase A~~ isolation and SI roles. If one or more of the SI or ~~Phase A~~ containment isolation Functions becomes inoperable in such a manner that only the CVI ~~Containment Purge Isolation Function~~ is affected, the Conditions applicable to their SI and ~~Phase A~~ containment isolation Functions need not be entered. The less restrictive Actions specified for inoperability of the ~~Containment Purge Isolation~~CVI Functions specify sufficient compensatory measures for this case. CL3.3-252

3. ~~Containment Radiation~~High Radiation in Exhaust Air

The LCO specifies ~~four~~ two required channels of radiation monitors to ensure that the radiation monitoring instrumentation necessary to initiate CVI~~Containment Purge Isolation~~ remains OPERABLE. R-13

~~LCO~~ For sampling systems, channel OPERABILITY involves

(continued)

PA3.3-356 CL3.3-331

BASES

~~(continued)~~

more than OPERABILITY of the channel electronics. OPERABILITY may also require correct valve lineups, and sample pump operation~~, and filter motor operation,~~ as well as detector OPERABILITY, if these supporting features are necessary for trip to occur under the conditions assumed by the safety analyses. CL3.3-342

~~4~~4. Manual Containment Isolation ~~- Phase A~~

Refer to LCO 3.3.2, Function 3.a., for ~~all~~ initiating Functions and requirements.

CL3.3-343

5. Safety Injection

Refer to LCO 3.3.2, Function 1, for initiating Functions and requirements.

6. Manual Containment Spray CL3.3-343 R-13

Refer to LCO 3.3.2, Function 2, for initiating Functions and requirements. CL3.3-337

APPLICABILITY

All Functions in Table 3.3.5-1 are required to be OPERABLE in MODES 1, 2, 3, and 4 when the Containment Inservice (low flow) Purge System is not isolated. In addition, TA3.3-332 CL3.3-333

~~T~~the Manual Initiation~~, Automatic Actuation~~ Relay Logic ~~and Actuation Relays, Containment Isolation~~ ~~- Phase A~~, and High ~~Containment~~ Radiation in Exhaust Air Functions are required OPERABLE ~~in MODES 1, 2, 3, and 4, and~~ during ~~CORE ALTERATIONS or~~ movement of irradiated fuel assemblies within containment, when the Containment Purge (high flow) and Inservice (low flow) Purge Systems are not isolated. Under these conditions, the potential exists for an CL3.3-252 CL3.3-344 R-13 TA3.3-479

(continued)

PA3.3-356 CL3.3-331

BASES

the CVI~~containment purge and exhaust isolation~~ instrumentation must be OPERABLE in these MODES.

While in MODES 5 and 6 without irradiated fuel handling in progress, the CVI~~containment ventilationpurge and exhaust isolation~~ instrumentation need not be OPERABLE since the potential for radioactive releases is minimized and operator action is sufficient to ensure post accident offsite doses are maintained within the limits of Reference 1. R-13

ACTIONS

The most common cause of channel inoperability is outright failure or drift of the ~~bistable or~~ process module sufficient to exceed the tolerance allowed by unit specific calibration procedures. Typically, the drift is found to be small and results in a delay of actuation rather than a total loss of function. This determination is generally made during the performance of a COT, when the process instrumentation is set up for adjustment to bring it within specification. If the ~~T~~trip ~~S~~setpoint is less conservative than the Allowable Value~~tolerance specified by the calibration procedure~~, the channel must be declared inoperable immediately and the appropriate Condition entered.

~~ACTIONS (continued)~~

A Note has been added to the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed in Table 3.3.~~6~~5-1. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

(continued)

PA3.3-356 CL3.3-331

BASES

A.1

CL3.3-333

Condition A applies to the failure of one CVI~~containment purge isolation~~ radiation monitor channel. ~~Since the four containment radiation monitors measure different parameters,~~

R-13

~~failure of a single channel may result in loss of the radiation monitoring Function for certain events. Consequently, the failed channel must be restored to OPERABLE status.~~ The 4 hours allowed to restore the affected channel is justified by the low likelihood of events occurring during this interval, and recognition that ~~one or more of~~ the remaining channels will respond to ~~most~~ events.

R-13

CL3.3-359

R-13

B.1

R-13

Condition B applies to all CVI~~Containment Purge and Exhaust Isolation~~ Functions and addresses the train orientation ~~of the Solid State Protection System (SSPS) and the master and slave relays~~ for these Functions. ~~It also addresses the failure of multiple radiation monitoring channels, or the inability to restore a single failed channel to OPERABLE status in the time allowed for Required Action A.1.~~

CL3.3-333

If a train is inoperable, ~~multiple~~ two required radiation monitoring channels are inoperable, or the Required Action and associated Completion Time of Condition A are not met, operation may continue as long as the Required Action for the applicable Conditions of LCO 3.6.3 is met for each valve made inoperable by failure of isolation instrumentation.

R-13

(continued)

PA3.3-356 CL3.3-331

BASES (continued)

~~B.1~~

CL3.3-344

A Note is added stating that Condition B is only applicable in MODE 1, 2, 3, or 4 when the Containment Inservice Purge System is not isolated.

R-12

C.1 and C.2

Condition C applies to all CVI~~Containment Purge and Exhaust Isolation~~ Functions and addresses the train orientation ~~of the SSPS and the master and slave relays~~ for these Functions. ~~It also addresses the failure of multiple radiation monitoring channels, or the inability to restore a single failed channel to OPERABLE status in the time allowed for Required Action A.1.~~ If a train is inoperable, ~~multiple~~ two required radiation monitoring channels are inoperable, or the Required Action and associated Completion Time of Condition A are not met, operation may continue as long as the Required Action to place and maintain containment purge (high flow) and inservice (low flow) purge and exhaust isolation valves in their closed position is met or the applicable Conditions of LCO 3.9.4, "Containment Penetrations," are met for each valve made inoperable by failure of isolation instrumentation. The Completion Time for these Required Actions is Immediately.

CL3.3-359 CL3.3-333 R-13 CL3.3-344

A Note states that Condition C is only applicable during ~~CORE ALTERATIONS and during~~ movement of irradiated fuel assemblies within containment when the Containment Purge and Inservice Purge Systems are not isolated.

TA3.3-479

R-12

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that Table 3.3.~~6~~5-1 determines which SRs apply to which CVI ~~Containment Purge and Exhaust Isolation~~ Functions.

(continued)

PA3.3-356 CL3.3-331

BASES (continued)

SR 3.3.~~5~~6.2 CL3.3-233

SR 3.3.~~5~~6.2 is the performance of an ACTUATION LOGIC TEST. ~~The train being tested is placed in the bypass condition, thus preventing inadvertent actuation. Through the semiautomatic tester, all possible logic combinations, with and without applicable permissives, are tested for each protection function. In addition, the master relay coil is pulse tested for continuity. This verifies that the logic modules are OPERABLE and there is an intact voltage signal path to the master relay coils.~~ This test is performed every 31 days on a STAGGERED TEST BASIS. The test includes actuation of the master relays whose contact outputs remain within the logic. The test condition inhibits actuation of the master relays whose contact outputs provide direct equipment actuation. The Surveillance interval is acceptable based on instrument reliability and industry operating experience. R-13

~~SR 3.3.6.3~~ CL3.3-233

~~SR 3.3.6.3 is the performance of a MASTER RELAY TEST. The MASTER RELAY TEST is the energizing of the master relay, verifying contact operation and a low voltage continuity check of the slave relay coil. Upon master relay contact~~

~~SURVEILLANCE REQUIREMENTS~~

~~SR 3.3.5.2 (continued)~~

~~operation, a low voltage is injected to the slave relay coil. This voltage is insufficient to pick up the slave relay, but large enough to demonstrate signal path continuity. This test is performed every 31 days on a STAGGERED TEST BASIS. The Surveillance interval is acceptable based on instrument reliability and industry operating experience.~~

(continued)

PA3.3-356 CL3.3-331

BASES (continued)

SR 3.3.5.3~~6.4~~

A COT is performed every 31~~92~~ days on each required channel to ensure the entire channel will perform the intended Function. ~~The Frequency is based on the staff recommendation for increasing the availability of radiation monitors according to NUREG-1366 (Ref. 2). This test verifies the capability of the instrumentation to provide the containment purge and exhaust system isolation~~. The setpoint shall be left consistent with the current unit specific ~~calibration~~ procedure tolerance. CL3.3-335

SR 3.3.5.4~~6.5~~

SR 3.3.5.4~~6.5~~ is the performance of a SLAVE RELAY TEST. The SLAVE RELAY TEST is the energizing of the slave relays. Contact operation is verified in one of two ways. Actuation equipment that may be operated in the design mitigation mode is either allowed to function or is placed in a condition where the relay contact operation can be verified without operation of the equipment. ~~Actuation equipment that may not be operated in the design mitigation mode is prevented from operation by the SLAVE RELAY TEST circuit. For this latter case, contact operation is verified by a continuity check of the circuit containing the slave relay.~~ This test is performed every 24~~[92] days~~ months. ~~The Frequency is acceptable based on instrument reliability and industry operating experience~~.

CL3.3-172

SR 3.3.5.~~6.56~~

SR 3.3.5.~~6.56~~ is the performance of a TADOT. This test is a check of the Manual Initiation~~Actuation~~ Function and is R-13

(continued)

PA3.3-356 CL3.3-331

BASES (continued)

is performed every ~~[18]~~24 months. ~~Each Manual Actuation Function is tested up to, and including, the master relay coils. In some instances, the test includes actuation of the end device (i.e., pump starts, valve cycles, etc.).~~ CL3.3-172 R-2 CL3.3-233

~~The test also includes trip devices that provide actuation signals directly to the SSPS, bypassing the analog process control equipment.~~ The SR is modified by a Note that excludes verification of setpoints during the TADOT. The Functions tested have no setpoints associated with them. CL3.3-359

The Frequency is based on the known reliability of the Function and the redundancy available, and has been shown to be acceptable through operating experience.

CL3.3-172

SR 3.3.5.~~6.67~~

R-13

A CHANNEL CALIBRATION is performed every ~~[18]~~24 months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy. R-2

CL3.3-483

The Frequency is ~~based on operating experience and is~~ consistent with the typical industry refueling cycle.

R-13

REFERENCES

1. 10 CFR 100.11.

~~2. NUREG-1366, [date].~~

(continued)

B 3.3 INSTRUMENTATION

B 3.3.6~~7~~ Control Room Special Ventilation ~~Emergency Filtration~~ System (CRSV~~EF~~S) Actuation Instrumentation

CL3.3-352

BASES

BACKGROUND

The CRSV~~EF~~S provides an enclosed control room environment from which the unit can be operated following an uncontrolled release of radioactivity. During normal operation, the Control Room~~Auxiliary Building~~ Ventilation System provides control room ventilation. Upon receipt of an actuation signal, automatic control dampers of the associated train isolate the control room and direct a portion of recirculated air through redundant PAC filters before entry to the air handling units. ~~the CREFS initiates filtered ventilation and pressurization of the control room.~~ This system is described in the Bases for LCO 3.7.10, "Control Room Special Ventilation ~~Emergency Filtration~~ System."

CL3.3-486

The actuation instrumentation consists of ~~redundant~~ radiation monitors in the ~~air intakes and~~ control room area. A high radiation signal from ~~any of~~ these detectors will initiate the associated~~both~~ train~~s~~ of the CRSV~~EF~~S. ~~The control room operator can also initiate CREFS trains by manual switches in the control room.~~ The CRSV~~EF~~S is also actuated by a safety injection (SI) signal. The SI Function is discussed in LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation."

APPLICABLE SAFETY ANALYSES

The control room must be kept habitable for the operators stationed there during accident recovery and post accident operations.

(continued)

R-13

BASES

The CRSV~~EF~~S acts to terminate the supply of unfiltered outside air to the control room~~,~~ and initiate filtration~~, and pressurize the control room~~. These actions are necessary to ensure the control room is kept habitable for the operators stationed there during accident recovery and post accident operations by minimizing the radiation exposure of control room personnel. CL3.3-486

In MODES 1, 2, 3, and 4, the radiation monitor actuation of the CRSV~~EF~~S is a backup for the SI signal actuation. This ensures initiation of the CRSV~~EF~~S during a loss of coolant accident or steam generator tube rupture.

APPLICABLE SAFETY ANALYSES (continued)

The radiation monitor actuation of the CRSV~~EF~~S ~~in MODES 5 and 6,~~ during movement of irradiated fuel assemblies ~~[, and CORE ALTERATIONS],~~ is the primary means to ensure control room habitability in the event of a fuel handling ~~or waste gas decay tank rupture~~ accident.
The CRSV~~EF~~S actuation instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii)~~the NRC Policy Statement~~.

