ENCLOSURE 2

VOLUME 8

TURKEY POINT NUCLEAR GENERATING STATION UNIT 3 AND UNIT 4

IMPROVED TECHNICAL SPECIFICATIONS CONVERSION

ITS SECTION 3.3 INSTRUMENTATION

Revision 0

LIST OF ATTACHMENTS

1. ITS 3.3.1 – Reactor Trip System (RTS) Instrumentation
2. ITS 3.3.2 – Engineered Safety Features Actuation System (ESFAS) Instrumentation
3. ITS 3.3.3 – Post Accident Monitoring (PAM) Instrumentation
4. ITS 3.3.4 – Control Room Emergency Ventilation System (CREVS) Actuation Instrumentation
5. ITS 3.3.5 – Loss of Power (LOP) Emergency Diesel Generator (EDG) Start Instrumentation
6. ITS 3.3.6 – Containment Ventilation Isolation Instrumentation
7. Relocated/Deleted Current Technical Specifications (CTS)
8. ISTS Not Adopted

ATTACHMENT 1

ITS 3.3.1 – REACTOR TRIP SYSTEM (RTS) INSTRUMENTATION

Current Technical Specification (CTS) Markup
and Discussion of Changes (DOCs)

ITS

A01

3/4.3 INSTRUMENTATION (RTS)

3.3.1 ### 3/4.3.1 REACTOR TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

LCO 3.3.1 3.3.1 As a minimum, the Reactor Trip System instrumentation channels and interlocks of Table 3.3-1 shall be OPERABLE.

APPLICABILITY APPLICABILITY: As shown in Table 3.3-1.

ACTION:

-------------------------------NOTE-------------------------------
Separate Condition entry is allowed for each Function.
-- A02

~~As shown in Table 3.3-1.~~

Insert ACTIONS A - Z A03

SURVEILLANCE REQUIREMENTS

4.3.1.1 Each Reactor Trip System instrumentation channel and interlock and the automatic trip logic shall be demonstrated OPERABLE by the performance of the Reactor Trip System Instrumentation Surveillance Requirement specified in Table 4.3-1.

Insert SR 3.3.1.1 – SR 3.3.1.16 A03

ITS

Table 3.3.1-1

A01

3.3.1-1

TABLE ~~3.3-1~~

REACTOR TRIP SYSTEM INSTRUMENTATION A01

FUNCTION	~~FUNCTIONAL UNIT~~	REQUIRED CHANNELS ~~TOTAL NO. OF CHANNELS~~	~~CHANNELS TO TRIP~~	~~MINIMUM CHANNELS OPERABLE~~	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS ~~APPLICABLE MODES~~	CONDITIONS ~~ACTION~~ A01	
Function 1	1. Manual Reactor Trip	2	~~1~~	~~2~~	1, 2	~~1~~	B
		2	~~1~~	~~2~~	3*, 4*, 5*	~~9~~	C
Function 2	2. Power Range, Neutron Flux						
Function 2.a	a. High Setpoint	4	~~2~~	~~3~~	1, 2	~~2~~	D
Function 2.b	b. Low Setpoint	4	~~2~~	~~3~~	1##, 2	~~2~~	E
Function 3	3. Intermediate Range, Neutron Flux	2	~~1~~	~~2~~	1##, 2	~~3~~	F,G
Function 4	4. Source Range, Neutron Flux						
	a. Startup	2	~~1~~	~~2~~	2#	4	H,I
See ITS 3.3.3	b. Shutdown**	2	~~0~~	~~2~~	3, 4, 5	5	
	c. Shutdown	2	~~1~~	~~2~~	3*, 4*, 5*	9	I,J
Function 5	5. Overtemperature ΔT	3	~~2~~	~~2~~	1, 2	~~13~~	E
Function 6	6. Overpower ΔT	3	~~2~~	~~2~~	1, 2	~~13~~	E
Function 7	7. Pressurizer Pressure-Low (Above P-7)	3	~~2~~	~~2~~	1	~~6~~	L
Function 8	8. Pressurizer Pressure--High	3	~~2~~	~~2~~	1, 2	~~6~~	O
Function 9	9. Pressurizer Water Level--High (Above P-7)	3	~~2~~	~~2~~	1	~~13~~	L
Function 10	10. Reactor Coolant Flow--Low						
Table 3.3.1-1 NOTE (h)	a. Single Loop (Above P-8)	3/loop	~~2/loop~~	~~2/loop~~	1	~~6~~	L
	b. Two Loops (Above P-7 and below P-8)	3/loop	~~2/loop~~	~~2/loop~~	1	~~6~~	L

LA02

L05

ITS

Table 3.3.1-1

A01

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION A01

	~~FUNCTIONAL UNIT~~	~~TOTAL NO. OF CHANNELS~~	~~CHANNELS TO TRIP~~	~~MINIMUM CHANNELS OPERABLE~~	~~APPLICABLE MODES~~	~~ACTION~~ A01
Function 11	11. Steam Generator Water Level--Low-Low	3/stm. gen.	~~2/stm. gen.~~	~~2/stm. gen.~~	1, 2	~~6~~ O
Function 12	12. Steam Generator Water Level--Low Coincident With Steam/ Feedwater Flow Mismatch	2 stm. gen. level and 2 stm./feed-water flow mismatch in each stm. gen.	~~1 stm. gen. level coin-cident with 1 stm./feed-water flow mismatch in same stm. gen.~~	~~1 stm. gen. level and 2 stm./feed-water flow mismatch in same stm. gen. or 2 stm. gen. level and 1 stm./feedwater flow mismatch in same stm. gen.~~	1, 2	~~6~~ O LA02
Function 13 Table 3.3.1-1 NOTE (g)	13. Undervoltage--4.16 KV Busses A and B (Above P-7)	2/bus	~~1/bus on both busses~~	~~2/bus~~	1	12 L
Function 14	14. Underfrequency-Trip of Reactor Coolant Pump Breaker(s) Open (Above P-7)	2/bus	~~1 to trip RCPs***~~	~~2/bus~~	1	11 N
Function 15	15. Turbine Trip (Above P-7)					
Function 15.a	a. Emergency Trip Header Pressure	3	~~2~~	~~2~~	1 (Above P-7)	~~12~~ L
Function 15.b	b. Turbine Stop Valve Closure	2	~~2~~	~~2~~	1 (Above P-7)	~~12~~ L

Table 3.3.1-1 NOTE (g)

ITS

Table 3.3.1-1

A01 TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION A01

ITS	~~FUNCTIONAL UNIT~~	~~TOTAL NO. OF CHANNELS~~	~~CHANNELS TO TRIP~~	~~MINIMUM CHANNELS OPERABLE~~	~~APPLICABLE MODES~~	~~ACTION~~
Function 16	16. Safety Injection Input from ESF	2	~~1~~	~~2~~	1, 2	~~8~~ P
Function 17	17. Reactor Trip System Interlocks					
Function 17.a	a. Intermediate Range Neutron Flux, P-6	2	~~1~~	~~2~~	2#	~~7~~ Q
Function 17.b	b. Low Power Reactor Trips Block, P-7					LA02
Function 17.b.1	P-10 Input	4	~~2~~	~~3~~	1	~~7~~ R
	or					
Function 17.b.2	Turbine Inlet Pressure	2	~~1~~	~~2~~	1	~~7~~ R
Function 17.c	c. Power Range Neutron Flux, P-8	4	~~2~~	~~3~~	1	~~7~~ R
Function 7.d	d. Power Range Neutron Flux, P-10	4	~~2~~	~~3~~	1, 2	~~7~~ Q
Function 18	18. Reactor Coolant Pump Breaker Position Trip					
	a. Above P-8 (Single Loop)	1/breaker	~~1~~	~~1/breaker~~	1	~~11~~ N A01
	b. Above P-7 and below P-8 (Two Loops)	1/breaker	~~2~~	~~1/breaker~~	1	~~11~~ N
Function 19.a	19. Reactor Trip Breakers	2	~~1~~	~~2~~	1, 2	~~8, 10~~ P, T
Function 19.b	Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms	2	~~1~~	~~2~~	3*, 4*, 5*	9 C,I,J A10
Function 20	20. Automatic Trip and Interlock logic	2	~~1~~	~~2~~	1, 2	~~8~~ P
		2	~~1~~	~~2~~	3*, 4*, 5*	~~9~~ C,I,J

ITS

Table 3.3.1-1

A01

TABLE 3.3-1 (Continued)

TABLE NOTATION

Table 3.3.1-1 NOTE (a) * ~~When the Reactor Trip System breakers are in the closed position and the~~ Control Rod Drive System is capable of rod withdrawal.

or one or more rods not fully inserted

A04

See ITS 3.3.3

** When the Reactor Trip System breakers are in the open position, one or both of the backup NIS instrumentation channels may be used to satisfy this requirement. For backup NIS testing requirements, see Specification 3/4.3.3.3, ACCIDENT MONITORING.

~~*** Reactor Coolant Pump breaker A is tripped by underfrequency sensor UF-3A1(UF-4A1) or UF-3B1(UF-4B1). Reactor Coolant Pump breakers B and C are tripped by underfrequency sensor UF-3A2(UF-4A2) or UF-3B2(UF-4B2).~~

LA03

Table 3.3.1-1 NOTE (e) # Below the P-6 (Intermediate Range Neutron Flux Interlock) Setpoint.

Table 3.3.1-1 NOTE (d) ## Below the P-10 (Low Setpoint Power Range Neutron Flux Interlock) Setpoint.

ACTION STATEMENTS

ACTION B

ACTION U

ACTION 1 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or in accordance with the Risk Informed Completion Time Program, or be in HOT STANDBY within the next 6 hours.

ACTION D

ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

ACTION D R.A. D.1.1, D.2.1, & E.1

a. The inoperable channel is placed in the tripped condition within 6 hours,

ACTION D & E R.A. NOTE

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1, and

ACTION D R.A. D.1.2

ACTION D R.A. D.2.2

c. Either, THERMAL POWER is restricted to less than or equal to 75% of RATED THERMAL POWER ~~and the Power Range Neutron Flux Trip Setpoint is reduced to less than or equal to 85% of RATED THERMAL POWER~~ within 4 hours; or, the QUADRANT POWER TILT RATIO is monitored per ~~Specification 4.2.4.2~~.

L02

SR 3.2.4.2

A01

-----------------NOTE----------------
Only required to be performed when the Power Range Neutron flux input to QPTR is inoperable.

A05

ACTION D R.A. D.2.2 NOTE

ACTION D R.A. D.2.Completion Time

once per 12 hours

A01

ACTION U

ITS

Table 3.3.1-1

A01

Add Action G: Two Channels inop, immediately suspend operations involving positive reactivity additions and reduce Thermal Power to < P-6 within 2 hours. Limited plant cooldown is allowed provided the change is accounted for in the calculated SDM.

TABLE 3.3-1 (Continued)

ACTION STATEMENTS (Continued)

ACTIONS F & G

ACTION 3 - With the number of channels OPERABLE one less than the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

Reduce Thermal Power to < P-6 or Increase Thermal Power to >P-10 within 24 hours.

~~a. Below the P-6 (Intermediate Range Neutron Flux Interlock) Setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint, and~~

L04

---------------------NOTE---------------------
Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM.

~~b. Above P-6 (Intermediate Range Neutron Flux Interlock) Setpoint but below 10% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 10% of RATED THERMAL POWER.~~

ACTIONS H & I

Insert Action I

ACTION 4 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, suspend all operations involving positive reactivity changes.

L01

See ITS 3.3.3

ACTION 5 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, suspend all operations involving positive reactivity changes and verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, within 1 hour and at least once per 12 hours thereafter.

ACTION L

ACTION 6 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed ~~until performance of the next required ANALOG CHANNEL OPERATIONAL TEST~~ provided the inoperable channel is placed in the tripped condition within 6 hours.

A06

Insert Action M

ACTION Q, R

ACTION 7 - With less than the Minimum Number of Channels OPERABLE, within 1 hour determine ~~by observation of~~ the associated permissive annunciator window(s) that the interlock is in its required state for the existing plant condition, or ~~apply Specification 3.0.3~~. Be in MODE 2 in 6 hours.

A01

ACTION S

M01

ACTION P

Open reactor trip breakers (RTBs) immediately

ACTION 8 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, ~~be in at least HOT STANDBY within 6 hours~~; however, one channel may be bypassed for up to 2 hours for surveillance testing ~~per Specification 4.3.1.1~~, provided the other channel is OPERABLE.

ACTION K

Initiate action to fully insert all rods and place the Rod Control System in a condition incapable of rod withdrawal within 1 hour

L03

ACTION C, J,

ACTION 9 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or open the Reactor Trip System breakers ~~within the next hour~~ immediately.

ACTION I

M02

ACTION T

ACTION 10- With one of the diverse trip features (undervoltage or shunt trip attachment) inoperable, restore it to OPERABLE status within 48 hours or in accordance with the Risk Informed Completion Time Program, or declare the breaker inoperable and apply ACTION 8. ~~The breaker shall not be bypassed while one of the diverse trip features is inoperable, except for the time required for performing maintenance to restore the breaker to OPERABLE status.~~

LA04

A01

TABLE 3.3-1 (Continued)

ACTION STATEMENTS (Continued)

ACTION N

ACTION 11 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, be in at least ~~HOT STANDBY~~ MODE 2 within 6 hours.

A07

ACTION L

ACTION 12 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed ~~until performance of the next required ACTUATION LOGIC TEST~~ provided the inoperable channel is placed in the tripped condition within 6 hours.

A08

ACTION E, L

ACTION 13 - With the number of OPERABLE channels one less than the Total number of channels, STARTUP and/or POWER OPERATION may proceed provided the inoperable channel is placed in the tripped condition within 6 hours.

ITS

Table 3.3 -1
ITS Function No.'s
are the same as CTS

A01 TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

	FUNCTIONAL UNIT	CHANNEL CHECK SR 3.3.1.x	CHANNEL CALIBRATION SR 3.3.1.x	ANALOG CHANNEL OPERATIONAL TEST SR 3.3.1.x	TRIP ACTUATING DEVICE OPERATIONAL TEST SR 3.3.1.x	ACTUATION LOGIC TEST SR 3.3.1.x	MODES FOR WHICH SURVEILLANCE IS REQUIRED
	1. Manual Reactor Trip	N.A.	N.A.	N.A.	12 SFCP(11)	N.A.	1, 2, 3*, 4*, 5*
	2. Power Range, Neutron Flux a. High Setpoint	1 SFCP	2 SFCP(2, 4), 3 SFCP(3, 4), 6 SFCP(4, 6), ~~(a), (b)~~ 9 SFCP(4) ~~(a), (b)~~	7 SFCP ~~(a), (b)~~	N.A.	N.A.	1, 2
	b. Low Setpoint	1 SFCP	9 SFCP(4)	8 S/U(1)	N.A.	N.A.	1***, 2
	3. Intermediate Range, Neutron Flux	1 SFCP	9 SFCP(4)	8 S/U(1)	N.A.	N.A.	1***, 2
	4. Source Range, Neutron Flux	1 SFCP	9 SFCP(4)	7 S/U(1), 8 SFCP(9)	N.A.	N.A.	2**,3, 4, 5
	5. Overtemperature ΔT	1 SFCP	10 SFCP ~~(a), (b)~~	7 SFCP ~~(a), (b)~~	N.A.	N.A.	1, 2
7	6. Overpower ΔT	1 SFCP	10 SFCP ~~(a), (b)~~	7 SFCP ~~(a), (b)~~	N.A.	N.A.	1, 2
8.a	7. Pressurizer Pressure--Low	1 SFCP	10 SFCP	7 SFCP	N.A.	N.A.	1
8.b	8. Pressurizer Pressure--High	1 SFCP	10 SFCP	7 SFCP	N.A.	N.A. (b), (c)	1, 2
9	9. Pressurizer Water Level--High	1 SFCP	10 SFCP	7 SFCP	N.A.	N.A.	1
10	10. Reactor Coolant Flow--Low	1 SFCP	10 SFCP ~~(a), (b)~~	7 SFCP ~~(a), (b)~~	N.A.	N.A.	1
14	11. Steam Generator Water Level--Low-Low	1 SFCP	10 SFCP ~~(a), (b)~~	7 SFCP ~~(a), (b)~~	N.A.	N.A.	1, 2

(b), (c)

A01

ITS

Table 3.3 -1
ITS Function No.'s
are the same as CTS

A01

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
12. Steam Generator Water Level--Low Coincident with Steam/Feedwater Flow Mismatch	1 SFCP	10 SFCP~~(a), (b)~~ (b), (c)	7 SFCP~~(a), (b)~~ (b), (c)	N.A.	N.A.	1, 2
13. Undervoltage – 4.16 kV Busses A and B	N.A.	10 SFCP	N.A.	N.A.	N.A.	1
14. Underfrequency – Trip of Reactor Coolant Pump Breakers(s) Open	N.A.	10 SFCP	N.A.	N.A.	N.A.	1
15. Turbine Trip						
a. Emergency Trip Header Pressure	N.A.	10 SFCP~~(a), (b)~~ (b), (c)	N.A.	13 Prior to P-7 ~~(10)~~	N.A.	1**** A01
b. Turbine Stop Valve Closure	N.A.	10 SFCP	N.A.	13 Prior to P-7 ~~(10)~~	N.A.	1**** LA07
16. Safety Injection Input from ESF	N.A.	N.A.	N.A.	12 SFCP	N.A.	1, 2
17. Reactor Trip System Interlocks						
a. Intermediate Range Neutron Flux, P-6	N.A.	9 SFCP(4)	11 SFCP	N.A.	N.A.	2**
b. Low Power Reactor Trips Block, P-7 (includes P-10 input and Turbine Inlet Pressure)	N.A.	9 SFCP(4)	11 SFCP	N.A.	N.A.	1
c. Power Range Neutron Flux, P-8	N.A.	9 SFCP(4)	11 SFCP	N.A.	N.A.	1

(b), (c)

ITS

Table 3.3 -1
ITS Function No.'s
are the same as CTS

A01

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
17. Reactor Trip System Interlocks (Continued)						
d. Power Range Neutron Flux, P-10	N.A.	9 SFCP(4)	11 SFCP	N.A.	N.A.	1, 2
18. Reactor Coolant Pump Breaker Position Trip	N.A.	N.A.	N.A.	12 SFCP	N.A.	1
19. Reactor Trip Breakers (RTBs) ~~19~~ a. Reactor Trip Breaker b. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms	N.A.	N.A.	N.A.	4 SFCP~~(7, 11)~~ A11 LA08	N.A.	1, 2, 3*, 4*, 5* A01
20. Automatic Trip and Interlock Logic	N.A.	N.A.	N.A.	N.A.	5 SFCP~~(7,14)~~ A11 LA10	1, 2, 3*, 4*, 5* A10
~~21~~. Reactor Trip Bypass Breaker (Function 19.a, Footnote (K))	N.A.	N.A.	N.A.	12 SFCP~~(13),~~ 12 SFCP~~(15)~~	N.A.	1, 2, 3*, 4*, 5* LA09

ITS

A01

Table 3.3.1-1

TABLE 4.3-1 (Continued)

TABLE NOTATIONS

Table 3.3.1-1 NOTE (a) * ~~When the Reactor Trip System breakers are closed and the~~ Control Rod Drive System is capable of rod withdrawal. or one or more rods not fully inserted A04

Table 3.3.1-1 NOTE (e) ** Below P-6 (Intermediate Range Neutron Flux Interlock) Setpoint.

Table 3.3.1-1 NOTE (d) *** Below P-10 (Low Setpoint Power Range Neutron Flux Interlock) Setpoint.

Table 3.3.1-1 NOTE (g) **** Above P-7 (Low Power Reactor Trips Block Interlock) Setpoint.

Table 3.3.1-1 NOTE (b) (a) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

Table 3.3.1-1 NOTE (c) (b) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTS) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTS are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the surveillance procedures (field settings) to confirm channel performance. The NTS and methodologies used to determine the as-found and the as-left tolerances are specified in UFSAR Section 7.2.

NOTE 2: Not required to be performed until 12 hours M03

SR 3.3.1.7 NOTE 2 (1) If not performed in previous 31 days.

SR 3.3.1.2 (2) Comparison of calorimetric to excore power level indication above 15% of RATED THERMAL POWER (RTP). Adjust excore channel gains consistent with calorimetric power level if the absolute difference is greater than 2%. ~~Below 70% RTP, downward adjustments of NIS excore channel gains to match a lower calorimetric power level are not required.~~ ~~The provisions of Specification 4.0.4 are not applicable for entry into MODE 2 or 1.~~ LA05

NOTE 2: Not required to be performed until 24 hours M03

SR 3.3.1.3 (3) Single point comparison of incore to excore AXIAL FLUX DIFFERENCE above 15% of RATED THERMAL POWER. Recalibrate if the absolute difference is greater than or equal to 3%. ~~The provisions of Specification 4.0.4 are not applicable for entry into MODE 2 or 1.~~

SR 3.3.1.2, 3, & 6 NOTE 1
SR 3.3.1.11 NOTE (4) Neutron detectors may be excluded from CHANNEL CALIBRATION.

~~(5) This table Notation number is not used.~~ A01

Note 2: Not required to be performed until 24 hours M03

SR 3.3.1.6 (6) Incore-Excore Calibration, above 75% of RATED THERMAL POWER (RTP). If the ~~quarterly~~ interval surveillance requirement coincides with sustained operation between 30% and 75% of RTP, calibration shall be performed at this lower power level. ~~The provisions of Specification 4.0.4 are not applicable for entry into MODE 2 or 1.~~ A09

~~(7) Each train shall be tested in accordance with the Surveillance Frequency Control Program.~~ A11

~~(8) DELETED~~

SR 3.3.1.8 Note (9) Quarterly surveillance in MODES 3*, 4*, and 5* shall also include verification that permissive P-6 and P-10 are in their required state for existing plant conditions ~~by observation of the permissive annunciator window~~. ~~Quarterly surveillance shall include verification of the High Flux at Shutdown Alarm Setpoint of 1/2 decade above the existing count rate.~~ LA06

~~(10) Required whenever Unit has been in MODE 3 if not performed within previous 31 days. Setpoint verification is not applicable.~~ LA07

~~(11) The TRIP ACTUATING DEVICE OPERATIONAL TEST shall include independent verification of the OPERABILITY of the undervoltage and shunt trip attachment of the Reactor Trip Breakers.~~ LA08

A01

TABLE 4.3-1 (Continued)

TABLE NOTATIONS

~~(12) NOT USED~~. A01

~~(13) Remote manual undervoltage trip when breaker placed in service.~~ LA09

~~(14) Interlock Logic Test shall consist of verifying that the interlock is in its required state by observing the permissive annunciator window.~~ LA10

~~(15) Automatic undervoltage trip.~~ LA09

DISCUSSION OF CHANGES
ITS 3.3.1, RPS INSTRUMENTATION

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications - Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS 3.3.2 ACTION and CTS Table 3.3-1 provide the compensatory actions to take when Reactor Trip System (RTS) instrumentation is inoperable. ITS 3.3.1 ACTIONS similarly provide the compensatory actions for inoperable RTS Instrumentation. ITS 3.3.1 ACTIONS are modified by a Note that allows separate Condition entry for each Function. In addition, due to the manner in which the Required Channel's description modifies ITS Functions, separate Condition entry is allowed within a Function. This changes the CTS by providing a specific allowance to enter the ACTION for each inoperable RTS instrumentation Function and for certain Functions on a loop, steam generator (SG), bus, or breaker, etc.

This change is acceptable because it clearly states the current requirement. The CTS considers each RTS instrumentation Function to be separate and independent from the others. In addition, the channels associated with some Functions are allowed separate Condition entry on the specified basis (i.e., per loop, SG, bus, or breaker). This separate condition entry is allowed because the channels associated with each component, as applicable, will provide the associated Engineered Safety Feature Actuation System (ESFAS) actuation based on the logic associated with the channels on the specified basis. This change is designated as administrative because it does not result in technical changes to the CTS.

A03 CTS 3.3.1 ACTIONS and Surveillance Requirements (SRs) are not listed in the respective ACTIONS and Surveillance Requirements Sections of the Technical Specification. These are referenced in specific tables and located directly behind the respective Tables. ITS 3.3.1 places the ACTIONS and SRs respectively in the Sections of the Technical Specifications labeled as ACTIONS and Surveillance Requirements. This changes the CTS by moving the ACTIONS and SRs back under the respective Sections of the Technical Specifications. This change is acceptable and administrative, because it only changes the location of ACTIONS and SRs and makes no technical changes.

A04 CTS Table 3.3-1 Functions 1, 4.c, 19, and 20, when in MODES 3*, 4*, and 5*, and Table 4.3-1 Functions are modified by an Applicability Note * that makes the listed Functions applicable when the Reactor Trip System Breakers (RTSBs) are in the closed position and the Control Rod Drive System is capable of rod withdrawal. CTS ACTION 9, is applicable to the same functions as listed above and requires the RTSBs to be opened within one hour when the instrument channels cannot be restored in 48 hours. ITS Table 3.3.1-1 Function 1, 4, 19 and 20, when in MODES 3(a), 4(a), and 5(a) are modified by an Applicability Note (a) that makes the Functions applicable with the Rod Control System capable of rod withdrawal or with one or more rods not fully inserted. ITS ACTION K is applicable to the same Functions and requires initiation to fully insert all rods immediately and to place the Rod Control System in a condition incapable of rod withdrawal within one hour. This changes the CTS Applicability in MODES 3, 4, and 5 by not making these Functions applicable when the RTSBs are in the closed position as long as the control rods are not capable of being withdrawn and adding that the Functions are applicable when one or more control rods are not fully inserted. The ACTIONS are being changed by deleting the requirement to open the RTSBs and adding the requirement to initiate action to fully insert all rods and place the Rod Control System in a condition incapable of rod withdrawal.

The purpose of the Applicability Note is to require the listed Functions to be Applicable when the control rods are capable of being withdrawn. The purpose of the Actions is to ensure the control rods are fully inserted and incapable of rod withdrawal if the Functions are inoperable and cannot be restored to OPERABLE status within 48 hours. The Applicability change ensures the maximum shutdown margin (SDM) is available in case of a plant reactivity event. The Actions accomplish the safety function of the applicable Functions (ensuring the control rods are fully inserted in the core) if the Functions cannot be restored within 48 hours. The changes to both the Applicability and the Actions accomplish the same end state, which is to ensure all control rods are capable of being inserted if the control rods are capable of being withdrawn or are fully inserted and incapable of being withdrawn if any of the applicable Functions are inoperable. This change is designated as Administrative because no technical change is being made.

A05 CTS 3.3.1 ACTION 2.c requires an alternative to reducing power to 75% of RATED THERMAL POWER (RTP); it allows the channel to be placed in trip and the QUADRANT POWER TILT RATIO (QPTR) monitored by performing SR 3.2.4.2 once per 12 hours. ITS 3.3.1 Action D provides the same alternative; however, it is modified by a Note that states, "only required to be performed when the Power Range Neutron flux input to QPTR is inoperable." This changes the CTS by adding clarification when performing the alternate method.

The purpose of this Action is to ensure proper radial monitoring. The Note only requires SR 3.2.4.2 to be performed if the Power Range Neutron Flux input to QPTR becomes inoperable. Failure of a component in the Power Range Neutron Flux Channel which renders the High Flux Trip Function inoperable may not affect the capability to monitor QPTR. As such, determining QPTR using the movable incore detectors once per 12 hours may not be necessary. This change is classified as Administrative because the clarifying Note does not technically change the requirement.

A06 CTS 3.3.1 ACTION 6 requires that with the number of OPERABLE channels one less than the total number of channels, Startup and /or power operations may proceed until performance of the next CHANNEL OPERATIONAL TEST (COT) provided the inoperable channel is placed in trip. ITS 3.3.1 ACTION L contains the requirement to place the channel in trip; however, it does not state that it is limited to the next COT. However, based on how a COT is performed, the same time limit is applied. In addition, ITS 3.3.1 ACTION M requires power to be reduced to less than P-7 if the Required Action or Completion Time of ACTION L is not met. This changes the CTS by deleting the requirement, until performance of the next required COT, and adopting ITS 3.3.1 ACTION M.

The purpose of this change is to eliminate information in the Technical Specification that is not required. Deleting information that is obvious or will be obvious when the COT is performed is acceptable because this type of information is not necessary to be included in the Technical Specifications in order to provide adequate protection of public health and safety. The ITS retains the requirement to perform the COT. Also, this change is acceptable because these types of procedural details will be adequately controlled in the Technical Specification Bases. ITS 3.3.1 ACTION M simply removes the unit from the Applicability of the associated Table 3.3.1-1 Functions, which is always an acceptable response when a requirement is not met. All associated table Functions are Applicable above an RTP of P-7. This change is designated as Administrative because no technical change is being made to the Technical Specification.

A07 CTS 3.3.1 ACTION 11 requires the plant to be taken to MODE 3 within 6 hours. The applicability for the Function is MODE 1. ITS 3.3.1 ACTION N requires the unit to be in MODE 2 within 6 hours. This changes the CTS by allowing the end state to be MODE 2 versus MODE 3.

The purpose of the ITS and CTS is to remove the Function from a MODE where it is required to be Operable. Both the CTS and ITS accomplish this. However, the CTS directs the unit to be in MODE 3 when the Mode of Applicability is only MODE 1. Therefore, while the CTS requirement is to be in MODE 3, the unit is only required to go to MODE 2 because the Function is not required to be OPERABLE in MODE 2. This change is designated as administrative because both the CTS and ITS requirements are equivalent.

A08 CTS 3.3.1 ACTION 12 requires with the number of OPERABLE channels one less than the total number of channels that Startup and /or power operations may proceed until performance of the next Actuation Logic Test provided the inoperable channel is placed in trip. ITS 3.3.1 ACTION L contains the requirement to place the channel in trip; however, it does not state that it is limited to the next Actuation Logic Test. However, based on how an Actuation Logic Test is performed, the same time limit is applied. This changes the CTS by deleting the requirement, until performance of the next required Actuation Logic Test.

The purpose of this change is to eliminate information in the Technical Specification that is not required. Deleting information that is obvious or will be obvious when the Actuation Logic Test is performed is acceptable because this type of information is not necessary to be included in the Technical Specifications in order to provide adequate protection of public health and safety. The ITS retains the requirement to perform the COT. Also, this change is acceptable because these types of procedural details will be adequately controlled in the Technical Specification Bases. This change is designated as Administrative because no technical change is being made to the Technical Specification.

A09 CTS Table 4.3-1 Notes (3) contains a requirement that if the quarterly SR coincides with sustained operation between 30% and 75% of RTP, calibration shall be performed at the lower power level. ITS 3.3.1.6 Note 3 contains the same requirement; however, it refers to interval instead of specifying the actual interval of quarterly. This changes the CTS by not specifying quarterly in the SR Note.

The purpose of the requirement is to ensure, that if sustained operation at a lower power level than the SR is normally performed, the incore-excore calibration will be performed to ensure the instrument operates as designed. Removing the SR interval of quarterly is acceptable because most SR intervals are specified in the SFCP. The SFCP adequately controls Technical Specification Surveillance intervals. This change is designated as Administrative because no technical change is being made to the CTS.

A10 CTS 3.3.1, Table 3.3-1 contains Function 19 for the Reactor Trip Breakers and contains an Action for the Undervoltage and Shut Trip mechanisms. ITS 3.3.1 Table 3.3.1-1 contain Function 19.a and 19.b for the Reactor Trip Breakers and the Undervoltage and Shunt Trip mechanisms, respectively. This changes the CTS by adding a function for the Undervoltage and Shunt Trip mechanisms.

This change is acceptable because the CTS currently contains an Action for the Undervoltage and Shunt Trip mechanism. Extracting these trip mechanisms from the Action and making it a separate Function is an administrative change and does not technically affect the CTS.

A11 CTS Table 4.3-1 Note (7) requires each train to be tested in accordance with the SFCP. ITS does not contain this requirement. This changes the CTS by not specifying to refer to the SFCP for SR Frequency information.

The purpose of the current requirement is to ensure the SFCP is being referred to in order to obtain information on the SR frequency. This change is acceptable because the Frequency for most ITS SRs is in accordance with the SFCP and providing an additional Note that refers to the SFCP is not necessary. This change is designated as administrative because no technical change is being made to the CTS.

MORE RESTRICTIVE CHANGES

M01 CTS 3.3.1 ACTION 7 requires verification that the RTS interlocks are in the required state for the existing plant condition or requires CTS 3.0.3 to be applied. By applying CTS 3.0.3, 7 hours is allowed to reach MODE 3. Since the affected Functions are only applicable in MODE 1, the unit would essentially have 7 hours to be in MODE 2. ITS 3.3.1 ACTIONS Q and R require the interlocks to be verified or requires ACTION S to be applied, which requires the Unit to be in MODE 2 within 6 hours. This changes the CTS by allowing one less hour to reach MODE 2.

The purpose of the Actions is to ensure the plant is put in a condition that the interlock no longer applies if the affected interlock cannot be verified OPERABLE. By exiting the Modes of Applicability, this Action is accomplished. The proposed change is acceptable because normally 6 hours is allowed for the plant to enter MODE 3 so it should be sufficient for the plant to enter MODE 2. Also, this time is reasonable for the plant to reach MODE 2 from full power in an orderly manner without challenging unit systems. This change is designated as More Restrictive because more stringent requirements are being imposed.

M02 CTS 3.3.1 ACTION 9 requires the RTSBs to be opened within one hour. ITS 3.3.1 ACTION I requires the RTSBs to be opened immediately. This changes the CTS by requiring the RTSBs to be opened sooner that previously required.