LCO

The LCO requirements ensure that instrumentation necessary to initiate the CRSV~~EF~~S is OPERABLE.

1. Manual Initiation

The LCO requires two channels OPERABLE. The operator can initiate the CRSV~~EF~~S at any time by using either of two switches in the control room. This action will cause actuation of all components in the same manner as any of the automatic actuation signals.

The LCO for Manual Initiation ensures the proper amount of redundancy is maintained in the manual

(continued) R-13

BASES

actuation circuitry to ensure the operator has manual initiation capability.

Each channel consists of one ~~push button~~ switch and the interconnecting wiring to the actuation logic cabinet.

~~2. Automatic Actuation Logic and Actuation Relays~~

~~The LCO requires two trains of Actuation Logic and Relays OPERABLE to ensure that no single random failure can prevent automatic actuation.~~

~~Automatic Actuation Logic and Actuation Relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b., SI, in LCO 3.3.2. The applicable MODES and specified conditions for the CREFS portion of these functions are different and less restrictive than those specified for their SI roles. If one or more of the SI functions becomes inoperable in such a manner that only the CREFS function is affected, the Conditions applicable to their SI function need not be entered. The less~~ CL3.3-482

~~LCO 2. Automatic Actuation Logic and Actuation Relays (continued)~~

~~restrictive Actions specified for inoperability of the CREFS Functions specify sufficient compensatory measures for this case.~~

~~23.~~ Control Room Radiation CL3.3-484

The LCO specifies ~~two required Control Room Atmosphere Radiation Monitors and~~ two required

(continued) R-13

BASES

Control Room Atmosphere~~Air Intake~~ Radiation Monitors, R23 and R24, to ensure that the radiation monitoring instrumentation necessary to initiate the CRSV~~EF~~S remains OPERABLE.

A high radiation signal from one control room radiation monitor channel (R23 or R24) initiates the following:

a. The Cleanup Fan on the associated train starts;

b. Exhaust Dampers on the associated train are isolated; and

c. Outside Air Dampers for both trains are isolated.

Table 3.3.6-1 identifies an allowable value for the Control Room Atmosphere Radiation Monitor. No Analytical Limit is assumed in the accident analysis for this function. This allowable value was developed outside the PI setpoint methodology. CL3.3-484

~~For sampling systems, channel OPERABILITY involves more than OPERABILITY of channel electronics. OPERABILITY may also require correct valve lineups, sample pump operation, and filter motor operation, as well as detector OPERABILITY, if these supporting features are necessary for trip to occur under the conditions assumed by the safety analyses.~~ CL3.3-487

R-13

(continued)

BASES

~~3~~4. Safety Injection

Refer to LCO 3.3.2, Function 1, for all initiating Functions and requirements.

APPLICABILITY

~~The~~ CRSV~~EF~~S Function~~s~~ 1 in Table 3.3.6-1 must be OPERABLE in MODES 1, 2, 3, 4, ~~[and~~ during ~~CORE ALTERATIONS]~~ and movement of irradiated fuel assemblies. ~~The Functions must also be OPERABLE in MODES [5 and 6] when required for a waste gas decay tank rupture accident, to ensure a habitable environment for the control room operators.~~ TA3.3-479 CL3.3-480

The Applicability for CRSVS actuation on ESFAS Safety Injection Functions are specified in LCO 3.3.2. Refer to the Bases for LCO 3.3.2 for discussion of the Safety Injection Function Applicability. TA3.3-332

ACTIONS

~~The most common cause of channel inoperability is outright failure or drift of the bistable or process module sufficient to exceed the tolerance allowed by the unit specific calibration procedures. Typically, the drift is found to be small and results in a delay of actuation rather than a total loss of function. This determination is generally made during the performance of a COT, when the process instrumentation is set up for adjustment to bring it within specification. If the Trip Setpoint is less conservative than the tolerance specified by the calibration procedure, the channel must be declared inoperable immediately and the appropriate Condition entered.~~

~~ACTIONS (continued)~~

A Note has been added to the ACTIONS indicating that separate Condition entry is allowed for each Function. The

(continued) R-13

BASES

Conditions of this Specification may be entered independently for each Function listed in Table 3.3.6~~7~~-1 in the accompanying LCO. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

A.1

~~Condition A applies to the actuation logic train Function of the CREFS, the radiation monitor channel Functions, and the manual channel Functions.~~

If one or more Functions has one channel~~train is~~ inoperable, place one CRSVS train in operation with the opposite train outside air damper closed within~~, or one radiation monitor channel is inoperable in one or more Functions,~~ 7 days~~ are permitted to restore it to OPERABLE status~~. With one manual switch inoperable either train of CRSVS may be placed in operation. If one radiation monitoring channel is inoperable, the associated CRSVS train must be placed in operation and the outside air dampers associated with the opposite CRSVS train must be closed. The 7 day Completion Time is the same as is allowed if one train of the mechanical portion of the system is inoperable. The basis for this Completion Time is the same as provided in LCO 3.7.10. ~~If the channel/train cannot be restored to OPERABLE status, one CREFS train must be placed in the emergency radiation protection mode of operation.~~ This accomplishes the actuation instrumentation Function and places the unit in a conservative mode of operation. CL3.3-480

~~The Required Action for Condition A is modified by a Note that requires placing one CREFS train in the toxic gas protection mode instead of the [radiation protection] mode of operation if the automatic transfer to toxic gas~~

(continued) R-13

BASES

~~protection mode is inoperable. This ensures the CREFS train is placed in the most conservative mode of operation relative to the OPERABILITY of the associated actuation instrumentation.~~

ACTIONS (continued)

B.1 and B.2

Condition B applies when one or more Functions with two channels inoperable~~to the failure of two CREFS actuation trains, two radiation monitor channels, or two manual channels~~. The first Required Action is to immediately enter ~~place one CREFS train in the emergency [radiation protection] mode of operation immediately. This accomplishes the actuation instrumentation Function that may have been lost and places the unit in a conservative mode of operation.~~ t~~T~~he applicable Conditions and Required Actions of LCO 3.7.10 ~~must also be entered~~ for two~~the~~ CRSV~~EF~~S trains made inoperable by the inoperable actuation instrumentation. This ensures appropriate limits are placed upon train inoperability as discussed in the Bases for LCO 3.7.10. CL3.3-480

Alternatively, both trains may be placed in operation with the outside air dampers closed~~the emergency [radiation protection] mode~~. This ensures the CRSV~~EF~~S function is performed even in the presence of a single failure.

~~The Required Action for Condition B is modified by a Note that requires placing one CREFS train in the toxic gas protection mode instead of the [radiation protection] mode of operation if the automatic transfer to toxic gas protection mode is inoperable. This ensures the CREFS train is placed in the most conservative mode of operation relative to the OPERABILITY of the associated actuation instrumentation.~~ CL3.3-480

(continued) R-13

BASES

C.1 and C.2

Condition C applies when the Required Action and associated Completion Time for Condition A or B have not been met and the unit is in MODE 1, 2, 3, or 4. The unit must be brought to a MODE in which the LCO requirements are not applicable. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

ACTIONS (continued)

D.1~~ and D.2~~

Condition D applies when the Required Action and associated Completion Time for Condition A or B have not been met ~~[during CORE ALTERATIONS or]~~ when irradiated fuel assemblies are being moved. Movement of irradiated fuel assemblies ~~[and CORE ALTERATIONS]~~ must be suspended immediately to reduce the risk of accidents that would require CRSV~~EF~~S actuation. TA3.3-479

~~E.1~~

~~Condition E applies when the Required Action and associated Completion Time for Condition A or B have not been met in MODE 5 or 6. Actions must be initiated to restore the inoperable train(s) to OPERABLE status immediately to ensure adequate isolation capability in the event of a waste gas decay tank rupture.~~ CL3.3-481

(continued) R-13

BASES

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that Table 3.3.6 ~~7~~-1 determines which SRs apply to which CRSV~~EF~~S Actuation Functions.

SR 3.3.6~~7~~.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. ~~Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious.~~ A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

~~Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties,~~

SURVEILLANCE REQUIREMENTS

~~SR 3.3.7.1 (continued)~~

~~including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.~~

The Frequency is based on operating experience that demonstrates channel failure is rare. ~~The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.~~

(continued)

R-13

BASES

SR 3.3.6~~7~~.2

A COT is performed once every 92 days on each required channel to ensure the entire channel, including the actuation devices, will perform the intended function. This test verifies the capability of the instrumentation to provide the CRSV~~EF~~S actuation. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL OPERATIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The setpoints are~~shall be~~ left consistent with the unit specific calibration procedure tolerance. The Frequency is based on the known reliability of the monitoring equipment and has been shown to be acceptable through operating experience. TA3.3-395

~~SR 3.3.7.3~~

~~SR 3.3.7.3 is the performance of an ACTUATION LOGIC TEST. The train being tested is placed in the bypass condition, thus preventing inadvertent actuation. Through the semiautomatic tester, all possible logic combinations, with and without applicable permissives, are tested for each protection function. In addition, the master relay coil is pulse tested for continuity. This verifies that the logic modules are OPERABLE and there is an intact voltage signal path to the master relay coils. This test is performed every 31 days on a STAGGERED TEST BASIS. The Frequency is justified in WCAP-10271-P-A, Supplement 2, Rev. 1 (Ref. 1).~~ CL3.3-482

(continued) R-13

BASES

~~SR 3.3.7.4~~

~~SR 3.3.7.4 is the performance of a MASTER RELAY TEST. The MASTER RELAY TEST is the energizing of the master relay, verifying contact operation and a low voltage continuity~~

SURVEILLANCE REQUIREMENTS

~~SR 3.3.7.4 (continued)~~

~~check of the slave relay coil. Upon master relay contact operation, a low voltage is injected to the slave relay coil. This voltage is insufficient to pick up the slave relay, but large enough to demonstrate signal path continuity. This test is performed every 31 days on a STAGGERED TEST BASIS. The Frequency is acceptable based on instrument reliability and industry operating experience.~~ CL3.3-482

~~SR 3.3.7.5~~

~~SR 3.3.7.5 is the performance of a SLAVE RELAY TEST. The SLAVE RELAY TEST is the energizing of the slave relays. Contact operation is verified in one of two ways. Actuation equipment that may be operated in the design mitigation MODE is either allowed to function or is placed in a condition where the relay contact operation can be verified without operation of the equipment. Actuation equipment that may not be operated in the design mitigation MODE is prevented from operation by the SLAVE RELAY TEST circuit. For this latter case, contact operation is verified by a continuity check of the circuit containing the slave relay. This test is performed every [92] days. The Frequency is acceptable based on instrument reliability and industry operating experience.~~ CL3.3-482

(continued) R-13

BASES

SR 3.3.6~~7~~.3~~6~~

SR 3.3.6~~7~~.3~~6~~ is the performance of a TADOT. This test is a check of the Manual Actuation Functions and is performed every ~~[18]~~24 months. Each Manual Actuation Function is tested up to, and including, the master relay coils. In some instances, the test includes actuation of the end device (i.e., pump starts, valve cycles, etc.).

~~The test also includes trip devices that provide actuation signals directly to the Solid State Protection System, bypassing the analog process control equipment.~~ The Frequency is based on the known reliability of the Function and the redundancy available, and has been shown to be acceptable through operating experience. The SR is modified by a Note that excludes verification of setpoints during the

SURVEILLANCE REQUIREMENTS

~~SR 3.3.7.6 (continued)~~

TADOT. The Functions tested have no setpoints associated with them.~~00~~

SR 3.3.6~~7~~.4~~7~~

A CHANNEL CALIBRATION is performed every 24~~[18]~~ months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy.

The Frequency is ~~based on operating experience and is~~ consistent with the typical industry refueling cycle.

CL3.3-483

REFERENCES None.

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B 3.3 INSTRUMENTATION

CL3.3-489

B 3.3.7~~8~~ Spent Fuel Pool Special Ventilation System (SFPSVS) ~~Building Air Cleanup System (FBACS)~~ Actuation Instrumentation

BASES

BACKGROUND

The SFPSVS~~FBACS~~ ensures that radioactive materials in the fuel pool enclosure~~building~~ atmosphere following a fuel handling accident ~~or a loss of coolant accident (LOCA)~~ are filtered and adsorbed prior to exhausting to the environment. The system is described in the Bases for LCO 3.7.13, "Spent Fuel Pool Special Ventilation ~~Building Air Cleanup~~ System (SFPSVS)." The system initiates filtered ventilation of the fuel pool enclosure~~building~~ automatically following receipt of a high radiation signal ~~(gaseous or particulate) or a safety injection (SI) signal. Initiation may also be performed manually as needed from the main control room.~~

CL3.3-491

High ~~gaseous and particulate~~ radiation, ~~each~~ monitored by either of two monitors (R-25 and R-31), provides SFPSVS~~FBACS~~ initiation. Each SFPSVS~~FBACS~~ train is initiated by high radiation detected by a channel dedicated to that train. There are a total of two channels, one for each train. ~~Each channel contains a gaseous and particulate monitor.~~ High radiation detected by either~~any~~ monitor ~~or an SI signal from the Engineered Safety Features Actuation System (ESFAS)~~ initiates fuel pool enclosure~~building~~ isolation and starts the SFPSVS~~FBACS~~. These actions function to prevent exfiltration of contaminated air by initiating filtered ventilation, which imposes a negative pressure on the fuel pool enclosure~~building~~. ~~Since the radiation monitors include an air sampling system, various components such as sample line valves, sample line heaters, sample pumps, and filter motors are required to support monitor OPERABILITY.~~

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(continued)

BASES (continued)

APPLICABLE SAFETY ANALYSES

The SFPSVS~~FBACS~~ ensures that radioactive materials in the fuel pool enclosure~~building~~ atmosphere following a fuel handling accident or a LOCA are filtered and adsorbed prior to being exhausted to the environment. This action reduces the radioactive content in the fuel pool enclosure~~building~~ exhaust following a LOCA or fuel handling accident so that offsite doses remain within the limits specified in 10 CFR 100 (Ref. 1).

The SFPSVS~~FBACS~~ actuation instrumentation satisfies Criterion 3 of 10CFR50.36(c)(2)(ii)~~the NRC Policy Statement~~.

LCO

The LCO requirements ensure that instrumentation necessary to initiate the SFPSVS~~FBACS~~ is OPERABLE.

~~1. Manual Initiation~~ CL3.3-491

~~The LCO requires two channels OPERABLE. The operator can initiate the FBACS at any time by using either of two switches in the control room. This action will cause actuation of all components in the same manner as any of the automatic actuation signals.~~

~~The LCO for Manual Initiation ensures the proper amount of redundancy is maintained in the manual actuation circuitry to ensure the operator has manual initiation capability.~~

~~Each channel consists of one push button and the interconnecting wiring to the actuation logic cabinet.~~

~~2. Automatic Actuation Logic and Actuation Relays~~

(continued) R-13

BASES

~~The LCO requires two trains of Actuation Logic and Relays OPERABLE to ensure that no single random failure can prevent automatic actuation.~~ CL3.3-491

~~Automatic Actuation Logic and Actuation Relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b., SI, in LCO 3.3.2. The applicable MODES and specified conditions for the FBACS portion of these functions are different and less restrictive than those specified for their SI roles. If one or more of the SI functions becomes inoperable in such a manner that only the FBACS function is affected, the Conditions applicable to their SI function need not be entered. The less restrictive Actions specified for inoperability of the FBACS functions specify sufficient compensatory measures for this case.~~

~~3~~1. Fuel Pool Enclosure~~Building~~ Radiation

The LCO specifies two required ~~Gaseous~~ Radiation Monitor channels (R-25 and R-31)~~and two required Particulate Radiation Monitor channels~~ to ensure that the radiation monitoring instrumentation necessary to initiate the SFPSVS~~FBACS~~ remains OPERABLE.

~~LCO~~ ~~3. Fuel Building Radiation (continued)~~

~~For sampling systems, channel OPERABILITY involves more than OPERABILITY of channel electronics. OPERABILITY may also require correct valve lineups, sample pump operation, filter motor operation, detector OPERABILITY, if these supporting features are necessary for actuation to occur under the conditions assumed by the safety analyses.~~

(continued)

BASES

The allowable value for these radiation monitors is provided by the Prairie Island Offsite Dose Calculation Manual (ODCM). ~~Only the Trip Setpoint is specified for each FBACS Function in the LCO. The Trip Setpoint limits account for instrument uncertainties, which are defined in the Unit Specific Setpoint Calibration Procedure (Ref. 2)~~.

APPLICABILITY

The manual SFPSVS~~FBACS~~ initiation must be OPERABLE in MODES ~~[~~1, 2, 3, and 4~~]~~ and when moving irradiated fuel assemblies in the fuel pool enclosure~~building~~, to ensure the SFPSVS~~FBACS~~ operates to remove fission products associated with leakage after ~~a LOCA or~~ a fuel handling accident. ~~The automatic FBACS actuation instrumentation is also required in MODES [1, 2, 3, and 4] to remove fission products caused by post LOCA Emergency Core Cooling Systems leakage.~~

High radiation initiation of the SFPSVS~~FBACS~~ must be OPERABLE in any MODE during movement of irradiated fuel assemblies in the fuel pool enclosure~~building~~ to ensure automatic initiation of the SFPSVS~~FBACS~~ when the potential for a fuel handling accident exists.

While in MODES 5 and 6 without fuel handling in progress, the SFPSVS~~FBACS~~ instrumentation need not be OPERABLE since a fuel handling accident cannot occur.

CL3.3-490

ACTIONS

LCO 3.0.3 is not applicable while in MODE 5 or 6. However, since irradiated fuel assembly movement can occur in MODE 1, 2, 3, or 4, the ACTIONS have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel

(continued)

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BASES

movement is independent of reactor operations. Entering LCO 3.0.3, while in MODE 1, 2, 3, or 4, would require the unit to be shutdown unnecessarily.

~~ACTIONS~~

~~The most common cause of channel inoperability is outright failure or drift of the bistable or process module sufficient to exceed the tolerance allowed by unit specific calibration procedures. Typically, the drift is found to be small and results in a delay of actuation rather than a total loss of function. This determination is generally made during the performance of a COT, when the process instrumentation is set up for adjustment to bring it within specification. If the nominal Trip Setpoint is less conservative than the tolerance specified by the calibration procedure, the channel must be declared inoperable immediately and the appropriate Condition entered.~~

~~ACTIONS (continued)~~

~~A Note has been added to the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed in Table 3.3.8-1 in the accompanying LCO. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.~~ CL3.3-490

A.1 CL3.3-491

~~Condition A applies to the actuation logic train function of the Solid State Protection System (SSPS), the radiation monitor functions, and the manual function.~~ Condition A applies to the failure of a single ~~actuation logic train,~~ radiation monitor channel~~, or manual channel~~. If one channel ~~or train~~ is inoperable, a period of 7 days is

(continued) R-13

BASES

allowed to place one train of SFPSVS in operation~~restore it to OPERABLE status. If the train cannot be restored to OPERABLE status, one FBACS train must be placed in operation~~. This accomplishes the actuation instrumentation function and places the unit in a conservative mode of operation. The 7 day Completion Time is the same as is allowed if one train of the mechanical portion of the system is inoperable. The basis for this time is the same as that provided in LCO 3.7.13.

CL3.3-491

B.1.1, B.1.2, and B.2

CL3.3-493

Condition B applies to the failure of two SFPSVS~~FBACS actuation logic trains, two~~ radiation monitors~~, or two manual channels~~. The Required Action is to place one SFPSVS~~FBACS~~ train in operation immediately. This accomplishes the actuation instrumentation function that may have been lost and places the unit in a conservative mode of operation. The applicable Conditions and Required Actions of LCO 3.7.13 must also be entered for the SFPSVS~~FBACS~~ train made inoperable by the inoperable actuation instrumentation. This ensures appropriate limits are placed on train inoperability as discussed in the Bases for LCO 3.7.13.

~~ACTIONS~~

~~B.1.1, B.1.2, B.2 (continued)~~

Alternatively, both trains may be placed in ~~the~~ operation~~emergency [radiation protection] mode~~. This ensures the SFPSVS~~FBACS~~ Function is performed even in the presence of a single failure.

C.1

Condition C applies when the Required Action and associated Completion Time for Condition A or B have not been met and

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BASES

irradiated fuel assemblies are being moved in the fuel pool enclosure~~building~~. Movement of irradiated fuel assemblies in the fuel pool enclosure~~building~~ must be suspended immediately to eliminate the potential for events that could require SFPSVS~~FBACS~~ actuation.

~~D.1 and D.2~~

CL3.3-490

~~Condition D applies when the Required Action and associated Completion Time for Condition A or B have not been met and the unit is in MODE 1, 2, 3, or 4. The unit must be brought to a MODE in which the LCO requirements are not applicable. To achieve this status, the unit must be brought to MODE 3 within 6 hours and MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.~~

SURVEILLANCE REQUIREMENTS

~~A Note has been added to the SR Table to clarify that Table 3.3.8-1 determines which SRs apply to which FBACS Actuation Functions.~~

CL3.3-494

SR 3.3.7~~8~~.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument

(continued) R-13

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.7~~8~~.1 (continued)

channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

~~Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.~~

The Frequency is based on operating experience that demonstrates channel failure is rare. ~~The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.~~

SR 3.3.7~~8~~.2

A COT is performed once every 92 days on each required channel to ensure the entire channel, including the actuation devices, will perform the intended function. This test verifies the capability of the instrumentation to provide the SFPSVS~~FBACS~~ actuation. The setpoints shall be left consistent with the unit specific calibration procedure tolerance. The Frequency of 92 days is based on the known reliability of the monitoring equipment and has been shown to be acceptable through operating experience.

(continued) R-13

BASES

~~SR 3.3.8.3~~

~~SR 3.3.8.3 is the performance of an ACTUATION LOGIC TEST. The actuation logic is tested every 31 days on a STAGGERED TEST BASIS. All possible logic combinations, with and without applicable permissives, are tested for each protection function. The Frequency is based on the known~~

SURVEILLANCE REQUIREMENTS

SR 3.3.8.3 (continued)

~~reliability of the relays and controls and the multichannel redundancy available, and has been shown to be acceptable through operating experience.~~ CL3.3-495

~~SR 3.3.8.4~~ CL3.3-496

~~SR 3.3.8.4 is the performance of a TADOT. This test is a check of the manual actuation functions and is performed every [18] months. Each manual actuation function is tested up to, and including, the master relay coils. In some instances, the test includes actuation of the end device (e.g., pump starts, valve cycles, etc.). The Frequency is based on operating experience and is consistent with the typical industry refueling cycle. The SR is modified by a Note that excludes verification of setpoints during the TADOT. The Functions tested have no setpoints associated with them.~~

SR 3.3.7~~8~~.3~~5~~

A CHANNEL CALIBRATION is performed every ~~[18]~~24 months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy. The Frequency is ~~based on operating experience and is~~ consistent with the typical industry refueling cycle. CL3.3-483 R-13

BASES

CL3.3-497

REFERENCES 1. 10 CFR 100.11.

R-13

~~2. Unit Specific Setpoint Calibration Procedure.~~

Difference Category	Difference Number 3.3-	Justification for Differences
CL	203	The number of required channels is provided consistent with the plant design and CTS. The Allowable Value for steam generator low-low level was developed in accordance with the Prairie Island Setpoint Methodology as the result of assessment of the Westinghouse technical advisory NSAL 02-3.
CL	204	The steam generator low level coincident with steam-feedwater flow mismatch is not included in the PI ITS or Bases since PI does not have this reactor trip.
PA	205	The name for this function has been modified to "Autostop" Oil Pressure to be consistent with PI system name.
CL	206	The PI allowable value from CTS 2.3.A.3.c.2 is provided.
CL	207	The allowable value for Turbine Stop Valve Closure is specified as "Not closed". When these valves are closed, the reactor will trip. The input to the reactor trip system relay logic is based on limit switches which indicate that the valve is closed. If the valve is not closed, then there is no trip signal and the plant is allowed to operate.

Difference Category	Difference Number 3.3-	Justification for Differences
CL	222	CTS allows containment pressure channel inputs to containment spray logic to be tripped when one or more are inoperable. The PI logic is one-out-of-two channels, three-out-of-three sets. ITS LCO 3.3.2 Condition E has been modified to account for the PI unique logic.

Difference Category	Difference Number 3.3-	Justification for Differences
	223	Not used.
CL	224	ITS Condition G (NUREG-1431 Condition G) is modified to allow one train to be bypassed for 8 hours for surveillance testing. This change is consistent with CTS Table 3.5-2B Action 28.