The purpose of both the CTS and ITS ACTIONS is to ensure the rods are fully inserted and the rod control system is incapable of rod withdrawal. By opening the RTSBs, this is accomplished. However, the ITS requires immediately opening the breakers while the CTS allows one hour to open the breakers. This specific condition that requires the breakers to be opened immediately applies to two inoperable Source Range Neutron Flux trip channels when in MODE 2 and below the P-6 setpoint and in MODE 3, 4, or 5 with the Rod Control System capable of rod withdrawal or one or more rods not fully inserted. With the unit in this Condition, below P-6, the Nuclear Instrumentation System (NIS) source range detectors perform the monitoring and protection functions. With both source range channels inoperable, the RTSBs must be opened immediately. With the RTSBs open, the core is in a more stable condition. This change is designated as More Restrictive because a more stringent completion time is imposed in the ITS.

M03 CTS Table 4.3-1 contains Notes (2), (3), and (6) that allow entry into MODES to perform SRs. The corresponding ITS SRs also allows entry into specific MODES to perform SRs; however, the ITS specifies time requirements, once the MODES are entered, to perform the SRs. This changes the CTS by specifying a time limit in which to perform the SRs.

The purpose of the allowances in CTS and ITS is to allow a mode of applicability to be entered prior to the SR being performed. This is acceptable because in some instances certain plant parameters have to be achieved in order to properly perform the SR. Specifying a time to perform the SR ensures, once the Mode of Applicability are entered, the SRs are performed in a timely manner. These changes are designated as more restrictive because additional requirements are being imposed that were not in the CTS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 2.2.1 requires the RTS instrumentation and interlock setpoints shown in Table 2.2-1 to be OPERABLE with the Trip Setpoints set consistent with the values shown in the Trip Setpoint column of Table 2.2-1. However, CTS 2.2.1 ACTIONs require that with an RTS Instrumentation or Interlock Setpoint less conservative than the value shown in the Trip Setpoint column of Table 2.2-1, verify the setpoint is more conservative than the value in the Allowable Value column and within the calibration tolerance. When the setpoint is less conservative than the Allowable Value, the setpoint is adjusted consistent with the Trip Setpoint value of Table 3.3-3 and determination is made within 12 hours that the affected channel is OPERABLE; or the channel is declared inoperable and the applicable ACTION statement requirements of Table 3.3-1 applied. CTS Table 2.2-1 specifies both the Trip Setpoints and Allowable Values for the RTS Instrumentation Functional Units. ITS 3.3.1 requires the ESFAS instrumentation for each Function in Table 3.3.2-1 to be OPERABLE. ITS Table 3.3.1-1 specifies only the Allowable Values for the RPS Instrumentation Functions. The Allowable Values represent the OPERABILITY limit of the channels in ITS. This changes the CTS by moving the Trip Setpoints to the Technical Requirements Manual (TRM).

The purpose of the trip setpoint requirements is to ensure the plant is shutdown to protect against violating core design limits, breaching the Reactor Coolant System (RCS) pressure boundary, and to mitigate accidents. Pursuant to 10 CFR 50.36(c)(1)(ii)(A), if it is determined that an automatic protective device for a variable on which a safety limit has been placed (i.e., limiting safety system setting) does not function as required, appropriate action is taken to ensure the abnormal situation is corrected before a safety limit is exceeded, which may include shutting down the reactor. The PTN Instrument Setpoint Methodology calculates nominal trip setpoints (NTSPs) using methods consistent with the guidance provided in NRC Regulatory Guide (RG) 1.105, "Setpoints for Safety-Related Instrumentation," and ANSI/ISA Standard 67.04, "Setpoints for Nuclear Safety-Related Instrumentation." Additionally, pre-defined limits (double-sided Operability (as-found) limits and as-left limits) are determined for each instrument consistent with the guidance provided in NRC RG 1.105 and ANSI/ISA–RP67.04, "Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation." The instrument Operability limit band in plant uncertainty calculations is synonymous with the as-found acceptance criteria band specified in ITS and is centered about the nominal equipment setting (clarified in calculations as the NTSP). The PTN Instrument Setpoint Methodologies, including the method of determining instrument uncertainties, were reviewed by the NRC during the review of the power uprate to 2300 Mwt (NRC ADAMS Accession Nos. ML013390234) and the Extended Power Uprate (EPU) (NRC ADAMS Accession Nos. ML11293A365). In the NRC staff's approval of the 2300 Mwt power uprate amendment, the NRC staff determined that the proposed setpoint changes were acceptable because the staff had previously reviewed and approved the setpoint methodology used to determine the setpoint (WCAP-12745). In the NRC staff's approval of the PTN EPU amendment, the NRC staff determined that the PTN setpoint methodology (WCAP-17070) was acceptable for the license amendment because the setpoint calculation provided adequate safety margins between the Allowable Value (AV) and Allowable Limit (AL), as well as adequate safety margin between the NTSP and AL.

The removal of these details from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS retains the AVs associated with the RTS Instrumentation, which are designated as the Operability limits for the required instrument Functions. Footnotes (b) and (c) in ITS Table 3.3.1-1 ensure channel performance continues to verify that the channel will behave in accordance with safety analysis assumptions and the channel performance assumptions in the setpoint methodology consistent with the NRC guidance specified in RIS 2006-17. Also, this change is acceptable because these types of procedural details will be adequately controlled in the Technical Requirements Manual (TRM). Any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LA02 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 3.3-1 has three columns stating various requirements for each function labeled, Total No. Of Channels, Channels to Trip, and Minimum Channels Operable. ITS Table 3.3.1-1 contains the heading of Required Channels, which, from a number of channels "required" perspective, more closely aligns with the Total Number of Channels column. This changes the CTS by moving the information of the Minimum Channels Operable and Channels to Trip columns to the Bases and/or the Updated Final Safety Analysis Report (UFSAR).

The removal of these details, which are related to system design, from the Technical Specifications, is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for the number of required channels and the appropriate Condition to enter if a required channel becomes inoperable. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases and the UFSAR. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5 and the UFSAR is subject to the 10 CFR 50.59 process. This Technical Specification Bases Control program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA03 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 3.3-1 contains a Note for the Underfrequency Trip of Reactor Coolant Pump (RCP) Breaker(s) Open (Above P-7) Function that lists information of what each of the RCP breaker is tripped by. ITS Table 3.3.1-1 does not contain this information. This changes the CTS by eliminating specific details from the Technical Specification.

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for the trip and the number of required channels and the appropriate Condition to enter if a required channel becomes inoperable. Also, this change is acceptable because the removed information will be adequately controlled in the UFSAR. Changes to the UFSAR are controlled via the 10 CFR 50.59 process. This provides for the evaluation of changes to ensure the UFSAR is properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA04 *(Type 4 – Removal of LCO, SR, or other TS requirement to the TRM, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS 3.3.1 ACTION 10 contains the following statement, "The breaker shall not be bypassed while one of the diverse trip features is inoperable, except for the time required for performing maintenance to restore the breaker to OPERABLE status." ITS 3.3.1 ACTION T does not contain this statement. This changes the CTS by eliminating a requirement from Technical Specification.

The removal of this type of detail from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications in order to provide adequate protection of public health and safety. The ITS retains the requirement for the undervoltage and shunt trips. Also, this change is acceptable because these types of procedural details will be adequately controlled in the Technical Specification Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because specific requirements on when not to bypass the breakers is being removed from the Technical Specifications.

LA05 *(Type 4 – Removal of LCO, SR, or other TS requirement to the TRM, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS Table 4.3-1 Note (2) requires, in part, that below 70%, downward adjustment of NIS excore channel gains to match a lower calorimetric power level are not required. ITS SR 3.3.1.2 does not contain this statement. This changes the CTS by relocating the discussion of NIS excore channel gains downward adjustment to the Technical Specification Bases.

The removal of this type of detail from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications in order to provide adequate protection of public health and safety. The ITS retains the requirement to perform a comparison of calorimetric heat balance calculation to power range channel output. Also, this change is acceptable because these types of details will be adequately controlled in the Technical Specification Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because specific requirements are being removed from the CTS.

LA06 *(Type 4 – Removal of LCO, SR, or other TS requirement to the TRM, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program) (Type 4 – – Removal of LCO, SR, or other TS requirement to the TRM, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS Table 4.3-1 Note 9 (associated with the Source Range, Neutron Flux instrumentation) states "Quarterly surveillance in MODES 3*****, 4*****, and 5***** shall also include verification that permissive P-6 and P-10 are in their required state for existing plant conditions by observation of the permissive annunciator window. Quarterly surveillance shall include verification of the High Flux at Shutdown Alarm Setpoint of 1/2 decade above the existing count rate." ITS SR 3.3.1.8 Note contains the same requirement except it does not specify how to verify the P-6 and P-10 permissive ("by observation of the permissive annunciator") and does not specify that the quarterly surveillance shall include verification of the High Flux at Shutdown Alarm Setpoint of ½ decade above the existing count rate. This changes the CTS by relocating the details of how the Surveillance is to be performed to the Technical Specification Bases.

The removal of this type of detail from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications in order to provide adequate protection of public health and safety. The ITS retains the requirement to perform testing of the Source Range, Neutron Flux instrumentation. Also, this change is acceptable because these types of details will be adequately controlled in the Technical Specification Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because specific requirements are being removed from the CTS.

LA07 *(Type 4 – Removal of LCO, SR, or other TS requirement to the TRM, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS Table 4.3-1 Note (10) specifies the TRIP ACTUATION DEVICE OPERATIONAL TEST (TADOT) for the Turbine Trip Functions are required whenever the unit has been in MODE 3 if not performed within the previous 31 days and that setpoint verification is not applicable when performing the TADOT. ITS SR 3.3.1.13 does not contain these specific exceptions. This changes the CTS by relocating the exception details from the SR Note to the Technical Specification Bases.

The removal of this type of detail from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications in order to provide adequate protection of public health and safety. The requirement to perform the TADOT is maintained in the ITS, and the exceptions are details that are not required to be in the SR Note. Also, this change is acceptable because these types of details will be adequately controlled in the Technical Specification Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because specific requirements are being removed from the CTS.

LA08 *(Type 4 – Removal of LCO, SR, or other TS requirement to the TRM, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS Table 4.3-1 Note (11) specifies the TADOT for the Reactor Trip Breakers shall include independent verification of operability of the undervoltage and shunt trip attachment. ITS SR 3.3.1.4 does not contain this specific requirement in the SR Note(s). This changes the CTS by relocating the TADOT requirement from the SR Note to the Technical Specification Bases.

The removal of this type of detail from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications in order to provide adequate protection of public health and safety. The requirement to perform the TADOT is maintained in the ITS, and the specific requirements for the TADOT are details that are not required to be in the SR Note. Also, this change is acceptable because these types of details will be adequately controlled in the Technical Specification Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because specific requirements are being removed from the CTS.

LA09 *(Type 4 – Removal of LCO, SR, or other TS requirement to the TRM, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS Table 4.3-1 Notes (13) and (15) specifies the following requirements for the TADOT, the automatic undervoltage trip and remote manual undervoltage trip when breaker is placed in service. ITS SR 3.3.1.12 does not contain this specific requirement in the SR Note(s). This changes the CTS by relocating the TADOT requirement from the SR Note to the Technical Specification Bases.

The removal of this type of detail from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications in order to provide adequate protection of public health and safety. The requirement to perform the TADOT is maintained in the ITS, and the specific requirements for the TADOT are details that are not required to be in the SR Note. Also, this change is acceptable because these types of details will be adequately controlled in the Technical Specification Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in

Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because specific requirements are being removed from the CTS.

LA10 *(Type 4 – Removal of LCO, SR, or other TS requirement to the TRM, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS Table 4.3-1 Note (14) specifies the Actuation Logic Test for the Reactor Trip Bypass Breakers Interlock Logic Test shall consist of verifying that the interlock is in its required state by observing the permissive annunciator window. ITS SR 3.3.1.12 does not contain this specific requirement in the SR Note(s). This changes the CTS by relocating the Actuation Logic Test requirement from the SR Note to the Technical Specification Bases.

The removal of this type of detail from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications in order to provide adequate protection of public health and safety. The requirement to perform the Actuation Logic Test is maintained in the ITS, and the specific requirements for the Actuation Logic Test are details that are not required to be in the SR Note. Also, this change is acceptable because these types of details will be adequately controlled in the Technical Specification Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because specific requirements are being removed from the CTS.

<u>LESS RESTRICTIVE CHANGES</u>

L01 *(Category 4 – Relaxation of Required Action)* CTS 3.3.1 ACTION 4 requires suspension of all operations involving positive reactivity changes when the number of OPERABLE Source Range Neutron Flux channels for the Startup Monitor is one less than the minimum channels OPERABLE. ITS 3.3.1 ACTION H requires the same Actions under similar circumstances but allows limited plant cooldown or boron dilution provided the change is accounted for in the calculated SDM. This changes the CTS by allowing limited addition of positive reactivity as long as it is accounted for in the SDM calculation.

The purpose of the CTS Action is to ensure that while the monitoring capability is compromised (only one startup monitor available), operations involving positive reactivity additions is suspended. The ITS Actions will allow limited addition of positive reactivity (e.g., temperature control or boron fluctuations associated with RCS inventory management and temperature control), as long as these changes are accounted for in the SDM calculations. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition. This includes allowing normal plant operations to manage the RCS, while assuring any positive reactivity additions are accounted for in the SDM calculations. This also accounts for the low probability of a Design Basis Accident (DBA) occurring during this period while the neutron flux startup channel is being repaired. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L02 *(Category 4 – Relaxation of Required Action)* CTS 3.3.1 ACTION 2.c requires THERMAL POWER to be restricted to less than or equal to 75% of RTP and that the Power Range Neutron Flux Trip Setpoint be reduced to less than 85% of RTP. ITS Required Action D.1.2 does not require the Power Range Neutron Flux Trip Setpoint be reduced. This changes the CTS by eliminating the Required Action to reduce the Neutron Flux Setpoint.

The purpose of this requirement is to protect against reactivity excursions that could lead to a departure from nucleate boiling (DNB). By limiting power to 75%, the probability of having a reactivity excursion that causes a DNB is reduced. The requirement for RTP to remain at a reduced level until the inoperable channel is restored can be adequately controlled by the operations staff. This change is acceptable because the Required Actions (reducing power to 75%) are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant channels. This includes the capability of remaining channels available to trip the plant if required, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the repair period. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L03 *(Category 4 – Relaxation of Required Action)* CTS 3.3.1 ACTION 9 requires the reactor trip system breakers to be opened if the channel cannot be restored within a certain period of time. ITS 3.3.1 ACTION K requires the action to fully insert all rods and place the rod control system in a condition incapable of rod withdrawal. This changes the CTS by allowing flexibility on how to make the control rods incapable of rod withdrawal besides opening the reactor trip breaker.

The purpose of the CTS and ITS is to ensure all rods are fully inserted and to ensure the rods are incapable of rod withdrawal. Both the ITS and CTS accomplish this purpose. However, the ITS allows flexibility in ensuring the control rods are incapable of withdrawal. This change is acceptable because the end state of ensuring all rods are inserted and the rod control system is incapable of rod withdrawal. Additionally, this change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition. This includes a reasonable time for repairs or replacement, and the low probability of a DBA occurring during this period. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L04 *(Category 4 – Relaxation of Required Action)* CTS ACTION 3, when the number of intermediate range neutron flux channels is one less than the minimum, and THERMAL POWER is above the P-6 setpoint but below P-10 setpoint, the inoperable channel is required to be restored prior to increasing THERMAL POWER above the P-10 setpoint. ITS ACTION F in the same scenario requires THERMAL POWER to be reduced to below P-6 or increase THERMAL POWER to greater than P-10. This changes the CTS, by requiring THERMAL POWER to be either decreased or increased to enter a power level where neutron flux monitoring is available.

The purpose of the intermediate range neutron flux monitors is to monitor neutron flux above P-6 and below P-10. If the monitoring is compromised in this area, THERMAL POWER must be changed to a power level where adequate monitoring is available. Above P-10 the power range neutron flux monitors are available and below P-6 the source range neutron flux monitors are available. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the repair period. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L05 *(Category 4 – Relaxation of Required Action)* CTS 3.3.1 Table 3.3-1 Function 2.b, Power Range, Neutron Flux Low Setpoint, requires that when one channel is inoperable, CTS ACTION 2 is applicable, which requires the inoperable channel to be placed in trip within 6 hours and either THERMAL POWER restricted to less than or equal to 75% of RATED THERMAL POWER and the Power Range Neutron Flux Trip Setpoint is reduced to less than or equal to 85% RTP within 4 hours, or the QPTR is monitored per Specification 4.2.4.2. ITS 3.3.1 Action E requires that when one channel of the Power Range, Neutron Flux Low is inoperable, the inoperable channel is to be placed in trip within 6 hours. This changes the CTS by eliminating all require actions except the one to place the channel in trip.

The purpose of the Actions when one channel of Neutron Flux Low is inoperable is to ensure appropriate Actions are taken to minimize the risk while the channel in inoperable. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining OPERABLE channels. By placing the channel in Trip, the channel is performing its safety function. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.3.1

3.3 INSTRUMENTATION

3.3.1 Reactor Trip System (RTS) Instrumentation

LCO 3.3.1

LCO 3.3.1 The RTS instrumentation for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

---NOTE---

A02 Separate Condition entry is allowed for each Function.

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
	A. One or more Functions with one or more required channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.1-1 for the channel(s) or train(s).	Immediately	
ACTION 1	B. One Manual Reactor Trip channel inoperable.	B.1 Restore channel to OPERABLE status.	48 hours ~~[~~OR In accordance with the Risk Informed Completion Time Program~~]~~	2
ACTION 9	C. One channel or train inoperable.	C.1 Restore channel or train to OPERABLE status.	48 hours ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~	2

CTS

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION 2 ACTION 2.b	D. One Power Range Neutron Flux - High channel inoperable.	~~[~~ ------------------NOTE------------------ The inoperable channel may be bypassed for up to ~~12~~ hours for surveillance testing and setpoint adjustment of other channels. --- ~~---------REVIEWER'S NOTE----------~~ ~~The below Note should be used for plants with installed bypass test capability.~~ ~~One channel may be bypassed for up to 12 hours for surveillance testing and setpoint adjustment.~~ ~~--]~~	4	4 5
ACTION 2.a		D.1.~~1~~ Place channel in trip. (2)	~~72~~ hours (6) ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~	4 1 2
		AND		
ACTION 2.c		D.1.~~2~~ Reduce THERMAL POWER to ≤ 75% RTP. (1)	~~78~~ hours (4) ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~	4 1 2
		OR		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION 2.a	D.2.1 Place channel in trip.	~~72~~ 6 hours ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~
	AND	
DOC L0x	D.2.2 --------------NOTE-------------- Only required to be performed when the Power Range Neutron Flux input to QPTR is inoperable. --------------------------------------	
ACTION 2.c	Perform SR 3.2.4.2.	Once per 12 hours

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ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION 2, 6, 13 ACTION 2.b	E. One channel inoperable.	~~[~~ -------------------NOTE------------------- The inoperable channel may be bypassed for up to ~~12~~ 4 hours for surveillance testing of other channels. --- ~~----------REVIEWER'S NOTE----------~~ ~~The below Note should be used for plants with installed bypass test capability:~~ ~~One channel may be bypassed for up to 12 hours for surveillance testing.~~ ~~--]~~		4 5
ACTION 2.a		E.1 Place channel in trip.	6 ~~72~~ hours ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~	4 2
ACTION 3 DOC L04	F. One Intermediate Range Neutron Flux channel inoperable.	F.1 Reduce THERMAL POWER to < P-6. OR F.2 Increase THERMAL POWER to > P-10.	24 hours 24 hours	

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION 3 DOC L0x	G. Two Intermediate Range Neutron Flux channel inoperable.	G.1 --------------NOTE-------------- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. ------------------------------------- Suspend operations involving positive reactivity additions.	Immediately
		AND	
		G.2 Reduce THERMAL POWER to < P-6.	2 hours
ACTION 4	H. One Source Range Neutron Flux channel inoperable.	H.1 --------------NOTE-------------- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. ------------------------------------- Suspend operations involving positive reactivity additions.	Immediately
ACTION 4, 9	I. Two Source Range Neutron Flux channels inoperable.	I.1 Open reactor trip breakers (RTBs).	Immediately

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION 9	J. One Source Range Neutron Flux channel inoperable.	J.1 Restore channel to OPERABLE status.	48 hours ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~	2
ACTION 9	K. Required Action and associated Completion Time of Condition C or J not met.	K.1 Initiate action to fully insert all rods. AND K.2 Place the Rod Control System in a condition incapable of rod withdrawal.	Immediately 1 hour	
ACTION 6, 12	L. One channel inoperable.	~~[------------------NOTE------------------ The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. ---~~ ~~----------REVIEWER'S NOTE---------- The below Note should be used for plants with installed bypass test capability:~~ ~~One channel may be bypassed for up to 12 hours for surveillance testing. ---]~~ L.1 Place channel in trip.	6 ~~72~~ hours ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~	2 5 4 2

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
M. Required Action and associated Completion Time of Condition L not met.	M.1 Reduce THERMAL POWER to < P-7.	6 hours
ACTION 11 N. One ~~Reactor Coolant Pump Breaker Position (Single Loop)~~ channel inoperable.	~~-------------------NOTE-------------------~~ ~~The inoperable channel may be bypassed for up to [4] hours for surveillance testing of other channels.~~ ~~--~~ N.1 ~~Restore channel to OPERABLE status.~~ Be in MODE 2	~~[~~6~~]~~ hours 3 ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~ 2
~~O. Required Action and associated Completion Time of Condition N not met.~~	~~O.1 Reduce THERMAL POWER to < P-8.~~	~~[4] hours~~ 3
~~P. One Reactor Coolant Breaker Position (Two Loops) channel inoperable.~~	~~-------------------NOTE-------------------~~ ~~The inoperable channel may be bypassed for up to [4] hours for surveillance testing of other channels.~~ ~~--~~ ~~P.1 Place the channel in trip.~~	~~[6] hours~~ 3

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~Q.~~ ~~Required Action and associated Completion Time of Condition P not met.~~	~~Q.1 Reduce THERMAL POWER to <P-7.~~	~~[6] hours~~ 3
ACTION 12 O ~~R.~~ One Turbine Trip channel inoperable.	~~[------------------NOTE------------------ The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. ---~~ ~~----------REVIEWER'S NOTE---------- The below Note should be used for plants with installed bypass test capability.~~ ~~One channel may be bypassed for up to 12 hours for surveillance testing. --]~~ O ~~R~~.1 Place channel in trip.	1 3 5 6 ~~72~~ hours 1 ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~ 2
~~S. Required Action and associated Completion Time of Condition R not met.~~	~~S.1 Reduce THERMAL POWER to < [P-9].~~	~~4 hours~~ 3

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION 8 ~~T~~ P. One train inoperable.	--------------------NOTE------------------- One train may be bypassed for up to ~~[4]~~ 2 hours for surveillance testing provided the other train is OPERABLE. --- ~~T~~ P.1 ~~Restore train to OPERABLE status.~~ Be in MODE 3	1 2 ~~24~~ 6 hours ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~ 1 3 2
~~U. One RTB train inoperable.~~	~~--------------------NOTE-------------------~~ ~~One train may be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE.~~ ~~---~~ ~~U.1 Restore train to OPERABLE status.~~	~~[24] hours~~ ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~ 3
ACTION 7 ~~V~~ Q. One or more channels inoperable.	~~V~~ Q.1 Verify interlock is in required state for existing unit conditions.	1 hour 1
ACTION 7 ~~W~~ R. One or more channels inoperable.	~~W~~ R.1 Verify interlock is in required state for existing unit conditions.	1 hour 1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
DOC M01 ~~X~~ S. Required Action and associated Completion Time of Condition ~~W~~ L or R not met.	~~X~~ S.1 Be in MODE 2.	6 hours 1 3
ACTION 10 ~~Y~~ T. One trip mechanism inoperable for one RTB.	~~Y~~ T.1 Restore trip mechanism to OPERABLE status.	48 hours 1 ~~[~~OR In accordance with the Risk Informed Completion Time Program~~]~~ 2
ACTION 1 ~~Z~~ U. Required Action and associated Completion Time of Condition B, D, E, T, or Q ~~U, V, or Y~~ not met.	~~Z~~ U.1 Be in MODE 3.	6 hours 1

Table 4.3-1

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.1.1	Perform CHANNEL CHECK.	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~
SR 3.3.1.2	----------------------------NOTE---------------------------- 1. Neutron detectors are excluded from CHANNEL CALIBRATIONS. 2. Not required to be performed until [12] hours after THERMAL POWER is ≥ 15% RTP. --- Compare results of calorimetric heat balance calculation to power range channel output. Adjust power range channel output if calorimetric heat balance calculations results exceed power range channel output by more than +2% RTP.	~~[24 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

Table 4.3-1 Note 4

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Table 4.3-1

SURVEILLANCE REQUIREMENTS (continued)

Table 4.3-1 Note 4

Table 4.3-1 Note 2

	SURVEILLANCE	FREQUENCY
SR 3.3.1.3	1. Neutron detectors are excluded from CHANNEL CALIBRATIONS. -----------------------------NOTE----------------------------- 2. Not required to be performed until ~~[~~24~~]~~ hours after THERMAL POWER is ≥ ~~[~~15~~]~~% RTP. --- Compare results of the incore detector measurements to Nuclear Instrumentation System (NIS) AFD. Adjust NIS channel if absolute difference is ≥ 3%.	~~[31 effective full power days (EFPD)~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~
SR 3.3.1.4	-----------------------------NOTE----------------------------- This Surveillance must be performed on the reactor trip bypass breaker prior to placing the bypass breaker in service. --- Perform TADOT.	~~[62 days on a STAGGERED TEST BASIS~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

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Table 4.3-1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.5	Perform ACTUATION LOGIC TEST.	~~[92 days on a STAGGERED TEST BASIS~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 2
SR 3.3.1.6	Table 4.3-1 Note 4 1. Neutron detectors are excluded from CHANNEL CALIBRATIONS. Table 4.3-1 Note 6 2. ------------------------------NOTE------------------------------ Not required to be performed until ~~[~~24~~]~~ hours after THERMAL POWER is ≥ ~~50~~ 75% RTP. -- Calibrate excore channels to agree with incore detector measurements. 3. If the surveillance interval coincides with sustained operation between 30% and 75% of RTP, calibration shall be performed at this lower power level.	3 2 3 ~~[[92] EFPD~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 2
SR 3.3.1.7	------------------------------NOTE------------------------------ Not required to be performed for source range instrumentation prior to entering MODE 3 from MODE 2 until 4 hours after entry into MODE 3. -- Perform COT. Table 4.3-1 Note 1 2. Only required to be performed if not performed in the previous 31 days for the source range instrumentation.	~~[184 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 2

Table 4.3-1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.8	-----------------------------NOTE------------------------------ This Surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions. ---	
	Perform COT.	--------NOTE-------- Only required when not performed within ~~[~~ the Frequency specified in the Surveillance Frequency Control Program ~~or previous 184 days]~~ ------------------------ Prior to reactor startup ~~AND~~ ~~Four hours after reducing power below P-6 for source range instrumentation~~ ~~AND~~ ~~[Twelve] hours after reducing power below P-10 for power and intermediate range instrumentation~~ ~~AND~~

Table 4.3-1 Note 9

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Table 4.3-1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
		~~[Every 184 days thereafter~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~
~~SR 3.3.1.9~~	~~-----NOTE-----~~ ~~Verification of setpoint is not required.~~ ~~-----~~ ~~Perform TADOT.~~	~~[[92] days~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~
~~SR 3.3.1.10~~	~~-----NOTE-----~~ ~~This Surveillance shall include verification that the time constants are adjusted to the prescribed values.~~ ~~-----~~ ~~Perform CHANNEL CALIBRATION.~~	~~[[18] months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~

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Table 4.3-1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.~~11~~ 9 (Table 4.3-1 Note 4)	-----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. ----- Perform CHANNEL CALIBRATION.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~
SR 3.3.1.~~12~~ 10	~~-----NOTE-----~~ ~~This Surveillance shall include verification of Reactor Coolant System resistance temperature detector bypass loop flow rate.~~ ~~-----~~ Perform CHANNEL CALIBRATION.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~
SR 3.3.1.~~13~~ 11	Perform COT.	~~[18 months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

Table 4.3-1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.~~14~~ 12	------------------------------NOTE------------------------------ Verification of setpoint is not required. -- Perform TADOT.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~
SR 3.3.1.~~15~~ 13	------------------------------NOTE------------------------------ Verification of setpoint is not required. -- Perform TADOT.	Prior to exceeding the ~~[P-9]~~ P-7 interlock whenever the unit has been in MODE 3, if not performed within the previous 31 days

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
~~SR 3.3.1.16~~	~~-----NOTE-----~~ ~~Neutron detectors are excluded from response time testing.~~ ~~----------~~ ~~Verify RTS RESPONSE TIME is within limits.~~	~~[[18] months on a STAGGERED TEST BASIS~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~

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Table 2.2-1
Table 3.3 -1

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

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	~~[NOMINAL(f) TRIP SETPOINT]~~	
Function 1	1. Manual Reactor Trip	1,2	2	B	SR 3.3.1.~~14~~ 12	NA	~~NA~~	1
		3(a), 4(a), 5(a)	2	C	SR 3.3.1.~~14~~ 12	NA	~~NA~~	6
Function 2	2. Power Range Neutron Flux							
Function 2.a	a. High	1,2	4	D	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.7(b)(c) SR 3.3.1.3 SR 3.3.1.6 SR 3.3.1.~~11~~ 9 (b)(c) ~~SR 3.3.1.16~~	≤ ~~[111.2]~~ 108.6% RTP	~~[109]% RTP~~	2 3
Function 2.b	b. Low	1(d),2	4	E	SR 3.3.1.1 SR 3.3.1.8(b)(c) SR 3.3.1.~~11~~ 9 (b)(c) ~~SR 3.3.1.16~~	≤ ~~[27.2]~~ 28.0% RTP	~~[25]% RTP~~	2 3
	~~3. Power Range Neutron Flux Rate~~							
	~~a. High Positive Rate~~	~~1,2~~	~~4~~	~~E~~	~~SR 3.3.1.7(b)(c)~~ ~~SR 3.3.1.11(b)(c)~~	~~≤ [6.8]% RTP with time constant ≥ [2] sec~~	~~[5]% RTP with time constant ≥ [2] sec~~	3
	~~b. High Negative Rate~~	~~1,2~~	~~4~~	~~E~~	~~SR 3.3.1.7(b)(c)~~ ~~SR 3.3.1.11(b)(c)~~ ~~SR 3.3.1.16~~	~~≤ [6.8]% RTP with time constant ≥ [2] sec~~	~~[5]% RTP with time constant ≥ [2] sec~~	

Table 3.3-1 & 4.3-1 NOTE * (a) With Rod Control System capable of rod withdrawal or one or more rods not fully insert.

Table 4.3-1 NOTE (a) (b) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

Table 4.3-1 NOTE (b) (c) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (field setting) to confirm channel performance. The NTSP and the methodologies used to determine the as-found and as-left tolerances are specified in ~~[insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference]~~ the Technical Requirements Manual and UFSAR Section 7.2, respectively. 3

Table 3.3-1 NOTE ## (d) Below the P-10 (Power Range Neutron Flux) interlocks.

~~REVIEWER'S NOTE~~

~~(f) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ 2

Table 2.2-1
Table 3.3 -1

Table 3.3.1-1 (page 2 of 8)
Reactor Trip System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	~~[NOMINAL(f) TRIP SETPOINT]~~
Function 3	3 ~~4.~~ Intermediate Range Neutron Flux	1(d), 2~~(e)~~	2	F,G	SR 3.3.1.1 SR 3.3.1.8(b)(c) SR 3.3.1.~~11~~ 9 (b)(c)	≤ ~~[~~31~~]~~% RTP	~~[25]% RTP~~
Function 4	4 ~~5.~~ Source Range Neutron Flux	2~~(f)~~ e	2	H,I	SR 3.3.1.1 SR 3.3.1.8(b)(c) SR 3.3.1.~~11~~ 9 (b)(c) ~~SR 3.3.1.16~~	≤ ~~[~~1.4 E5~~]~~ cps	~~[1.0 E5] cps~~
		3(a), 4(a), 5(a)	2	I,J	SR 3.3.1.1 SR 3.3.1.7(b)(c) SR 3.3.1.~~11~~ 9 (b)(c) ~~SR 3.3.1.16~~	≤ ~~[~~1.4 E5~~]~~ cps	~~[1.0 E5] cps~~
Function 5	5 ~~6.~~ Overtemperature ΔT	1,2	~~[~~4~~]~~	E	SR 3.3.1.1 ~~SR 3.3.1.3~~ ~~SR 3.3.1.6~~ SR 3.3.1.7(b)(c) SR 3.3.1.~~12~~ 10 (b)(c) ~~SR 3.3.1.16~~	Refer to Note 1 (Page 3.3.1-15)	~~Refer to Note 1 (Page 3.3.1-19)~~
Function 6	6 ~~7.~~ Overpower ΔT	1,2	~~[~~4~~]~~	E	SR 3.3.1.1 SR 3.3.1.7(b)(c) SR 3.3.1.~~12~~ 10 (b)(c) ~~SR 3.3.1.16~~	Refer to Note 2 (Page 3.3.1-17)	~~Refer to Note 2 (Page 3.3.1-20)~~

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully insert.

(b) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

(c) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (field setting) to confirm channel performance. The NTSP and the methodologies used to determine the as-found and as-left tolerances are specified in ~~[insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].~~ the Technical Requirements Manual and UFSAR Section 7.2, respectively. 2

(d) Below the P-10 (Power Range Neutron Flux) interlocks.