Difference Category	Difference Number 3.3-	Justification for Differences
CL	225	NUREG-1431 Condition H is not included since it is not used. Condition H is only used when MODE 3 is not applicable for the Feedwater Isolation Function. Since PI requires the Feedwater Isolation Function to be operable in MODE 3, Condition G (NUREG-1431 Condition G) is the appropriate condition and Condition H is not required for any function condition of inoperability. Since NUREG-1431 Condition H has not been included in the ITS, NUREG-1431 Conditions I, J, K and L have been relettered to H, I, J and K respectively.
CL	226	ITS Condition I (NUREG-1431 Condition J) is added to provide for inoperability of the undervoltage channels consistent with CTS Table 3.5-2B Action 28. These changes are necessary due to the change in format which would significantly reduce operational flexibility if these changes were not incorporated. New Bases are provided since none of the NUREG-1431 Bases are adequate for this Condition.

Difference Category	Difference Number 3.3-	Justification for Differences
CL	227	ITS Condition J (NUREG-1431 Condition K) is modified to be consistent with the requirements of CTS Table 3.5-2B Action 30. The note has been modified to allow one train to be bypassed for 8 hours to allow reactor trip logic to be tested. This is acceptable since the other train of AFW is OPERABLE and the probability of an event requiring AFW during this time is low. Since the AFW logic is unique, NUREG-1431 Condition G does not apply. The Bases for NUREG-1431 Condition J are used for this Condition since they describe the Required Actons and Note more closely than the Bases for NUREG-1431 Condition K.
CL	228	ITS Condition K (NUREG-1431 Condition L) is modified to be consistent with the requirements of CTS Table 3.5-2B Action 26 which applies to the Trip of Both Main Feedwater Pumps Function. The Bases for NUREG-1431 Condition J are used for this Condition since they describe the Required Actions and Note more closely than the Bases for NUREG-1431 Condition L.
	229	Not used.
	230	Not used.

Difference Category	Difference Number 3.3-	Justification for Differences
CL	231	The NUREG-1431 ESFAS interlocks, Table 3.3.2-1 Function 8, are not included in the PI ITS. The PI design predates the specific identification of these interlocks as "P" numbers; thus, these are not included in the PI CTS. These functions are included with other functions as appropriate.
CL	232	The Note in NUREG-1431 SR 3.3.2.3 does not apply to PI. Since the only difference between SR 3.3.2.3 and SR 3.3.2.2 is the Note, SR 3.3.2.3 has not been included in the ITS.
CL	233	PI design does not allow for monthly or quarterly testing of the Master Relays and Slave Relays in a separate test and thus ISTS SR 3.3.2.4 (ITS SR 3.3.2.7), ISTS SR 3.3.2.6 (ITS SR 3.3.2.8) and ISTS SR 3.3.6.5 (ITS SR 3.3.5.4) have been revised to be performed every 24 months which will allow them to be tested during refueling outages. Relays that can be tested on line are included in ITS SR 3.3.2.2 and ITS SR 3.3.5.2. ESFAS relay logic test circuit design is unique for Westinghouse 2-loop plants of PI vintage. Generally, ESFAS logic consists of input relays, latching relays (master), non-latching relays (slave) and test relays. When placed in test for the ALT, the test relay contacts block energizing of any master or slave relays whose contacts are connected to external equipment actuation circuits, for the entire train. All master and slave relays whose contacts remain within the logic are allowed to energize as each input relay matrix is made up. The relays that are allowed to energize or those blocked is unique to each logic function, based on circuit design. There is a continuity check feature for each master or slave relay coil circuit that is blocked when in test.

Difference Category	Difference Number 3.3-	Justification for Differences
	284	Not used.
CL	285	The shutdown requirements for ITS Condition I have been modified to require shutdown to MODE 3 to be consistent with CTS as required by License Amendments 121/114, issued November 9, 1995. Bases have been modified to be consistent with the LCO.
	286	Not used.
	287	Not used.

Difference Category	Difference Number 3.3-	Justification for Differences
CL	315	Required Action A.1 and associated Bases is modified to be consistent with the PI logic for this instrumentation and CTS requirements. This change is consistent with CTS Table 3.5-2B, Action 31. Condition A does not apply to LCO 3.3.4 Function c, therefore a Note is included which restricts applicability of this Condition to Functions a and b.
	316	Not used.
CL	317	ITS Required Action C.1 and associated Bases have been modified to be consistent with the PI logic for this instrumentation and CTS requirements. This change implements CTS Table 3.5-2B, Action 33 except that the actions more appropriately enter the Conditions for the load sequencer, now that they are included in the TS, than for the diesel generator.
CL	318	NUREG-1431, Rev. 1, Bases 3.3.5, LCO Section has been revised deleting the following, "During the loss of offsite power the DG powers the motor driven auxiliary feedwater pumps. Failure of these pumps to start would leave only one turbine driven pump, as well as an increased potential for a loss of decay heat removal through the secondary system." This statement has been deleted since it does not reflect PI design.

Difference Category	Difference Number 3.3-	Justification for Differences
TA	332	This change incorporates TSTF-161, Rev. 1 in that the Applicable Modes or Other Specified Conditions are specified in the Table. However, for PI the Containment Ventilation Isolation Instrumentation is not required to be operable when the Containment Purge and Inservice Purge Systems are blind flanged. Thus, the Manual Containment Isolation, Safety Injection and Manual Containment Spray Function input to Containment Ventilation Isolation is not required when the Containment Purge and Inservice Purge Systems are blind flanged. Therefore the "all" has been removed from the note referencing to LCO 3.3.2 and the appropriate Applicable Modes or Other Specified Conditions are specified in the Table.

Difference Category	Difference Number 3.3-	Justification for Differences
CL	333	The Condition A Completion Time of 4 hours is appropriate since the other train remains operable, the system can be manually actuated and there will be heightened awareness of containment conditions any time this system is in operation due to its infrequent use, and there is a low probability of an accident during this time. For clarity, an exception is made in Conditions B and C to assure that operators do not enter both Conditions A and either Condition B or C when one train is inoperable. Also "or more" is deleted since there are only two radiation monitoring channels.
	334	Not used.
CL	335	The surveillance frequency for ITS SR 3.3.5.4 and associated Bases have been increased to 31 days to be consistent with CTS Table 4.1-1B Function 4e.
	336	Not used.

Difference Category	Difference Number 3.3-	Justification for Differences
	351	Not used.
CL	352	The Prairie Island system which is closest in function to NUREG-1431 Specification 3.3.7, "Control Room Emergency Filtration System Actuation Instrumentation", is the Control Room Special Ventilation System (CRSVS). Therefore, the name of the system used throughout ITS Specification 3.3.6 and its Bases is Control room Special Ventilation System (CRSVS).
CL	353	NUREG-1431 Specification 3.3.4 and associated Bases are not included in the PI ITS. The PI CTS do not contain any requirements for the remote shutdown system. PI uses local stations throughout the plant for safe shutdown outside the control room. The safe shutdown systems at PI are designed to meet AEC draft GDC 11 requirements and have been inspected by the NRC in Fire Protection Program inspections. As a result of this deletion, approved travelers TSTF-19, TSTF-205, and TSTF-266 have not been incorporated.

Difference Category	Difference Number 3.3-	Justification for Differences
CL	477	The transmitters for high steam flow are located in the containment. However, this input is only used for steam line breaks outside containment. Therefore, the allowable value for high steam flow is not evaluated for adverse environment. The Bases paragraph which discusses consideration of allowable value and adverse environmental conditions is not applicable to Prairie Island and is not included.
CL	478	Required Action B.1, B.2, and associated Bases have been revised to be consistent with PI logic and instrumentation. This change is consistent with CTS Table 3.5-2B, Functions 8a and 8b in addition to Action 32.
TA	479	This change incorporates approved TSTF-51 which does not include applicability during CORE ALTERATIONS.

Difference Category	Difference Number 3.3-	Justification for Differences
CL	480	ITS 3.3.6 Conditions A and B and associated required Actions (RAs) have been modified to support the design of the PI CRSVS. There is only one channel of manual switches for each train and there are only two radiation monitors. Both outside air dampers isolate upon receipt of a control room high radiation signal from either or both control room radiation monitors to meet single failure criteria. Therefore, if one radiation monitor is inoperable, the associated train of CRSVS must be placed in operation and the opposite train outside air dampers must be closed. Similarly, if both radiation monitors are inoperable, both CRSVS trains must be placed in operation and both trains of outside air dampers must be closed. The Bases have been revised to include these clarifications. Therefore, the Condition statements and Required Actions have been modified to provide the appropriate actions. The RAs do not include provisions for toxic gas protection since CTS does not include any TS requirements for toxic gas protection. The RAs do not include "radiation protection" mode of emergency operation, since PI does not have a defined CRSVS "radiation protection" mode of operation. The "emergency mode" has been replaced with "operation" since PI does not have a defined "emergency mode" and this terminology is not meaningful to the plant operators.
CL	481	ITS 3.3.6 does not include NUREG-1431, LCO 3.3.7 Condition E. ITS 3.3.6 is consistent with ITS 3.7.10 which does not include TS requirements for MODES 5 and 6. Per the NUREG-1431 3.3.7 Bases, MODES 5 and 6 are applicable when this equipment is required for a waste gas decay rupture accident. PI waste gas tank rupture analyses do not credit the control room special ventilation system, therefore, MODES 5 and 6 are not included in the applicability for ITS 3.3.6.

Difference Category	Difference Number 3.3-	Justification for Differences
CL	482	ITS 3.3.6 does not include NUREG-1431, LCO 3.3.7 SRs 3.3.7.3, 3.3.7.4 and 3.3.7.5 which require actuation logic testing, master relay testing and slave relay testing respectively. The PI control room special ventilation system does not have an instrumentation logic system which requires actuation logic testing, master relay testing, and slave relay testing. Since these tests are not applicable, they are not included.
CL	483	ITS 3.3.6, 3.3.7, and 3.3.8 does not include NUREG-1431, Rev. 1, phrase " ... based on operating experience and is ... ." This phrase is associated with the various radiation monitors that support the subject Specifications. PI has not maintained an accurate instrument drift history for a number of cycle for each of the monitors. Therefore, PI cannot verify that the statement in the NUREG is adequate for PI and is therefore being deleted.
CL	484	Prairie Island (PI) has two installed radiation monitor channels, R23 and R24, which actuate CRSVS functions. ITS Table 3.3.6-1 has been modified to reflect the PI design of this system. An allowable value for the radiation instrumentation will be specified in the Table. Since no Analytical Limit is assumed in the accident analyses for this Function the allowable value will be developed outside the setpoint methodology.

Difference Category	Difference Number 3.3-	Justification for Differences
CL	485	ITS SR 3.3.6.3 (NUREG-1431 SR 3.3.7.7) requires a Frequency of 24 months. PI CTS does not require this surveillance, therefore, this new SR Frequency has been set at 24 months to be consistent with the CTS limit on SR Frequency.
CL	486	ITS 3.3.6 Bases Background and Applicable Safety Analysis sections have been revised to describe the design of this Prairie Island system.
CL	487	This ISTS discussion of sampling systems is not included since the radiation detectors for this system are in the control room and do not include any sampling features.
CL	488	Not used.
CL	489	NUREG-1431, Rev. 1, LCO 3.3.8 (ITS LCO 3.3.7) title has been changed from Fuel Building Air Cleanup System (FBACS) Actuation Instrumentation to the PI system design name of, "Spent Fuel Pool Special Ventilation System (SFPSVS) Actuation Instrumentation."

Difference Category	Difference Number 3.3-	Justification for Differences
CL	490	NUREG-1431, Rev. 1, LCO 3.3.8 (ITS LCO 3.3.7) Actions Note has been revised by deleting the allowance of separate Condition entry for each Function. The SFPSVS only has one Function, by design, which is the Fuel Building Radiation Function. The Note has been revised to state that LCO 3.0.3 is not applicable. LCO 3.0.3 is not applicable while in MODES 5 or 6. However, since irradiated fuel assemblies can be moved during MODES 1, 2, 3, or 4, the ACTIONS have been modified by the subject Note. If moving irradiated fuel fuel assemblies while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the movement is independent of reactor operations. Entering LCO 3.0.3, while in MODE 1, 2, 3, or 4 would require the unit to be shutdown unnecessarily.
CL	491	NUREG-1431, Rev. 1, LCO 3.3.8 (ITS 3.3.7) Condition A applies when one or more Functions has one channel or train inoperable. This has been revised to state that with, "one channel inoperable." This change is based on PI design of the SFPSVS which only has one radiation monitor channel per train. Radiation monitor R-25 is for Train A and monitor R-31 is for Train B. In addition, there is only one Function that is applicable to the SFPSVS. Therefore, the subject change more accurately reflects PI design.