(e) ~~Above the P-6 (Intermediate Range Neutron Flux) interlocks.~~ 3

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

3 ~~REVIEWER'S NOTE~~

~~(f) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ 5

CTS

Table 2.2-1
Table 3.3 -1

Table 3.3.1-1 (page 3 of 8)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	~~[NOMINAL(l) TRIP SETPOINT]~~
~~8.~~ Pressurizer Pressure						
Function 7 a. Low (7)	1~~(h)~~ g	~~[4]~~ (3)	L	SR 3.3.1.1 SR 3.3.1.7(b)(c) SR 3.3.1.10(b)(c) ~~SR 3.3.1.16~~	≥ ~~[1886]~~ 1817 psig	~~[1900] psig~~
Function 8 b. High (8)	1,2	~~[4]~~ (3)	E	SR 3.3.1.1 SR 3.3.1.7(b)(c) SR 3.3.1.10(b)(c) ~~SR 3.3.1.16~~	≤ ~~[2396]~~ 2403 psig	~~[2385] psig~~
Function 9 9. Pressurizer Water Level - High	1(g)	3	L	SR 3.3.1.1 SR 3.3.1.7(b)(c) SR 3.3.1.10(b)(c)	≤ ~~[93.8]~~ 92.2%	~~[92]%~~
Function 10 10. Reactor Coolant Flow - Low (Insert 1)	~~1(g)~~	~~3 per loop~~	~~L~~	~~SR 3.3.1.1~~ ~~SR 3.3.1.7(b)(c)~~ ~~SR 3.3.1.10(b)(c)~~ ~~SR 3.3.1.16~~	~~≥ [89.2]%~~	~~[90]%~~
Function 18 (18) ~~11~~. Reactor Coolant Pump (RCP) Breaker Position						
a. Single Loop	1(h)	1 per RCP Breaker	N	SR 3.3.1.~~14~~ 12	NA	~~NA~~
b. Two Loops	1(~~i~~ f)	1 per RCP Breaker	~~P~~ N	SR 3.3.1.~~14~~ 12	NA	~~NA~~
Function 13 (13) ~~12~~. Undervoltage ~~RCPs~~ - 4.16kV Buses A and B	1(g)	~~[3]~~ 2 per bus	L	~~SR 3.3.1.9~~ SR 3.3.1.10(b)(c) ~~SR 3.3.1.16~~	≥ ~~[4760] V~~ 69% bus voltage	~~[4830] V~~

(b) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

(c) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (field setting) to confirm channel performance. The NTSP and the methodologies used to determine the as-found and as-left tolerances are specified ~~in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].~~ the Technical Requirements Manual and UFSAR Section 7.2, respectively.

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

(h) Above the P-8 (Power Range Neutron Flux) interlock.

(~~i~~ f) Above the P-7 (Low Power Reactor Trips Block) interlock and below the P-8 (Power Range Neutron Flux) interlock.

~~REVIEWER'S NOTE~~

~~(l) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~

3 **INSERT 1**

a.	Single Loop	1[h]	3 per loop	L	SR 3.3.1.1 SR 3.3.1.7[b][c] SR 3.3.1.10[b][c]	≥ 89.6%
b.	Two Loops	1[f]	3 per loop	L	SR 3.3.1.1 SR 3.3.1.7[b][c] SR 3.3.1.10[b][c]	≥ 89.6%

.

CTS

Table 2.2-1
Table 3.3 -1

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	~~[NOMINAL[(l)] TRIP SETPOINT]~~
Function 14 ~~13~~. Underfrequency RCPs Breakers Open	1(g)	~~[3]~~ per bus	~~L~~ N	~~SR 3.3.1.9~~ SR 3.3.1.10(b)(c) ~~SR 3.3.1.16~~	≥ ~~[57.1]~~ 55.9 Hz	~~[57.5] Hz~~
Function 11 ~~14.~~ Steam Generator (SG) Water Level - Low Low	1,2	~~[4~~ 3 per SG~~]~~	E	SR 3.3.1.1 SR 3.3.1.7(b)(c) SR 3.3.1.10(b)(c) ~~SR 3.3.1.16~~	≥ ~~[30.4]~~ 15.5%	~~[32.3]%~~
Function 12 ~~15.~~ SG Water Level - Low	1,2	2 per SG	E	SR 3.3.1.1 SR 3.3.1.7(b)(c) SR 3.3.1.10(b)(c) ~~SR 3.3.1.16~~	≥ ~~[30.4]~~ 15.5%	~~[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(b)(c) SR 3.3.1.10(b)(c) ~~SR 3.3.1.16~~	≤ ~~[42.5]~~ 20.7% ~~full~~ steam flow ~~at RTP~~ below rated	~~[40]% full steam flow at RTP~~
Function 15 ~~16.~~ Turbine Trip						
a. ~~Low Fluid Oil Pressure~~ Emergency Trip Header Pressure	1~~(j)~~ (g)	3	~~R~~ L	SR 3.3.1.10(b)(c) SR 3.3.1.~~15~~ 13	≥ ~~[750]~~ 901 psig	~~[800] psig~~
b. Turbine Stop Valve Closure	1~~(j)~~ (g)	~~4~~ 2	~~R~~ L	SR 3.3.1.10 SR 3.3.1.~~15~~ 13	~~≥ [1]% open~~ Fully Closed(i)	~~[1]% open~~
Function 16 ~~17~~. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1,2	2 trains	~~T~~ P	SR 3.3.1.~~14~~ 12	NA	~~NA~~

(b) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

(c) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (field setting) to confirm channel performance. The NTSP and the methodologies used to determine the as-found and as-left tolerances are specified in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].

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

(j) ~~Above the P-9 (Power Range Neutron Flux) interlock.~~ Limit switch is set when Turbine Stop Valves are fully closed.

~~REVIEWER'S NOTE~~

~~(l) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~

CTS

Table 2.2-1
Table 3.3 -1

Table 3.3.1-1 (page 5 of 8)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	[NOMINAL TRIP SETPOINT][(l)]
Function 17 ~~18.~~ 17 Reactor Trip System Interlocks						
Function 17.a a. Intermediate Range Neutron Flux, P-6	2(f)	2	Q ~~V~~	SR 3.3.1.11 SR 3.3.1.~~13~~ 9	≥ ~~[~~6E-11~~]~~ amp	~~[1E-10] amp~~
Function 17.b b. Low Power Reactor Trips Block, P-7	~~1~~	~~1 per train~~	~~W~~	~~SR 3.3.1.5~~	~~NA~~	~~NA~~
Function 17.c c. Power Range Neutron Flux, P-8	1	4	R ~~W~~	SR 3.3.1.11 SR 3.3.1.~~13~~ 9	≤ ~~[50.2]~~ 48.0 % RTP	~~[48]% RTP~~
Function 17.b.1 b.1 ~~d. Power Range Neutron Flux, P-9~~ P10 Input	1	4	R ~~W~~	SR 3.3.1.11 SR 3.3.1.~~13~~ 9	≤ ~~[52.2]~~ 13.0% RTP	~~[50]% RTP~~
Function 17.d d ~~e.~~ Power Range Neutron Flux, P-10	1,2	4	Q ~~V~~	SR 3.3.1.11 SR 3.3.1.~~13~~ 9	≥ ~~[7.8]~~ 7.0% RTP ~~and ≤ [12.2]% RTP~~	~~[10]% RTP~~
Function 17.b.2 b.2 ~~f.~~ Turbine ~~Impulse~~ Inlet Pressure~~, P-13~~	1	2	R ~~W~~	~~[SR 3.3.1.1]~~ SR 3.3.1.~~10~~ 9 SR 3.3.1.~~13~~ 11	≤ ~~[12.2]~~ 13.0% turbine power	~~10]% turbine power~~
19. Reactor Trip Breakers (RTBs) Function 19.a a ~~19.~~ Reactor Trip Breakers(k) ~~(RTBs)~~	1,2	2 trains	P ~~U~~	SR 3.3.1.4	NA	~~NA~~
	3(a), 4(a), 5(a)	2 trains	C	SR 3.3.1.4	NA	~~NA~~

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

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

(k) Including any reactor trip bypass breakers that are racked in and closed for bypassing an RTB.

~~REVIEWER'S NOTE~~

~~(l) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~

6 1 2 5

CTS

Table 2.2-1
Table 3.3 -1

Table 3.3.1-1 (page 6 of 8)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	~~[NOMINAL[(l)] TRIP SETPOINT]~~
Function 19.b b. ~~20~~. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms	1,2	1 each per RTB	T ~~Y~~	SR 3.3.1.4	NA	NA
	$3^{(a)}$, $4^{(a)}$, $5^{(a)}$	1 each per RTB	C	SR 3.3.1.4	NA	NA
Function 20 20 ~~21~~. Automatic Trip Logic	1,2	2 trains	P ~~T~~	SR 3.3.1.5	~~NA~~	~~NA~~
	$3^{(a)}$, $4^{(a)}$, $5^{(a)}$	2 trains	C	SR 3.3.1.5	~~NA~~	~~NA~~

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

~~REVIEWER'S NOTE~~

~~(l) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~

CTS

Table 3.3.1-1 (page 7 of 8)
Reactor Trip System Instrumentation

Note 1: Overtemperature ΔT

INSERT 2

~~The Overtemperature ΔT Function Allowable Value shall not exceed the following [Nominal Trip Setpoint] by more than [3.8]% of ΔT span.~~

$$\Delta T\frac{(1+T_1S)}{(1+T_2S)}\left(\frac{1}{1+T_3S}\right)\le\Delta T_Q\left\{K_1-K_2\frac{(1+T_4S)}{(1+T_5S)}\left[T\frac{1}{(1+T_6S)}-T'\right]+K_3(P-P')-f_1(\Delta I)\right\}$$

~~Where: ΔT is measured RCS ΔT,°F.~~
~~ΔT_Q is the indicated ΔT at RTP,°F.~~
~~s is the Laplace transform operator, sec^{-1}.~~
~~T is the measured RCS average temperature,°F.~~
~~T' is the nominal T_{avg} at RTP, ≤ [*]°F.~~

~~P is the measured pressurizer pressure, psig~~
~~P' is the nominal RCS operating pressure, ≥ [*] psig~~

~~K_1 ≤ [*]~~	~~K_2 ≥ [*]/°F~~	~~K_3 ≥ [*]/psig~~
~~T_1 ≥ [*] sec~~	~~T_2 ≤ [*] sec~~	~~T_3 ≤ [*] sec~~
~~T_4 ≥ [*] sec~~	~~T_5 ≤ [*] sec~~	~~T_6 ≤ [*] sec~~

~~$f_1(\Delta I)$ = [*] {[*] - (q_t - q_b)}~~	~~when q_t - q_b ≤ [*]% RTP~~
~~0% of RTP~~	~~when [*]% RTP < q_t - q_b ≤ [*]% RTP~~
~~[*] {(q_t - q_b) - [*]}~~	~~when q_t - q_b > [*]% RTP~~

~~Where q_t and q_b are percent RTP in the upper and lower halves of the core, respectively, and q_t + q_b is the total THERMAL POWER in percent RTP.~~

~~*These values denoted with [*] are specified in the COLR.~~

3

The Overtemperature ΔT function Allowable Value shall not exceed the following nominal trip setpoint by more than 0.5% ΔT span for the ΔT channel, 0.2% ΔT span for the Pressurizer Pressure channel, and 0.4% ΔT span for the f(ΔI) channel. No separate Allowable Value is provided for T_{avg} because this function is part of the ΔT value.

3

1

3 INSERT 2

OVERTEMPERATURE ΔT (Those values denoted with [*] are specified in the COLR.)

$$\Delta T \quad \frac{(1+\tau_1 S)}{(1+\tau_2 S)} \left(\frac{1}{1+\tau_3 S}\right) \leq \Delta T_0 \ \{K_1 - K_2 \frac{(1+\tau_4 S)}{(1+\tau_5 S)} [T \frac{1}{(1+\tau_6 S)} - T'] + K_3(P - P') - f_1(\Delta I)\}$$

Where: ΔT = Measured ΔT by RTD Instrumentation

$\frac{1+\tau_1 S}{1+\tau_2 S}$ = Lead/Lag compensator on measured ΔT; τ_1 = [*]s, τ_2 = [*]s

$\frac{1}{1+\tau_3 S}$ = Lag compensator on measured ΔT; τ_3 = [*]s

ΔT_0 = Indicated ΔT at RATED THERMAL POWER

K_1 = [*];

K_2 = [*]/°F;

$\frac{1+\tau_4 S}{1+\tau_5 S}$ = The function generated by the lead-lag compensator for T_{avg} dynamic compensation;

τ_4 , τ_5 = Time constants utilized in the lead-lag compensator for T_{avg}, τ_4 = [*]s, τ_5 = [*]s;

T = Average temperature, °F;

$\frac{1}{1+\tau_6 S}$ = Lag compensator on measured T_{avg}; τ_6 = [*]s

T′ ≤ [*]°F (Indicated Loop T_{avg} at RATED THERMAL POWER);

K_3 = [*]/psi;

P = Pressurizer pressure, psig;

P’ ≥ [*] psig (Nominal RCS operating pressure);

S = Laplace transform operator, s^{-1};

And $f_1(\Delta I)$ is a function of the indicated difference between top and bottom detectors of the power-range neutron ion chambers; with gains to be selected based on measured instrument response during plant startup tests such that:

(1) For $q_t - q_b$ between – [*]% and + [*]%, $f_1(\Delta I) = 0$, where q_t and q_b are percent RATED THERMAL POWER in the top and bottom halves of the core respectively, and $q_t + q_b$ is total THERMAL POWER in percent of RATED THERMAL POWER;

(2) For each percent that the magnitude of $q_t - q_b$ exceeds – [*]%, the ΔT Trip Setpoint shall be automatically reduced by [*]% of its value at RATED THERMAL POWER; and

(3) For each percent that the magnitude of $q_t - q_b$ exceeds + [*]%, the ΔT Trip Setpoint shall be automatically reduced by [*]% of its value at RATED THERMAL POWER.

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

Note 2: Overpower ΔT

INSERT 3

~~The Overpower ΔT Function Allowable Value shall not exceed the following [Nominal Trip Setpoint] by more than [3]% of ΔT span.~~

$$\cancel{\Delta T \frac{(1+T_1S)}{(1+T_2S)}\left(\frac{1}{1+T_3S}\right) \le \Delta T_Q \left\{K_4 - K_5 \frac{T_7S}{1+T_7S}\left(\frac{1}{1+T_6S}\right)T - K_6\left[T\frac{1}{1+T_6S} - T''\right] - f_2(\Delta I)\right\}}$$

~~Where: ΔT is measured RCS ΔT, °F.~~
~~ΔT_Q is the indicated ΔT at RTP, °F.~~
~~s is the Laplace transform operator, sec^{-1}.~~
~~T is the measured RCS average temperature, °F.~~
~~T" is the nominal T_{avg} at RTP, ≤ [*]°F.~~

~~K_4 ≤ [*]~~ ~~K_5 ≥ [*]/°F for increasing T_{avg}~~ ~~K_6 ≥ [*]/°F when T > T"~~
~~[*]/°F for decreasing T_{avg}~~ ~~[*]/°F when T ≤ T"~~
~~T_1 ≥ [*] sec~~ ~~T_2 ≤ [*] sec~~ ~~T_3 ≤ [*] sec~~
~~T_6 ≤ [*] sec~~ ~~T_7 ≥ [*] sec~~

~~$f_2(\Delta I)$ = [*]~~

~~*These values denoted with [*] are specified in the COLR.~~

3

The Overpower ΔT function Allowable Value shall not exceed the nominal trip setpoint by more than 0.5% ΔT span for the ΔT channel. No separate Allowable Value is provided for T_{avg} because this function is part of the ΔT value.

3

1

3 **INSERT 3**

OVERPOWER ΔT (Those values denoted with [*] are specified in the COLR.)

$$\Delta T \frac{(1+\tau_1 S)}{(1+\tau_2 S)} \left(\frac{1}{1+\tau_3 S}\right) \le \Delta T_0 \left\{K_4 - K_5 \frac{\tau_7 S}{1+\tau_7 S} \left(\frac{1}{1+\tau_6 S}\right) T - K_6 \left[T \frac{1}{1+\tau_6 S} - T''\right] - f_2(\Delta I)\right\}$$

Where: ΔT = As defined in Note 1,

$\frac{1+\tau_1 S}{1+\tau_2 S}$ = As defined in Note 1,

$\frac{1}{1+\tau_3 S}$ = As defined in Note 1,

ΔT_0 = As defined in Note 1,

K_4 = [*],

K_5 ≥ [*]/°F for increasing average temperature and [*]/°F for decreasing average temperature,

$\frac{\tau_7 s}{1+\tau_7 S}$ = The function generated by the lead-lag compensator for T_{avg} dynamic compensation;

τ_7 = Time constants utilized in the lead-lag compensator for T_{avg}, $\tau_7 \ge$ [*] s,

$\frac{1}{1+\tau_6 S}$ = As defined in Note 1,

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.1, RPS INSTRUMENTATION

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specifications (ISTS) that reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS contains bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

3. Changes made to reflect the current licensing basis.

4. The 72 hours in the ISTS to place the inoperable Reactor Trip System (RTS) Channel in trip, the 78 hours to Reduce THERMAL POWER ≤ 75% RTP, and the 12 hours to place a channel in bypass for testing are based on WCAP-14333. Turkey Point Nuclear Generating Station (PTN) did not adopt WCAP-14333. The requirement in the CTS to place the inoperable channel in trip (within 6 hours), reduce THERMAL POWER ≤ 75% RTP, and the 4 hours to place a channel in bypass for testing are based on WCAP-10271, approved by the NRC in Amendment Nos. 179 and 173 (PTN Units 3 and 4, respectively) dated November 29, 1995.

5. The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This Note is not meant to be retained in the final version of the plant specific submittal.

6. The Nominal Trip Setpoints (NTSPs) are being moved to the Technical Requirements Manual as noted in Note (c).

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.3 INSTRUMENTATION

B 3.3.1 Reactor Trip System (RTS) Instrumentation

BASES

BACKGROUND

The RTS initiates a unit shutdown, based on the values of selected unit parameters, to protect against violating the core fuel design limits and Reactor Coolant System (RCS) pressure boundary during anticipated operational occurrences (AOOs) and to assist the Engineered Safety Features (ESF) Systems in mitigating accidents.

The protection and monitoring systems have been designed to assure safe operation of the reactor. This is achieved by specifying limiting safety system settings (LSSS) in terms of parameters directly monitored by the RTS, as well as specifying LCOs on other reactor system parameters and equipment performance.

Technical Specifications are required by 10 CFR 50.36 to include LSSS for variables that have significant safety functions. LSSS are defined by the regulation as "Where a LSSS is specified for a variable on which a safety limit has been placed, the setting must be chosen so that automatic protective actions will correct the abnormal situation before a Safety Limit (SL) is exceeded." The Analytical Limit is the limit of the process variable at which a protective action is initiated, as established by the safety analysis, to ensure that a SL is not exceeded. Any automatic protection action that occurs on reaching the Analytical Limit therefore ensures that the SL is not exceeded. However, in practice, the actual settings for automatic protection channels must be chosen to be more conservative than the Analytical Limit to account for instrument loop uncertainties related to the setting at which the automatic protective action would actually occur.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~The term "[Limiting Trip Setpoint (LTSP)]" is generic terminology for the calculated field setting (setpoint) value calculated by means of the plant specific setpoint methodology documented in a document controlled under 10 CFR 50.59. The term [LTSP] indicates that no additional margin has been added between the Analytical Limit and the calculated trip setting.~~ 2

~~For most Westinghouse plants the term [Nominal Trip Setpoint (NTSP)] is used in place of the term [LTSP] and [NTSP] will replace [LTSP] in the Bases descriptions. "Field setting" is the suggested terminology for the actual setpoint implemented in the plant surveillance procedures where~~

BASES

BACKGROUND (continued)

~~margin has been added to the calculated field setting. The as-found and as-left tolerances will apply to the field setting implemented in the Surveillance procedures to confirm channel performance.~~

~~Licensees are to insert the name of the document(s) controlled under 10 CFR 50.59 that contain the methodology for calculating the as-left and as-found tolerances, in Note c of Table 3.3.1-1 for the phrase "[insert the name of a document controlled under 10 CFR 50.59 such as the Technical Requirements Manual or any document incorporated into the facility FSAR]" throughout these Bases.~~ 2

~~Where the [NTSP] is not included in Table 3.3.1-1, the plant specific location for the [NTSP] must be cited in Note c of Table 3.3.1-1. The brackets indicate plant specific terms may apply, as reviewed and approved by the NRC.~~

The ~~[~~Nominal Trip Setpoint (NTSP)~~]~~ specified in Table 3.3.1-1 is a predetermined setting for a protection channel chosen to ensure automatic actuation prior to the process variable reaching the Analytical Limit and thus ensuring that the SL would not be exceeded. As such, the ~~[~~NTSP~~]~~ accounts for uncertainties in setting the channel (e.g., calibration), uncertainties in how the channel might actually perform (e.g., repeatability), changes in the point of action of the channel over time (e.g., drift during surveillance intervals), and any other factors which may influence its actual performance (e.g., harsh accident environments). In this manner, the ~~[~~NTSP~~]~~ ensures that SLs are not exceeded. Therefore, the ~~[~~NTSP~~]~~ meets the definition of an LSSS (Ref. 1).

Technical Specifications contain values related to the OPERABILITY of equipment required for safe operation of the facility. OPERABLE is defined in Technical Specifications as "...being capable of performing its safety functions(s)." Relying solely on the ~~[~~NTSP~~]~~ to define OPERABILITY in Technical Specifications would be an overly restrictive requirement if it were applied as an OPERABILITY limit for the "as-found" value of a protection channel setting during a surveillance. This would result in Technical Specification compliance problems, as well as reports and corrective actions required by the rule which are not necessary to ensure safety. For example, an automatic protection channel with a setting that has been found to be different from the ~~[~~NTSP~~]~~ due to some drift of the setting may still be OPERABLE since drift is to be expected. This expected drift would have been specifically accounted for in the setpoint methodology for calculating the ~~[~~NTSP~~]~~ and thus the automatic protective action would still have ensured that the SL would not be exceeded with the "as-found" setting of the protection channel. 3

BASES

BACKGROUND (continued)

Therefore, the channel would still be OPERABLE since it would have performed its safety function and the only corrective action required would be to reset the channel within the established as-left tolerance around the ~~[~~NTSP~~]~~ to account for further drift during the next surveillance interval.

~~[~~ Note: Alternatively, a Technical Specification format incorporating an Allowable Value only column may be proposed by a licensee. In this, case, the ~~[~~NTSP~~]~~ value and the methodologies used to calculate the as-found and as-left tolerances must be specified in ~~[insert the name of a document controlled under 10 CFR 50.59 such as~~ the Technical Requirements Manual ~~or any document incorporated into the facility FSAR]~~. Changes to the ~~actual plant trip setpoint or [~~NTSP~~]~~ value would be controlled by 10 CFR 50.59 or administratively as appropriate, and adjusted per the setpoint methodology and applicable surveillance requirements. ~~]~~ 3

During AOOs, which are those events expected to occur one or more times during the unit life, the acceptable limits are:

1. The Departure from Nucleate Boiling Ratio (DNBR) shall be maintained above the Safety Limit (SL) value to prevent departure from nucleate boiling (DNB),

2. Fuel centerline melt shall not occur, and

3. The RCS pressure SL of ~~[~~2735~~]~~ psig shall not be exceeded.

Operation within the SLs of Specification 2.0, "Safety Limits (SLs)," also maintains the above values and assures that offsite dose will be within the 10 CFR 50 and 10 CFR 100 criteria during AOOs.

Accidents are events that are analyzed even though they are not expected to occur during the unit life. The acceptable limit during accidents is that offsite dose shall be maintained within an acceptable fraction of 10 CFR 50.67 ~~100~~ limits. Different accident categories are allowed a different fraction of these limits, based on probability of occurrence. Meeting the acceptable dose limit for an accident category is considered having acceptable consequences for that event. 1

The RTS instrumentation is segmented into four distinct but interconnected modules as illustrated in Figure 7.2-3A ~~[ ]~~, U FSAR, Chapter ~~[~~7~~]~~ (Ref. 2), and as identified below: 3 1

1. Field transmitters or process sensors: provide a measurable electronic signal based upon the physical characteristics of the parameter being measured,

BASES

BACKGROUND (continued)

2. Signal Process Control and Protection System, including Analog Protection System, Nuclear Instrumentation System (NIS), field contacts, and protection channel sets: provides signal conditioning, bistable setpoint comparison, process algorithm actuation, compatible electrical signal output to protection system channels, and control board/control room/miscellaneous indications,

3. Reactor ~~Solid State~~ Protection System ~~(SSPS)~~, including input, logic, and output bays: initiates proper unit shutdown and/or ESF actuation in accordance with the defined logic, ~~which is based on the bistable outputs from the signal process control and protection system,~~ and 1

4. Reactor trip switchgear, including reactor trip breakers (RTBs) and bypass breakers: provides the means to interrupt power to the control rod drive mechanisms (CRDMs) and allows the rod cluster control assemblies (RCCAs), or "rods," to fall into the core and shut down the reactor. The bypass breakers allow testing of the RTBs at power.

Field Transmitters or Sensors

To meet the design demands for redundancy and reliability, more than one, and often as many as four, field transmitters or sensors are used to measure unit parameters. To account for the calibration tolerances and instrument drift, which are assumed to occur between calibrations, statistical allowances are provided in the ~~[~~NTSP~~]~~ and Allowable Value. 3 The OPERABILITY of each transmitter or sensor is determined by either "as-found" calibration data evaluated during the CHANNEL CALIBRATION or by qualitative assessment of field transmitter or sensor as related to the channel behavior observed during performance of the CHANNEL CHECK.

Signal Process Control and Protection System

Generally, three or four channels of process control equipment are used for the signal processing of unit parameters measured by the field instruments. The process control equipment provides signal conditioning, comparable output signals for instruments located on the main control board, and comparison of measured input signals with ~~[~~NTSPs~~]~~ derived 3 from Analytical Limits established by the safety analyses. Analytical 1 Limits are defined in U FSAR, Chapter ~~[~~7~~]~~ (Ref. 2), ~~Chapter [6] (Ref. 3)~~, and 3 Chapter ~~[15]~~ 14 (Ref. ~~4~~ 3). If the measured value of a unit parameter exceeds the predetermined setpoint, an output from a bistable is forwarded to the SSPS for decision evaluation. Channel separation is maintained up to and through the input bays. However, not all unit parameters require four

BASES

BACKGROUND (continued)

channels of sensor measurement and signal processing. Some unit parameters provide input only to the SSPS, while others provide input to the SSPS, the main control board, the unit computer, and one or more control systems.

Generally, if a parameter is used only for input to the protection circuits, three channels with a two-out-of-three logic are sufficient to provide the required reliability and redundancy. If one channel fails in a direction that would not result in a partial Function trip, the Function is still OPERABLE with a two-out-of-two logic. If one channel fails, such that a partial Function trip occurs, a trip will not occur and the Function is still OPERABLE with a one-out-of-two logic.

Generally, if a parameter is used for input to the SSPS and a control function, four channels with a two-out-of-four logic are sufficient to provide the required reliability and redundancy. The circuit must be able to withstand both an input failure to the control system, which may then require the protection function actuation, and a single failure in the other channels providing the protection function actuation. Again, a single failure will neither cause nor prevent the protection function actuation. These requirements are described in IEEE-279-1971 (Ref. ~~5~~). The actual 1
4
number of channels required for each unit parameter is specified in Reference 2.

Two logic channels are required to ensure no single random failure of a logic channel will disable the RTS. The logic channels are designed such that testing required while the reactor is at power may be accomplished without causing trip. Provisions to allow removing logic channels from service during maintenance are unnecessary because of the logic system's designed reliability.

<u>Allowable Values and Nominal Trip Setpoints</u>

The trip setpoints used in the bistables are based on the analytical limits stated in Reference 2. The calculation of the [NTSP] specified in Table 3.3.1-1 is such that adequate protection is provided when all sensor and processing time delays are taken into account. To allow for calibration tolerances, instrumentation uncertainties, instrument drift, and severe environment errors for those RTS channels that must function in
5
harsh environments as defined by 10 CFR 50.49 (Ref. ~~6~~), the Allowable 1
Values specified in Table 3.3.1-1 in the accompanying LCO are conservative with respect to the analytical limits. A detailed description of the methodology used to calculate the Allowable Values and ~~[~~NTSP~~]~~, 3
including their explicit uncertainties, is provided in the "~~RTS/ESFAS~~ 1

and as-left and as-found tolerance bands

Instrument Setpoint Methodology for Nuclear Power plants

BASES

BACKGROUND (continued)

~~Setpoint Methodology Study~~" (Ref. ~~7~~ 6) which incorporates all of the known uncertainties applicable to each channel. The as-left tolerance and as-found tolerance band ~~methodology~~ is provided in ~~"[insert the name of a document controlled under 10 CFR 50.59 such as the Technical Requirements Manual or any document incorporated into the facility FSAR]."~~ the Turkey Point Unit 3 and Unit 4 Instrument Setpoints (Ref. 7). The magnitudes of these uncertainties are factored into the determination of each ~~[~~NTSP~~]~~ and corresponding Allowable Value. The trip setpoint entered into the bistable is more conservative than that specified by the Allowable Value to account for measurement errors detectable by the CHANNEL OPERATIONAL TEST (COT). The Allowable Value serves as the as-found Technical Specification OPERABILITY limit for the purpose of the COT. 1 1 3 3

The ~~[~~NTSP~~]~~ is the value at which the bistable is set and is the expected value to be achieved during calibration. The ~~[~~NTSP~~]~~ value is the LSSS and ensures the safety analysis limits are met for the surveillance interval selected when a channel is adjusted based on stated channel uncertainties. Any bistable is considered to be properly adjusted when the "as-left" ~~[~~NTSP~~]~~ value is within the as-left tolerance band for CHANNEL CALIBRATION uncertainty allowance (i.e., ± rack calibration and comparator setting uncertainties). The ~~[~~NTSP~~]~~ value is therefore considered a "nominal" value (i.e., expressed as a value without inequalities) for the purposes of COT and CHANNEL CALIBRATION. 3

~~[~~NTSPs ~~]~~, in conjunction with the use of as-found and as-left tolerances, together with the requirements of the Allowable Value ensure that SLs are not violated during AOOs (and that the consequences of DBAs will be acceptable, providing the unit is operated from within the LCOs at the onset of the AOO or DBA and the equipment functions as designed).

Note that the Allowable Values listed in Table 3.3.1-1 are the least conservative value of the as-found setpoint that a channel can have during a periodic CHANNEL CALIBRATION, COTs, or a TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT) that requires trip setpoint verification.

Each channel of the process control equipment can be tested on line to verify that the signal or setpoint accuracy is within the specified allowance requirements of Reference ~~3~~ 2. Once a designated channel is taken out of service for testing, a simulated signal is injected in place of the field instrument signal. The process equipment for the channel in test is then tested, verified, and calibrated. SRs for the channels are specified in the SRs section. 1

BASES

BACKGROUND (continued)

Logic Racks

~~Solid State Protection System~~

The ~~SSPS~~ equipment is used for the decision logic processing of outputs from the signal processing equipment bistables. To meet the redundancy requirements, two trains of ~~SSPS~~, each performing the same functions, are provided. If one train is taken out of service for maintenance or test purposes, the second train will provide reactor trip and/or ESF actuation for the unit. If both trains are taken out of service or placed in test, a reactor trip will result. Each train is packaged in its own cabinet for physical and electrical separation to satisfy separation and independence requirements. The system has been designed to trip in the event of a loss of power, directing the unit to a safe shutdown condition.

Logic Racks

The ~~SSPS~~ perform~~s~~ the decision logic for actuating a reactor trip or ESF actuation, generates the electrical output signal that will initiate the required trip or actuation, and provides the status, permissive, and annunciator output signals to the main control room of the unit.

The bistable outputs from the signal processing equipment are sensed by the ~~SSPS~~ equipment and combined into logic matrices that represent combinations indicative of various unit upset and accident transients. If a required logic matrix combination is completed, the system will initiate a reactor trip or send actuation signals via master and slave relays to those components whose aggregate Function best serves to alleviate the condition and restore the unit to a safe condition. Examples are given in the Applicable Safety Analyses, LCO, and Applicability sections of this Bases. 1

Reactor Trip Switchgear

The RTBs are in the electrical power supply line from the control rod drive motor generator set power supply to the CRDMs. Opening of the RTBs interrupts power to the CRDMs, which allows the shutdown rods and control rods to fall into the core by gravity. Each RTB is equipped with a bypass breaker to allow testing of the RTB while the unit is at power.

During normal operation ~~the output from the SSPS is a~~ voltage ~~signal that~~ energizes the undervoltage coils in the RTBs and bypass breakers, if in use. When the required logic matrix combination is completed, the ~~SSPS~~ output voltage signal is removed, the undervoltage coils are de-energized, the breaker trip lever is actuated by the de-energized undervoltage coil, and the RTBs and bypass breakers are tripped open. This allows the shutdown rods and control rods to fall into the core. In addition to the de-energization of the undervoltage coils, each breaker is

BASES

BACKGROUND (continued)

Logic Racks

also equipped with a shunt trip device that is energized to trip the breaker open upon receipt of a reactor trip signal from the ~~SSPS~~. Either the undervoltage coil or the shunt trip mechanism is sufficient by itself, thus providing a diverse trip mechanism. 1

The decision logic matrix Functions are described in the functional diagrams included in Reference ~~3~~ 2. In addition to the reactor trip or ESF, these diagrams also describe the various "permissive interlocks" that are associated with unit conditions. Each train has a built in testing device that can automatically test the decision logic matrix Functions and the actuation channels 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. 1

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

The RTS functions to preserve the SLs during all AOOs and mitigates the consequences of DBAs in all MODES in which the Rod Control System is capable of rod withdrawal or one or more rods are not fully inserted.

Each of the analyzed accidents and transients can be detected by one or more RTS Functions. The accident analysis described in Reference ~~4~~ 3 takes credit for most RTS trip Functions. RTS trip Functions that are retained yet not specifically credited in the accident analysis are implicitly credited in the safety analysis and the NRC staff approved licensing basis for the unit. These RTS trip Functions may provide protection for conditions that do not require dynamic transient analysis to demonstrate Function performance. They may also serve as backups to RTS trip Functions that were credited in the accident analysis. 1

Permissive and interlock setpoints allow the blocking of trips during plant startups, and restoration of trips when the permissive conditions are not satisfied, but they are not explicitly modeled in the Safety Analyses. These permissives and interlocks ensure that the starting conditions are consistent with the safety analysis, before preventive or mitigating actions occur. Because these permissives or interlocks are only one of multiple conservative starting assumptions for the accident analysis, they are generally considered as nominal values without regard to measurement accuracy.

The LCO requires all instrumentation performing an RTS Function, listed in Table 3.3.1-1 to be OPERABLE. The Allowable Value specified in Table 3.3.1-1 is the least conservative value of the as-found setpoint that the channel can have when tested, such that a channel is OPERABLE if the as-found setpoint is within the as-found tolerance and is conservative

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

with respect to the Allowable Value during a CHANNEL CALIBRATION or COT. As such, the Allowable Value differs from the [NTSP] by an amount [greater than or] equal to the expected instrument channel uncertainties, such as drift, during the surveillance interval. In this manner, the actual setting of the channel [NTSP] will ensure that a SL is not exceeded at any given point of time as long as the channel has not drifted beyond expected tolerances during the surveillance interval. Note that, although the channel is OPERABLE under these circumstances, the trip setpoint must be left adjusted to a value within the as-left tolerance, in accordance with uncertainty assumptions stated in the referenced setpoint methodology (as-left criteria), and confirmed to be operating within the statistical allowances of the uncertainty terms assigned (as-found criteria).

If the actual setting of the channel is found to be conservative with respect to the Allowable Value but is beyond the as-found tolerance band, the channel is OPERABLE but degraded. The degraded condition of the channel will be further evaluated during performance of the SR. This evaluation will consist of resetting the channel setpoint to the [NTSP] (within the allowed tolerance), and evaluating the channel's response. If the channel is functioning as required and is expected to pass the next surveillance, then the channel is OPERABLE and can be restored to service at the completion of the surveillance. After the surveillance is completed, the channel as-found condition will be entered into the Corrective Action Program for further evaluation.

A trip setpoint may be set more conservative than the [NTSP] as necessary in response to plant conditions. However, in this case, the OPERABILITY of this instrument must be verified based on the [field setting] and not the [NTSP]. Failure of any instrument renders the affected channel(s) inoperable and reduces the reliability of the affected Functions.

The LCO generally requires OPERABILITY of four or three channels in each instrumentation Function, two channels of Manual Reactor Trip in each logic Function, and two trains in each Automatic Trip Logic Function. Four OPERABLE instrumentation channels in a two-out-of-four configuration are required when one RTS channel is also used as a control system input. This configuration accounts for the possibility of the shared channel failing in such a manner that it creates a transient that requires RTS action. In this case, the RTS will still provide protection, even with random failure of one of the other three protection channels. Three OPERABLE instrumentation channels in a two-out-of-three configuration are generally required when there is no potential for control

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

system and protection system interaction that could simultaneously create a need for RTS trip and disable one RTS channel. The two-out-of-three and two-out-of-four configurations allow one channel to be tripped during maintenance or testing without causing a reactor trip. Specific exceptions to the above general philosophy exist and are discussed below.

Reactor Trip System Functions

The safety analyses and OPERABILITY requirements applicable to each RTS Function are discussed below:

1. Manual Reactor Trip

The Manual Reactor Trip ensures that the control room operator can initiate a reactor trip at any time by using either of two reactor trip switches in the control room. A Manual Reactor Trip accomplishes the same results as any one of the automatic trip Functions. It is used by the reactor operator to shut down the reactor whenever any parameter is rapidly trending toward its Trip Setpoint.

The manual actuating devices are independent of the automatic trip circuitry, and are not subject to failures which make the automatic circuitry inoperable.

1

The LCO requires two Manual Reactor Trip channels to be OPERABLE. Each channel is controlled by a manual reactor trip switch. Each channel activates the reactor trip breaker in both trains. Two independent channels are required to be OPERABLE so that no single random failure will disable the Manual Reactor Trip Function.

In MODE 1 or 2, manual initiation of a reactor trip must be OPERABLE. These are the MODES in which the shutdown rods and/or control rods are partially or fully withdrawn from the core. In MODE 3, 4, or 5, the manual initiation Function must also be OPERABLE if one or more shutdown rods or control rods are withdrawn or the Rod Control System is capable of withdrawing the shutdown rods or the control rods. In this condition, inadvertent control rod withdrawal is possible. In MODE 3, 4, or 5, manual initiation of a reactor trip does not have to be OPERABLE if the RTB is open and the Rod Control System is not capable of withdrawing the shutdown rods or control rods and if all rods are fully inserted. If the rods cannot be withdrawn from the core, or all of the rods are inserted, there is no need to be able to trip the reactor. In MODE 6, neither the shutdown rods nor the control rods are permitted to be withdrawn and the CRDMs are disconnected from the control rods and shutdown rods. Therefore, the manual initiation Function is not required.

1

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

2. Power Range Neutron Flux

The NIS power range detectors are located external to the reactor vessel and measure neutrons leaking from the core. The NIS power range detectors provide input to the Rod Control System ~~and the Steam Generator (SG) Water Level Control System~~. Therefore, the actuation logic must be able to withstand an input failure to the control system, which may then require the protection function actuation, and a single failure in the other channels providing the protection function actuation. Note that this Function also provides a signal to prevent automatic and manual rod withdrawal prior to initiating a reactor trip. Limiting further rod withdrawal may terminate the transient and eliminate the need to trip the reactor. 1

a. Power Range Neutron Flux - High

The Power Range Neutron Flux - High trip Function ensures that protection is provided, from all power levels, against a positive reactivity excursion leading to DNB during power operations. These can be caused by rod withdrawal or reductions in RCS temperature.

The LCO requires all four of the Power Range Neutron Flux - High channels to be OPERABLE.

In MODE 1 or 2, when a positive reactivity excursion could occur, the Power Range Neutron Flux - High trip must be OPERABLE. This Function will terminate the reactivity excursion and shut down the reactor prior to reaching a power level that could damage the fuel. In MODE 3, 4, 5, or 6, the NIS power range detectors cannot detect neutron levels in this range. In these MODES, the Power Range Neutron Flux - High does not have to be OPERABLE because the reactor is shut down and reactivity excursions into the power range are extremely unlikely. Other RTS Functions and administrative controls provide protection against reactivity additions when in MODE 3, 4, 5, or 6.

b. Power Range Neutron Flux - Low

The LCO requirement for the Power Range Neutron Flux - Low trip Function ensures that protection is provided against a positive reactivity excursion from low power or subcritical conditions.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The LCO requires all four of the Power Range Neutron Flux - Low channels to be OPERABLE.

In MODE 1, below the Power Range Neutron Flux (P-10 setpoint), and in MODE 2, the Power Range Neutron Flux - Low trip must be OPERABLE. This Function may be manually blocked by the operator when two out of four power range channels are greater than approximately 10% RTP (P-10 setpoint). This Function is automatically unblocked when three out of four power range channels are below the P-10 setpoint. Above the P-10 setpoint, positive reactivity additions are mitigated by the Power Range Neutron Flux - High trip Function.

In MODE 3, 4, 5, or 6, the Power Range Neutron Flux - Low trip Function does not have to be OPERABLE because the reactor is shut down and the NIS power range detectors cannot detect neutron levels in this range. Other RTS trip Functions and administrative controls provide protection against positive reactivity additions or power excursions in MODE 3, 4, 5, or 6.

~~3. Power Range Neutron Flux Rate~~

~~The Power Range Neutron Flux Rate trips use the same channels as discussed for Function 2 above.~~

~~a. Power Range Neutron Flux - High Positive Rate~~

~~The Power Range Neutron Flux - High Positive Rate trip Function ensures that protection is provided against rapid increases in neutron flux that are characteristic of an RCCA drive rod housing rupture and the accompanying ejection of the RCCA. This Function compliments the Power Range Neutron Flux - High and Low Setpoint trip Functions to ensure that the criteria are met for a rod ejection from the power range.~~ 4

~~The LCO requires all four of the Power Range Neutron Flux - High Positive Rate channels to be OPERABLE.~~

~~In MODE 1 or 2, when there is a potential to add a large amount of positive reactivity from a rod ejection accident (REA), the Power Range Neutron Flux - High Positive Rate trip must be OPERABLE. In MODE 3, 4, 5, or 6, the Power Range Neutron Flux - High Positive Rate trip Function does not have to be OPERABLE because other RTS trip Functions and administrative controls will provide protection against positive~~

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

~~reactivity additions. Also, since only the shutdown banks may be withdrawn in MODE 3, 4, or 5, the remaining complement of control bank worth ensures a sufficient degree of SDM in the event of an REA. In MODE 6, no rods are withdrawn and the SDM is increased during refueling operations. The reactor vessel head is also removed or the closure bolts are detensioned preventing any pressure buildup. In addition, the NIS power range detectors cannot detect neutron levels present in this mode.~~ 4

~~b. Power Range Neutron Flux - High Negative Rate~~

~~The Power Range Neutron Flux - High Negative Rate trip Function ensures that protection is provided for multiple rod drop accidents. At high power levels, a multiple rod drop accident could cause local flux peaking that would result in a nonconservative local DNBR. DNBR is defined as the ratio of the heat flux required to cause a DNB at a particular location in the core to the local heat flux. The DNBR is indicative of the margin to DNB. No credit is taken for the operation of this Function for those rod drop accidents in which the local DNBRs will be greater than the limit.~~ 4

~~The LCO requires all four Power Range Neutron Flux - High Negative Rate channels to be OPERABLE.~~

~~In MODE 1 or 2, when there is potential for a multiple rod drop accident to occur, the Power Range Neutron Flux - High Negative Rate trip must be OPERABLE. In MODE 3, 4, 5, or 6, the Power Range Neutron Flux - High Negative Rate trip Function does not have to be OPERABLE because the core is not critical and DNB is not a concern. Also, since only the shutdown banks may be withdrawn in MODE 3, 4, or 5, the remaining complement of control bank worth ensures a sufficient degree of SDM in the event of an REA. In MODE 6, no rods are withdrawn and the required SDM is increased during refueling operations. In addition, the NIS power range detectors cannot detect neutron levels present in this MODE.~~

3

4. Intermediate Range Neutron Flux 1

The Intermediate Range Neutron Flux trip Function ensures that protection is provided against an uncontrolled RCCA bank rod withdrawal accident from a subcritical condition during startup. This trip Function provides redundant protection to the Power Range Neutron Flux - Low Setpoint trip Function. The NIS intermediate

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

range detectors are located external to the reactor vessel and measure neutrons leaking from the core. The NIS intermediate range detectors do not provide any input to control systems. Note that this Function also provides a signal to prevent automatic and manual rod withdrawal prior to initiating a reactor trip. Limiting further rod withdrawal may terminate the transient and eliminate the need to trip the reactor.

The LCO requires two channels of Intermediate Range Neutron Flux to be OPERABLE. Two OPERABLE channels are sufficient to ensure no single random failure will disable this trip Function.

Because this trip Function is important only during startup, there is generally no need to disable channels for testing while the Function is required to be OPERABLE. Therefore, a third channel is unnecessary.

In MODE 1 below the P-10 setpoint, and in MODE 2 ~~above the P-6 setpoint~~, when there is a potential for an uncontrolled RCCA bank rod withdrawal accident during reactor startup, the Intermediate Range Neutron Flux trip must be OPERABLE. Above the P-10 setpoint, the Power Range Neutron Flux - High Setpoint trip ~~and the Power Range Neutron Flux - High Positive Rate trip~~ provide core protection for a rod withdrawal accident. In MODE 2 below the P-6 setpoint, the Source Range Neutron Flux Trip provides the core protection for reactivity accidents. In MODE 3, 4, or 5, the Intermediate Range Neutron Flux trip does not have to be OPERABLE because the control rods must be fully inserted and only the shutdown rods may be withdrawn. The reactor cannot be started up in this condition. The core also has the required SDM to mitigate the consequences of a positive reactivity addition accident. In MODE 6, all rods are fully inserted and the core has a required increased SDM. Also, the NIS intermediate range detectors cannot detect neutron levels present in this MODE. 1

4

5. Source Range Neutron Flux 1

The LCO requirement for the Source Range Neutron Flux trip Function ensures that protection is provided against an uncontrolled RCCA bank rod withdrawal accident from a subcritical condition during startup. This trip Function provides redundant protection to the Power Range Neutron Flux - Low trip Function. In MODES 3, 4, and 5, administrative controls also prevent the uncontrolled withdrawal of rods. The NIS source range detectors are located external to the reactor vessel and measure neutrons leaking from the core. The NIS source range detectors do not provide any inputs to

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

control systems. The source range trip is the only RTS automatic protection function required in MODES 3, 4, and 5 when rods are capable of withdrawal or one or more rods are not fully inserted. Therefore, the functional capability at the specified Trip Setpoint is assumed to be available.

The Source Range Neutron Flux Function provides protection for control rod withdrawal from subcritical, boron dilution and control rod ejection events.

In MODE 2 when below the P-6 setpoint and in MODES 3, 4, and 5 when there is a potential for an uncontrolled RCCA bank rod withdrawal accident, the Source Range Neutron Flux trip must be OPERABLE. Two OPERABLE channels are sufficient to ensure no single random failure will disable this trip Function. Above the P-6 setpoint, the Intermediate Range Neutron Flux trip and the Power Range Neutron Flux - Low trip will provide core protection for reactivity accidents. Above the P-6 setpoint, the NIS source range detectors are de-energized.

In ~~MODES 3, 4, and 5 with all rods fully inserted and the Rod Control System not capable of rod withdrawal, and in~~ MODE 6, the outputs of the Function to RTS logic are not required OPERABLE. The requirements for the NIS source range detectors to monitor core neutron levels and provide indication of reactivity changes that may occur as a result of events like a boron dilution are addressed in ~~LCO 3.3.9 "Boron Dilution Protection System (BDPS)," for MODE 3, 4, or 5 and~~ LCO 3.9.3, "Nuclear Instrumentation," for MODE 6. 1 1

5

6. Overtemperature ΔT 1

The Overtemperature ΔT trip Function is provided to ensure that the design limit DNBR is met. This trip Function also limits the range over which the Overpower ΔT trip Function must provide protection. The inputs to the Overtemperature ΔT trip include all pressure, coolant temperature, axial power distribution, and reactor power as indicated by loop ΔT assuming full reactor coolant flow. Protection from violating the DNBR limit is assured for those transients that are slow with respect to delays from the core to the measurement system. The Function monitors both variation in power and flow since a decrease in flow has the same effect on ΔT as a power increase. The Overtemperature ΔT trip Function uses each loop's ΔT as a measure of reactor power and is compared with a setpoint that is automatically varied with the following parameters:

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

- reactor coolant average temperature - the Trip Setpoint is varied to correct for changes in coolant density and specific heat capacity with changes in coolant temperature,

- pressurizer pressure - the Trip Setpoint is varied to correct for changes in system pressure, and

- axial power distribution - f(ΔI), the Trip Setpoint is varied to account for imbalances in the axial power distribution as detected by the NIS upper and lower power range detectors. If axial peaks are greater than the design limit, as indicated by the difference between the upper and lower NIS power range detectors, the Trip Setpoint is reduced in accordance with Note 1 of Table 3.3.1-1.

Dynamic compensation is included for system piping delays from the core to the temperature measurement system.

The Overtemperature ΔT trip Function is calculated for each loop as described in Note 1 of Table 3.3.1-1. Trip occurs if Overtemperature ΔT is indicated in two loops. At some units, the pressure and temperature signals are used for other control functions. For those units, the actuation logic must be able to withstand an input failure to the control system, which may then require the protection function actuation, and a single failure in the other channels providing the protection function actuation~~. Note that this Function also provides a signal to generate a turbine runback prior to reaching the Trip Setpoint. A turbine runback will reduce turbine power and reactor power. ~~A reduction in power will normally alleviate the Overtemperature ΔT condition and may prevent a reactor trip. 1

The LCO requires ~~all four channels of the Overtemperature ΔT trip Function to be OPERABLE for two and four loop units (the LCO requires~~ all three channels on the Overtemperature ΔT trip Function to be OPERABLE ~~for three loop units)~~. Note that the Overtemperature ΔT Function receives input from channels shared with other RTS Functions. Failures that affect multiple Functions require entry into the Conditions applicable to all affected Functions. 1

In MODE 1 or 2, the Overtemperature ΔT trip must be OPERABLE to prevent DNB. In MODE 3, 4, 5, or 6, this trip Function does not have to be OPERABLE because the reactor is not operating and there is insufficient heat production to be concerned about DNB.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

6 ~~7~~. Overpower ΔT 1

The Overpower ΔT trip Function ensures that protection is provided to ensure the integrity of the fuel (i.e., no fuel pellet melting and less than 1% cladding strain) under all possible overpower conditions. This trip Function also limits the required range of the Overtemperature ΔT trip Function and provides a backup to the Power Range Neutron Flux - High Setpoint trip. The Overpower ΔT trip Function ensures that the allowable heat generation rate (kW/ft) of the fuel is not exceeded. It uses the ΔT of each loop as a measure of reactor power with a setpoint that is automatically varied with the following parameters:

- reactor coolant average temperature - the Trip Setpoint is varied to correct for changes in coolant density and specific heat capacity with changes in coolant temperature, and
- rate of change of reactor coolant average temperature - including dynamic compensation for the delays between the core and the temperature measurement system.

The Overpower ΔT trip Function is calculated for each loop as per Note 2 of Table 3.3.1-1. Trip occurs if Overpower ΔT is indicated in two loops. At some units, the temperature signals are used for other control functions. At those units, the actuation logic must be able to withstand an input failure to the control system, which may then require the protection function actuation and a single failure in the remaining channels providing the protection function actuation. ~~Note that this Function also provides a signal to generate a turbine runback prior to reaching the Allowable Value. A turbine runback will reduce turbine power and reactor power. A reduction in power will normally alleviate the Overpower ΔT condition and may prevent a reactor trip.~~ 1

The LCO requires ~~four channels for two and four loop units (~~three channels ~~for three loop units)~~ of the Overpower ΔT trip Function to be OPERABLE. Note that the Overpower ΔT trip Function receives input from channels shared with other RTS Functions. Failures that affect multiple Functions require entry into the Conditions applicable to all affected Functions. 1

In MODE 1 or 2, the Overpower ΔT trip Function must be OPERABLE. These are the only times that enough heat is generated in the fuel to be concerned about the heat generation rates and overheating of the fuel. In MODE 3, 4, 5, or 6, this trip Function does

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

not have to be OPERABLE because the reactor is not operating and there is insufficient heat production to be concerned about fuel overheating and fuel damage.

7., 8. Pressurizer Pressure 1

The same sensors provide input to the Pressurizer Pressure - High and - Low trips and the Overtemperature ΔT trip. ~~At some units, the Pressurizer Pressure channels are also used to provide input to the Pressurizer Pressure Control System. For those units, the actuation logic must be able to withstand an input failure to the control system, which may then require the protection function actuation, and a singlefailure in the other channels providing the protection function actuation.~~ 1

7 ~~a.~~ Pressurizer Pressure - Low

The Pressurizer Pressure - Low trip Function ensures that protection is provided against violating the DNBR limit due to low pressure.

The LCO requires ~~four channels for two and four loop units (~~three channels ~~for three loop units)~~ of Pressurizer Pressure - Low to be OPERABLE. 1

In MODE 1, when DNB is a major concern, the Pressurizer Pressure - Low trip must be OPERABLE. This trip Function is automatically enabled on increasing power by the P-7 interlock (NIS power range P-10 or turbine ~~impulse~~ Inlet pressure greater than approximately 10% of full power equivalent ~~(P-13)~~). On decreasing power, this trip Function is automatically blocked below P-7. Below the P-7 setpoint, no conceivable power distributions can occur that would cause DNB concerns. 1

8 ~~b.~~ Pressurizer Pressure - High

The Pressurizer Pressure - High trip Function ensures that protection is provided against overpressurizing the RCS. This trip Function operates in conjunction with the pressurizer relief and safety valves to prevent RCS overpressure conditions.

The LCO requires ~~four channels for two and four loop units (~~three channels ~~for three loop units)~~ of the Pressurizer Pressure - High to be OPERABLE. 1

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The Pressurizer Pressure - High LSSS is selected to be below the pressurizer safety valve actuation pressure and above the power operated relief valve (PORV) setting. This setting minimizes challenges to safety valves while avoiding unnecessary reactor trip for those pressure increases that can be controlled by the PORVs.

In MODE 1 or 2, the Pressurizer Pressure - High trip must be OPERABLE to help prevent RCS overpressurization and minimize challenges to the relief and safety valves. In MODE 3, 4, 5, or 6, the Pressurizer Pressure - High trip Function does not have to be OPERABLE because transients that could cause an overpressure condition will be slow to occur. Therefore, the operator will have sufficient time to evaluate unit conditions and take corrective actions. Additionally, low temperature overpressure protection systems provide overpressure protection when below MODE 4. 1

9. Pressurizer Water Level - High

The Pressurizer Water Level - High trip Function provides a backup signal for the Pressurizer Pressure - High trip and also provides protection against water relief through the pressurizer safety valves. These valves are designed to pass steam in order to achieve their design energy removal rate. A reactor trip is actuated prior to the pressurizer becoming water solid. The LCO requires three channels of Pressurizer Water Level - High to be OPERABLE. The pressurizer level channels are used as input to the Pressurizer Level Control System. ~~A fourth channel is not required to address control/protection interaction concerns.~~ The level channels do not actuate the safety valves, and the high pressure reactor trip is set below the safety valve setting. Therefore, with the slow rate of charging available, pressure overshoot due to level channel failure cannot cause the safety valve to lift before reactor high pressure trip. 1

In MODE 1, when there is a potential for overfilling the pressurizer, the Pressurizer Water Level - High trip must be OPERABLE. This trip Function is automatically enabled on increasing power by the P-7 interlock. On decreasing power, this trip Function is automatically blocked below P-7. Below the P-7 setpoint, transients that could raise the pressurizer water level will be slow and the operator will have sufficient time to evaluate unit conditions and take corrective actions.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

10. Reactor Coolant Flow - Low

The Reactor Coolant Flow - Low trip Function ensures that protection is provided against violating the DNBR limit due to low flow in one or more RCS loops, while avoiding reactor trips due to normal variations in loop flow. Above the P-7 setpoint, the reactor trip on low flow in two or more RCS loops is automatically enabled. Above the P-8 setpoint, which is approximately 45 ~~48~~% RTP, a loss of flow in any RCS loop will actuate a reactor trip. Each RCS loop has three flow detectors to monitor flow. The flow signals are not used for any control system input. 1

The LCO requires three Reactor Coolant Flow - Low channels per loop to be OPERABLE in MODE 1 above P-7.

In MODE 1 above the P-8 setpoint, a loss of flow in one RCS loop could result in DNB conditions in the core because of the higher power level. In MODE 1 below the P-8 setpoint and above the P-7 setpoint, a loss of flow in two or more loops is required to actuate a reactor trip because of the lower power level and the greater margin to the design limit DNBR. Below the P-7 setpoint, all reactor trips on low flow are automatically blocked since there is insufficient heat production to generate DNB conditions.

18 ~~11~~. Reactor Coolant Pump (RCP) Breaker Position 1

Both RCP Breaker Position trip Functions operate together on two sets of auxiliary contacts, with one set on each RCP breaker. These Functions anticipate the Reactor Coolant Flow - Low trips to avoid RCS heatup that would occur before the low flow trip actuates.

a. Reactor Coolant Pump Breaker Position (Single Loop) (Above P-8) 1

The RCP Breaker Position (Single Loop) trip Function ensures that protection is provided against violating the DNBR limit due to a loss of flow in one RCS loop. The position of each RCP breaker is monitored. If one RCP breaker is open above the P-8 setpoint, a reactor trip is initiated. This trip Function will generate a reactor trip before the Reactor Coolant Flow - Low (Single Loop) Trip Setpoint is reached.

The LCO requires one RCP Breaker Position channel per RCP to be OPERABLE. One OPERABLE channel is sufficient for this trip Function because the RCS Flow - Low trip alone provides sufficient protection of unit SLs for loss of flow events. The RCP

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Breaker Position trip serves only to anticipate the low flow trip, minimizing the thermal transient associated with loss of a pump.

This Function measures only the discrete position (open or closed) of the RCP breaker, using a position switch. Therefore, the Function has no adjustable trip setpoint with which to associate an LSSS.

In MODE 1 above the P-8 setpoint, when a loss of flow in any RCS loop could result in DNB conditions in the core, the RCP Breaker Position (Single Loop) trip must be OPERABLE. In MODE 1 below the P-8 setpoint, a loss of flow in two or more loops is required to actuate a reactor trip because of the lower power level and the greater margin to the design limit DNBR.

b. Reactor Coolant Pump Breaker Position (Two Loops) (Above P-7 and Below P-8) 1

The RCP Breaker Position (Two Loops) trip Function ensures that protection is provided against violating the DNBR limit due to a loss of flow in two or more RCS loops. The position of each RCP breaker is monitored. Above the P-7 setpoint and below the P-8 setpoint, a loss of flow in two or more loops will initiate a reactor trip. This trip Function will generate a reactor trip before the Reactor Coolant Flow - Low (Two Loops) Trip Setpoint is reached.

The LCO requires one RCP Breaker Position channel per RCP to be OPERABLE. One OPERABLE channel is sufficient for this Function because the RCS Flow - Low trip alone provides sufficient protection of unit SLs for loss of flow events. The RCP Breaker Position trip serves only to anticipate the low flow trip, minimizing the thermal transient associated with loss of an RCP.

This Function measures only the discrete position (open or closed) of the RCP breaker, using a position switch. Therefore, the Function has no adjustable trip setpoint with which to associate an LSSS.

In MODE 1 above the P-7 setpoint and below the P-8 setpoint, the RCP Breaker Position (Two Loops) trip must be OPERABLE. Below the P-7 setpoint, all reactor trips on loss of flow are automatically blocked since no conceivable power distributions could occur that would cause a DNB concern at this low power level. Above the P-7 setpoint, the reactor trip on loss of flow in two RCS loops is automatically enabled. Above the P-8 setpoint,

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

a loss of flow in any one loop will actuate a reactor trip because of the higher power level and the reduced margin to the design limit DNBR.

~~12~~ 13. Undervoltage ~~Reactor Coolant Pumps~~ - 4.16kV Buses A and B

The Undervoltage ~~RCPs~~ - 4.16kV Buses A and B reactor trip Function ensures that protection is provided against violating the DNBR limit due to a loss of flow in two or more RCS loops. The voltage to each ~~RCP~~ 4.16kV Bus (A and B) is monitored. Above the P-7 setpoint, a loss of voltage detected on ~~two or more~~ either ~~RCP~~ 4.16kV bus~~es~~ will initiate a reactor trip. This trip Function will generate a reactor trip before the Reactor Coolant Flow - Low (Two Loops) Trip Setpoint is reached. Time delays are incorporated into the Undervoltage ~~RCPs~~ - 4.16kV Buses A and B channels to prevent reactor trips due to momentary electrical power transients.

The LCO requires ~~three~~ two Undervoltage ~~RCPs~~ - 4.16kV Buses A and B channels ~~(one per phase)~~ per bus to be OPERABLE. 1

In MODE 1 above the P-7 setpoint, the Undervoltage ~~RCP~~ - 4.16kV Buses A and B trip must be OPERABLE. Below the P-7 setpoint, all reactor trips on ~~loss of flow~~ Undervoltage - 4.16kV Buses A and B are automatically blocked since no conceivable power distributions could occur that would cause a DNB concern at this low power level. Above the P-7 setpoint, the reactor trip on loss of flow in two or more RCS loops is automatically enabled. ~~This Function uses the same relays as the ESFAS Function 6.f, "Undervoltage Reactor Coolant Pump (RCP)" start of the auxiliary feedwater (AFW) pumps.~~

~~13~~ 14. Underfrequency Reactor Coolant Pumps

The Underfrequency RCPs reactor trip Function ensures that protection is provided against violating the DNBR limit due to a loss of flow in two or more RCS loops from a major network frequency disturbance. An underfrequency condition will slow down the pumps, thereby reducing their coastdown time following a pump trip. The proper coastdown time is required so that reactor heat can be removed immediately after reactor trip. The frequency of each RCP bus is monitored. Above the P-7 setpoint, a loss of frequency detected on two or more RCP buses will initiate a reactor trip. This trip Function will generate a reactor trip before the Reactor Coolant Flow - Low (Two Loops) Trip Setpoint is reached. Time delays are incorporated into the Underfrequency RCPs channels to prevent reactor trips due to momentary electrical power transients.

The LCO requires ~~three~~ two Underfrequency RCPs channels per bus to be OPERABLE. 1

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

In MODE 1 above the P-7 setpoint, the Underfrequency RCPs trip must be OPERABLE. Below the P-7 setpoint, all reactor trips on loss of flow are automatically blocked since no conceivable power distributions could occur that would cause a DNB concern at this low power level. Above the P-7 setpoint, the reactor trip on loss of flow in two or more RCS loops is automatically enabled.

11 ~~14~~. Steam Generator Water Level - Low Low 1

The SG Water Level - Low Low trip Function ensures that protection is provided against a loss of heat sink and actuates the AFW System prior to uncovering the SG tubes. The SGs are the heat sink for the reactor. In order to act as a heat sink, the SGs must contain a minimum amount of water. A narrow range low low level in any SG is indicative of a loss of heat sink for the reactor. The level transmitters provide input to the SG Level Control System. Therefore, the actuation logic must be able to withstand an input failure to the control system, which may then require the protection function actuation, and a single failure in the other channels providing the protection function actuation. This Function also performs the ESFAS function of starting the AFW pumps on low low SG level.

The LCO requires three ~~four~~ channels of SG Water Level - Low Low per SG to be OPERABLE ~~for four loop units in which these channels are shared between protection and control. In two, three, and four loop units where three SG Water Levels are dedicated to the RTS, only three channels per SG are required to be OPERABLE~~. 1

In MODE 1 or 2, when the reactor requires a heat sink, the SG Water Level - Low Low trip must be OPERABLE. The normal source of water for the SGs is the Main Feedwater (MFW) System (not safety related). The MFW System is only in operation in MODE 1 or 2. The AFW System is the safety related backup source of water to ensure that the SGs remain the heat sink for the reactor. During normal startups and shutdowns, the AFW System provides feedwater to maintain SG level. In MODE 3, 4, 5, or 6, the SG Water Level - Low Low Function does not have to be OPERABLE because the MFW System is not in operation and the reactor is not operating or even critical. Decay heat removal is accomplished by the AFW System in MODE 3 and by the Residual Heat Removal (RHR) System in MODE 4, 5, or 6.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

12 ~~15~~. Steam Generator Water Level - Low, Coincident With Steam Flow/Feedwater Flow Mismatch 1

SG Water Level - Low, in conjunction with the Steam Flow/Feedwater Flow Mismatch, ensures that protection is provided against a loss of heat sink and actuates the AFW System prior to uncovering the SG tubes. In addition to a decreasing water level in the SG, the difference between feedwater flow and steam flow is evaluated to determine if feedwater flow is significantly less than steam flow. With less feedwater flow than steam flow, SG level will decrease at a rate dependent upon the magnitude of the difference in flow rates. There are two SG level channels and two Steam Flow/Feedwater Flow Mismatch channels per SG. One narrow range level channel sensing a low level coincident with one Steam Flow/Feedwater Flow Mismatch channel sensing flow mismatch (steam flow greater than feed flow) will actuate a reactor trip.

The LCO requires two channels of SG Water Level - Low coincident with Steam Flow/Feedwater Flow Mismatch per SG. 1

In MODE 1 or 2, when the reactor requires a heat sink, the SG Water Level - Low coincident with Steam Flow/Feedwater Flow Mismatch trip must be OPERABLE. The normal source of water for the SGs is the MFW System (not safety related). The MFW System is only in operation in MODE 1 or 2. The AFW System is the safety related backup source of water to ensure that the SGs remain the heat sink for the reactor. During normal startups and shutdowns, the AFW System provides feedwater to maintain SG level. In MODE 3, 4, 5, or 6, the SG Water Level - Low coincident with Steam Flow/Feedwater Flow Mismatch Function does not have to be OPERABLE because the MFW System is not in operation and the reactor is not operating or even critical. Decay heat removal is accomplished by the AFW System in MODE 3 and by the RHR System in MODE 4, 5, or 6. The MFW System is in operation only in MODE 1 or 2 and, therefore, this trip Function need only be OPERABLE in these MODES.