Difference Category	Difference Number 3.3-	Justification for Differences
CL	492	NUREG-1431, Rev. 1, LCO 3.3.8 (ITS 3.3.7) Required Action B.1 reference to LCO 3.7.13 has been revised to "Spent Fuel Pool Special Ventilation System (SFPSVS)" be consistent with the PI design.
CL	493	NUREG-1431, Rev. 1, LCO 3.3.8 (ITS LCO 3.3.7) Required Action B.2 has been revised. The ISTS requires that both trains of FBACS be placed in emergency mode. PI does not have an emergency mode of operation for this specific system. Therefore, this Requried Action has been revised to require that the SFPSVS be placed in operation which is consistent with PI operations and design.
CL	494	NUREG-1431, Rev. 1, LCO 3.3.8 (ITS LCO 3.3.7) Surveillance Requirements Note has been deleted. This Note is not applicable. The Note is for when there is more than one Function. PI only has one Function for the SFPSVS, therefore, this Note is not applicable.

Difference Category	Difference Number 3.3-	Justification for Differences
CL	495	NUREG-1431, Rev. 1, SR 3.3.8.3 has been deleted. This SR is applicable for Function 2 which is not applicable to PI design.
CL	496	NUREG-1431, Rev. 1, SR 3.3.8.4 has been deleted. This SR is applicable to Function 1, "Manual Initiation" for the ventilation system. PI does not have this Function, therefore, this SR is not applicable to PI design.
X	497	NUREG-1431, Rev. 1, SR 3.3.8.5 (ITS SR 3.3.7.3) Frequency has been change from 18 to 24 months to be consistent with the proposed PI refueling cycle.
	498	Not used.
	499	Not used.

Difference Category	Difference Number 3.3-	Justification for Differences
CL	500	The Automatic Actuation Relay Logic Function for the Auxiliary Feedwater System (AFW) does not include separate Master or Slave Relay Tests. Master or slave relays in this system, if any, are included in the monthly Actuation Logic Tests (ALTs) so separate Master or Slave Relay Tests would not be appropriate for the Prairie Island design.
CL	501	The Steam Line Isolation (SLI) - Automatic Actuation Relay Logic and Feedwater Isolation (FWI) - Automatic Actuation Relay Logic Functions only include a separate Master Relay Test (MLT), i.e., a Slave Relay Test (SRT) is not included for these functions. The master relays for these Functions are not included in the Actuation Logic Test and these systems do not have slave relays which are actuated by master relays. Including a separate SRT on a refueling outage Frequency would not serve any meaningful purpose. Therefore, an MLT is specified and an SLT is not specified for these Functions.

Part G

PACKAGE 3.3

INSTRUMENTATION

NO SIGNIFICANT HAZARDS DETERMINATION AND ENVIRONMENTAL ASSESSMENT

NO SIGNIFICANT HAZARDS DETERMINATION

The proposed changes to the Operating License have been evaluated to determine whether they constitute a significant hazards consideration as required by 10CFR Part 50, Section 50.91 using the standards provided in Section 50.92.

For ease of review, the changes are evaluated in groupings according to the type of change involved. A single generic evaluation may suffice for some of the changes while others may require specific evaluation in which case the appropriate reference change numbers are provided.

A - Administrative (GENERIC NSHD)
(A3.3-01, A3.3-02, A3.3-04, A3.3-05, A3.3-07, A3.3-08, A3.3-09, A3.3-14, A3.3-18, A3.3-19, A3.3-21, A3.3-23, A3.3-28, A3.3-29, A3.3-34, A3.3-35, A3.3-38, A3.3-39, A3.3-43, A3.3-47, A3.3-48, A3.3-50, A3.3-51, A3.3-54, A3.3-55, A3.3-62, A3.3-63, A3.3-65, A3.3-66, A3.3-72, A3.3-75, A3.3-77, A3.3-81, A3.3-84, A3.3-85, A3.3-94, A3.3-95, A3.3-107, A3.3-109, A3.3-114, A3.3-123, A3.3-124, A3.3-126, A3.3-128, A3.3-130, A3.3-133, A3.3-134, A3.3-141, A3.3-142, A3.3-143, A3.3-144, A3.3-146, A3.3-147, A3.3-148, A3.3-149, A3.3-150, A3.3-151, A3.3-155)

Most administrative changes have not been marked-up in the Current Technical Specifications, and may not be specifically referenced to a discussion of change. This No Significant Hazards Determination (NSHD) may be referenced in a discussion of change by the prefix "A" if the change is not obviously an administrative change and requires an explanation.

M - More restrictive (GENERIC NSHD)
(M3.3-12, M3.3-15, M3.3-16, M3.3-17, M3.3-26, M3.3-32, M3.3-49, M3.3-52, M3.3-57, M3.3-59, M3.3-60, M3.3-61, M3.3-64, M3.3-73, M3.3-87, M3.3-88, M3.3-91, M3.3-92, M3.3-105, M3.3-106, M3.3-108, M3.3-145, M3.3-159, M3.3-160, M3.3-170, M3.3-171, M-172)

This proposed Technical Specifications revision involves modifying the Current Technical Specifications to impose more stringent requirements upon plant operations to achieve consistency with the guidance of NUREG-1431, correct discrepancies or remove ambiguities from the specifications. These more restrictive Technical Specifications have been evaluated against the plant design, safety analyses, and other Technical Specifications requirements to ensure the plant will continue to operate safely with these more stringent specifications.

1. The proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.

   The proposed changes provide more stringent requirements for operation of the plant. These more stringent requirements do not result in operation that will increase the probability of initiating an analyzed event and do not alter assumptions relative to mitigation of an accident or transient event.

   These more restrictive requirements continue to ensure process variables, structures, systems, and components are maintained consistent with the safety analyses and licensing basis. Therefore, these changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. The proposed amendment will not create the possibility of a new or different kind of accident from any accident previously analyzed.

   The proposed changes do not involve a physical alteration of the plant; that is, no new or different type of equipment will be installed, nor do they change the methods governing normal plant operation.

   These more stringent requirements do impose different operating restrictions. However, these operating restrictions are consistent with the boundaries established by the assumptions made in the plant safety analyses and licensing bases. Therefore, these changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

Specific NSHD for Change L3.3-58

Not used.

Specific NSHD for Change L3.3-58 (continued)

Not used.

Specific NSHD for Change L3.3-168

This change relaxes CTS SR requirement to perform a test to verify that the radiation monitors are OPERABLE prior to CORE ALTERATIONS to require the SR to be performed at a Frequency of 24 months. This change is consistent with the guidance of NUREG-1431.

1. The proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.

   The proposed change involves relaxing CTS SR requirement of testing the Containment Ventilation Isolation Instrumentation radiation monitors from prior to CORE ALTERATIONS to a Frequency of 24 months. This instrumentation is not assumed to be an accident initiator, therefore this change does not involve a significant increase in the probability of an accident previously evaluated. Since the state of these monitors will be verified with other surveillances, this change does not involve a significant increase in the consequences of an accident previously evaluated.

2. The proposed amendment will not create the possibility of a new or different kind of accident from any accident previously analyzed.

   The proposed change does not involve a physical alteration of the plant; that is, no new or different type of equipment will be installed. This proposed change does not introduce any new mode of plant operation or change the methods governing normal plant operation. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

Specific NSHD for Change L3.3-168 (continued)

3. The proposed amendment will not involve a significant reduction in the margin of safety.

   The proposed change involves relaxing CTS SR requirement of testing the Containment Ventilation Isolation Instrumentation radiation monitors from prior to CORE ALTERATIONS to a Frequency of 24 months. These radiation monitors have a monthly CHANNEL CHECK, which ensure that the instrumentation is performing as designed. Industry experience of the reliability of these monitors demonstrates that performing a CHANNEL CALIBRATION at a 24 month bases is adequate. Since it is assumed that if an instrument or piece of equipment successfully passed its SR, that the instrumentation or equipment remains OPERABGLE until performance of its next SR unless otherwise known to be inoperable for other reasons. Therefore, relaxing the requirement from perform this SR prior to CORE ALTERATIONS to a 24 month does not involve a significant reduction in the plant margin of safety.

Therefore it is concluded this proposed change does not involve a significant hazards consideration. This change is consistent with the guidance of NUREG-1431.

ENVIRONMENTAL ASSESSMENT

The Nuclear Management Company has evaluated the proposed changes and determined that:

1. The changes do not involve a significant hazards consideration, or

2. The changes do not involve a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or

3. The changes do not involve a significant increase in individual or cumulative occupational radiation exposure.

Accordingly, the proposed changes meet the eligibility criteria for categorical exclusion set forth in 10 CFR Part 51 Section 51.22(c)(9). Therefore, pursuant to 10 CFR Part 51 Section 51.22(b), an environmental assessment of the proposed changes is not required.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.2

Verifying that the maximum temperature differential between average containment and annulus air temperatures is less than or equal to 44 °F ensures that containment operation remains within the limits assumed for the containment analyses. Plant operating experience demonstrates that this limit can only be approached when the plant is in MODES 5 and 6. Requiring this temperature differential to be verified prior to entering MODE 4 from MODE 5 provides assurance this parameter is within acceptable limits prior to establishing conditions requiring containment integrity.

SR 3.6.1.3

Verifying that the minimum containment shell temperature is met ensures that adequate margin above NDTT exists. Plant operating experience demonstrates that this limit can only be approached when the plant is in MODES 5 and 6. Requiring containment shell temperature to be verified prior to entering MODE 4 from MODE 5 provides assurance that the shell temperature is above NDTT prior to establishing conditions requiring containment integrity.

REFERENCES

1. 10 CFR 50, Appendix J.

2. USAR, Section 14.

BASES

~~Frequency are consistent with the recommendations of Regulatory Guide 1.35 (Ref. 4).~~

SR 3.6.1.2

Verifying that the maximum temperature differential between average containment and annulus air temperatures is less than or equal to 44 °F ensures that containment operation remains within the limits assumed for the containment analyses. Plant operating experience demonstrates that this limit can only be approached when the plant is in MODES 5 and 6. Requiring this temperature differential to be verified prior to entering MODE 4 from MODE 5 provides assurance this parameter is within acceptable limits prior to establishing conditions requiring containment integrity. CL3.6-103

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3 R-13

Verifying that the minimum containment shell temperature is met ensures that adequate margin above NDTT exists. Plant operating experience demonstrates that this limit can only be approached when the plant is in MODES 5 and 6. Requiring containment shell temperature to be verified prior to entering MODE 4 from MODE 5 provides assurance that the shell temperature is above NDTT prior to establishing conditions requiring containment integrity. CL3.6-104

REFERENCES

1. 10 CFR 50, Appendix J, Option B. R-13

2. UFSAR, Section ~~[14~~5~~]~~.

~~3. FSAR, Section [6.2].~~

~~4. Regulatory Guide 1.35, Revision [1].~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours
D. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies.	D.1 Place OPERABLE CRSVS train in operation. OR D.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately
E. Two CRSVS trains inoperable during movement of irradiated fuel assemblies.	E.1 Suspend movement of irradiated fuel assemblies.	Immediately
F. Two CRSVS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.	F.1 Enter LCO 3.0.3.	Immediately

BASES

ACTIONS (continued)

D.1 and D.2

If the MSIVs cannot be restored to OPERABLE status or are not closed within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed at least in MODE 3 within 6 hours, and in MODE 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from MODE 2 conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.2.1

This SR verifies that MSIV closure time is ≤ 5 seconds. The MSIV isolation time is assumed in the accident and containment analyses. This Surveillance is normally performed upon returning the unit to operation following a refueling outage. The MSIVs should not be tested at power, since even a part stroke exercise increases the risk of valve closure when the unit is generating power. As the MSIVs are not tested at power, they are deferred from the ASME Code (Ref. 5) requirements during operation in MODE 1 or 2.

The Frequency is in accordance with the Inservice Testing Program.

This test is conducted in MODE 3 with the unit at operating temperature and pressure. This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing the SR. This allows a delay of testing until MODE 3, to establish conditions consistent with those under which the acceptance criterion was generated.

B 3.7 PLANT SYSTEMS

B 3.7.10 Control Room Special Ventilation System (CRSVS)

BASES

BACKGROUND

The CRSVS provides a protected environment from which operators can control the unit following an uncontrolled release of radioactivity.

The CRSVS consists of two independent, redundant trains that recirculate and filter the control room air. Each train consists of a prefilter, a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section for removal of gaseous activity (principally iodines), and a cleanup fan.

Ductwork, valves or dampers, and instrumentation also form part of the system.

The CRSVS is an emergency system, parts of which may also operate during normal unit operation.

Upon receipt of the actuating signal(s), normal air supply to the control room is isolated, and the stream of ventilation air is recirculated through the system filter trains. The prefilters remove any large particles in the air, and any entrained water droplets present, to prevent excessive loading of the HEPA filters and charcoal adsorbers.

Actuation of the CRSVS is initiated by:

a. High radiation in the control room ventilation duct; or

b. Safety injection signal.