15 ~~16~~. Turbine Trip

a. Turbine Trip - ~~Low Fluid Oil Pressure~~ Emergency Trip Header Pressure 1

The Turbine Trip - ~~Low Fluid Oil Pressure~~ Emergency Trip Header Pressure trip Function anticipates the loss of heat removal capabilities of the secondary system following a turbine trip. This trip Function acts to minimize the pressure/temperature transient on the reactor. Any turbine trip from a power level below the P-~~9~~ 7 setpoint, 1

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

10

approximately ~~50~~% power, will not actuate a reactor trip. Three pressure switches monitor the control oil pressure in the Turbine Electrohydraulic Control System. A low pressure condition sensed by two-out-of-three pressure switches will actuate a reactor trip. These pressure switches do not provide any input to the control system. The unit is designed to withstand a complete loss of load and not sustain core damage or challenge the RCS pressure limitations. Core protection is provided by the Pressurizer Pressure - High trip Function and RCS integrity is ensured by the pressurizer safety valves. 1

The LCO requires three channels of Turbine Trip - ~~Low Fluid Oil Pressure~~ to be OPERABLE in MODE 1 above P-~~9~~.

Emergency Trip Header Pressure

7

Below the P-~~9~~ setpoint, a turbine trip does not actuate a reactor trip. In MODE 2, 3, 4, 5, or 6, there is no potential for a turbine trip, and the Turbine Trip - ~~Low Fluid Oil Pressure~~ trip Function does not need to be OPERABLE. 1

b. Turbine Trip - Turbine Stop Valve Closure

The Turbine Trip - Turbine Stop Valve Closure trip Function anticipates the loss of heat removal capabilities of the secondary system following a turbine trip from a power level below the P-~~9~~ 7 setpoint, approximately ~~50~~% power. This action will not actuate a reactor trip. The trip Function anticipates the loss of secondary heat removal capability that occurs when the stop valves close. Tripping the reactor in anticipation of loss of secondary heat removal acts to minimize the pressure and temperature transient on the reactor. This trip Function will not and is not required to operate in the presence of a single channel failure. The unit is designed to withstand a complete loss of load and not sustain core damage or challenge the RCS pressure limitations. Core protection is provided by the Pressurizer Pressure - High trip Function, and RCS integrity is ensured by the pressurizer safety valves. This trip Function is diverse to the Turbine Trip - Low Fluid Oil Pressure trip Function. Each turbine stop valve is equipped with one limit switch that inputs to the RTS. If ~~all four~~ both limit switches indicate that the stop valves are all closed, a reactor trip is initiated. 1

10

The LSSS for this Function is set to assure channel trip occurs when the associated stop valve is completely closed.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

two

The LCO requires ~~four~~ Turbine Trip - Turbine Stop Valve Closure channels, one per valve, to be OPERABLE in MODE 1 above P-~~9~~. ~~All four~~ channels must trip to cause reactor trip.

Both

7

Below the P-~~9~~ setpoint, a load rejection can be accommodated by the Steam Dump System. In MODE 2, 3, 4, 5, or 6, there is no potential for a load rejection, and the Turbine Trip - Stop Valve Closure trip Function does not need to be OPERABLE.

1

16

~~17~~. Safety Injection Input from Engineered Safety Feature Actuation System

The SI Input from ESFAS ensures that if a reactor trip has not already been generated by the RTS, the ESFAS automatic actuation logic will initiate a reactor trip upon any signal that initiates SI. This is a condition of acceptability for the LOCA. However, other transients and accidents take credit for varying levels of ESF performance and rely upon rod insertion, except for the most reactive rod that is assumed to be fully withdrawn, to ensure reactor shutdown. Therefore, a reactor trip is initiated every time an SI signal is present.

Trip Setpoint and Allowable Values are not applicable to this Function. The SI Input is provided by relay in the ESFAS. Therefore, there is no measurement signal with which to associate an LSSS.

The LCO requires two trains of SI Input from ESFAS to be OPERABLE in MODE 1 or 2.

A reactor trip is initiated every time an SI signal is present. Therefore, this trip Function must be OPERABLE in MODE 1 or 2, when the reactor is critical, and must be shut down in the event of an accident. In MODE 3, 4, 5, or 6, the reactor is not critical, and this trip Function does not need to be OPERABLE.

17

~~18~~. Reactor Trip System Interlocks 1

Reactor protection interlocks are provided to ensure reactor trips are in the correct configuration for the current unit status. They back up operator actions to ensure protection system Functions are not bypassed during unit conditions under which the safety analysis assumes the Functions are not bypassed. Therefore, the interlock Functions do not need to be OPERABLE when the associated reactor trip functions are outside the applicable MODES. These are:

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

a. Intermediate Range Neutron Flux, P-6

The Intermediate Range Neutron Flux, P-6 interlock is actuated when any NIS intermediate range channel goes approximately one decade above the minimum channel reading. If both channels drop below the setpoint, the permissive will automatically be defeated. The LCO requirement for the P-6 interlock ensures that the following Functions are performed:

- on increasing power, the P-6 interlock allows the manual block of the NIS Source Range, Neutron Flux reactor trip. This prevents a premature block of the source range trip and allows the operator to ensure that the intermediate range is OPERABLE prior to leaving the source range. When the source range trip is blocked, the high voltage to the detectors is also removed,
- on decreasing power, the P-6 interlock automatically energizes the NIS source range detectors and enables the NIS Source Range Neutron Flux reactor trip, and
- on increasing power, the P-6 interlock ~~provides a backup block signal to the source range flux doubling circuit. Normally, this Function is manually blocked by the control room operator during the reactor startup.~~ 1

permits simultaneous manual blocking of the source range trips and removal of the source range detector high voltage.

The LCO requires two channels of Intermediate Range Neutron Flux, P-6 interlock to be OPERABLE in MODE 2 when below the P-6 interlock setpoint.

Above the P-6 interlock setpoint, the NIS Source Range Neutron Flux reactor trip will be blocked, and this Function will no longer be necessary.

In MODE 3, 4, 5, or 6, the P-6 interlock does not have to be OPERABLE because the NIS Source Range is providing core protection.

b. Low Power Reactor Trips Block, P-7

(1) P10 Input

The Low Power Reactor Trips Block, P-7 interlock is actuated by input from either the Power Range Neutron Flux, P-10, or ~~the~~ Turbine ~~Impulse~~ Inlet Pressure~~, P-13 interlock~~. The LCO requirement for the P-7 interlock ensures that the following Functions are performed: 1

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

(~~1~~ a) on increasing power, the P-7 interlock automatically enables reactor trips on the following Functions: 1

- Pressurizer Pressure - Low,
- Pressurizer Water Level - High,
- Reactor Coolant Flow - Low (low flow in two or more RCS loops),
- RCPs Breaker Open (Two Loops),
- Undervoltage ~~RCPs~~ - 4.16kV Buses A and B, and
- Underfrequency RCPs. 1
- Turbine Trip (Emergency Trip Header Pressure and Turbine Stop Valve Closure)

These reactor trips are only required when operating above the P-7 setpoint (approximately 10% power). The reactor trips provide protection against violating the DNBR limit. Below the P-7 setpoint, the RCS is capable of providing sufficient natural circulation without any RCP running.

(~~2~~ b) on decreasing power, the P-7 interlock automatically blocks reactor trips on the following Functions: 1

- Pressurizer Pressure - Low,
- Pressurizer Water Level - High,
- Reactor Coolant Flow - Low (low flow in two or more RCS loops),
- RCP Breaker Position (Two Loops),
- Undervoltage ~~RCPs~~ - 4.16kV Buses A and B, and
- Underfrequency RCPs. 1
- Turbine Trip (Emergency Trip Header Pressure and Turbine Stop Valve Closure)

Trip Setpoint and Allowable Value are not applicable to the P-7 interlock because it is a logic Function and thus has no parameter with which to associate an LSSS.

The P-7 interlock is a logic Function with train and not channel identity. Therefore, the LCO requires one channel per train of Low Power Reactor Trips Block, P-7 interlock to be OPERABLE in MODE 1.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The low power trips are blocked below the P-7 setpoint and unblocked above the P-7 setpoint. In MODE 2, 3, 4, 5, or 6, this Function does not have to be OPERABLE because the interlock performs its Function when power level drops below 10% power, which is in MODE 1.

c. Power Range Neutron Flux, P-8

The Power Range Neutron Flux, P-8 interlock is actuated at approximately ~~48~~ 45% power as determined by two-out-of-four NIS power range detectors. 1 The P-8 interlock automatically enables the Reactor Coolant Flow - Low and RCP Breaker Position (Single Loop) reactor trips on low flow in one or more RCS loops on increasing power. The LCO requirement for this trip Function ensures that protection is provided against a loss of flow in any RCS loop that could result in DNB conditions in the core when greater than approximately ~~48~~ 45% power. 1 On decreasing power, the reactor trip on low flow in any loop is automatically blocked.

The LCO requires four channels of Power Range Neutron Flux, P-8 interlock to be OPERABLE in MODE 1.

In MODE 1, a loss of flow in one RCS loop could result in DNB conditions, so the Power Range Neutron Flux, P-8 interlock must be OPERABLE. In MODE 2, 3, 4, 5, or 6, this Function does not have to be OPERABLE because the core is not producing sufficient power to be concerned about DNB conditions.

~~d. Power Range Neutron Flux, P-9~~

~~The Power Range Neutron Flux, P-9 interlock is actuated at approximately 50% power as determined by two-out-of-four NIS power range detectors. The LCO requirement for this Function ensures that the Turbine Trip - Low Fluid Oil Pressure and Turbine Trip - Turbine Stop Valve Closure reactor trips are enabled above the P-9 setpoint. Above the P-9 setpoint, a turbine trip will cause a load rejection beyond the capacity of the Steam Dump System. A reactor trip is automatically initiated on a turbine trip when it is above the P-9 setpoint, to minimize the transient on the reactor.~~ 4

~~The LCO requires four channels of Power Range Neutron Flux, P-9 interlock to be OPERABLE in MODE 1.~~

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

~~In MODE 1, a turbine trip could cause a load rejection beyond the capacity of the Steam Dump System, so the Power Range Neutron Flux interlock must be OPERABLE. In MODE 2, 3, 4, 5, or 6, this Function does not have to be OPERABLE because the reactor is not at a power level sufficient to have a load rejection beyond the capacity of the Steam Dump System.~~ 4

d ~~e~~. Power Range Neutron Flux, P-10 1

The Power Range Neutron Flux, P-10 interlock is actuated at approximately 10% power, as determined by two-out-of-four NIS power range detectors. If power level falls below 10% RTP on 3 of 4 channels, the nuclear instrument trips will be automatically unblocked. The LCO requirement for the P-10 interlock ensures that the following Functions are performed:

- on increasing power, the P-10 interlock allows the operator to manually block the Intermediate Range Neutron Flux reactor trip. ~~Note that blocking the reactor trip also blocks the signal to prevent automatic and manual rod withdrawal~~, 1
- on increasing power, the P-10 interlock allows the operator to manually block the Power Range Neutron Flux - Low reactor trip,
- on increasing power, the P-10 interlock automatically provides a backup signal to block the Source Range Neutron Flux reactor trip, and also to de-energize the NIS source range detectors,
- the P-10 interlock provides one of the two inputs to the P-7 interlock, and
- on decreasing power, the P-10 interlock automatically enables the Power Range Neutron Flux - Low reactor trip and the Intermediate Range Neutron Flux reactor trip (and rod stop).

The LCO requires four channels of Power Range Neutron Flux, P-10 interlock to be OPERABLE in MODE 1 or 2.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

OPERABILITY in MODE 1 ensures the Function is available to perform its decreasing power Functions in the event of a reactor shutdown. This Function must be OPERABLE in MODE 2 to ensure that core protection is provided during a startup or shutdown by the Power Range Neutron Flux - Low and Intermediate Range Neutron Flux reactor trips. In MODE 3, 4, 5, or 6, this Function does not have to be OPERABLE because the reactor is not at power and the Source Range Neutron Flux reactor trip provides core protection.

Move to pg. 3.3.1-29 as 17.b.(2)

(2) ~~f~~. Turbine ~~Impulse~~ Inlet Pressure, ~~P-13~~

The Turbine ~~Impulse~~ Inlet Pressure, P-~~13~~ 7 interlock is actuated when the pressure in the first stage of the high pressure turbine is greater than approximately 10% of the rated full power pressure. This is determined by one-out-of-two pressure detectors. The LCO requirement for this Function ensures that one of the inputs to the P-7 interlock is available.

The LCO requires two channels of Turbine ~~Impulse~~ Inlet Pressure, ~~P-13~~ interlock to be OPERABLE in MODE 1.

The Turbine ~~Impulse~~ Inlet Chamber Pressure, ~~P-13~~ interlock must be OPERABLE when the turbine generator is operating. The interlock Function is not required OPERABLE in MODE 2, 3, 4, 5, or 6 because the turbine generator is not operating.

19. Reactor Trip Breakers (RTBs) 1

a. RTBs

This trip Function applies to the RTBs exclusive of individual trip mechanisms. The LCO requires two OPERABLE trains of trip breakers. A trip breaker train consists of all trip breakers associated with a single RTS logic train that are racked in, closed, and capable of supplying power to the Rod Control System. ~~Thus, the train may consist of the main breaker, bypass breaker, or main breaker and bypass breaker, depending upon the system configuration.~~ The RTB Train also consists of bypass breakers used in logic system testing to exercise the reactor trip breakers. During normal operation, the bypass breakers are open. An interlock is provided to preclude the closing of both bypass breakers. Two OPERABLE trains ensure no single random failure can disable the RTS trip capability. 1

These trip Functions must be OPERABLE in MODE 1 or 2 when the reactor is critical. In MODE 3, 4, or 5, these RTS trip Functions must be OPERABLE when the Rod Control System is capable of rod withdrawal or one or more rods are not fully inserted.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

RTB

~~20.~~ ~~Reactor Trip Breaker~~ Undervoltage and Shunt Trip Mechanisms 1

b.

The LCO requires both the Undervoltage and Shunt Trip Mechanisms to be OPERABLE for each RTB that is in service. The trip mechanisms are not required to be OPERABLE for trip breakers that are open, racked out, incapable of supplying power to the Rod Control System, or declared inoperable under Function 19 .a above. 1
OPERABILITY of both trip mechanisms on each breaker ensures that no single trip mechanism failure will prevent opening any breaker on a valid signal.

These trip Functions must be OPERABLE in MODE 1 or 2 when the reactor is critical. In MODE 3, 4, or 5, these RTS trip Functions must be OPERABLE when the Rod Control System is capable of rod withdrawal or one or more rods are not fully inserted.

20

~~21.~~ Automatic Trip Logic 1

The LCO requirement for the RTBs (Function~~s~~ 19 ~~and 20~~) and Automatic Trip Logic (Function ~~21~~ 20) ensures that means are provided to interrupt the power to allow the rods to fall into the reactor core. Each RTB is equipped with an undervoltage coil and a shunt trip coil to trip the breaker open when needed. Each RTB is equipped with a bypass breaker to allow testing of the trip breaker while the unit is at power. The reactor trip signals generated by the RTS Automatic Trip Logic cause the RTBs and associated bypass breakers to open and shut down the reactor. 1

The LCO requires two trains of RTS Automatic Trip Logic to be OPERABLE. Having two OPERABLE channels ensures that random failure of a single logic channel will not prevent reactor trip.

These trip Functions must be OPERABLE in MODE 1 or 2 when the reactor is critical. In MODE 3, 4, or 5, these RTS trip Functions must be OPERABLE when the Rod Control System is capable of rod withdrawal or one or more rods are not fully inserted.

The RTS instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

BASES

ACTIONS

~~----------------------------------REVIEWER'S NOTE----------------------------------~~
~~In Table 3.3.1-1, Functions 11.a and 11.b were not included in the generic evaluations approved in either WCAP-10271, as supplemented, WCAP-15376, or WCAP-14333. In order to apply the WCAP-10271, as supplemented, and WCAP-15376 or WCAP-14333 TS relaxations to plant specific Functions not evaluated generically, licensees must submit plant specific evaluations for NRC review and approval.~~
~~--~~ 2

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 3.3.1-1. When the Required Channels in Table 3.3.1-1 are specified (e.g., on a per steam line, per loop, per SG, etc., basis) then the Condition may be entered separately for each steam line, loop, SG, etc., as appropriate.

In the event a channel's ~~[~~NTSP~~]~~ is found nonconservative with respect to the Allowable Value, or the channel is not functioning as required, or the transmitter, instrument loop, signal processing electronics, or bistable is found inoperable, then all affected Functions provided by that channel must be declared inoperable and the LCO Condition(s) entered for the protection Function(s) affected.

When the number of inoperable channels in a trip Function exceed those specified in one or other related Conditions associated with a trip Function, then the unit is outside the safety analysis. Therefore, LCO 3.0.3 must be immediately entered if applicable in the current MODE of operation.

----------------------------------REVIEWER'S NOTE----------------------------------
Certain LCO Completion Times are based on approved topical reports. In order for a licensee to use these times, the licensee must justify the Completion Times as required by the staff Safety Evaluation Report (SER) for the topical report.
-- 2

A.1

Condition A applies to all RTS protection Functions. Condition A addresses the situation where one or more required channels or trains for one or more Functions are inoperable at the same time. The Required Action is to refer to Table 3.3.1-1 and to take the Required Actions for the protection functions affected. The Completion Times are those from the referenced Conditions and Required Actions.

BASES

ACTIONS (continued)

B.1

Condition B applies to the Manual Reactor Trip in MODE 1 or 2. This action addresses the train orientation of the SSPS for this Function. With one channel inoperable, the inoperable channel must be restored to OPERABLE status within 48 hours ~~[~~or in accordance with the Risk Informed Completion Time Program~~]~~. In this Condition, the remaining OPERABLE channel is adequate to perform the safety function.

The Completion Time of 48 hours is reasonable considering that there are two automatic actuation trains and another manual initiation channel OPERABLE, and the low probability of an event occurring during this interval.

C.1

Condition C applies to the following reactor trip Functions in MODE 3, 4, or 5 with the Rod Control System capable of rod withdrawal or one or more rods not fully inserted:

- Manual Reactor Trip,
- RTBs,
- RTB Undervoltage and Shunt Trip Mechanisms, and
- Automatic Trip Logic.

~~This action addresses the train orientation of the SSPS for these Functions.~~ With one channel or train inoperable, the inoperable channel or train must be restored to OPERABLE status within 48 hours ~~[or in accordance with the Risk Informed Completion Time Program]~~. 1

The Completion Time is reasonable considering that in this Condition, the remaining OPERABLE train is adequate to perform the safety function, and given the low probability of an event occurring during this interval.

BASES

ACTIONS (continued)

D.1.1, D.1.2, D.2.1, and D.2.2

Condition D applies to the Power Range Neutron Flux - High Function.

The NIS power range detectors provide input to the Rod Control System 1
~~and the SG Water Level Control System~~ and, therefore, have a two-out-of-four trip logic. A known inoperable channel must be placed in the tripped condition. This results in a partial trip condition requiring only one-out-of-three logic for actuation. The COMPLETION TIME ~~72 hours allowed~~ to place the inoperable channel in the tripped condition is 6 hours. ~~justified in WCAP-14333-P-A (Ref. 8). [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]~~ 1 3

In addition to placing the inoperable channel in the tripped condition, THERMAL POWER must be reduced to ≤ 75% RTP within 4 ~~78~~ hours ~~[or in accordance with the Risk Informed Completion Time Program]~~. Reducing the power level prevents operation of the core with radial power distributions beyond the design limits. With one of the NIS power range detectors inoperable, 1/4 of the radial power distribution monitoring capability is lost. 1 3

As an alternative to the above actions, the inoperable channel can be placed in the tripped condition within 6 ~~72~~ hours ~~[or in accordance with the Risk Informed Completion Time Program]~~ and the QPTR monitored once every 12 hours as per SR 3.2.4.2, QPTR verification. Calculating QPTR every 12 hours compensates for the lost monitoring capability due to the inoperable NIS power range channel and allows continued unit operation at power levels > 75% RTP. The 12-hour Frequency is consistent with LCO 3.2.4, "QUADRANT POWER TILT RATIO (QPTR)." 1 3

~~[~~ The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypass condition for up to 4 ~~12~~ hours while performing routine surveillance testing of other channels. The Note also allows placing the inoperable channel in the bypass condition to allow setpoint adjustments of other channels when required to reduce the setpoint in accordance with other Technical Specifications. ~~The 12 hour time limit is justified in Reference 8.]~~ 3

BASES

ACTIONS (continued)

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~The below text should be used for plants with installed bypass test capability:~~

~~The Required Actions are modified by a Note that allows placing one channel in bypass for 12 hours while performing routine surveillance testing, and setpoint adjustments when a setpoint reduction is required by other Technical Specifications. The 12 hour time limit is justified in Reference 8.~~
~~---~~

2

Required Action D.2.2 has been modified by a Note which only requires SR 3.2.4.2 to be performed if the Power Range Neutron Flux input to QPTR becomes inoperable. Failure of a component in the Power Range Neutron Flux Channel which renders the High Flux Trip Function inoperable may not affect the capability to monitor QPTR. As such, determining QPTR using ~~this~~ the movable incore detectors or by incore thermocouple map once per 12 hours may not be necessary. 1

E.1

Condition E applies to the following reactor trip Functions:

- Power Range Neutron Flux - Low,
- Overtemperature ΔT,
- Overpower ΔT,
- ~~Power Range Neutron Flux - High Positive Rate,~~
- ~~Power Range Neutron Flux - High Negative Rate,~~ 1
- Pressurizer Pressure - High,
- SG Water Level - Low Low, and
- SG Water Level - Low coincident with Steam Flow/Feedwater Flow Mismatch.

BASES

ACTIONS (continued)

A known inoperable channel must be placed in the tripped condition within ~~72~~ 6 hours ~~[or in accordance with the Risk Informed Completion Time Program]~~. Placing the channel in the tripped condition results in a partial trip condition requiring only one-out-of-two logic for actuation of the two-out-of-three trips and one-out-of-three logic for actuation of the two-out-of-four trips. ~~The 72 hours allowed to place the inoperable channel in the tripped condition is justified in Reference 8.~~ 1 3 1

~~[~~The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to ~~12~~ 4 hours while performing routine surveillance testing of the other channels. ~~The 12 hour time limit is justified in Reference 8.]~~ 3

~~------------------------------------REVIEWER'S NOTE------------------------------------~~
~~The below text should be used for plants with installed bypass test capability:~~ 2
~~--~~

~~The Required Actions are modified by a Note that allows placing one channel in bypass for up to 12 hours while performing routine surveillance testing. The 12 hour time limit is justified in Reference 9.~~ 1

F.1 and F.2

Condition F applies to the Intermediate Range Neutron Flux trip when THERMAL POWER is above the P-6 setpoint and below the P-10 setpoint and one channel is inoperable. Above the P-6 setpoint and below the P-10 setpoint, the NIS intermediate range detector performs the monitoring Functions. If THERMAL POWER is greater than the P-6 setpoint but less than the P-10 setpoint, 24 hours is allowed to reduce THERMAL POWER below the P-6 setpoint or increase to THERMAL POWER above the P-10 setpoint. The NIS Intermediate Range Neutron Flux channels must be OPERABLE when the power level is above the capability of the source range, P-6, and below the capability of the power range, P-10. If THERMAL POWER is greater than the P-10 setpoint, the NIS power range detectors perform the monitoring and protection functions and the intermediate range is not required. The Completion Times allow for a slow and controlled power adjustment above P-10 or below P-6 and take into account the redundant capability afforded by the redundant OPERABLE channel, and the low probability of its failure during this period. This action does not require the inoperable channel to be tripped because the Function uses one-out-of-two logic. Tripping one channel would trip the reactor. Thus, the Required Actions specified in this Condition are only applicable when channel failure does not result in reactor trip.

BASES

ACTIONS (continued)

G.1 and G.2

Condition G applies to two inoperable Intermediate Range Neutron Flux trip channels in MODE 2 when THERMAL POWER is above the P-6 setpoint and below the P-10 setpoint. Required Actions specified in this Condition are only applicable when channel failures do not result in reactor trip. Above the P-6 setpoint and below the P-10 setpoint, the NIS intermediate range detector performs the monitoring Functions. With no intermediate range channels OPERABLE, the Required Actions are to suspend operations involving positive reactivity additions immediately. This will preclude any power level increase since there are no OPERABLE Intermediate Range Neutron Flux channels. The operator must also reduce THERMAL POWER below the P-6 setpoint within two hours. Below P-6, the Source Range Neutron Flux channels will be able to monitor the core power level. The Completion Time of 2 hours will allow a slow and controlled power reduction to less than the P-6 setpoint and takes into account the low probability of occurrence of an event during this period that may require the protection afforded by the NIS Intermediate Range Neutron Flux trip.

Required Action G.1 is modified by a Note to indicate that normal plant control operations that individually add limited positive reactivity (e.g., temperature or boron fluctuations associated with RCS inventory management or temperature control) are not precluded by this Action, provided they are accounted for in the calculated SDM.

H.1

Condition H applies to one inoperable Source Range Neutron Flux trip channel when in MODE 2, below the P-6 setpoint, and performing a reactor startup. With the unit in this Condition, below P-6, the NIS source range performs the monitoring and protection functions. With one of the two channels inoperable, operations involving positive reactivity additions shall be suspended immediately.

This will preclude any power escalation. With only one source range channel OPERABLE, core protection is severely reduced and any actions that add positive reactivity to the core must be suspended immediately.

Required Action H.1 is modified by a Note to indicate that normal plant control operations that individually add limited positive reactivity (e.g., temperature or boron fluctuations associated with RCS inventory management or temperature control) are not precluded by this Action, provided they are accounted for in the calculated SDM.

BASES

ACTIONS (continued)

I.1

Condition I applies to two inoperable Source Range Neutron Flux trip channels when in MODE 2, below the P-6 setpoint, and in MODE 3, 4, or 5 with the Rod Control System capable of rod withdrawal or one or more rods not fully inserted. With the unit in this Condition, below P-6, the NIS source range performs the monitoring and protection functions. With both source range channels inoperable, the RTBs must be opened immediately. With the RTBs open, the core is in a more stable condition.

J.1

Condition J applies to one inoperable source range channel in MODE 3, 4, or 5 with the Rod Control System capable of rod withdrawal or one or more rods not fully inserted. With the unit in this Condition, below P-6, the NIS source range performs the monitoring and protection functions. With one of the source range channels inoperable, 48 hours is allowed to restore it to an OPERABLE status. ~~[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]~~ 3

K.1 and K.2

If the Required Action and associated Completion Time of Condition C or J are not met, the unit must be placed in a MODE in which the requirement does not apply. To achieve this status, action must be initiated immediately to ensure that all rods are fully inserted, and the Rod Control System must be placed in a condition incapable of rod withdrawal within 1 hour. A Completion Time of 1 hour provides sufficient time to accomplish the action in an orderly manner. With rods fully inserted and the Rod Control System incapable of rod withdrawal, these Functions are no longer required.

L.1

Condition L applies to the following reactor trip Functions:

- Pressurizer Pressure - Low,
- Pressurizer Water Level - High,
- Reactor Coolant Flow – Low,

BASES

ACTIONS (continued)

- 4.16kV Buses A and B 1

- Undervoltage ~~RCPs~~, and
- Underfrequency RCPs.

With one channel inoperable, the inoperable channel must be placed in the tripped condition within ~~7~~2 hours ~~(Ref. 8) [or in accordance with the Risk Informed Completion Time Program]~~. For the Pressurizer Pressure - Low, Pressurizer Water Level - High, Undervoltage ~~RCPs~~ - 4.16kV Buses A and B, and Underfrequency RCPs trip Functions, placing the channel in the tripped condition when above the P-7 setpoint results in a partial trip condition requiring only one additional channel to initiate a reactor trip. For the Reactor Coolant Flow - Low trip Function, placing the channel in the tripped condition when above the P-~~8~~ 7 setpoint results in a partial trip condition requiring only one additional channel in the same loop to initiate a reactor trip. For the latter trip Function, two tripped channels in two RCS loops are required to initiate a reactor trip when below the P-8 setpoint and above the P-7 setpoint. These Functions do not have to be OPERABLE below the P-7 setpoint because there are no loss of flow trips below the P-7 setpoint. There is insufficient heat production to generate DNB conditions below the P-7 setpoint. ~~The 72 hours allowed to place the channel in the tripped condition is justified in Reference 8.~~ 1 6 3 1 1 1

Allowance of this time interval takes into consideration the redundant capability provided by the remaining redundant OPERABLE channel, and the low probability of occurrence of an event during this period that may require the protection afforded by the Functions associated with Condition L.

~~[The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 12 hours while performing routine surveillance testing of the other channels. The 12 hour time limit is justified in Reference 8.]~~ 3

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~The below text should be used for plants with installed bypass test capability:~~

~~The Required Actions are modified by a Note that allows placing one channel in bypass for up to 12 hours while performing routine surveillance testing. The 12 hour time limit is justified in Reference 8.~~ 2
~~--~~

BASES

ACTIONS (continued)

M.1

If the Required Action and associated Completion Time of Condition L is not met, 6 hours is allowed to reduce THERMAL POWER to below P-7.