Actuation of the system closes the unfiltered outside air intake and unfiltered exhaust dampers, and

BASES

BACKGROUND (continued)

aligns the system for recirculation of the control room air through the redundant trains of HEPA and the charcoal filters. The operating condition initiates filtered ventilation of the air supply to the control room.

The CRSVS operation is discussed in the USAR (Ref. 1).

Redundant supply and recirculation trains provide the required filtration should an excessive pressure drop develop across the other filter train. Normally open isolation dampers are arranged in series pairs so that the failure of one damper to shut will not result in a breach of isolation. The CRSVS is designed in accordance with Seismic Category I requirements.

The CRSVS is designed to maintain the control room environment for 30 days of continuous occupancy after a Design Basis Accident (DBA) without exceeding a 5 rem whole body dose or its equivalent to any part of the body.

APPLICABLE SAFETY ANALYSES

The CRSVS components are arranged in redundant, safety related ventilation trains. The location of components and ducting within the control room envelope ensures an adequate supply of filtered air to all areas requiring access. The CRSVS provides airborne radiological protection for the control room operators, as demonstrated by the control room accident dose analyses for the most limiting design basis loss of coolant accident fission product release presented in the USAR (Ref. 2). The CRSVS function also plays a significant role in protecting control room personnel during a fuel handling accident in the spent fuel pool enclosure or the containment and a main steam line break (Ref. 2).

BASES

ACTIONS

C.1 and C.2 (continued)

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

D.1 and D.2

If the inoperable CRSVS train cannot be restored to OPERABLE status within the required Completion Time, Required Action D.1 must be taken to immediately place the OPERABLE CRSVS train in operation. This is a reasonable action, based on engineering judgement, to assure the control room air is filtered in the event of an accident.

An alternative to Required Action D.1 is to immediately suspend activities that could result in a release of radioactivity that might require isolation of the control room. Required Action D.2 places the plant in a condition that minimizes risk. This does not preclude the movement of fuel to a safe position.

E.1

If two CRSVS trains are inoperable during movement of irradiated fuel assemblies, action must be taken immediately to suspend activities that could result in a release of radioactivity that might enter the control room.

This places the plant in a condition that minimizes accident risk. This does not preclude the movement of fuel to a safe position.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.10.3

The CRSVS may be actuated by either a safety injection signal or a high radiation signal. This SR verifies that each CRSVS train starts and operates on an actual or simulated safety injection actuation signal and verifies each CRSVS train starts and operates on an actual or simulated high radiation signal. The Frequency of 24 months allows performance when a unit is shutdown.

SR 3.7.10.4

This SR verifies proper functioning of the CRSVS. During operation, the CRSVS train is designed to provide 4000 ± 10% cfm .

The Frequency of 24 months on a STAGGERED TEST BASIS is consistent with industry component reliability experience.

REFERENCES

1. USAR, Section 10.3.
2. USAR, Section 14.9.
3. 10 CFR 50 Appendix A, GDC Criterion 19.

NOT USED.

R-13

Action Statements

A3.7-00

ACTION 25: With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 6 hours or be in at least HOT SHUTDOWN within the next 6 hours. Operation in HOT SHUTDOWN may proceed provided the main steam isolation valves are closed, if not, be in at least INTERMEDIATE SHUTDOWN within the following 6 hours. However, one channel may be bypassed for up to 8 hours for surveillance testing per Specification 4.1, provided the other channel is OPERABLE.

ACTION 26: With the number of OPERABLE channels one less than the Total Number of Channels, declare the associated auxiliary feedwater pump inoperable and take the action required by specification 3.4.2.

ACTION 27: Withthe number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within ~~48~~ hours or be in at least HOT SHUTDOWN within the next 6 hours and close the associated valve.

Addressed Elsewhere

ACTION 28: With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 6 hours or be in at least HOT SHUTDOWN within the next 6 hours. However, one channel may be bypassed for up to 8 hours for surveillance testing per Specification 4.1, provided the other channel is OPERABLE.

ACTION 29: With the number of OPERABLE channels less than the Total Number of Channels, operation in the applicable MODE may proceed provided the following conditions are satisfied:

a. The inoperable channel(s) is placed in the tripped condition within 6 hours, and,

b. The Minimum Channels OPERABLE requirement is met; however, one inoperable channel may be bypassed at a time for up to 4 hours for surveillance testing of other channels per Specification 4.

L3.7-114

R-13

NOTE - Separate Condition entry is allowed for each MSIV

M3.7-119

Add Condition D

LCO3.7.2 Cond C Note

LCO3.7.2 Cond D

R-11

~~TABLE TS.3.5-2B~~
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Not used.

R-13

Not used.

R-13

PART D

PACKAGE 3.7

PLANT SYSTEMS

DISCUSSION OF CHANGES TO CURRENT TECHNICAL SPECIFICATIONS

The proposed changes to PI Operating License Appendix A, TS are discussed below and the specific wording changes are shown in Parts B, C and E.

For ease of review, all package parts and discussions are organized according to the proposed PI ITS Table of Contents.

NSHD category	Change number 3.7-	Discussion Of Change
A	00	CTS 3.3.C, Table TS.3.5-2B, 3.6, 3.7.A.5(a), 3.8.B, 3.13, Table TS.4.1-1B, Table TS.4.1-2A, Table TS.4.1-2B, 4.4.B, 4.5, 4.7, 4.8, 4.14, 4.15, and 4.20 throughout these Sections. All reformatting, renumbering, and editorial rewording is in accordance with the Westinghouse Standard Technical Specifications, NUREG-1431. During the development certain wording preferences, Plant terminology, system names, or English language conventions were adopted. As a result, the Technical Specifications (TS) should be more readily readable, and therefore understandable, by plant operators and other users. During the reformatting, renumbering, and rewording process, no technical changes (either actual or interpretational) to the TS were made unless they were identified and justified. These changes are considered administrative changes since they do not change or delete any technical requirements.

NSHD category	Change number 3.7-	Discussion Of Change
M	008	CTS 3.4.B.1.a and 3.4.B.2. In conformance with the guidance of NUREG-1431, the more general term "train" is used instead of only requiring AFW pumps to be operable. Since the requirement for a "train" to be operable may require more equipment, this change is more restrictive. Also the specifications have been simplified in that the AFW requirements for a single unit operating are specified. If two units are operating, then the same requirements apply to each unit individually. CTS 3.4.B.2 also contained a statement that if the OPERABILITY of the AFW pump is not restored to OPERABILITY within the specified time, place the affected unit (or either unit in the case of the motor driven AFW pump inoperability) or initiate a shutdown track. PI design is that a motor driven AFW pump can be cross tied and aligned to provide feedwater to the SGs to the other unit. In this case, one unit must be in a shutdown condition and the other unit motor driven AFW pump inoperable. PI is deleting this CTS flexibility and therefore, making this a more restrictive change. Eliminating this flexibility is acceptable since the ITS provides specific Conditions and Required Actions for individual unit equipment inoperabilities.
A	009	CTS 3.4.B.1.b. The AFW requirements for two units operating have been included in the ITS LCO such that the requirements are the same for each operating unit; thus a separate statement for two unit operation is not required. Since these requirements have been incorporated into the ITS, this is an administrative change.
	010	Not used.

NSHD category	Change number 3.7-	Discussion Of Change
R	032	CTS 3.4 C and 4.8.C. This specification provides requirements for the plant Steam Exclusion System. The Steam Exclusion System LCO and SR requirements have been relocated to the TRM since the system does not meet the criteria of 10 CFR 50.36 for inclusion in the Technical Specifications. This system is an installed system for preventing steam from high energy line breaks from reaching safeguards equipment; thus it does not meet 10 CFR 50.36 (c)(2)(ii) Criterion 1 or 2. The Steam Exclusion System is an installed system. However, it does not mitigate accidents and thus is not a primary success path for mitigating accidents. Therefore, the Steam Exclusion System does not meet 10 CFR 50.36 (c)(2)(ii) Criterion 3. The Steam Exclusion System is not considered in the plant IPE and it is not a system which operating experience or probabilistic risk assessment has shown to be significant to public health and safety. Therefore this system does not meet 10 CFR 50.36 (c)(2)(ii) Criterion 4.
	033	Not used.

NSHD category	Change number 3.7-	Discussion Of Change
	034	Not used.
M	035	CTS 3.4.D. For consistency with NUREG-1431, 3.7.18 action statements, the one hour to initiate actions necessary to place the unit in MODE 3 has been deleted. Since this change may require the plant to shutdown sooner, it is a more restrictive change. This change does not cause the plant to be operated in an unsafe manner.
A	036	CTS3.3.C.1. The CTS has separate specifications for single unit or two unit operations. The ITS is written such that the requirements are the same for single or two unit operation. Any differences are addressed in the Bases.
M	037	CTS 3.3.C.1.a.1. For consistency with the format guidance of NUREG-1431, the requirement for two CC pumps to be OPERABLE has been generalized to require two trains of CC to be operable. Since this may require more equipment to be operable, this is a more restrictive requirement. This change is acceptable since the requirement for two trains may increase plant safety.

NSHD category	Change number 3.7-	Discussion Of Change
	040	Not used.
LR	041	CTS3.3.C.2. The new format of the PI ITS requires that each unit has two trains OPERABLE. The details of equipment required to define two OPERABLE trains is contained in the Bases. Therefore, these details are unnecessary in the TS and are relocated to the Bases. This change is consistent with the guidance of NUREG-1431. Since the ITS Bases (under the Bases Control Program in Section 5.5 of the ITS) are licensee controlled, this change is less restrictive.

NSHD category	Change number 3.7-	Discussion Of Change
R	081	CTS Table 4.1-2A, Function 11. CTS requires periodic testing of the turbine stop valves, governor valves and intercept valves. These valve testing requirements have been relocated to the TRM. These valves are not leak detection equipment, they are not process variables, they are not a part of the primary success path for mitigation of an accident and these valves have not been found to be significant to the public health and safety. Therefore these valves do not meet the criteria of 10 CFR 50.36 for inclusion in the TS. Thus the SR for testing these valves has been relocated to the TRM. This change is consistent with the guidance of NUREG-1431. However, this change is acceptable since the TRM is under the regulatory controls of 10 CFR 50.59.
LR	082	CTS 4.7. Specific requirements for the surveillance interval for this test have been relocated to the Inservice Testing Program in accordance with the requirements of ITS Section 5.5, Inservice Testing Program. Since this test program is required by the TS, these requirements remain under regulatory controls. This change is consistent with the options given in NUREG-1431. Since this change removes specific requirements from the TS, it is a less restrictive change.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~B~~C. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, 3, or 4.	~~B~~C.1 Be in MODE 3. AND ~~B~~C.2 Be in MODE 5.	6 hours CL3.7-166 CL3.7-164 36 hours
~~C~~D. Required Action and associated Completion Time of Condition A not met ~~[in MODE 5 or 6, or]~~ during movement of irradiated fuel assemblies ~~[, or during CORE ALTERATIONS]~~.	~~C~~D.1 ~~-------NOTE--------~~ ~~Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.~~ ~~----------~~ Place OPERABLE CRSV~~EF~~S train in operation~~emergency mode~~. OR ~~C.2.1 Suspend CORE ALTERATIONS.~~ ~~AND~~ ~~C~~D.2~~.[2]~~ Suspend movement of irradiated fuel assemblies.	R-11 PA3.7-162 TA3.7-165 Immediately TA3.7-165 R-13 ~~Immediately~~ Immediately R-11

PA3.7-201

BASES

MODE 3 within 6 hours, and in MODE 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from MODE 2 conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.2.1

This SR verifies that MSIV closure time is ≤ 5~~[4.6]~~ seconds ~~on an actual or simulated actuation signal~~. The MSIV isolation~~closure~~ time is assumed in the accident and containment analyses. This Surveillance is normally performed upon returning the unit to operation following a refueling outage. The MSIVs should not be tested at power, since even a part stroke exercise increases the risk of a valve closure when the unit is generating power. As the MSIVs are not tested at power, they are deferred~~exempt~~ from the ASME Code~~, Section XI~~ (Ref. 5)~~,~~ requirements during operation in MODE 1 or 2. TA3.7-117

The Frequency is in accordance with the ~~[~~Inservice Testing Program~~ or [18] months]~~. ~~The [18] month Frequency for valve closure time is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~ R-13 TA3.7-117

This test is conducted in MODE 3 with the unit at operating temperature and pressure.~~, as discussed in Reference 5 exercising requirements.~~ This SR is modified by a Note that allows entry into and operation in MODE 3 TA3.7-117

(continued)

PA3.7-162 PA3.7-201

BASES

~~reduces moisture buildup on the HEPA filters and adsorbers. Both the demister and heater are important to the effectiveness of the charcoal adsorbers.~~

CL3.7-292

Actuation of the CRSVS ~~CREFS places the system in either of two separate states (emergency radiation state or toxic gas isolation state) of the emergency mode of operation, depending on the initiation signal~~ is initiated by:

R-13

a. High radiation in the control room; or

R-13

b. Safety injection signal.

Actuation of the system ~~to the emergency radiation state of the emergency mode of operation,~~ closes the unfiltered outside air intake and unfiltered exhaust dampers, and aligns the system for recirculation of the control room air through the redundant trains of HEPA and the charcoal filters. The ~~emergency radiation state~~operating condition ~~also~~ initiates ~~pressurization and~~ filtered ventilation of the air supply to the control room.

R-13

R-13

~~BACKGROUND~~

~~Outside air is filtered, diluted with building air from the electrical equipment and cable spreading rooms, and added to the air being recirculated from the control room. Pressurization of the control room prevents infiltration of unfiltered air from the surrounding areas of the building. The actions taken in the toxic gas isolation state are the same, except that the signal switches control room ventilation to an isolation alignment to prevent outside air from entering the control room.~~

CL3.7-291

~~(continued)~~

~~The air entering the control room is continuously monitored by radiation and toxic gas detectors. One detector output~~

(continued)

PA3.7-162 PA3.7-201

BASES

~~C~~D.1~~, C.2.1,~~ and ~~C~~D.2~~.2~~

R-11

~~[In MODE 5 or 6, or] during movement of irradiated fuel assemblies [, or during CORE ALTERATIONS], i~~If the inoperable ~~CREFS~~CRSVS train cannot be restored to OPERABLE status within the required Completion Time, Required A~~a~~ction D.1 must be taken to immediately place the OPERABLE ~~CREFS~~CRSVS train in operation~~the emergency mode~~. This is a reasonable action, based on engineering judgement, to assure the control room air is filtered in the event of an accident. ~~This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that any active failure would be readily detected.~~

TA3.7-165

R-11

R-13

PA3.7-302

An alternative to Required Action ~~C~~D.1 is to immediately suspend activities that could result in a release of radioactivity that might require isolation of the control room. Required Action ~~C~~D.2 ~~This~~ places the ~~unit~~ plant in a condition that minimizes risk. This does not preclude the movement of fuel to a safe position.

R-11

~~Required Action C.1 is modified by a Note indicating to place the system in the toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.~~

CL3.7-166

~~D~~E.1~~ and D.2~~

R-11

~~[In MODE 5 or 6, or]~~ If two CRSVS trains are inoperable during movement of irradiated fuel assemblies ~~[, or during CORE ALTERATIONS], with two CREFS trains inoperable~~, action must be taken immediately to suspend activities that could result in a release of radioactivity that might enter the control room.

TA3.7-165

(continued)

PA3.7-162 PA3.7-201

BASES

~~(Ref. 3).~~ The ~~[~~VFTP~~]~~ includes testing the performance of the HEPA filter, charcoal adsorber efficiency, minimum flow rate, and the physical properties of the activated charcoal. Specific test Frequencies and additional information are discussed in detail in the ~~[~~VFTP~~]~~.

SR 3.7.10.3

The CRSVS may be actuated by either a safety injection signal or a high radiation signal. This SR verifies that each ~~CREFS~~CRSVS train starts and operates on an actual or simulated safety injection actuation signal and verifies each CRSVS train starts and operates on and actual or simulated high radiation signal. The Frequency of 24 ~~[18]~~ months allows performance when a unit is shutdown~~is specified in Regulatory Guide 1.52 (Ref. 3)~~. CL3.7-292 X3.7-137

SR 3.7.10.4

This SR verifies ~~the integrity of the control room enclosure, and the assumed inleakage rates of the potentially contaminated air. The control room positive pressure, with respect to potentially contaminated adjacent areas, is periodically tested to verify~~ proper functioning of the ~~CREFS~~CRSVS. During ~~the emergency mode of~~ operation, the ~~CREFS~~CRSVS train is designed to provide 4000 ± 10% cfm ~~pressurize the control room ≥ [0.125] inches water gauge positive pressure with respect to adjacent areas in order to prevent unfiltered inleakage~~. ~~The CREFS is designed to maintain this positive pressure with one train at a makeup flow rate of [3000] cfm.~~ CL3.7-168 R-13

The Frequency of 24 ~~[18]~~ months on a STAGGERED TEST BASIS is consistent with ~~the guidance provided in NUREG-0800 (Ref. 4)~~industry component reliability experience. X3.7-137 CL3.7-304

Difference Category	Difference Number 3.7-	Justification for Differences
PA	162	The system which provides a protected environment from which operators can control the unit following an uncontrolled release of radioactivity at PI is called the Control Room Special Ventilation System (CRSVS). Thus, this specification title, LCO, affected Action Statements, SRs and associated Bases have been revised to incorporate this change. The CRSVS does not have a defined "emergency mode" of operation, therefore, "emergency mode" is replaced with "operation" throughout the Specification and Bases.
	163	Not used.
CL	164	Bracketed MODES 5 and 6 are not included in the Applicability, affected Action Statements and Bases. As stated in the ISTS Bases for this specification, these MODES are applicable when the plant has external waste gas storage tanks which could rupture. Since PI does not have external waste gas storage tanks, these MODES are not applicable.

Difference Category	Difference Number 3.7-	Justification for Differences
CL	227	Throughout this Bases, the discussion of the MFIVs and associated bypass valves isolating MFW flow to the steam generators following an accident has been replaced with discussion of the MFRVs and associated bypass valves.
	228	Not used.
PA	229	Bases 3.7.2 Required Action B.1, the clause, "and to close the MSIVs" has not been included. The MSIVs may be closed in response to this required action; however, they are not required to be closed until Required Action C.1 is entered. Therefore it is not accurate to account for time to close the MSIVs in Required Action B.1 and this clause has not been included.
	230	Not used.
CL	231	Since the MFIVs are not included in this specification, the Bases Background discussion has been revised to accurately describe the use of MFRVs at PI.

PART G

PACKAGE 3.7

PLANT SYSTEMS

NO SIGNIFICANT HAZARDS DETERMINATION AND ENVIRONMENTAL ASSESSMENT

NO SIGNIFICANT HAZARDS DETERMINATION

The proposed changes to the Operating License have been evaluated to determine whether they constitute a significant hazards consideration as required by 10CFR Part 50, Section 50.91 using the standards provided in Section 50.92.

For ease of review, the changes are evaluated in groupings according to the type of change involved. A single generic evaluation may suffice for some of the changes while others may require specific evaluation in which case the appropriate reference change numbers are provided.

A - Administrative (GENERIC NSHD)
(A3.7-00, A3.7-01, A3.7-02, A3.7-04, A3.7-05, A3.7-06, A3.7-09, A3.7-20, A3.7-21, A3.7-36, A3.7-44, A3.7-45, A3.7-47, A3.7-57, A3.7-62, A3.7-66, A3.7-74, A3.7-77, A3.7-78, A3.7-83, A3.7-94, A3.7-97, A3.7-105, A3.7-113)

Most administrative changes have not been marked-up in the Current Technical Specifications, and may not be specifically referenced to a discussion of change. This No Significant Hazards Determination (NSHD) may be referenced in a discussion of change by the prefix "A" if the change is not obviously an administrative change and requires an explanation.

These proposed changes are editorial in nature. They involve reformatting, renaming, renumbering, or rewording of existing Technical Specifications to provide consistency with NUREG-1431 or conformance with the Writer's Guide, or change of current plant terminology to conform to NUREG-1431. Some administrative changes involve relocation of requirements within the Technical Specifications without affecting their technical content. Clarifications within the new Prairie Island Improved Technical Specifications which do not impose new requirements on plant operation are also considered administrative.

M - More restrictive (GENERIC NSHD)
(M3.7-08, M3.7-12, M3.7-13, M3.7-14, M3.7-15, M3.7-16, M3.7-23, M3.7-26, M3.7-27, M3.7-30, M3.7-35, M3.7-37, M3.7-39, M3.7-42, M3.7-46, M3.7-48, M3.7-49, M3.7-51, M3.7-52, M3.7-53, M3.7-55, M3.7-58, M3.7-59, M3.7-60, M3.7-61, M3.7-65, M3.7-73, M3.7-75, M3.7-76, M3.7-104, M3.7-107, M3.7-108, M3.7-109, M3.7-110, M3.7-115, M3.7-116, M3.7-119, M3.7-121)

This proposed Technical Specifications revision involves modifying the Current Technical Specifications to impose more stringent requirements upon plant operations to achieve consistency with the guidance of NUREG-1431, correct discrepancies or remove ambiguities from the specifications. These more restrictive Technical Specifications have been evaluated against the plant design, safety analyses, and other Technical Specifications requirements to ensure the plant will continue to operate safely with these more stringent specifications.

1. The proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.

   The proposed changes provide more stringent requirements for operation of the plant. These more stringent requirements do not result in operation that will increase the probability of initiating an analyzed event and do not alter assumptions relative to mitigation of an accident or transient event.

   These more restrictive requirements continue to ensure process variables, structures, systems, and components are maintained consistent with the safety analyses and licensing basis. Therefore, these changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. The proposed amendment will not create the possibility of a new or different kind of accident from any accident previously analyzed.

   The proposed changes do not involve a physical alteration of the plant, that is, no new or different type of equipment will be installed, nor do they change the methods governing normal plant operation.

   These more stringent requirements do impose different operating restrictions. However, these operating restrictions are consistent with the boundaries established by the assumptions made in the plant safety analyses and licensing bases. Therefore, these changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

Specific NSHD for Change L3.7-33

Not used.

Specific NSHD for Change L3.7-33 (continued)

Not used.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.10	----------NOTES---------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, 3, or 4. ---------- Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated safety injection actuation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG auto-starts from standby condition and energizes emergency loads in ≤ 60 seconds.	24 months
SR 3.8.1.11	----------NOTE---------- All DG starts may be preceded by an engine prelube period. ---------- Verify on an actual or simulated loss of offsite power signal that the DG auto-starts from standby condition.	24 months

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.3 (continued)

characteristics, do not invalidate this test. Note 3 indicates that this Surveillance should be conducted on only one DG at a time in order to avoid common cause failures that might result from path or grid perturbations. Note 4 stipulates a prerequisite requirement for performance of this SR. A successful DG start must precede this test to credit satisfactory performance.

SR 3.8.1.4

This SR provides verification that the level of fuel oil in the day tank is at least 300 gallons (Unit 2 - 425 gallons). The limit switch ensures this level is maintained in the day tank. The level is selected to ensure adequate fuel oil for a minimum of 2 hours for Unit 1 (1 hour of DG operation at full load plus 10% for Unit 2).

The 31 day Frequency is adequate to assure that a sufficient supply of fuel oil is available, since low level alarms are provided and facility operators would be aware of any large uses of fuel oil during this period.

SR 3.8.1.5

This Surveillance demonstrates that each required fuel oil transfer pump operates and transfers fuel oil from its associated storage tank to its associated day tank. This is required to support continuous operation of standby power sources. This Surveillance provides assurance that the fuel oil transfer pump is OPERABLE, the fuel oil piping system is intact, the fuel delivery piping is not obstructed, and the controls and control systems for automatic fuel transfer systems are OPERABLE.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.10 (continued)

The Frequency of 24 months takes into consideration unit conditions required to perform the Surveillance and is intended to be consistent with an expected fuel cycle length of 24 months.

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. The reason for Note 2 is that the performance of the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems.

SR 3.8.1.11

This Surveillance demonstrates the as designed operation of the standby power sources during loss of the offsite source. This test verifies DG starts on the loss of offsite power. Tests of other design features associated with loss of offsite power are satisfied by SR 3.8.1.10.

The Frequency of 24 months takes into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.

This SR is modified by a Note. The reason for the Note is to minimize wear and tear on the DGs during testing. For the purpose of this testing, the DGs may be started from standby conditions, that is, with the engine coolant and oil continuously circulated and temperature maintained consistent with manufacturer recommendations.

BASES (continued)

REFERENCES

1. AEC "General Design Criteria for Nuclear Power Plant Construction Permits," Criterion 39, issued for comment July 10, 1967, as referenced in the USAR, Section 1.2.