N.1

Condition N applies to the RCP Breaker Position (Single Loop) reactor trip Function. There is one breaker position device per RCP breaker. With one channel inoperable, the inoperable channel must be restored to OPERABLE status within ~~[~~6~~]~~ hours ~~[or in accordance with the Risk Informed Completion Time Program]~~. ~~The [6] hours allowed to restore the channel to OPERABLE status is justified in Reference 11~~. 3 1

~~The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to [4] hours while performing routine surveillance testing of the other channels. The [4] hour time limit is justified in Reference 11.~~ 3 1

~~O.1~~

~~If the Required Action and associated Completion Time of Condition N is not met, THERMAL POWER must be reduced below the P-8 setpoint within 4 hours. This places the unit in a MODE where the LCO is no longer applicable. This Function does not have to be OPERABLE below the P-8 setpoint because other RTS Functions provide core protection below the P-8 setpoint. The 4 hours to reduce THERMAL POWER to below the P-8 setpoint is justified in Reference 11.~~ 4

~~P.1~~

~~Condition P applies to the RCP Breaker Position (Two Loops) reactor trip Function. There is one breaker position device per RCP breaker. With one channel inoperable, the inoperable channel must be placed in trip within [6] hours. The [6] hour time limit is justified in Reference 11.~~ 4

~~The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to [4] hours while performing routine surveillance testing of the other channels. The [4] hour time limit is justified in Reference 11.~~

BASES

ACTIONS (continued)

~~Q.1~~

~~If the Required Action and associated Completion Time of Condition P is not met, THERMAL POWER must be reduced below the P-7 setpoint within 6 hours. This places the unit in a MODE where the LCO is no longer applicable. This Function does not have to be OPERABLE below the P-7 setpoint because other RTS Functions provide core protection below the P-7 setpoint. The 6 hours to reduce THERMAL POWER to below the P-7 setpoint is justified in Reference 11.~~ 4

O ~~R~~.1

Condition O ~~R~~ applies to Turbine Trip on Emergency Trip Header ~~Low Fluid Oil~~ Pressure or on Turbine Stop Valve Closure. With one channel inoperable, the inoperable channel must be placed in the trip condition within 72 hours ~~[or in accordance with the Risk Informed Completion Time Program]~~. If placed in the tripped condition, this results in a partial trip condition requiring only one additional channel to initiate a reactor trip. ~~The 72 hours allowed to place the inoperable channel in the tripped condition is justified in Reference 8.~~ 1 3 1

~~[The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 12 hours while performing routine surveillance testing of the other channels. The 12 hour time limit is justified in Reference 8.]~~ 3

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~The below text should be used for plants with installed bypass test capability:~~

~~The Required Actions are modified by a Note that allows placing one channel in bypass for up to 12 hours while performing routine surveillance testing. The 12 hour time limit is justified in Reference 8.~~ 2
~~--~~

~~S.1~~

~~If the Required Action and associated Completion Time of Condition R is not met, THERMAL POWER must be reduced below the P-9 setpoint within 4 hours. This places the unit in a MODE where the LCO is no longer applicable.~~ 4

BASES

ACTIONS (continued)

~~T~~P.1

Condition ~~T~~P applies to the SI Input from ESFAS reactor trip and the RTS Automatic Trip Logic in MODES 1 and 2. These actions address the train orientation of the RTS for these Functions. With one train inoperable, ~~24~~6 hours are allowed to restore the train to OPERABLE status. ~~[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]~~ The Completion Time of ~~24~~6 hours ~~(Required Action O.1)~~ is reasonable considering that in this Condition, the remaining OPERABLE train is adequate to perform the safety function and given the low probability of an event during this interval. ~~The 24 hours allowed to restore the inoperable RTS Automatic Trip Logic train to OPERABLE status is justified in Reference 8.~~

The Required Actions have been modified by a Note that allows bypassing one train up to ~~[4]~~2 hours for surveillance testing, provided the other train is OPERABLE. ~~[~~The ~~[4]~~2 hour time limit for testing the RTS Automatic Trip logic train may include testing the RTB also, if both the Logic test and RTB test are conducted within the ~~[4]~~2 hour time limit. ~~The [4] hour time limit is justified in Reference 8.]~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~The below text should replace the bracketed information in the previous paragraph if WCAP-14333 and WCAP-15376 are being incorporated:~~

~~The [4] hour time limit for the RTS Automatic Trip Logic train testing is greater than the 2 hour time limit for the RTBs, which the logic train supports. The longer time limit for the logic train ([4] hours) is acceptable based on Reference 12.~~
~~---~~

~~U.1~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~WCAP-14333-P-A, Rev. 1, "Probabilistic Risk Analysis of the RPS and ESFAS Test Times and Completion Times," and the associated TSTF (TSTF-418) and WCAP-15376-P, "Risk-Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times," and the associated TSTF (TSTF-411) both modify Condition U.~~

BASES

ACTIONS (continued)

~~WCAP-14333-P-A, Rev. 1 and the associated TSTF-418 provide a Completion Time for Required Action U.1 of 1 hour. WCAP-14333-P-A, Rev. 1 contains three Notes to TS 3.3.1 Condition U. Note 1 states, "One train may be bypassed for up to 2 hours for surveillance testing, provided the other train is OPERABLE." Note 2 states, "One RTB may be bypassed for up to 2 hours for maintenance on undervoltage or shunt trip mechanisms, provided the other train is OPERABLE." WCAP-14333-P-A, Rev. 1 also adds a third Note, which states: "One RTB train may be bypassed for up to [4] hours for concurrent surveillance testing of the RTB and automatic trip logic, provided the other train is OPERABLE."~~

~~WCAP-15376-P and the associated TSTF-411 provide a Completion Time for Required Action U.1 of 24 hours. WCAP-15376-P relaxes the time that an RTB train may be bypassed for surveillance testing from 2 hours to 4 hours, and deletes Notes 2 and 3 that are added by WCAP-14333-P-A, Rev. 1.~~ 4

~~Implementation of TS 3.3.1, Condition U:~~

1. ~~If WCAP-14333-P-A, Rev. 1 is implemented without implementing WCAP-15376-P, the Completion Time for Required Action U.1 will be 1 hour. Condition U will contain the three Notes as discussed above, with 2 hours to bypass an RTB train for surveillance testing in Note 1.~~

2. ~~If WCAP-15376-P is implemented without implementing WCAP-14333-P-A, Rev. 1, the Completion Time for Required Action U.1 will be 24 hours. Condition U will only contain one Note (Note 1 as discussed in the first paragraph above), with 4 hours to bypass an RTB train for surveillance testing in the Note.~~

3. ~~If WCAP-14333-P-A, Rev. 1, and WCAP-15376-P are both implemented, follow the direction for Item 2, above.~~

~~Use the following Bases if WCAP-14333-P-A, Rev. 1 is adopted without adopting WCAP-15376-P:~~

~~Condition U applies to the RTBs in MODES 1 and 2. These actions address the train orientation of the RTS for the RTBs. With one train inoperable, 1 hour is allowed to restore the train to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]~~

BASES

ACTIONS (continued)

~~The Required Actions have been modified by three Notes. Note 1 allows one channel to be bypassed for up to 2 hours for surveillance testing, provided the other train is OPERABLE. Note 1 applies to RTB testing that is performed independently from the corresponding automatic trip logic testing. Note 2 allows one RTB to be bypassed for up to 2 hours for maintenance if the other RTP train is OPERABLE. The 2 hour time limit is justified in Reference 9. Note 3 applies to RTB testing that is performed concurrently with the corresponding automatic trip logic test. For concurrent testing of the automatic trip logic and RTB, one RTB train may be bypassed for up to [4] hours provided the other train is OPERABLE. The [4] hour time limit is approved by Reference 8.~~ 4

~~Use the following Bases if WCAP-15376-P is adopted without adopting WCAP-14333-P-A, Rev. 1 or if both are adopted:~~

~~Condition U applies to the RTBs in MODES 1 and 2. These actions address the train orientation of the RTS for the RTBs. With one train inoperable, 24 hours is allowed for train corrective maintenance to restore the train to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The 24 hour Completion Time is justified in Reference 13.~~

~~The Required Actions have been modified by a Note. The Note allows one train to be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE. The 4 hour time limit is justified in Reference 13.~~

~~V~~Q.1

Condition ~~V~~ Q applies to the P-6 and P-10 interlocks. With one or more channels inoperable for one-out-of-two or two-out-of-four coincidence logic, the associated interlock must be verified to be in its required state for the existing unit condition within 1 hour. Verifying the interlock status manually accomplishes the interlock's Function. The Completion Time of 1 hour is based on operating experience and the minimum amount of time allowed for manual operator actions. 1

BASES

ACTIONS (continued)

~~W~~ R.1

Condition ~~W~~ R applies to the P-7, P-8, ~~P-9,~~ and P-~~13~~ 9 interlocks. With one or more channels inoperable for one-out-of-two or two-out-of-four coincidence logic, the associated interlock must be verified to be in its required state for the existing unit condition within 1 hour. These actions are conservative for the case where power level is being raised. Verifying the interlock status manually accomplishes the interlock's Function. The Completion Time of 1 hour is based on operating experience and the minimum amount of time allowed for manual operator actions. 1

~~X~~ S.1

If the Required Action and associated Completion Time of Condition S ~~W is~~ L and R are not met, the unit must be placed in MODE 2 within 6 hours. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 2 from full power in an orderly manner and without challenging unit systems. 1

~~Y~~ T.1

Condition ~~Y~~ T applies to the RTB Undervoltage and Shunt Trip Mechanisms, or diverse trip features, in MODES 1 and 2. With one of the diverse trip features inoperable, it must be restored to an OPERABLE status within 48 hours ~~[~~or in accordance with the Risk Informed Completion Time Program~~]~~. The affected RTB shall not be bypassed while one of the diverse features is inoperable except for the time required to perform maintenance to one of the diverse features. The allowable time for performing maintenance of the diverse features is 2 hours ~~for the reasons stated under Condition U~~. 1 1

The Completion Time of 48 hours for Required Action ~~Y.1~~ T.1 is reasonable considering that in this Condition there is one remaining diverse feature for the affected RTB, and one OPERABLE RTB capable of performing the safety function and given the low probability of an event occurring during this interval.

BASES

ACTIONS (continued)

~~Z~~ U.1

If the Required Action and associated Completion Time of Condition B, D, E, Q, or T ~~T, U, V, W,~~ or ~~Y~~ is not met, the unit must be placed in MODE 3 within 6 hours. The Completion Time of 6 hours is a reasonable time, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems. With the unit in MODE 3, ACTION ~~K~~ C would apply to any inoperable RTB, RTB trip mechanism, or to any inoperable Manual Reactor Trip Function if the Rod Control System is capable of rod withdrawal or one or more rods are not fully inserted. 1

SURVEILLANCE ~~REQUIREMENTS~~

~~REVIEWER'S NOTE~~
~~In Table 3.3.1-1, Functions 11.a and 11.b were not included in the generic evaluations approved in either WCAP-10271, as supplemented, or WCAP-14333. In order to apply the WCAP-10271, as supplemented, and WCAP-14333 TS relaxations to plant specific Functions not evaluated generically, licensees must submit plant specific evaluations for NRC review and approval.~~ 2

~~REVIEWER'S NOTE~~
~~Notes b and c are applied to the setpoint verification Surveillances for each RTS instrumentation Function in Table 3.3.1-1 unless one or more of the following exclusions apply:~~

~~1. Manual actuation circuits, automatic actuation logic circuits or instrument functions that derive input from contacts which have no associated sensor or adjustable device, e.g., limit switches, breaker position switches, manual actuation switches, float switches, proximity detectors, etc. are excluded. In addition, those permissives and interlocks that derive input from a sensor or adjustable device that is tested as part of another TS function are excluded.~~ 2

~~2. Settings associated with safety relief valves are excluded. The performance of these components is already controlled (i.e., trended with as-left and as-found limits) under the ASME Code for Operation and Maintenance of Nuclear Power Plants testing program.~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~3. Functions and Surveillance Requirements which test only digital components are normally excluded. There is no expected change in result between SR performances for these components. Where separate as-left and as-found tolerance is established for digital component SRs, the requirements would apply.~~ 2

The SRs for each RTS Function are identified by the SRs column of Table 3.3.1-1 for that Function.

A Note has been added to the SR Table stating that Table 3.3.1-1 determines which SRs apply to which RTS Functions.

Note that each channel of process protection supplies both trains of the RTS. When testing Channel I, Train A and Train B must be examined. Similarly, Train A and Train B must be examined when testing Channel II, Channel III, and Channel IV (if applicable). The CHANNEL CALIBRATION and COTs are performed in a manner that is consistent with the assumptions used in analytically calculating the required channel accuracies.

~~REVIEWER'S NOTE~~

~~Certain Frequencies are based on approval topical reports. In order for a licensee to use these times, the licensee must justify the Frequencies as required by the staff SER for the topical report.~~ 2

SR 3.3.1.1

Performance of the CHANNEL CHECK ensures that 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.

BASES

SURVEILLANCE REQUIREMENTS (continued)

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 of 12 hours 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.~~ 3

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 2
~~--]~~

SR 3.3.1.2

SR 3.3.1.2 compares the calorimetric heat balance calculation to the power range channel output. If the calorimetric heat balance calculation results exceed the power range channel output by more than 2% RTP, the power range channel is not declared inoperable, but must be adjusted. The power range channel output shall be adjusted consistent with the calorimetric heat balance calculation results if the calorimetric calculation exceed the power range channel output by more than + 2% RTP. If the power range channel output cannot be properly adjusted, the channel is declared inoperable.

If the calorimetric is performed at part power (< ~~[~~70~~]~~% RTP), adjusting the power range channel indication in the increasing power direction will assure a reactor trip below the safety analysis limit (< ~~[118]~~ 108.0% RTP). Making no adjustment to the power range channel in the decreasing power direction due to a part power calorimetric assures a reactor trip consistent with the safety analyses. 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

This allowance does not preclude making indicated power adjustments, if desired, when the calorimetric heat balance calculation is less than the power range channel output. To provide close agreement between indicated power and to preserve operating margin, the power range channels are normally adjusted when operating at or near full power during steady-state conditions. However, discretion must be exercised if the power range channel output is adjusted in the decreasing power direction due to a part power calorimetric (< ~~[~~70~~]~~% RTP). This action may introduce a nonconservative bias at higher power levels which may result in an NIS reactor trip above the safety analysis limit (> ~~[118]~~ 108.6% RTP). 3
The cause of the potential nonconservative bias is the decreased accuracy of the calorimetric at reduced power conditions. The primary error contributor to the instrument uncertainty for a secondary side power calorimetric measurement is the feedwater flow measurement, which is typically a ΔP measurement across a feedwater venturi. While the measurement uncertainty remains constant in ΔP as power decreases, when translated into flow, the uncertainty increases as a square term. Thus a 1% flow error at 100% power can approach a 10% flow error at 30% RTP even though the ΔP error has not changed. An evaluation of extended operation at part power conditions would conclude that it is prudent to administratively adjust the setpoint of the Power Range Neutron Flux - High bistables to ≤ ~~[~~85~~]~~% RTP when: 1) the power range channel output is adjusted in the decreasing power direction due to a part power calorimetric below ~~[~~70~~]~~% RTP; or 2) for a post refueling startup. 3
The evaluation of extended operation at part power conditions would also conclude that the potential need to adjust the indication of the Power Range Neutron Flux in the decreasing power direction is quite small, primarily to address operation in the intermediate range about P-10 (nominally 10% RTP) to allow enabling of the Power Range Neutron Flux - Low setpoint and the Intermediate Range Neutron Flux reactor trips. Before the Power Range Neutron Flux - High bistables are reset to ≤ ~~[109]~~ 108.0% RTP, the power range channel adjustment must be confirmed based on a calorimetric performed at ≥ ~~[~~70~~]~~% RTP. 3

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~A plant specific evaluation based on the guidance in Westinghouse Technical Bulletin ESBU-TB-92-14 is required to determine the power level below which power range channel adjustments in a decreasing power direction become a concern. This evaluation must reflect the plant specific RTS setpoint study. In addition, this evaluation should determine if additional administrative controls are required for Power Range Neutron Flux-High trip setpoint setting changes~~ 2
~~--~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

The SR is modified by two notes. Note 1 allows neutron detectors to be excluded from the CHANNEL CALIBRATION.

2

~~The~~ Note clarifies that this Surveillance is required only if reactor power is ≥ 15% RTP and that 12 hours are allowed for performing the first Surveillance after reaching 15% RTP. A power level of 15% RTP is chosen based on plant stability, i.e., automatic rod control capability and turbine generator synchronized to the grid. 4

~~[The Frequency of every 24 hours is adequate. It is based on unit operating experience, considering instrument reliability and operating history data for instrument drift. Together these factors demonstrate that a difference between the calorimetric heat balance calculation and the power range channel output of more than +2% RTP is not expected in any 24 hour period.~~ 3

~~In addition, control room operators periodically monitor redundant indications and alarms to detect deviations in channel outputs.~~

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 2
~~--]~~

SR 3.3.1.3

SR 3.3.1.3 compares the incore system to the NIS channel output. If the absolute difference is ≥ 3%, the NIS channel is still OPERABLE, but must be readjusted. The excore NIS channel shall be adjusted if the absolute difference between the incore and excore AFD is ≥ 3%.

If the NIS channel cannot be properly readjusted, the channel is declared inoperable. This Surveillance is performed to verify the f(ΔI) input to the overtemperature ΔT Function.

The SR is modified by two notes. Note 1 allows neutron detectors to be excluded from the CHANNEL CALIBRATION.

2

~~A~~ Note clarifies that the Surveillance is required only if reactor power is ≥ ~~[~~15%~~]~~ RTP and that 24 hours is allowed for performing the first Surveillance after reaching ~~[~~15%~~]~~ RTP. 4 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~[The Frequency of every 31 EFPD is adequate. It is based on unit operating experience, considering instrument reliability and operating history data for instrument drift. Also, the slow changes in neutron flux during the fuel cycle can be detected during this interval.~~ 3

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 2
~~---]~~

SR 3.3.1.4

SR 3.3.1.4 is the performance of a TADOT. This test shall verify OPERABILITY by actuation of the end devices. 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 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 RTB test shall include separate verification of the undervoltage and shunt trip mechanisms. Independent verification of RTB undervoltage and shunt trip Function is not required for the bypass breakers. No capability is provided for performing such a test at power. The independent test for bypass breakers is included in SR 3.3.1.12 ~~14~~. The bypass breaker test shall include a local shunt trip. ~~A~~ Note 1 has been added to indicate that this test must be performed on the bypass breaker prior to placing it in service. 4

~~[The Frequency of every 62 days on a STAGGERED TEST BASIS is justified in Reference 13.~~ 3

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~--~~] 2

RPS Logic

on the Automatic Trip and Interlock Logic.

SR 3.3.1.5

SR 3.3.1.5 is the performance of an ACTUATION LOGIC TEST. The ~~SSPS~~ is tested using the semiautomatic tester. 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, including operation of the P-7 permissive which is a logic function only. ~~[The Frequency of every 92 days on a STAGGERED TEST BASIS is justified in Reference 13.~~ 1 3

channel

Interlock Logic Test shall consist of verifying that the interlock is in its required state by observing the permissive annunciator window.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~--~~] 2

SR 3.3.1.6

SR 3.3.1.6 is a calibration of the excore channels to the incore channels. If the measurements do not agree, the excore channels are not declared inoperable but must be calibrated to agree with the incore detector measurements. If the excore channels cannot be adjusted, the channels are declared inoperable. This Surveillance is performed to verify the f(ΔI) input to the overtemperature ΔT Function. 4

This calibration is normally performed above 75% RTP. However, if the surveillance requirement interval coincides with sustained operation between 30% and 75% of RTP, calibration shall be performed at this lower power level.

A Note modifies SR 3.3.1.6. The Note states that this Surveillance is required only if reactor power is > ~~50~~% RTP and that ~~[~~24~~]~~ hours is allowed for performing the first surveillance after reaching ~~50~~% RTP. 2 4

75

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~[The Frequency of 92 EFPD is adequate. It is based on industry operating experience, considering instrument reliability and operating history data for instrument drift.~~ 3

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 2
~~---]~~

SR 3.3.1.7

SR 3.3.1.7 is the performance of a COT.

A COT is performed on each required channel to ensure the entire channel will perform the intended Function. 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 COT 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.

Setpoints must be conservative with respect to the Allowable Values specified in Table 3.3.1-1.

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.

The "as-found" ~~[~~and "as-left"~~]~~ values must also be recorded and reviewed for consistency with the assumptions of Reference ~~9~~ 7. 3 1

SR 3.3.1.7 is modified by ~~a Note that~~ two Notes. Note 1 provides a 4-hour~~s~~ delay in the requirement to perform this Surveillance for source range instrumentation when entering MODE 3 from MODE 2. This Note allows a normal shutdown to proceed without a delay for testing in MODE 2 and for a short time in MODE 3 until the RTBs are open and SR 3.3.1.7 is no 4

BASES

SURVEILLANCE REQUIREMENTS (continued)

Note 2 applies to the source range instrumentation only and states the SR is only required to be performed if it has not been performed in the previous 31 days.

longer required to be performed. If the unit is to be in MODE 3 with the RTBs closed for > 4 hours this Surveillance must be performed prior to 4 hours after entry into MODE 3. 4

~~[The Frequency of 184 days is justified in Reference 9.~~ 3

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 2
~~--]~~

SR 3.3.1.7 is modified by two Notes as identified in Table 3.3.1-1. The first Note requires evaluation of channel performance for the condition where the as-found setting for the channel setpoint is outside its as-found tolerance but conservative with respect to the Allowable Value. Evaluation of channel performance will verify that the channel will continue to behave in accordance with safety analysis assumptions and the channel performance assumptions in the setpoint methodology. The purpose of the assessment is to ensure confidence in the channel performance prior to returning the channel to service. For channels determined to be OPERABLE but degraded, after returning the channel to service the channels will be evaluated under the plant Corrective Action Program. Entry into the Corrective Action Program will ensure required review and documentation of the condition. The second Note requires that the as-left setting for the channel be returned to within the as-left tolerance of the [NTSP~~]~~. Where a setpoint more conservative than the ~~[~~NTSP~~]~~ is used in the plant surveillance procedures (field setting), the as-left and as-found tolerances, as applicable, will be applied to the surveillance procedure setpoint. This will ensure that sufficient margin to the Safety Limit and/or Analytical Limit is maintained. If the as-left channel setting cannot be returned to a setting within the as-left tolerance of the [NTSP], then the channel shall be declared inoperable.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~The bracketed section '[NTSP and the]' of the sentence in Note (c) in Table 3.3.1-1 is not required in plant specific Technical Specifications which include a [Nominal Trip Setpoint] column in Table 3.3.1-1.~~ 2
~~--~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

specified

Reference 6 and Reference 8

The second Note also requires that the ~~[~~NTSP and the~~]~~ methodologies for calculating the as-left and the as-found tolerances be in ~~[insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference]~~. 3

SR 3.3.1.8

This verification can be performed by observation of the permissive annunciator window.

The test should also include verification of the High Flux at Shutdown Alarm Setpoint of ½ decade above the existing count rate.

SR 3.3.1.8 is the performance of a COT as described in SR 3.3.1.7, except it is modified by a Note that this test shall include verification that the P-6 and P-10 interlocks are in their required state for the existing unit condition. 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 COT 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 modified by a Note that allows this surveillance to be satisfied if it has been performed within ~~[~~the Frequency specified in the Surveillance Frequency Control Program ~~OR 184 days] of the Frequencies prior to reactor startup and four hours after reducing power below P-10 and P-6~~. The Frequency of "prior to startup" ensures this surveillance is performed prior to critical operations and applies to the source, intermediate and power range low instrument channels. ~~The Frequency of [12] hours after reducing power below P-10 (applicable to intermediate and power range low channels) and 4 hours after reducing power below P-6 (applicable to source range channels) allows a normal shutdown to be completed and the unit removed from the MODE of Applicability for this surveillance without a delay to perform the testing required by this surveillance. The Frequency thereafter applies if the plant remains in the MODE of Applicability after the initial performances of prior to reactor startup and [12] and four hours after reducing power below P-10 or P-6, respectively. The MODE of Applicability for this surveillance is < P-10 for the power range low and intermediate range channels and < P-6 for the source range channels. Once the unit is in MODE 3, this surveillance is no longer required. If power is to be maintained < P-10 for more than [12] hours or < P-6 for more than 4 hours, then the testing required by this surveillance must be performed prior to the expiration of the time limit. [Twelve] hours and four hours are reasonable times to complete the required testing or place the unit in a MODE where this surveillance is no longer required. This test ensures that the NIS source, intermediate, and power range low channels are OPERABLE prior to taking the reactor critical and after reducing power into the applicable MODE (< P-10 or < P-6) for periods > [12] and 4 hours, respectively. [The Frequency of 184 days is justified in Reference 13.~~

1 1 3 1

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~OR~~ 3

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----REVIEWER'S NOTE-----~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 2
~~-----]~~

SR 3.3.1.8 is modified by two Notes as identified in Table 3.3.1-1. The first Note requires evaluation of channel performance for the condition where the as-found setting for the channel setpoint is outside its as-found tolerance but conservative with respect to the Allowable Value. Evaluation of channel performance will verify that the channel will continue to behave in accordance with safety analysis assumptions and the channel performance assumptions in the setpoint methodology. The purpose of the assessment is to ensure confidence in the channel performance prior to returning the channel to service. For channels determined to be OPERABLE but degraded, after returning the channel to service the performance of these channels will be evaluated under the plant Corrective Action Program. Entry into the Corrective Action Program will ensure required review and documentation of the condition. The second Note requires that the as-left setting for the channel be returned to within the as-left tolerance of the [NTSP~~]~~. Where a setpoint 3 more conservative than the ~~[~~NTSP~~]~~ is used in the plant surveillance procedures (field setting), the as-left and as-found tolerances, as applicable, will be applied to the surveillance procedure setpoint. This will ensure that sufficient margin to the Safety Limit and/or Analytical Limit is maintained. If the as-left channel setting cannot be returned to a setting within the as-left tolerance of the ~~[~~NTSP~~]~~, then the channel shall be 3 declared inoperable.

~~-----REVIEWER'S NOTE-----~~
~~The bracketed section '[NTSP and the]' of the sentence in Note (c) in Table 3.3.1-1 is not required in plant specific Technical Specifications which include a [Nominal Trip Setpoint] column in Table 3.3.1-1.~~ 2
~~-----~~

The second Note also requires that the ~~[~~NTSP and the~~]~~ methodologies for calculating the as-left and the as-found tolerances be specified in ~~[insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference]~~ Reference 6 and Reference 8. 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~SR 3.3.1.9~~

~~SR 3.3.1.9 is the performance of a TADOT and [is performed every [92] days, as justified in Reference 9.~~ 4

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~

~~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 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 SR is modified by a Note that excludes verification of setpoints from the TADOT. Since this SR applies to RCP undervoltage and underfrequency relays, setpoint verification requires elaborate bench calibration and is accomplished during the CHANNEL CALIBRATION.~~

~~SR 3.3.1.10~~ 4

~~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.~~

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

BASES

SURVEILLANCE REQUIREMENTS (continued) 4

~~[The Frequency of 18 months is based on the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint methodology.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~

~~SR 3.3.1.10 is modified by a Note stating that this test shall include verification that the time constants are adjusted to the prescribed values where applicable.~~

~~SR 3.3.1.10 is modified by two Notes as identified in Table 3.3.1-1. The first Note requires evaluation of channel performance for the condition where the as-found setting for the channel setpoint is outside its as-found tolerance but conservative with respect to the Allowable Value. Evaluation of channel performance will verify that the channel will continue to behave in accordance with safety analysis assumptions and the channel performance assumptions in the setpoint methodology. The purpose of the assessment is to ensure confidence in the channel performance prior to returning the channel to service. For channels determined to be OPERABLE but degraded, after returning the channel to service the performance of these channels will be evaluated under the plant Corrective Action Program. Entry into the Corrective Action Program will ensure required review and documentation of the condition. The second Note requires that the as-left setting for the channel be returned to within the as-left tolerance of the [NTSP]. Where a setpoint more conservative than the [NTSP] is used in the plant surveillance procedures (field setting), the as-left and as-found tolerances, as applicable, will be applied to the surveillance procedure setpoint. This will ensure that sufficient margin to the Safety Limit and/or Analytical Limit is maintained. If the as-left channel setting cannot be returned to a setting within the as-left tolerance of the [NTSP], then the channel shall be declared inoperable.~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~The bracketed section '[NTSP and the]' of the sentence in Note (c) in Table 3.3.1-1 is not required in plant specific Technical Specifications which include a [Nominal Trip Setpoint] column in Table 3.3.1-1.~~
~~---~~

~~The second Note also requires that the [NTSP and the] methodologies for calculating the as-left and the as-found tolerances be in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].~~ 4

9

SR 3.3.1.~~11~~

SR 3.3.1.~~11~~ is the performance of a CHANNEL CALIBRATION~~, as described in SR 3.3.1.10~~. This SR is modified by a Note stating that neutron detectors are excluded from the CHANNEL CALIBRATION. The CHANNEL CALIBRATION for the power range neutron detectors consists of a normalization of the detectors based on a power calorimetric and flux map performed above 15% RTP. The CHANNEL CALIBRATION for the source range and intermediate range neutron detectors consists of obtaining the detector plateau or preamp discriminator curves, evaluating those curves, and comparing the curves to the manufacturer's data. This Surveillance is not required for the NIS power range detectors for entry into MODE 2 or 1, and is not required for the NIS intermediate range detectors for entry into MODE 2, because the unit must be in at least MODE 2 to perform the test for the intermediate range detectors and MODE 1 for the power range detectors~~. [The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed on the [18] month Frequency.~~ 1 3

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~ 2

BASES

SURVEILLANCE REQUIREMENTS (continued)

9

SR 3.3.1.~~11~~ is modified by two Notes as identified in Table 3.3.1-1. The first Note requires evaluation of channel performance for the condition where the as-found setting for the channel setpoint is outside its as-found tolerance but conservative with respect to the Allowable Value. Evaluation of channel performance will verify that the channel will continue to behave in accordance with safety analysis assumptions and the channel performance assumptions in the setpoint methodology. The purpose of the assessment is to ensure confidence in the channel performance prior to returning the channel to service. For channels determined to be OPERABLE but degraded, after returning the channel to service the performance of these channels will be evaluated under the plant Corrective Action Program. Entry into the Corrective Action Program will ensure required review and documentation of the condition. The second Note requires that the as-left setting for the channel be returned to within the as-left tolerance of the ~~[~~NTSP~~]~~. Where a setpoint more conservative than the ~~[~~NTSP~~]~~ is used in the plant surveillance procedures (field setting), the as-left and as-found tolerances, as applicable, will be applied to the surveillance procedure setpoint. This will ensure that sufficient margin to the Safety Limit and/or Analytical Limit is maintained. If the as-left channel setting cannot be returned to a setting within the as-left tolerance of the ~~[~~NTSP~~]~~, then the channel shall be declared inoperable. 1 3

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~The bracketed section '[NTSP and the]' of the sentence in Note (c) in Table 3.3.1-1 is not required in plant specific Technical Specifications which include a [Nominal Trip Setpoint] column in Table 3.3.1-1.~~
~~---~~ 2

specified

The second Note also requires that the ~~[~~NTSP and the~~]~~ methodologies for calculating the as-left and the as-found tolerances be in ~~[insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference]~~. 3

Reference 6 and Reference 8

10

SR 3.3.1.~~12~~

SR 3.3.1.~~12~~ is the performance of a CHANNEL CALIBRATION~~, as described in SR 3.3.1.10~~. This SR is modified by a Note stating that this test shall include verification of the RCS resistance temperature detector (RTD) bypass loop flow rate. Whenever a sensing element is replaced, the next required CHANNEL CALIBRATION of the resistance temperature detectors (RTD) sensors is accomplished by an inplace cross calibration that compares the other sensing elements with the recently installed sensing element. 1

BASES

SURVEILLANCE REQUIREMENTS (continued)

This test will verify the rate lag compensation for flow from the core to the RTDs.

~~[The Frequency is justified by the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~ 3

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 2
~~---]~~

10

SR 3.3.1.~~1~~2 is modified by two Notes as identified in Table 3.3.1-1. The first Note requires evaluation of channel performance for the condition where the as-found setting for the channel setpoint is outside its as-found tolerance but conservative with respect to the Allowable Value. Evaluation of channel performance will verify that the channel will continue to behave in accordance with safety analysis assumptions and the channel performance assumptions in the setpoint methodology. The purpose of the assessment is to ensure confidence in the channel performance prior to returning the channel to service. For channels determined to be OPERABLE but degraded, after returning the channel to service the performance of these channels will be evaluated under the plant Corrective Action Program. Entry into the Corrective Action Program will ensure required review and documentation of the condition. The second Note requires that the as-left setting for the channel be returned to within the as-left tolerance of the ~~[~~NTSP~~]~~. Where a setpoint more conservative than the ~~[~~NTSP~~]~~ is used in the plant surveillance procedures (field setting), the as-left and as-found tolerances, as applicable, will be applied to the surveillance procedure setpoint. This will ensure that sufficient margin to the Safety Limit and/or Analytical Limit is maintained. If the as-left channel setting cannot be returned to a setting within the as-left tolerance of the ~~[~~NTSP~~]~~, then the channel shall be declared inoperable. 1 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~--------------------------------REVIEWER'S NOTE--------------------------------~~
~~The bracketed section '[NTSP and the]' of the sentence in Note (c) in Table 3.3.1-1 is not required in plant specific Technical Specifications which include a [Nominal Trip Setpoint] column in Table 3.3.1-1.~~ 2
~~---~~

specified

The second Note also requires that the ~~[~~NTSP and the~~]~~ methodologies for calculating the as-left and the as-found tolerances be in ~~[insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference]~~. 3

Reference 6 and Reference 8

11

SR 3.3.1.~~13~~ 1

SR 3.3.1.~~13~~ is the performance of a COT of RTS interlocks. 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 COT 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 of 18 months is based on the known reliability of the interlocks and the multichannel redundancy available, and has been shown to be acceptable through operating experience.~~ 3

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~--------------------------------REVIEWER'S NOTE--------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 2
~~---]~~

12

SR 3.3.1.~~14~~ 1

SR 3.3.1.~~14~~ is the performance of a TADOT of the Manual Reactor Trip, RCP Breaker Position, and the SI Input from ESFAS. 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 TADOT of a relay. This is acceptable

BASES

SURVEILLANCE REQUIREMENTS (continued)

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 test shall independently verify the OPERABILITY of the undervoltage and shunt trip mechanisms for the Manual Reactor Trip Function for the Reactor Trip Breakers and Reactor Trip Bypass Breakers. The Reactor Trip Bypass Breaker test shall include testing of the automatic undervoltage trip.

~~[The Frequency of 18 months is based on the known reliability of the Functions and the multichannel redundancy available, and has been shown to be acceptable through operating experience.~~ 3

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 2
~~---]~~

The SR is modified by a Note that excludes verification of setpoints from the TADOT. The Functions affected have no setpoints associated with them.

13

SR 3.3.1.~~15~~ 1

SR 3.3.1.~~15~~ is the performance of a TADOT of Turbine Trip Functions. 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 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. This TADOT is as described in SR 3.3.1.4, except that this test is performed prior to exceeding the ~~[~~P-~~9]~~ interlock whenever the unit has been in MODE 3. This Surveillance is not required if it has been performed within the previous 31 days. Verification of the Trip Setpoint does not have to be performed for this Surveillance. Performance of this test will ensure that the turbine trip Function is OPERABLE prior to exceeding the ~~[~~P-~~9]~~ interlock. 3

7 7

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~SR 3.3.1.16~~ 4

~~SR 3.3.1.16 verifies that the individual channel/train actuation response times are less than or equal to the maximum values assumed in the accident analysis. Response time testing acceptance criteria are included in Technical Requirements Manual, Section 15 (Ref. 14). 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 reaches the required functional state (i.e., control and shutdown rods fully inserted in the reactor core).~~

~~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 Function 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 calculated assuming the time constants are set at their nominal values. The response time may be measured by a series of overlapping tests such that the entire response time is measured.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Applicable portions of the following Bases are applicable for plants adopting WCAP-13632-P-A and/or WCAP-14036-P, and the methodology contained in Attachment 1 to TSTF-569.~~
~~--~~

~~Response time may be verified by actual response time tests in any series of sequential, overlapping or total channel measurements, or by the summation of allocated sensor, signal processing and actuation logic response times with actual response time tests on the remainder of the channel. Allocations for sensor response times may be obtained from: (1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), (2) in place, onsite, or offsite (e.g., vendor) test measurements, or (3) utilizing vendor engineering specifications. WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," (Ref. 10) provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the WCAP. Response time verification for other sensor types must be demonstrated by test.~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

4

~~[WCAP-14036-P, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," (Ref. 15) provides the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response time.] The allocations for sensor, signal conditioning, and actuation logic response times must be verified prior to placing the component in operational service and re-verified following maintenance that may adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for repair are of the same type and value. Specific components identified in the WCAP may be replaced without verification testing. One example where response time could be affected is replacing the sensing assembly of a transmitter.~~

~~The response time may be verified for components that replace the components that were previously evaluated in Ref. 10 and Ref. 15, provided that the components have been evaluated in accordance with the NRC approved methodology as discussed in Attachment 1 to TSTF-569, "Methodology to Eliminate Pressure Sensor and Protection Channel (for Westinghouse Plants only) Response Time Testing," (Ref. 16).~~

~~[As appropriate, each channel's response must be verified every [18] months on a STAGGERED TEST BASIS. Testing of the final actuation devices is included in the testing. Response times cannot be determined during unit operation because equipment operation is required to measure response times. Experience has shown that these components usually pass this surveillance when performed at the 18 months Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~SR 3.3.1.16 is modified by a Note stating that neutron detectors are excluded from RTS RESPONSE TIME testing. This Note is necessary because of the difficulty in generating an appropriate detector input signal. Excluding the detectors is acceptable because the principles of detector operation ensure a virtually instantaneous response.~~ 4

REFERENCES

1. Regulatory Guide 1.105, Revision 3, "Setpoints for Safety Related Instrumentation."

2. U FSAR, Chapter ~~[~~7~~]~~.

~~3. FSAR, Chapter [6].~~

1 3

3 ~~4~~. U FSAR, Chapter ~~[15]~~ 14.

4 ~~5~~. IEEE-279-1971.

5 ~~6~~. 10 CFR 50.49.

6 ~~7~~. ~~Plant specific setpoint methodology study.~~ IC-3.17, "Instrument Setpoint Methodology For Nuclear Power Plants."

7 ~~8~~. ~~WCAP-14333-P-A, Rev. 1, October 1998.~~ 5613-J-839, "Turkey Point Unit 3 Instrument Setpoints" and 5614-J-839, "Turkey Point Unit 4 Instrument Setpoints"

8 ~~9~~. ~~WCAP-10271-P-A, Supplement 1, May 1986~~. Technical Requirements Manual

~~10. WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," January 1996.~~

~~11. [Plant specific evaluation reference.]~~

~~12. WCAP-10271-P-A, Supplement 2, June 1990.~~

~~13. WCAP-15376, Rev. 0, October 2000.~~

~~14. Technical Requirements Manual, Section 15, "Response Times."~~

~~15. WCAP-14036-P, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," December 1995.~~

~~16. Attachment 1 to TSTF-569, "Methodology to Eliminate Pressure Sensor and Protection Channel (for Westinghouse Plants only) Response Time Testing."~~

1

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.1 BASES, RPS INSTRUMENTATION

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specifications (ISTS) Bases that reflect the plant-specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This Note is not meant to be retained in the final version of the plant specific submittal.

3. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

4. Changes are made to the ITS Bases to reflect changes made to the ITS.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.3.1, REACTOR TRIP SYSTEM (RTS) INSTRUMENTATION

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 2

ITS 3.3.2 – ENGINEERED SAFETY FEATURES ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

INSTRUMENTATION

3/4.3.2 ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

LCO 3.3.2
Table 3.3.2-1 Footnote (b), Footnote (c)

3.3.2 The Engineered Safety Feature Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-2 shall be OPERABLE with their Trip Setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-3.

Applicability

APPLICABILITY: As shown in Table 3.3-2.

ACTION:

Add proposed ACTIONS Note A02

Table 3.3.2-1 Footnote (c)

a. With an ESFAS Instrumentation or Interlock Trip Setpoint less conservative than the value shown in the Trip Setpoint column but more conservative than the value shown in the Allowable Value column of Table 3.3-3, adjust the Setpoint consistent with the Trip Setpoint value within permissible calibration tolerance.

b. With an ESFAS Instrumentation or Interlock Trip Setpoint less conservative than the value shown in the Allowable Value column of Table 3.3-3, either:

Table 3.3.2-1 Footnote (b)

1. Adjust the Setpoint consistent with the Trip Setpoint value of Table 3.3-3 and determine within 12 hours that the affected channel is OPERABLE; or

ACTION A

2. Declare the channel inoperable and apply the applicable ACTION statement requirements of Table 3.3-2 until the channel is restored to OPERABLE status with its setpoint adjusted consistent with the Trip Setpoint value.

ACTION A

c. With an ESFAS instrumentation channel or interlock inoperable, take the ACTION shown in Table 3.3-2.

SURVEILLANCE REQUIREMENTS

Table 3.3.2-1

4.3.2.1 Each ESFAS instrumentation channel and interlock and the automatic actuation logic and relays shall be demonstrated OPERABLE by performance of the ESFAS Instrumentation Surveillance Requirements specified in Table 4.3-2.

TABLE 3.3-2

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

ITS ACTION

LA01

A03

Table 3.3.2-1	FUNCTIONAL UNIT	~~TOTAL NO. OF CHANNELS~~	~~CHANNELS TO TRIP~~	~~MINIMUM~~ REQUIRED CHANNELS OPERABLE	APPLICABLE MODES	ACTION	ITS ACTION
	1. Safety Injection						
1.a	a. Manual Initiation	~~2~~	~~1~~	2	1 2, 3, 4	27	B
1.b	b. Automatic Actuation Logic and Actuation Relays	~~2~~	~~1~~	2	1 2, 3, 4	14	C
1.c	c. Containment Pressure - High	~~3~~	~~2~~	~~2~~ 3	1 2, 3	26	E
1.d	d. Pressurizer Pressure - Low	~~3~~	~~2~~	~~2~~ 3	1 2, 3#	26	E
1.e	e. High Differential Pressure Between the Steam Line Header and any ~~Steam Line~~ Steam Generator	~~3/steam line~~	~~2/steam line in any steam line~~	~~2~~ 3/steam line	1 2, 3#	26	E

A03

A04

Table 3.3.2-1

TABLE 3.3-2 (Continued)

ITS ACTION

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

LA01

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A05

ITS	FUNCTIONAL UNIT	~~TOTAL NO. OF CHANNELS~~	~~CHANNELS TO TRIP~~	~~MINIMUM~~ REQUIRED CHANNELS OPERABLE	APPLICABLE MODES	ACTION	ITS ACTION
1.f 1.g	f. Steam Line flow--High Coincident with:	~~2/steam line~~	~~1/steam line in any two steam lines~~	~~1~~ 2/steam line ~~in any two steam lines~~	1, 2, 3*	26	E
1.g	Steam Generator Pressure--Low	~~1/steam generator~~	~~1/steam generator in any two steam lines~~	1/steam generator ~~in any two steam lines~~	1, 2. 3*	26	E
1.f	or T_{avg}--Low	~~1/loop~~	~~1/loop in any two loops~~	1/loop ~~in any two loops~~	1, 2, 3*	25	E
	2. Containment Spray						
2.a	a. Automatic Actuation Logic and Actuation Relays	2	1	2	1, 2, 3, 4	14	C
2.b	b. Containment Pressure--High-High	~~3~~	~~2~~	~~2~~ 3	1, 2, 3	26	E
	Coincident with: Containment Pressure--High	~~3~~	~~2~~	~~2~~ 3	1, 2, 3	26	E
	3. Containment Isolation						
	a. Phase "A" Isolation						
3.a.(1)	1) Manual Initiation	~~2~~	~~1~~	2	1, 2, 3, 4	27	B
3.a.(2)	2) Automatic Actuation Logic and Actuation Relays	~~2~~	~~1~~	2	1, 2, 3, 4	14	C

A03

A03

Table 3.3.2-1

TABLE 3.3-2 (Continued)

ITS ACTION

LA01

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

A03

	FUNCTIONAL UNIT	~~TOTAL NO. OF CHANNELS~~	~~CHANNELS TO TRIP~~	~~MINIMUM~~ REQUIRED CHANNELS OPERABLE	APPLICABLE MODES	ACTION	ITS ACTION
	3. Containment Isolation (Continued)						
3.a.(3)	3) Safety Injection	See Item 1. above for all Safety Injection initiating functions and requirements. (Manual S.I. initiation will not initiate Phase A Isolation).					
	b. Phase "B" Isolation						
3.b.(1)	1) Manual Initiation	~~2~~	~~2 (Both buttons must be pushed simultaneously to actuate)~~	2	1, 2, 3, 4	17	F
3.b.(2)	2) Automatic Actuation Logic and Actuation Relays	~~2~~	~~1~~	2	1, 2, 3, 4	14	C
3.b.(3)	3) Containment Pressure--High-High	~~3~~	~~2~~	~~2~~ 3	1, 2, 3	15	I
	Coincident with: Containment Pressure--High	~~3~~	~~2~~	~~2~~ 3	1, 2, 3	15	I

LA01

A03

A03

c. Containment Ventilation Isolation*

1) Containment Isolation Manual Phase A or Manual Phase B — See Items 3.a.1 and 3.b.1 above for all Manual Containment Ventilation functions and requirements.

See ITS 3.3.6

* Not applicable to Containment purge supply and exhaust isolation valves.

Table 3.3.2-1

ITS ACTION

TABLE 3.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

LA01

A03

Table 3.3.2-1	FUNCTIONAL UNIT	~~TOTAL NO. OF CHANNELS~~	~~CHANNELS TO TRIP~~	~~MINIMUM~~ REQUIRED CHANNELS OPERABLE	APPLICABLE MODES	ACTION	ITS ACTION
	3. Containment Isolation (Continued)						
	2) Automatic Actuation Logic and Actuation Relays	2	1	2	1, 2, 3, 4	16	See ITS 3.3.6
	3) Safety Injection	See Item 1. above for all Safety Injection initiating functions requirements.					
	4) Containment Radioactivity-High	2##	1	1	1, 2, 3, 4	16	
	4. Steam Line Isolation						
4.a.	a. Manual Initiation (individual)	~~1/operating steam line~~	~~1/operating steam line~~	1/~~operating~~ steam line	1, 2, 3	21	J
4.b.	b. Automatic Actuation Logic and Actuation Relays	~~2~~	~~1~~	2	1, 2, 3 (g)	20	D
4.c.	c. Containment Pressure--High-High	~~3~~	~~2~~	~~2~~ 3	1, 2, 3	15	I
	Coincident with: Containment Pressure--High	~~3~~	~~2~~	~~2~~ 3	1, 2, 3	15	I

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Table 3.3.2-1

TABLE 3.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

LA01 A03

	FUNCTIONAL UNIT	~~TOTAL NO. OF CHANNELS~~	~~CHANNELS TO TRIP~~	~~MINIMUM~~ REQUIRED CHANNELS OPERABLE	APPLICABLE MODES	ACTION	ITS ACTION
	4. Steam Line Isolation (Continued)						
4.d., 4.e.	d. Steam Line Flow--High Coincident with: Steam Generator Pressure--Low	~~2/steam line~~	~~1/steam line in any two steam lines~~	~~1~~ 2/steam line ~~in any two steam lines~~	1, 2, 3	15	I
4.e.		~~1/steam generator~~	~~1/steam generator in any two steam lines~~	1/steam generator ~~in any two steam lines~~	1, 2, 3	15	I
4.d.	or T_{avg}--Low	~~1/Loop~~	~~1/loop in any two loops~~	1/loop ~~in any two loops~~	1, 2, 3	25	E
	5. Feedwater Isolation						
5.a.	a. Automatic Actuation Logic and Actuation Relays	~~2~~	~~1~~	2	1, 2, 3	22	D
5.c.	b. Safety-Injection	See Item 1. above for all Safety Injection initiating functions and requirements.					
5.b.	c. Steam Generator Water Level -- High-High# # # #	~~3/steam generator~~	~~2/steam generator in any operating steam generator~~	~~2~~ 3/steam generator ~~in any operating steam generator~~	1, 2, 3	15	I
	6. Auxiliary Feedwater# # #						
6.a.	a. Automatic Actuation Logic and Actuation Relays	~~2~~	~~1~~	2	1, 2, 3	20	D

(g) L01 A05

(h) L02 A03

(h) L02 A05 LA02 LA01

Table 3.3.2-1

TABLE 3.3-2 (Continued)
ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

ITS ACTION

LA01

A03

	FUNCTIONAL UNIT	~~TOTAL NO. OF CHANNELS~~	~~CHANNELS TO TRIP~~	~~MINIMUM~~ REQUIRED CHANNELS OPERABLE	APPLICABLE MODES	ACTION	ITS ACTION
	6. Auxiliary Feedwater~~###~~ (Continued)						
6.b.	b. Stm. Gen. Water Level--Low-Low	~~3/steam generator~~	~~2/steam generator in any steam generator~~	~~2~~ 3/steam generator	1, 2, 3	26	E
6.c.	c. Safety Injection	See Item 1. above for all Safety Injection initiating functions and requirements.					
6.d.	d. Bus Stripping	~~1/bus~~	~~1/bus~~	1/bus	1, 2, 3	23(a)	G
6.e.	e. Trip of all Main Feed-water Pumps Breakers	~~1/breaker~~	~~(1/breaker) /operating pump~~	~~(~~1/breaker~~) /operating pump~~	1, 2	23(b)	H
	7. Loss of Power						
	a. 4.16 kV Busses A and B (Loss of Voltage)	2/bus	2/bus	2/bus	1, 2, 3, 4	18	
	b. 480 V Load Centers 3A, 3B, 3C, 3D and 4A, 4B, 4C, 4D Undervoltage	2 per load center	2 on any load center	2 per load center	1, 2, 3, 4	18	
	Coincident with: Safety Injection	See Item 1. above for all Safety Injection initiating functions and requirements.					

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LA01

A05

See ITS 3.3.5

TURKEY POINT – UNITS 3 & 4

3/4 3-19

AMENDMENT NOS. 284 AND 278

Table 3.3.2-1

TABLE 3.3-2 (Continued)
ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

ITS ACTION
LA01
A02

FUNCTIONAL UNIT	~~TOTAL NO. OF CHANNELS~~	~~CHANNELS TO TRIP~~	~~MINIMUM~~ REQUIRED CHANNELS OPERABLE	APPLICABLE MODES	ACTION	ITS ACTION
7. Loss of Power (Continued)						
c. 480 V Load Centers 3A, 3B, 3C, 3D and 4A, 4B, 4C, 4D Degraded Voltage	2 per load center	2 on any load center	2 per load center	1, 2, 3, 4	18 See ITS 3.3.5	
8. Engineered Safety Features Actuation System Interlocks						
7.a. a. Pressurizer Pressure	~~3~~	~~2~~	2	1, 2, 3	19	K
7.b. b. T_{avg} - Low	~~3~~	~~2~~	2	1, 2, 3	19	K
9. Control Room Ventilation Isolation						
a. Automatic Actuation Logic and Actuation Relays	2	1	2	1, 2, 3, 4**	16	
b. Safety Injection	See Item 1. above for all Safety Injection initiating functions and requirements.					
c. Deleted						
d. Containment Isolation Manual Phase A or Manual Phase B	2	1	2	1, 2, 3, 4	17	
e. Control Room Air Intake Radiation Level	2	1	2	All	24A, 24B See ITS 3.3.4	

LA01

TURKEY POINT – UNITS 3 & 4 3/4 3-20 AMENDMENT NOS. 283 AND 277

TABLE 3.3-2 (Continued)

TABLE NOTATION

Table 3.3.2-1 Footnote (a)

Trip function may be blocked in this MODE below the Pressurizer Pressure Interlock Setpoint of 2000 psig.

See ITS 3.3.6

Channels are for particulate radioactivity and for gaseous radioactivity. Either an OPERABLE particulate radioactivity or gaseous radioactivity channel will satisfy the Minimum Channels OPERABLE requirement.

Table 3.3.2-1 Footnote (i)

~~Auxiliary feedwater manual initiation is included in Specification 3.7.1.2.~~ LA03

~~####Steam Generator overfill protection is not part of the Engineered Safety Features Actuation System (ESFAS), and is added to the Technical Specifications only in accordance with NRC Generic Letter 89-19.~~ LA02

(g) Except when all MSIVs are closed L01

Table 3.3.2-1 Footnote (e)

* Trip function may be blocked in this MODE below the T_{avg}--Low Interlock Setpoint.

(h) Except when all MFIVs, MFRVs, and associated bypass valves are closed or isolated by a closed manual valve. L02

** Only during movement of irradiated fuel within the containment. See ITS 3.3.7

ACTION STATEMENTS

Add proposed Required Action C.1 L03

ACTION C

ACTION 14 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, be in at least HOT STANDBY within 12 hours and in ~~COLD SHUTDOWN within the following 30 hours~~; however, one channel may be bypassed for up to 8 hours for surveillance testing per Specification 4.3.2.1, provided the other channel is OPERABLE.

ACTION O

Add proposed Required Action O.2 and Note L04

ACTION I

ACTION 15 - With the number of OPERABLE channels one less than the Total Number of Channels, operation may proceed ~~until performance of the next required ANALOG CHANNEL OPERATIONAL TEST or TRIP ACTUATING DEVICE OPERATIONAL TEST~~ provided the inoperable channel is placed in the tripped condition within 6 hours. L05

Add proposed Action M M01

ACTION 16 - With the number of OPERABLE channels less than the Minimum Channels OPERABLE requirement, operation may continue provided the Containment purge supply, exhaust and instrument air bleed valves are maintained closed. (The instrument air bleed valves may be opened intermittently under administrative controls).

See ITS 3.3.6 and 3.3.7

ACTION F

ACTION 17 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in ~~COLD SHUTDOWN within the following 30 hours~~.

ACTION L

Add proposed Required Action L.2 and Note L04

TABLE 3.3-2 (Continued)

TABLE NOTATION (Continued)

See ITS 3.3.5

ACTION 18 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the inoperable channel is placed in the tripped condition within 6 hours. Both channels of any one load center may be taken out of service for up to 8 hours in order to perform surveillance testing per Specification 4.3.2.1.

ACTION K — ACTION 19 - With less than the Minimum Number of Channels OPERABLE, within 1 hour determine by observation of the associated permissive annunciator window(s) that the interlock is in its required state for the existing plant condition, or ~~apply Specification 3.0.3~~ Add proposed Action M. M01

Add proposed Required Action D.1 L06

ACTION D — ACTION 20 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, be in at least HOT STANDBY within 6 hours and in at least HOT SHUTDOWN within the following 6 hours; however, one channel may be bypassed for up to 8 hours for surveillance testing per Specification 4.3.2.1 provided the other channel is OPERABLE.

ACTION M

ACTION J — ACTION 21 - With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or declare the associated valve inoperable and take the ACTION required by Specification ~~3.7.1.5~~ 3.7.2. A01

Add proposed Required Action D.1 L06

ACTION D — ACTION 22 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, be in at least HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 8 hours for surveillance testing per Specification 4.3.2.1 provided the other channel is OPERABLE.

ACTION M

ACTION 23 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement:

ACTION G — (a) Restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

ACTION M

ACTION H — (b) Restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours.

ACTION N

TABLE 3.3-2 (Continued)

TABLE NOTATION (Continued)

ACTION 24A - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, within 7 days restore the inoperable channel to OPERABLE status or place the Control Room Emergency Ventilation System in the recirculation mode.

ACTION 24B - With the number of OPERABLE channels two less than the Minimum Channels OPERABLE requirement, either:

1. Immediately place the Control Room Emergency Ventilation System in the recirculation mode with BOTH Control Room emergency recirculation fans operating, OR

2. a. Immediately place the Control Room Emergency Ventilation System in the recirculation mode with ONE Control Room emergency recirculating fan operating, AND

   b. Restore at least one inoperable channel to OPERABLE status within 7 days, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. If this ACTION applies to both Units simultaneously, then be in at least HOT STANDBY within the next 12 hours and in COLD SHUTDOWN within the following 30 hours.

See ITS 3.3.4

ACTION E

ACTION 25 - With number of OPERABLE channels one less than the Total number of channels, STARTUP and/or POWER OPERATION may proceed provided the inoperable channel is placed in the tripped condition within 6 hours or in accordance with the Risk Informed Completion Time Program. M01

Add proposed Action M

ACTION E

ACTION 26 - With one channel inoperable, operation may proceed ~~until performance of the next required ANALOG CHANNEL OPERATIONAL TEST or TRIP ACTUATING DEVICE OPERATIONAL TEST~~ provided the inoperable channel is place in the tripped condition within 6 hours or in accordance with the Risk Informed Completion Time Program. L05

Add proposed Action M

ACTION B

ACTION 27 - With one channel inoperable, restore the inoperable channel to OPERABLE status within 48 hours or in accordance with the Risk Informed Completion Time Program, or be in HOT STANDBY within the next 6 hours and ~~COLD SHUTDOWN within the following 30 hours~~. M01

Add proposed Required Action L.2 and Note L04

Table 3.3.2-1

TABLE 3.3-3
ENGINEERED SAFETY FEATURES ACTUATION SYSTEM
INSTRUMENTATION TRIP SETPOINTS

TURKEY POINT – UNITS 3 & 4

LA04

	FUNCTIONAL UNIT	ALLOWABLE VALUE	~~TRIP SETPOINT~~
	1. Safety Injection		
1.a.	a. Manual Initiation	N.A.	~~N.A.~~
1.b.	b. Automatic Actuation Logic	N.A	~~N.A~~
1.c.	c. Containment Pressure--High	≤4.5 psig	~~≤4.0 psig~~
1.d.	d. Pressurizer Pressure--Low	≥1712 psig	~~≥1730 psig~~
1.e.	e. High Differential Pressure Between the Steam Line Header and any ~~Steam Line~~ Steam Generator.	≤114 psig	~~≤100 psi~~
1.f., 1.g.	f. Steam Line Flow--High	Table 3.3.2-1 Footnote (f) ≤A function defined as follows: A ΔP corresponding to 41.2% steam flow at 0% load increasing linearly from 20% load to a value corresponding to 114.4% steam flow at full load	~~A function defined as follows: A ΔP corresponding to 40% steam flow at 0% load increasing linearly from 20% load to a value corresponding to 114% steam flow at full load~~

A04

Table 3.3.2-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM
INSTRUMENTATION TRIP SETPOINTS

	FUNCTIONAL UNIT	ALLOWABLE VALUE	~~TRIP SETPOINT~~
	Coincident with:		
1.g.	Steam Generator Pressure--Low(4)	≥607 psig	~~614 psig~~ LA04
	or		
1.f.	T_{avg}--Low	≥542.5°F	~~≥543°F~~
	2. Containment Spray		
2.a.	a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.
2.b.	b. Containment Pressure--High-High Coincident with:	≤22.6 psig	~~≤20.0 psig~~
	Containment Pressure--High	≤4.5 psig	~~≤4.0 psig~~
	3. Containment Isolation		
	a. Phase "A" Isolation		
3.a.(1)	1) Manual Initiation	N.A.	~~N.A.~~
3.a.(2)	2) Automatic Actuation Logic and Actuation Relays	N.A.	~~N.A.~~
3.a.(3)	3) Safety Injection	See Item 1 above for all Safety Injection Allowable Values.	~~See Item 1 above for all Safety Injection Trip Setpoints.~~
	b. Phase "B" Isolation		
3.b.(1)	1) Manual Initiation	N.A.	~~N.A.~~

TURKEY POINT – UNITS 3 & 4 3/4 3-24 AMENDMENT NOS. 249 AND 245

Table 3.3.2-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM
INSTRUMENTATION TRIP SETPOINTS

	FUNCTIONAL UNIT	ALLOWABLE VALUE	~~TRIP SETPOINT~~
	3. Containment Isolation (Continued)		
3.b.(2)	2) Automatic Actuation Logic and Actuation Relays	N.A.	~~N.A.~~
3.b.(3)	3) Containment Pressure--High-High Coincident with:	≤22.6 psig	~~≤20.0 psig~~
	Containment Pressure--High	≤4.5 psig	~~≤4.0 psig~~
	c. Containment Ventilation Isolation*		
	1) Containment Isolation Manual Phase A or Manual Phase B	N.A.	N.A.
	2) Automatic Actuation Logic and Actuation Relays	N.A.	N.A.
	3) Safety Injection	See Item 1. above for all Safety Injection Allowable Values.	See Item 1. above for all Safety Injection Trip Setpoints.
	4) Containment Radioactivity--High	Particulate ≤ 5.00 x 10^{-6} μCi/cc Gaseous See Note 2	Particulate ≤ 4.49 x 10^{-6} μCi/cc Gaseous See Note 2
	4. Steam Line Isolation		
4.a.	a. Manual Initiation	N.A.	~~N.A.~~

LA04

See ITS 3.3.6

LA04

* Not applicable to Containment purge supply and exhaust isolation valves.

Table 3.3.2-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM
INSTRUMENTATION TRIP SETPOINTS

	FUNCTIONAL UNIT	ALLOWABLE VALUE	TRIP SETPOINT
	4. Steam Line Isolation (Continued)		
4.b.	b. Automatic Actuation Logic and Actuation Relays	N.A.	~~N.A.~~
4.c.	c. Containment Pressure--High-High Coincident with:	≤22.6 psig	~~≤20. psig~~
	Containment Pressure--High	≤ 4.5 psig	~~≤4.0 psig~~
4.d., 4.e.	d. Steam Line Flow--High	Table 3.3.2-1 Footnote (f): ≤A function defined as follows: A ΔP corresponding to 41.2% steam flow at 0% load increasing linearly from 20% load to a value corresponding to 114.4% steam flow at full load.	~~A function defined as follows: A ΔP corresponding to 40% steam flow at 0% load increasing linearly from 20% load to a value corresponding to 114% steam flow at full load.~~ LA04
4.e.	Coincident with: Steam Line Pressure--Low(4)	≥607 psig	~~614 psig~~
4.d.	or T_{avg} -- Low	≥542.5°F	~~≥543°F~~
	5. Feedwater Isolation		
5.a.	a. Automatic Actuation Logic and Actuation Relays	N.A.	~~N.A.~~
5.c.	b. Safety Injection	See Item 1. for all Safety Injection Allowable Valves.	~~See Item 1. above for all Safety Injection Trip Setpoints.~~

Table 3.3.2-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM
INSTRUMENTATION TRIP SETPOINTS

ITS	FUNCTIONAL UNIT	ALLOWABLE VALUE	~~TRIP SETPOINT~~
	5. Feedwater Isolation (Continued)		
5.b.	c. Steam Generator Water Level High-High	≤80.5% of narrow range instrument span	~~80% of narrow range instrument span~~
	6. Auxiliary Feedwater (3)		
6.a.	a. Automatic Actuation Logic and Actuation Relays	N.A.	~~N.A.~~
6.b.	b. Steam Generator Water Level--Low-Low	≥15.5% of narrow range instrument span.	~~16% of narrow range instrument span~~
6.c.	c. Safety Injection	See Item 1. for all Safety Injection Allowable Values.	~~See Item 1. above for all Safety Injection Trip Setpoints.~~
6.d.	d. Bus Stripping	See Item 7. below for all Bus Stripping Allowable Values.	~~See Item 7. below for all Bus Stripping Trip Setpoints.~~
6.e.	e. Trip of All Main Feedwater Pump Breakers	N.A.	~~N.A.~~
	7. Loss of Power		
	a. 4.16 kV Busses A and B (Loss of Voltage)	N.A.	N.A.

LA04

See ITS 3.3.5

Table 3.3.2-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM
INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	ALLOWABLE VALUE#	~~TRIP SETPOINT~~ L07
7. Loss of Power (Continued)		
b. 480V Load Centers Undervoltage		
Load Center		
3A	[ ]	430V ±3V (10 sec ±1 sec delay)
3B	[ ]	438V ±3V (10 sec ±1 sec delay)
3C	[ ]	434V ±3V (10 sec ±1 sec delay)
3D	[ ]	434V ±3V (10 sec ±1 sec delay)
4A	[ ]	435V ±3V (10 sec ±1 sec delay)
4B	[ ]	434V ±3V (10 sec ±1 sec delay)
4C	[ ]	434V ±3V (10 sec ±1 sec delay)
4D	[ ]	430V ±3V (10 sec ±1 sec delay)
Coincident with: Safety Injection and	See Item 1. above for all Safety Injection Allowable Values.	See Item 1. above for all Safety Injection Trip Setpoints.
Diesel Generator Breaker Open	N.A.	N.A. See ITS 3.3.5

Table 3.3.2-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM
INSTRUMENTATION TRIP SETPOINTS

LA04

FUNCTIONAL UNIT	ALLOWABLE VALUE#	~~TRIP SETPOINT~~
7. Loss of Power (Continued)		
c. 480V Load Centers Degraded Voltage		
Load Center		
3A	[ ]	424V ±3V (60 sec ±30 sec delay)
3B	[ ]	427V ±3V (60 sec ±30 sec delay)
3C	[ ]	437V ±3V (60 sec ±30 sec delay)
3D	[ ]	435V ±3V (60 sec ±30 sec delay)
4A	[ ]	430V ±3V (60 sec ±30 sec delay)
4B	[ ]	436V ±3V (60 sec ±30 sec delay)
4C	[ ]	434V ±3V (60 sec ±30 sec delay)
4D	[ ]	434V ±3V (60 sec ±30 sec delay)
Coincident with: Diesel Generator Breaker Open	N.A.	N.A.

See ITS 3.3.5

Table 3.3.2-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM
INSTRUMENTATION TRIP SETPOINTS

	FUNCTIONAL UNIT	ALLOWABLE VALUE	~~TRIP SETPOINT~~
	8. Engineering Safety Features Actuation System Interlocks		
7.a.	a. Pressurizer Pressure	≤2018 psig	~~Nominal 2000 psig~~
7.b.	b. Tavg--Low	≥542.5°F	~~Nominal 543°F~~
	9. Control Room Ventilation Isolation		
	a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.
	b. Safety Injection	See Item 1. above for all Safety Injection Allowable Values.	See Item 1. above for all Safety Injection Trip Setpoints.
	c. Deleted		
	d. Containment Isolation Manual Phase A or Manual Phase B	N.A.	N.A.
	e. Air Intake Radiation Level	≤2.83 mR/hr	≤2 mR/hr

LA04

See ITS 3.3.4

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM
INSTRUMENTATION TRIP SETPOINTS

TABLE NOTATIONS

(1) Deleted

(2) Containment Gaseous Monitor Setpoint = $\frac{(1.11 \ x \ 10^{-3})}{(\quad F \quad)} \mu Ci/cc,$

Containment Gaseous Monitor Allowable Value = $\frac{(1.22 \ x \ 10^{-3})}{(\quad F \quad)} \mu Ci/cc,$

Where F = $\frac{\text{Actual Purge Flow}}{\text{Design Purge Flow (35,000 CFM)}}$

Setpoint may vary according to current plant conditions provided that the release rate does not exceed allowable limits provided in the Offsite Dose Calculation Manual.

See ITS 3.3.6

Table 3.3.2-1 footnote (i)

(3) Auxiliary feedwater manual initiation is included in Specification 3.7.1.2.

Table 3.3.2-1 footnote (d)

(4) Time constants utilized in lead-lag controller for Steam Generator Pressure-Low and Steam Line Pressure-Low are $\tau_1 \geq 50$ seconds and $\tau_2 \leq 5$ seconds. CHANNEL CALIBRATION shall ensure that these time constants are adjusted to these values.

If no Allowable Value is specified, as indicated by [ ], the trip setpoint shall also be the allowable value.

See ITS 3.3.5

Table 3.3.2-1

TABLE 4.3-2

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

A07 A06 A07 M02 4 A07

	CHANNEL FUNCTIONAL UNIT	SR 3.3.2.1 CHANNEL CHECK	SR 3.3.2.8 CHANNEL CALIBRATION	SR 3.3.2.4 ANALOG CHANNEL OPERATIONAL TEST	SR 3.3.2.7 TRIP ACTUATING DEVICE OPERATIONAL TEST	SR 3.3.2.2 ACTUATION LOGIC TEST #	~~MODES FOR WHICH SURVEILLANCE IS REQUIRED~~
	1. Safety Injection						
1.a	a. Manual Initiation	N.A.	N.A.	N.A.	SFCP	N.A.	~~1, 2, 3~~
1.b	b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	SFCP~~(1)~~	~~1, 2, 3(3)~~
1.c	c. Containment Pressure--High	N.A.	SFCP	N.A.	N.A.	SFCP~~(1)~~	~~1, 2, 3~~
1.d	d. Pressurizer Pressure--Low	SFCP	SFCP	SFCP(5)	N.A.	N.A.	~~1, 2, 3(3)~~
1.e	e. High Differential Pressure Between the Steam Line Header and any ~~Steam Line~~ Steam Generator	SFCP	SFCP	SFCP(5)	N.A.	N.A.	~~1, 2, 3(3)~~
1.f., 1.g.	f. Steam Line Flow--High Coincident with:	SFCP	SFCP[(a)(b)]	SFCP(5)[(a)(b)]	N.A	N.A	~~1, 2, 3(3)~~
1.g.	Steam Generator Pressure--Low	SFCP	SFCP[(a)(b)]	SFCP(5)[(a)(b)]	N.A.	N.A.	~~1, 2, 3(3)~~
	or						
1.f.	Tavg--Low	SFCP	SFCP	SFCP(5)	N.A.	N.A.	~~1, 2, 3(3)~~

A04

Table 3.3.2-1

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

A07

A06

A07

	CHANNEL FUNCTIONAL UNIT	SR 3.3.2.1 CHANNEL CHECK	SR 3.3.2.8 CHANNEL CALIBRATION	SR 3.3.2.4 ANALOG CHANNEL OPERATIONAL TEST	SR 3.3.2.7 TRIP ACTUATING DEVICE OPERATIONAL TEST	SR 3.3.2.2 ACTUATION LOGIC TEST #	~~MODES FOR WHICH SURVEILLANCE IS REQUIRED~~
	2. Containment Spray						
2.a	a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	SFCP~~(1)~~	~~1, 2, 3, 4~~
2.b	b. Containment Pressure--High-High	N.A.	SFCP	N.A.	SFCP	SFCP~~(1)~~	~~1, 2, 3~~
	Coincident with: Containment Pressure--High	N.A.	SFCP	N.A.	SFCP	SFCP~~(1)~~	~~1, 2, 3~~
	3. Containment Isolation						
	a. Phase "A" Isolation						
3.a.(1)	1) Manual Initiation	N.A.	N.A.	N.A.	SFCP	N.A.	~~1, 2, 3, 4~~
3.a.(2)	2) Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	SFCP~~(1)~~	~~1, 2, 3, 4~~
3.a.(3)	3) Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.					
	b. Phase "B" Isolation						
3.b.(1)	1) Manual Initiation	N.A.	N.A.	N.A.	SFCP	N.A.	~~1, 2, 3, 4~~
3.b.(2)	2) Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	SFCP~~(1)~~	~~1, 2, 3, 4~~

Table 3.3.2-1

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

	CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK (SR 3.3.2.1)	CHANNEL CALIBRATION (SR 3.3.2.8)	ANALOG CHANNEL OPERATIONAL TEST (SR 3.3.2.4)	TRIP ACTUATING DEVICE OPERATIONAL TEST (SR 3.3.2.7)	ACTUATION LOGIC TEST # (SR 3.3.2.2)	~~MODES FOR WHICH SURVEILLANCE IS REQUIRED~~ (A07)
	3. Containment Isolation (Continued)						
3.b.(3)	3) Containment Pressure--High-High Coincident with:	N.A.	SFCP	N.A.	SFCP	SFCP~~(1)~~ (A06)	~~1, 2, 3~~ (A07)
	Containment Pressure--High	N.A.	SFCP	N.A.	SFCP	SFCP~~(1)~~	~~1, 2, 3~~
	c. Containment Ventilation Isolation *						
	1) Containment Isolation Manual Phase A or Manual Phase B	N.A.	N.A.	N.A.	SFCP	N.A.	1, 2, 3, 4
	2) Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.	See ITS 3.3.6
	3) Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.					
	4) Containment Radioactivity--High	SFCP	SFCP	SFCP	N.A.	N.A.	1, 2, 3, 4
	4. Steam Line Isolation						
4.a.	a. Manual Initiation	N.A.	N.A.	N.A.	SFCP	N.A.	~~1, 2, 3~~ (A06)
4.b.	b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	SFCP~~(1)~~	~~1, 2, 3(3)~~ (A07)

* Not applicable to Containment purge supply and exhaust isolation valves.