2. USAR, Section 8.

3. USAR, Section 14.

4.6.A.2. At least once each 6 months, for each diesel generator: A3.8-60

SR3.8.1.6

a. Verify the diesel generator starts from standby conditions and achieves generator steady state voltage and frequency of 4160 ± 420 volts and 60 ± 1.2 Hz and within 10 seconds minimum voltage ≥ 3741 V and frequency of ≥ 58.8 Hz ~~after the start signal~~. R-3

~~b. Manually synchronize the generator, load to at least 1650 kW (Unit 2: 5100 kW to 5300 kW) in less than or equal to 60 seconds and operate for at least one hour.~~ L3.8-61

R-3

SR3.8.1.6N

c. This test should be conducted from standby conditions in consideration of the manufacturer's recommendations regarding engine prelube ~~and shutdown procedures where possible.~~ A3.8-38

3. At least once each ~~18~~24 months: L3.8-35

a. ~~Subject each diesel generator to a thorough inspection in accordance with procedures prepared in consideration of the manufacturer's recommendations for this class of standby service.~~ LR3.8-34

SR3.8.1.10

b. ~~For each unit,~~ simulate or actual ~~a~~ loss of offsite power in conjunction with a safety injection signal, and: L3.8-36

1. Verify de-energization of the emergency buses and load shedding from the emergency buses.

SR3.8.1.10N

2. Verify the diesels start on the auto-start ~~signal~~ and energize the emergency ~~buses~~loads in one minute. This test should be conducted in consideration of the manufacturer's recommendations regarding engine prelube ~~and shutdown procedures where possible~~. M3.8-55 A3.8-38

~~3. During this test, operation of the emergency lighting system shall be ascertained.~~ LR3.8-37

b. ~~For each unit,~~ simulate or actual ~~a~~ loss of offsite power ~~in conjunction with a safety injection signal~~, and: L3.8-36

SR3.8.1.11

1. ~~Verify de-energization of the emergency buses and load shedding from the emergency buses.~~ M3.8-69

SR3.8.1.11N

2. Verify the diesels start on the auto-start ~~signal and energize the emergency buses in one minute.~~ This test should be conducted in consideration of the manufacturer's recommendations regarding engine prelube ~~and shutdown procedures where possible~~. A3.8-38 R-13

NSHD category	Change number 3.8-	Discussion Of Change
M	69	CTS 4.6.A.3.b. A new SR has been added requiring that on a 24 month basis, either by a simulated or actual loss of offsite power, the DG start on auto-start. PI currently performs a SR (ITS SR 3.8.1.10) that does the same tests except it is initiated on an actual or simulated loss of offsite power in conjunction with a safety injection signal. The addition of this new SR is considered to be a more restrictive change since it will require additional testing and operational considerations.

SURVEILLANCE REQUIREMENTS (continued) PA3.8-100

SURVEILLANCE		FREQUENCY
3.8.1.11	----------NOTES---------- ~~1.~~ All DG starts may be preceded by an engine prelube period. ~~2. This Surveillance shall not be performed in MODE 1, 2, 3, or 4. However, credit may be taken for unplanned events that satisfy this SR.~~ ----------	CL3.8-122 TA3.8-123
	Verify on an actual or simulated loss of offsite power signal~~:~~that the ~~a. De-energization of emergency buses;~~ ~~b. Load shedding from emergency buses;~~ ~~c.~~ DG auto-starts from standby condition ~~and:~~ ~~1. energizes permanently connected loads in ≤ [10] seconds,~~ ~~2. energizes auto-connected shutdown loads through [automatic load sequencer],~~ ~~3. maintains steady state voltage ≥ [3740] V and ≤ [4580] V,~~ ~~4. maintains steady state frequency ≥ [58.8] Hz and ≤ [61.2] Hz., and~~ ~~5. supplies permanently connected [and auto-connected] shutdown loads for ≥ 5 minutes.~~	X3.8-126 ~~[18~~24 months~~]~~ CL3.8-139 R-13

PA3.8-100

BASES

~~this SR, the DG is normally operated at a power factor between [0.8 lagging] and [1.0]. The [0.8] value is the design rating of the machine, while the [1.0] is an operational limitation [to ensure circulating currents are minimized]. The load band is provided to avoid routine overloading of the DG. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY.~~

TA3.8-137

The 31 day Frequency for this Surveillance ~~(Table 3.8.1-1)~~ is consistent with SR 3.8.1.2 ~~Regulatory Guide 1.9 (Ref. 3)~~. CL3.8-172

This SR is modified by four Notes. Note 1 indicates that diesel engine runs for this Surveillance may include gradual loading, as recommended by the manufacturer, so that mechanical stress and wear on the diesel engine are minimized. Note 2 states that momentary transients, because of changing ~~bus~~ loads or system characteristics, do not invalidate this test. ~~Similarly, momentary power factor transients above the limit do not invalidate the test.~~ CL3.8-125 Note 3 indicates that this Surveillance should be conducted on only one DG at a time in order to avoid common cause failures that might result from ~~offsite circuit~~path or grid perturbations. Note 4 stipulates a prerequisite requirement for performance of this SR. A successful DG start must precede this test to credit satisfactory performance.

SR 3.8.1.4 CL3.8-118

This SR provides verification that the level of fuel oil in the day tank ~~[and engine mounted tank]~~ is at least 300 gallons (Unit 2 - 425 gallons). The limit switch ensures this level is maintained in the day tank~~or above the level at which fuel oil is automatically added~~. The level ~~is expressed as an equivalent volume in gallons, and~~ is selected to ensure adequate fuel oil for a minimum of ~~1~~2 hours for Unit 1 (1 hour of DG operation at full load plus 10% for Unit 2). R-13

(continued)

PA3.8-100

BASES

~~a. Performance of the SR will not render any safety system or component inoperable;~~

~~b. Performance of the SR will not cause perturbations to any of the electrical distribution systems that could result in a challenge to steady state operation or to plant safety systems; and~~

~~c. Performance of the SR, or failure of the SR, will not cause, or result in, an AOO with attendant challenge to plant safety systems.~~

CL3.8-122

TA3.8-123

SR 3.8.1.11

~~As required by Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(1), t~~This Surveillance demonstrates the as designed operation of the standby power sources during loss of the offsite source. This test verifies ~~all actions~~

~~SURVEILLANCE REQUIREMENTS~~

~~SR 3.8.1.11 (continued)~~

X3.8-126

CL3.8-172

~~encountered from~~DG starts on the loss of offsite power. Tests of other design features associated with loss of offsite power are satisfied by SR 3.8.1.10.~~, including shedding of the nonessential loads and energization of the emergency buses and respective loads from the DG. It further demonstrates the capability of the DG to automatically achieve the required voltage and frequency within the specified time.~~

CL3.8-139

~~The DG autostart time of [10] seconds is derived from requirements of the accident analysis to respond to a design basis large break LOCA. The Surveillance should be continued for a minimum of 5 minutes in order to demonstrate that all starting transients have decayed and stability is achieved.~~

R-13

(continued)

PA3.8-100

BASES

~~The requirement to verify the connection and power supply of permanent and autoconnected loads is intended to satisfactorily show the relationship of these loads to the DG loading logic. In certain circumstances, many of these loads cannot actually be connected or loaded without undue hardship or potential for undesired operation. For instance, Emergency Core Cooling Systems (ECCS) injection valves are not desired to be stroked open, or high pressure injection systems are not capable of being operated at full flow, or residual heat removal (RHR) systems performing a decay heat removal function are not desired to be realigned to the ECCS mode of operation. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the DG systems to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.~~

X3.8-126

The Frequency of ~~[18~~24 months~~]~~ ~~is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(1),~~ takes into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.

TA3.8-123

This SR is modified by a ~~two~~ Notes. The reason for the Note ~~1~~ is to minimize wear and tear on the DGs during testing. For the purpose of this testing, the DGs may~~must~~ be started from standby conditions, that is, with the engine coolant and oil continuously circulated and temperature maintained

~~SURVEILLANCE REQUIREMENTS~~ ~~SR 3.8.1.11 (continued)~~

CL3.8-122

consistent with manufacturer recommendations. ~~The reason for Note 2 is that performing the Surveillance would remove a required offsite circuit from service, perturb the~~

R-13

(continued)

PA3.8-100

BASES

~~electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR.~~

TA3.8-133

CL3.8-122

~~SR 3.8.1.12~~

~~This Surveillance demonstrates that the DG automatically starts and achieves the required voltage and frequency within the specified time ([10] seconds) from the design basis actuation signal (LOCA signal) and operates for ≥ 5 minutes. The 5 minute period provides sufficient time to demonstrate stability. SR 3.8.1.12.d and SR 3.8.1.12.e ensure that permanently connected loads and emergency loads are energized from the offsite electrical power system on an ESF signal without loss of offsite power.~~

~~The requirement to verify the connection of permanent and autoconnected loads is intended to satisfactorily show the relationship of these loads to the DG loading logic. In certain circumstances, many of these loads cannot actually be connected or loaded without undue hardship or potential for undesired operation. For instance, ECCS injection valves are not desired to be stroked open, or high pressure injection systems are not capable of being operated at full flow, or RHR systems performing a decay heat removal function are not desired to be realigned to the ECCS mode of operation. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the DG system to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.~~
~~The Frequency of [18 months] takes into consideration unit conditions required to perform the Surveillance and is intended to be consistent with the expected fuel cycle lengths. Operating experience has shown that these~~

(continued)

Difference Category	Difference Number 3.8-	Justification for Differences
CL	121	NUREG-1431 SR 3.8.1.9 and associated Bases are being deleted since the load reject test requirements, per the CTS, are included in ISTS SR 3.8.1.10 (PI SR 3.8.1.7). Therefore, requiring them to be performed again is not necessary nor does it serve any advantage in evaluating system OPERABILITY.
CL	122	NUREG-1431 SRs 3.8.1.10 (PI 3.8.1.7), 3.8.1.11 (PI 3.8.1.11), 3.8.1.13 (PI 3.8.1.8), 3.8.1.14 (PI 3.8.1.9), 3.8.4.6 (PI 3.8.4.2) Notes and associated Bases, have been revised by deleting the statement, "This Surveillance shall not be performed in MODE 1 or 2." PI CTS does not provide a restriction or MODE of Applicability for this SR. PI presently performs some of these SRs during the specified MODES and maintains to keep this flexibility in accordance with CLB.
TA	123	NUREG-1431 SRs 3.8.1.10 (PI 3.8.1.7), 3.8.1.11 (PI 3.8.1.11), 3.8.1.13 (PI 3.8.1.8), 3.8.1.14 (PI 3.8.1.9), 3.8.1.19 (PI 3.8.1.10), SR 3.8.4.6 (PI 3.8.4.2) and SR 3.8.4.7(PI 3.8.4.3). Notes and associated Bases, have been revised by deleting the statement, "However, credit may be taken for unplanned events that satisfy this SR." Deleting this sentence is consistent with approved TSTF-8, Rev. 1.

Difference Category	Difference Number 3.8-	Justification for Differences
TA	137	TSTF 37, Rev. 2 was incorporated.
CL	138	NUREG-1431 SR 3.8.1.18 and associated Bases have been deleted. PI CLB does not require this surveillance testing and it is therefore being deleted.
CL	139	NUREG-1431 SRs 3.8.1.11 and 3.8.1.19 have been revised by deleting ISTS SR requirements c.2, c.3, c.4, and c.5. Requirement c.1 was edited to represent the PI CTS requirement. These additional requirements are not in the PI CTS and therefore not incorporated into the PI ITS.
TA	140	Incorporated TSTF-36, Rev. 4.
	141	Not used.

M - More restrictive (GENERIC NSHD)
(M3.8-04, M3.8-06, M3.8-14, M3.8-18, M3.8-19, M3.8-21, M3.8-24, M3.8-27, M3.8-31, M3.8-41, M3.8-42, M3.8-47, M3.8-49, M3.8-50, M3.8-52, M3.8-55, M3.8-64, M3.8-65, M3.8-66, M3.8-67, M3.8-69)

This proposed TS revision involves modifying the CTS to impose more stringent requirements upon plant operations to achieve consistency with the guidance of NUREG-1431, correct discrepancies or remove ambiguities from the specifications. These more restrictive TSs have been evaluated against the plant design, safety analyses, and other TS requirements to ensure the plant will continue to operate safely with these more stringent specifications.

1. The proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.

   The proposed changes provide more stringent requirements for operation of the plant. These more stringent requirements do not result in operation that will increase the probability of initiating an analyzed event and do not alter assumptions relative to mitigation of an accident or transient event.

   These more restrictive requirements continue to ensure process variables, structures, systems, and components are maintained consistent with the safety analyses and licensing basis. Therefore, these changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. The proposed amendment will not create the possibility of a new or different kind of accident from any accident previously analyzed.

   The proposed changes do not involve any physical alteration of the plant, that is, no new or different type of equipment will be installed, nor do they change the methods governing normal plant operation.