Table 3.3.2-1

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

A07

	CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK (SR 3.3.2.1)	CHANNEL CALIBRATION (SR 3.3.2.8)	ANALOG CHANNEL OPERATIONAL TEST (SR 3.3.2.4)	TRIP ACTUATING DEVICE OPERATIONAL TEST (SR 3.3.2.7)	ACTUATION LOGIC TEST # (SR 3.3.2.2)	~~MODES FOR WHICH SURVEILLANCE IS REQUIRED~~
	4. Steamline Isolation (Continued)						
4.c.	c. Containment Pressure--High-High	N.A.	SFCP	N.A.	SFCP	SFCP~~(1)~~	~~1, 2, 3~~
	Coincident with: Containment Pressure--High	N.A.	SFCP	N.A	SFCP	SFCP~~(1)~~	~~1, 2, 3~~
4.d., 4.e.	d. Steam Line Flow--High	SFCP(3)	SFCP(a)(b)	SFCP(5)(a)(b)	N.A.	N.A.	~~1, 2, 3~~
4.e.	Coincident with: Steam Generator Pressure--Low	SFCP(3)	SFCP(a)(b)	SFCP(5)(a)(b)	N.A.	N.A.	~~1, 2, 3~~
4.d.	or Tavg--Low	SFCP(3)	SFCP	SFCP(5)	N.A.	N.A.	~~1, 2, 3~~
	5. Feedwater Isolation						
5.a.	a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	SFCP	~~1, 2, 3~~
5.c.	b. Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.					
5.b.	c. Steam Generator Water Level--High-High	SFCP	SFCP(a)(b)	SFCP(a)(b)	N.A.	N.A.	~~1, 2, 3~~
	6. Auxiliary Feedwater (2)						
6.a.	a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	SFCP	~~1, 2, 3~~
6.b.	b. Steam Generator Water Level--Low-Low	SFCP	SFCP(a)(b)	SFCP(a)(b)	N.A.	N.A.	~~1, 2, 3~~

A06

A07

Table 3.3.2-1

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

	CHANNEL FUNCTIONAL UNIT	SR 3.3.2.1 CHANNEL CHECK	SR 3.3.2.8 CHANNEL CALIBRATION	SR 3.3.2.4 ANALOG CHANNEL OPERATIONAL TEST	SR 3.3.2.7 TRIP ACTUATING DEVICE OPERATIONAL TEST	SR 3.3.2.2 ACTUATION LOGIC TEST #	~~MODES FOR WHICH SURVEILLANCE IS REQUIRED~~ A07
	6. Auxiliary Feedwater (Continued)						
6.c.	c. Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.					
6.d.	d. Bus Stripping	N.A.	SFCP	N.A.	SFCP SR 3.3.2.6	N.A.	~~1, 2, 3~~ A07
6.e.	e. Trip of All Main Feedwater Pump Breakers.	N.A.	N.A.	N.A.	SFCP	N.A.	~~1, 2~~
	7. Loss of Power						
	a. 4.16 kV busses A and B (Loss of Voltage)	N.A.	SFCP	N.A.	SFCP	N.A.	1, 2, 3, 4
	b. 480V Load Centers 3A, 3B, 3C, 3D and 4A, 4B, 4C, 4D Undervoltage	SFCP	SFCP	N.A.	SFCP(1)	N.A.	1, 2, 3, 4
	Coincident with: Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.					
	c. 480V Load Centers 3A, 3B, 3C, 3D and 4A, 4B, 4C, 4D Degraded Voltage	SFCP	SFCP	N.A.	SFCP(1)	N.A.	1, 2, 3, 4

See ITS 3.3.5

Table 3.3.2-1

TABLE 4.3-2 (Continued)
ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

A07

	SR 3.3.2.1	SR 3.3.2.8	SR 3.3.2.4	SR 3.3.2.7	SR 3.3.2.2	
CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST #	~~MODES FOR WHICH SURVEILLANCE IS REQUIRED~~
8. Engineering Safety Features Actuation System Interlocks						
7.a. a. Pressurizer Pressure	N.A.	SFCP	SFCP(5)	N.A.	N.A.	~~1, 2, 3(3)~~
7.b. b. Tavg--Low	N.A.	SFCP	SFCP(5)	N.A.	N.A.	~~1, 2, 3(3)~~
9. Control Room Ventilation Isolation						
a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.	(4)
b. Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.					
c. Deleted						
d. Containment Isolation Manual Phase A or Manual Phase B	N.A.	N.A.	N.A.	SFCP	N.A.	1, 2, 3, 4
e. Control Room Air Intake Radiation Level	SFCP	SFCP	SFCP	N.A.	N.A.	All

A07

See ITS 3.3.4

TABLE 4.3-2 (Continued)
ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

TABLE NOTATIONS

SR 3.3.2.3, SR 3.3.2.5

In accordance with the Surveillance Frequency Control Program each Actuation Logic Test shall include energization of each relay and verification of OPERABILITY of each relay.

Table 3.3.2-1 Footnote (b)

(a) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

Table 3.3.2-1 Footnote (c)

(b) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTS) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTS are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the surveillance procedures (field settings) to confirm channel performance. The NTS and methodologies used to determine the as-found and the as-left tolerances are specified in UFSAR Section 7.2

~~(1) Each train shall be tested in accordance with the Surveillance Frequency Control Program.~~ A06

Table 3.3.2-1 Footnote (i)

(2) Auxiliary feedwater manual initiation is included in Specification 3.7.1.2.

SR 3.3.2.1 Note, SR 3.3.2.2 Note

(3) The provisions of Specification 4.0.4 are not applicable for entering Mode 3, provided that the applicable surveillances are completed within 96 hours from entering Mode 3.

(4) Applicable in MODES 1, 2, 3, 4 or during movement of irradiated fuel within the containment. See ITS 3.3.4

SR 3.3.2.4 Note

(5) Test of alarm function not required when alarm locked in.

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications-Westinghouse Plants" (ISTS) and additional Technical Specification Task Force (TSTF) travelers included in this submittal.

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS 3.3.2 ACTION and CTS Table 3.3-3 provide the compensatory actions to take when Engineered Safety Feature Actuation System (ESFAS) instrumentation is inoperable. ITS 3.3.2 ACTIONS similarly provide the compensatory actions for inoperable ESFAS Instrumentation. ITS 3.3.2 ACTIONS are modified by a Note that allows separate Condition entry for each Function. In addition, due to the manner in which the Required Channel's description modifies ITS Functions 1.e, 1.f, 1.g, 4.a, 4.d, 4.e, 5.b, 6.b, 6.d, and 6.e, separate Condition entry is allowed within a Function as follows: Function 1.e (Safety Injection, High Differential Pressure Between the Steam Line Header and any Steam Line) on a per steam line basis; Function 1.f (Safety Injection, Steam Line Flow-High coincident with Tavg-Low) on a per steam line or per loop basis; Function 1.g (Safety Injection, Steam Line Flow-High coincident with Steam Generator Pressure-Low) on a per steam line or per steam generator (SG) basis; Function 4.a (Steam Line Isolation, Manual Initiation) on a per steam line basis; Function 4.d (Steam Line Isolation, Steam Line Flow-High coincident with Tavg-Low) on a per steam line or per loop basis; Function 4.e (Steam Line Isolation, Steam Line Flow-High coincident with Steam Generator Pressure-Low) on a per steam line or per steam generator basis; Function 5.b (Feedwater Isolation, SG Water Level - High High (P-14)) on a per steam generator basis; Function 6.b (Auxiliary Feedwater, SG Water Level - Low Low) on a per steam generator basis; Function 6.d (Auxiliary Feedwater, Bus Stripping) on a per bus basis; and Function 6.e (Trip of all Main Feedwater Pumps) on a per pump basis. This changes the CTS by providing a specific allowance to enter the ACTION for each inoperable ESFAS instrumentation Function and for certain Functions on a steam line, loop, steam generator, bus, or pump basis.

This change is acceptable because it clearly states the current requirement. The CTS considers each ESFAS instrumentation Function to be separate and independent from the others. In addition, the channels associated with Functions 1.e, 1.f, 1.g, 4.a, 4.d, 4.e, 5.b, 6.b, 6.d, and 6.e are allowed separate Condition entry on the specified basis (i.e., per steam line, loop, SG, bus, or pump). This separate condition entry is allowed because the channels associated with each steam line, loop, SG, bus, or pump, as applicable, will provide the associated ESFAS actuation based on the logic associated with the channels on the specified basis. This change is designated as administrative because it does not result in technical changes to the CTS.

A03 CTS Table 3.3-2 specifies the "TOTAL NO. OF CHANNELS" and the "MINIMUM CHANNELS OPERABLE" associated with each ESFAS Functional Unit. CTS Table 3.3-2 ACTIONS specify three conditions of inoperable channels where action is required: 1) the number of OPERABLE channels one less than the Minimum Channels OPERABLE (ACTIONS 14, 16, 17, 19, 20, 22, and 23); 2) the number of OPERABLE channels one less that the Total Number of Channels (ACTIONs 15, 21, and 25); or 3) one channel inoperable (ACTIONs 26 and 27). ITS Table 3.3.2-1 supplies one column "Required Channels," that lists the number of channels required below which Action must be taken. The ITS "Required Channels" column value is the value used in CTS below which Action must be taken whether it is from the CTS Table 3.3-2 "Total NO. of Channels" column or the "Minimum Channels OPERABLE" column as identified by the CTS Actions.

This change is acceptable because the requirements for when actions must be taken remain unchanged. The ITS "REQUIRED CHANNELS" column reflects the current requirements in the CTS ACTIONS for when actions are required to be taken. This change is designated as administrative because it does not result in technical changes to the CTS.

A04 CTS Tables 3.3-2, 3.3-3, and 4.3-2 include Functional Unit 1.e, "Safety Injection - High Differential Pressure Between the Steam Line Header and any Steam Line." ITS Table 3.3.2-1 includes the same Functional Unit but labels it Function 1.e, "Safety Injection - High Differential Pressure Between the Steam Line Header and any Steam Generator." This changes the CTS by changing the label of the Steam Line Header pressure instruments to the SG pressure instruments.

This change is acceptable because the Steam Line pressure instruments are the same as the SG pressure instruments. PTN CTS Tables 3.3-2, 3.3-3, and 4.3-2 Functional Unit's label can lead to confusion by listing two different steam line pressures differentiating them by calling one steam line header pressure and the other steam line pressure. Changing the label of the steam line pressure to SG pressure eliminates this potential for confusion and is consistent with other CTS Function Unit's labeling (e.g., Functional Unit 1.f, Steam Line Flow-High coincident with Steam Generator Pressure-Low). PTN has three SGs within containment. Each SG has a discharge steam line that penetrates containment, passes through a main steam isolation valve, then combines into one steam line header prior to feeding two turbine stop valves and other secondary components. Outside of containment, before the Main Steam Isolation Valves (MSIVs) on each discharge steam line are three pressure sensors used to sense SG pressure and are also labeled steam line pressure. Although the label steam line pressure is more accurate due to the pressure drop as steam flows through the pipe, functionally these pressure sensors are used to monitor SG pressure and are labeled as such in the control room and in other plant document (e.g., PTN logic drawing for Steam Break Protection). This change is designated as administrative because it does not result in technical changes to the CTS.

A05 CTS Table 3.3-2 Functional Units 1.f (Safety Injection, Steam Line Flow-High coincident with Steam Generator Pressure-Low or Tavg-Low), 4.a (Steam Line Isolation, Manual Initiation (individual)), 4.d (Steam Line Isolation, Steam Line Flow-High coincident with Steam Generator Pressure-Low or Tavg-Low), 5.c (Feedwater Isolation, Steam Generator Water Level— High-High), and 6.e (Auxiliary Feedwater, Trip of all Main feedwater Pumps Breakers), include the phrase; "/operating steam line," "in any two steam lines," "in any two loops," "in any operating steam generator," or "/operating pump," in the "MINIMUM CHANNELS OPERABLE" column. ITS Table 3.3.2-1 Functions 1.f, (Safety Injection, Steam Line Flow-High coincident or Tavg-Low), 1.g, (Safety Injection, Steam Line Flow-High coincident with Steam Generator Pressure-Low), 4.a (Steam Line Isolation, Manual Initiation), 4.d, (Steam Line Isolation, Steam Line Flow-High coincident with Tavg-Low), 4.e, (Steam Line Isolation, Steam Line Flow-High coincident with Steam Generator Pressure-Low), 5.b (Feedwater Isolation, SG Water Level - High High (P-14)), or 6.e (Auxiliary Feedwater, Trip of all Main Feedwater Pumps), "Required Channels" column does not contain this information. This changes the CTS by removing the phrases; "/operating steam line," "in any two steam lines," "in any two loops," "in any operating steam generator," or "/operating pump."

The purpose of the phrases "/operating steam line," "in any two steam lines," "in any two loops," "in any operating steam generator," or "/operating pump," is to allow for unit operation with less than all four steam lines, Reactor Coolant System (RCS) loops, SGs, or pumps in operation. Although CTS Table 3.3-2 Minimum Channels OPERABLE column includes the information, relating to "operating," the CTS Functional Units associated ACTIONS require action to be taken when the number of OPERABLE channels is one less than the Total Number of Channels, which does not include the phrases relating to "operating." ITS Table 3.3.2-1 "Required Channels" column for these Functions retains the OPERABLE channel requirements contained in CTS Table 3.3-2 "Total No. of Channels" column. This change is acceptable because the OPERABILITY requirements associated with the number of OPERABLE channels is the same in CTS as in ITS. This change is designated as administrative because it does not result in technical changes to the CTS.

A06 CTS Table 4.3-2, includes Note (1) that states, "Each train shall be tested in accordance with the Surveillance Frequency Control Program." CTS Table 4.3-2, Note (1) applies to CTS Table 4.3-2 Functional Units 1.b, 1.c, 2.a, 2.b, 3.a.2), 3.b.2), 3.b.3), 4.b, and 4.c, actuation logic tests. CTS 4.3.2.1 states that each ESFAS instrumentation channel and interlock and the automatic actuation logic and relays shall be demonstrated OPERABLE by performance of the ESFAS Instrumentation Surveillance Requirements specified in Table 4.3-2. CTS Table 4.3-2 states that the Surveillance Requirement (SR) Frequencies for these Functional Units is in accordance with the Surveillance Frequency Control Program (SFCP). ITS SR 3.3.2.2, "Perform ACTUATION LOGIC TEST," states that the Frequency is, "In accordance with the Surveillance Frequency Control Program." This changes the CTS by deleting Note (1) which is a redundant statement to the CTS Required Surveillance and the ITS stated Frequency.

This change is acceptable because the SRs remain unchanged. The ITS "Frequency" column reflects the current SRs in CTS Table 4.3-2 including Note (1) for what is required to be performed for these Functional Units. This change is designated as administrative because it does not result in technical changes to the CTS.

A07 CTS Table 4.3-2 includes a column designating the MODES that each Surveillance is required to be met. ITS Table 3.3.2-1 does not provide this specific column but includes this information in the Applicable MODES or other Specified Conditions column. This changes the CTS by combining the information in CTS Table 3.3-2, "Applicable Modes," and CTS Table 4.3-2 Modes for which Surveillance is Required," columns specifically stating when a Surveillance is required to be met into one table in ITS.

CTS 4.0.1 states that SRs shall be met during the MODES or other specified conditions in the Applicability for individual Limiting Condition for Operation (LCO), unless otherwise stated in the individual SR. ITS SR 3.0.1 states that SRs shall be met during the MODES or other specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. For these Functional Units the MODES for which the surveillance must be met from CTS Table 4.3-2 are the same as that in the "Applicable MODES" column from CTS Table 3.3-2 with any exceptions stated in the applicable SRs. This change is designated as administrative because it does not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

M01 CTS Table 3.3-2 Action 15 states that with the number of OPERABLE channels one less than the total number of channels (for Functional Units 3.b.3), 4.c, 4.d, 4.e, or 5.b), operations may proceed provided the inoperable channel is placed in the tripped condition within 6 hours. CTS Table 3.3-2 Action 19 states that with less than the Minimum Number of Channels OPERABLE (for Functional Units 8a or 8.b), within 1 hour determine by observation of the associated permissive annunciator window(s) that the interlock is in its required state for the existing plant condition or apply Specification 3.0.3. CTS Table 3.3-2 Action 25 states that with number of OPERABLE channels one less than the Total number of channels (for the Tavg channel of Functional Units 1.f and 4.d), STARTUP and/or POWER OPERATION may proceed provided the inoperable channel is placed in the tripped condition within 6 hours or in accordance with the Risk Informed Completion Time Program. CTS Table 3.3-2 Action 26 states that with one channel inoperable (for Functional Units 1.c, 1.d, 1.3, 2.b, 6.b, and the steam line flow channels of Functional Units 1.f and 4.d), operation may proceed until performance of the next required ANALOG CHANNEL OPERATIONAL TEST (COT) or TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT) provided the inoperable channel is place in the tripped condition within 6 hours or in accordance with the Risk Informed Completion Time Program. If CTS Table 3.3-2 Action 15, Action 25, or Action 26 is not met, entry into CTS 3.0.3 is required since no further actions are specified. If CTS Table 3.3-2 Action 19 is not met, entry into CTS 3.0.3 is required as directed. CTS 3.0.3 allows 1 hour to initiate action, 7 hours for the unit to be placed in MODE 3, 13 hours for the unit to be in MODE 4, and 37 hours for the unit to be in MODE 5. ITS 3.3.2 ACTION M requires the unit to be placed in MODE 3 in 6 hours and MODE 4 in 12 hours. This changes the CTS by providing a specific default condition instead of requiring entry into CTS 3.0.3, and reducing the time allowed to reach the applicable conditions.

This change is acceptable because the CTS requirements are modified to provide the necessary Required Actions and appropriate Completion Times. The Completion Time of 6 hours to reach MODE 3 and 12 hours to reach MODE 4, from 100% RTP, in a safe manner without challenging unit systems, is consistent with other CTS and ITS requirements. This change is designated as more restrictive because the Completion Times for the unit to be placed in the specified MODES have been decreased by 1 hour.

M02 CTS Table 4.3-2, Channel Functional Unit 1.a (Safety Injection, Manual Initiation), "MODES for which Surveillance Required," column identifies that this Channel Functional Unit's surveillance is required in MODES 1, 2, and 3 while CTS Table 3.3-2 identifies that Functional Unit 1.a Applicable MODES are 1, 2, 3, and 4. ITS Table 3.3.2-1 identifies that this Functional Unit's Applicable MODES are 1, 2, 3, and 4. This changes the CTS MODE for which the surveillance is required from MODES 1, 2, and 3, to MODES 1, 2, 3, and 4, in the ITS.

The purpose of CTS Table 4.3-2 "MODES for which Surveillance is required" column is to ensure that SRs are met during the MODES or other specified conditions where the Functional Unit is required to be OPERABLE, unless otherwise specified in the individual SRs. This change is acceptable because the MODES in which the Functional Units surveillance is required will match the MODES in which the Functional Unit is required to be OPERABLE. This change is designated as more restrictive because additional MODES of Applicability are applied to when Functional Unit 1.a (Safety Injection, Manual Initiation) surveillance is required.

<u>RELOCATED SPECIFICATIONS</u>

None

<u>REMOVED DETAIL CHANGES</u>

LA01 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 3.3-2 has three columns stating various requirements for each function labeled, "TOTAL NO. OF CHANNELS," "CHANNELS TO TRIP," and "MINIMUM CHANNELS OPERABLE." ITS Table 3.3.2-1 does not retain the "TOTAL NO. OF CHANNELS" or "CHANNELS TO TRIP" columns. This changes the CTS by moving the information of the "TOTAL NO. OF CHANNELS" and "CHANNELS TO TRIP" columns to the Bases.

The removal of these details, which are related to system design, from the Technical Specifications, is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for the number of required channels and the appropriate Condition to enter if a required channel becomes inoperable. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA02 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 3.3-2 Functional Unit 5.c, (Feedwater Isolation, Steam Generator Water Level -- High-High) contains a footnote (# # # #) that states, "Steam Generator overfill protection is not part of the Engineered Safety Features Actuation System (ESFAS), and is added to the Technical Specifications only in accordance with NRC Generic Letter 89 19." ITS Table 3.3.2-1 Function 5.b, (Feedwater Isolation, SG Water Level - High High (P-14)) does not provide this information. This changes the CTS by moving the details of required switch operation for actuation to the ITS Bases.

The removal of these details, which are related to system design, from the Technical Specifications, is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for the number of required channels and the appropriate Condition to enter if a required channel becomes inoperable. In addition, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA03 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 3.3-2 Functional Unit 6, (Auxiliary Feedwater) contains footnote (# # #) that states, "Auxiliary feedwater manual initiation is included in Specification 3.7.1.2." ITS Table 3.3.2-1 Function 6, (Auxiliary Feedwater) does not provide this information. This changes the CTS by moving the details of the location of the Auxiliary Feedwater manual initiation instrumentation requirement to the ITS Bases.

The removal of these details, which are related to system design, from the Technical Specifications, is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for the number of required channels and the appropriate Condition to enter if a required channel becomes inoperable. In addition, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA04 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 3.3.2 requires the Engineered Safety Feature Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-2 to be OPERABLE with their Trip Setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-3. However, CTS 3.3.2 ACTION only requires a determination of OPERABILITY with an ESFAS Instrumentation or Interlock Trip Setpoint less conservative than the value shown in the Allowable Value column of Table 3.3-3. When the setpoint is less conservative than the Allowable Value (AV), the setpoint is adjusted consistent with the Trip Setpoint value of Table 3.3-3 and a determination is made within 12 hours that the affected channel is OPERABLE; or the channel is declared inoperable and the applicable ACTION statement requirements of Table 3.3-2 applied. CTS Table 3.3-3 specifies both the Trip Setpoints and AVs for the ESFAS Instrumentation Functional Units. ITS 3.3.2 requires the ESFAS instrumentation for each Function in Table 3.3.2-1 to be OPERABLE. ITS Table 3.3.2-1 specifies only the AVs for the ESFAS Instrumentation Functions. The AVs represent the OPERABILITY limit of the channels in ITS. This changes the CTS by moving the Trip Setpoints to the Technical Requirements Manual (TRM).

The purpose of the trip setpoint requirements is to ensure required automatic safety systems are actuated to protect against violating core design limits, breaching the RCS pressure boundary, and to mitigate accidents. Pursuant to 10 CFR 50.36(c)(1)(ii)(A), if it is determined that an automatic protective device for a variable on which a safety limit has been placed (i.e., limiting safety system setting) does not function as required, appropriate action is taken to ensure the abnormal situation is corrected before a safety limit is exceeded, which may include shutting down the reactor. The PTN Instrument Setpoint Methodology calculates nominal trip setpoints (NTSPs) using methods consistent with the guidance provided in NRC Regulatory Guide (RG) 1.105, "Setpoints for Safety-Related Instrumentation," and ANSI/ISA Standard 67.04, "Setpoints for Nuclear Safety-Related Instrumentation." Additionally, pre-defined limits (double-sided Operability (as-found) limits and as-left limits) are determined for each instrument consistent with the guidance provided in NRC RG 1.105 and ANSI/ISA–RP67.04, "Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation." The instrument Operability limit band in plant uncertainty calculations is synonymous with the as-found acceptance criteria band specified in ITS and is centered about the nominal equipment setting (clarified in calculations as the NTSP). The PTN Instrument Setpoint Methodologies, including the method of determining instrument uncertainties, were reviewed by the NRC during the review of the power uprate to 2300 Mwt (NRC ADAMS Accession Nos. ML013390234) and the Extended Power Uprate (EPU) (NRC ADAMS Accession Nos. ML11293A365). In the NRC staff's approval of the 2300 Mwt power uprate amendment, the NRC staff the staff determined that the proposed setpoint changes were acceptable because the staff had previously reviewed and approved the setpoint methodology used to determine the setpoint (WCAP-12745). In the NRC staff's approval of the PTN EPU amendment the NRC staff determined that the PTN setpoint methodology (WCAP-17070) was acceptable for this license amendment because the setpoint calculation provide adequate safety margins between the AV and Allowable Limit (AL), as well as adequate safety margin between the nominal trip setpoint (NTS) and AL.

The removal of these details for meeting Technical Specification requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS retains the AVs associated with the ESFAS Instrumentation, which are designated as the Operability limits for the required instrument Functions. Footnotes (a) and (b) in Table 3.3.2-1 ensure channel performance continues to verify that the channel will behave in accordance with safety analysis assumptions and the channel performance assumptions in the setpoint methodology consistent with the NRC guidance specified in RIS 2006-17. Also, this change is acceptable because these types of procedural details will be adequately controlled in the TRM. Any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L01 *(Category 2 – Relaxation of Applicability)* CTS Table 3.3-3, Functional Units 4 (Steam Line Isolation), 4.a. (Manual Initiation), 4.b. (Automatic Actuation Logic and Actuation Relays), 4.c. (Containment Pressure – High-High coincident with Containment Pressure -High), and 4.d. (Steam Line Flow-High coincident with Steam Generator Pressure-Low), are required to be OPERABLE in MODES 1, 2, and 3. ITS Table 3.3.2-1, Function 4 (Steam Line Isolation), 4.a (Manual Initiation), 4.b (Automatic Actuation Logic and Actuation Relays), 4.c (Containment Pressure – High-High coincident with Containment Pressure - High), 4.d (Steam Line Flow-High coincident with Steam Generator Pressure-Low), include a Footnote for MODES 2 and 3, Footnote (g). Footnote (g) states, "Except when all MSIVs are closed." This changes the CTS by making the Specification for these Functions not applicable in MODES 2 and 3 when all MSIVs are closed.

The purpose of the ITS Table 3.3.2-1 Function 4 Applicability footnote is to provide an exception to clarify that the Steam Line Isolation Instrumentation Functions are not required when the MSIVs are in a position that supports the safety analyses. This change is acceptable because the requirements continue to ensure that the structures, systems, and components are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. When all the MSIVs are in the closed position, the valves are in the assumed accident position, thus the isolation instrumentation is not needed. In addition, the MSIVs are not required to be OPERABLE in MODES 2 and 3 when the valves are closed, thus there is no purpose in requiring the instrumentation that closes the valves to be OPERABLE. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the CTS.

L02 *(Category 2 – Relaxation of Applicability)* CTS Table 3.3-2 requires Functional Unit 5 (Feedwater Isolation) Functions 5.a (Automatic Actuation Logic and Actuation Relays) and 5.c (Steam Generator Water Level -- High-High) to be OPERABLE in MODES 1, 2, and 3. ITS Table 3.3.2-1 requires the same Functions (ITS Table 3.3.2-1 Functions 5.a and 5.b) to be OPERABLE in MODE 1, and in MODES 2 and 3 except when all Main Feedwater Isolation Valves (MFIVs), Main Feedwater Regulating Valves (MFRVs), and MFRV bypass valves are closed or isolated by a closed manual valve, Footnote (h). This changes the CTS by not requiring the instrumentation to be OPERABLE when all MFIVs, MFRVs, and MFRV bypass valves are closed or isolated by a closed manual valve.

The purpose of the ITS Table 3.3.2-1 Functions 5.a and 5.b Applicability footnote is to provide an exception to clarify that the Feedwater Isolation Steam Generator Water Level - High High (P-14) instrumentation and the Feedwater Isolation Automatic Actuation Logic and Actuation Relays are not required when all MFIVs, MFRVs, and MFRV bypass valves are closed or isolated by a closed manual valve. In this condition, the Function will not need to isolate the Main Feedwater source to the associated SG because the valves are in a position that supports the safety analyses. This change is acceptable because the requirements continue to ensure that the structures, systems, and components are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. When all MFIVs, MFRVs, and MFRV bypass valves are in the closed position, the valves are in the assumed accident position. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the CTS.

L03 *Category 4 – Relaxation of Required Action)* CTS Table 3.3-2 Action 14; which applies when Functional Unit 1.b (Safety Injection Automatic Actuation Logic and Actuation Relays), 2.a (Containment Spray Automatic Actuation Logic and Actuation Relays), 3.a.2) (Containment Isolation Phase "A" Automatic Actuation Logic and Actuation Relays), or 3.b.2) (Containment Isolation Phase "B" Automatic Actuation Logic and Actuation Relays) train is inoperable; Action 20, which applies when a Functional Unit 4.b (Steam Line Isolation Automatic Actuation Logic and Actuation Relays), or 6.a (Auxiliary Feedwater Automatic Actuation Logic and Actuation Relays) train is inoperable; and Action 22, which applies when a Functional Unit 5.a Feedwater Isolation Actuation Logic and Actuation Relays) train is inoperable, do not provide any time to restore the inoperable train. ITS 3.3.2 Required Action C.1 and D.1 will allow 6 hours to restore an inoperable Function 1.b, 2.a, 3.a.(3), 3.b.(2), 4.b, 5.a, or 6.a train to OPERABLE status prior to requiring a unit shutdown. This changes the CTS by allowing 6 hours to restore the affected Automatic Actuation Logic and Actuation Relays train to OPERABLE status prior to commencing a shutdown. In addition, with respect to CTS Table 3.3-2 Action 14, the time to be in MODE 3 (HOT STANDBY) is reduced from 12 hours to 6 hours.

The purpose of the ITS 3.3.2 ACTION C and D is to provide a short period of time to restore the inoperable train. The proposed Completion Time of 6 hours in ITS 3.3.2 Required Action C.1 and D.1 is acceptable considering that there is another train OPERABLE and the low probability of an event occurring during this interval. In addition, this change is consistent with NUREG-1431. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

Note that while 6 hours is proposed for channel/train restoration, the time permitted to reach MODE 3 for Functions associated with CTS Table 3.3-2 Action 14 is reduced from 12 hours to 6 hours (ITS Required Action O.1). Therefore, the total time to reach MODE 3 remains unchanged for Functions associated with CTS Table 3.3-2 Action 14.

L04 *(Category 4 – Relaxation of Required Action)* CTS 3.3.2, Table 3.3-2, Actions 14, 17, and 27 identify degraded conditions of the ESFAS instrumentation for the manual initiation (Functional Units 1.a, Safety Injection, 3.a.(1), Containment Isolation Phase A, 3.b.(1), Containment Isolation Phase B), and the automatic action logic and actuation relay (Functional Units 1.b, Safety Injection, 2.a, Containment Spray, 3.a.(2), Containment Isolation Phase A, and 3.b.(2), Containment Isolation Phase B) Functions required to be OPERABLE in MODES 1, 2, 3, and 4. If the degraded condition is not resolved within a prescribed amount of time CTS 3.3.2, Table 3.3-2, Actions 14, 17, and 27, provide actions to shut down the unit to MODE 5 (cold shutdown). ITS 3.3.2 Action L states that if the Required Action and associated Completion Time of Condition B (Functional Units 1.a, Safety Injection Manual Initiation, 3.a.(1), Containment Isolation Phase A Manual Initiation), or Condition F (Functional Unit 3.b.(1) Containment Isolation Phase B Manual Initiation) are not met to be in MODE 3 in 6 hours and MODE 4 in 12 hours, and is modified by a Note stating that LCO 3.0.4.a is not applicable when entering MODE 4. Condition C (Functional Units 1.b, Safety Injection Automatic Actuation Logic and Actuation Relays; 2.a, Containment Spray Automatic Actuation Logic and Actuation Relays; 3.a.(2), Containment Isolation Phase A Automatic Actuation Logic and Actuation Relays; 3.b.(2), Containment Isolation Phase B Automatic Actuation Logic and Actuation Relays) are not met to be in MODE 3 in 12 hours and MODE 4 in 18 hours, and is modified by a Note stating that LCO 3.0.4.a is not applicable when entering MODE 4. This changes the CTS by allowing a Required Action end state of hot shutdown (Mode 4) rather than an end state of cold shutdown (Mode 5) while allowing 6 hours to transition from MODE 3 to MODE 4.

One purpose of CTS 3.3.2, Table 3.3-2, Actions 14, 17, and 27 is to provide an end state, a condition that the reactor must be placed in, if the Required Actions allowing remedial measures to be taken in response to the degraded conditions with continued operation are not met. End states are usually defined based on placing the unit into a mode or condition in which the TS LCO is not applicable. MODE 5 is the current end state for LCOs that are applicable in MODES 1 through 4. This change is acceptable because the risk of the transition from MODE 1 to MODES 4 or 5 depends on the availability of alternating current (AC) sources and the ability to remove decay heat, such that remaining in MODE 4 may be safer. During the realignment from MODE 4 to MODE 5, there is an increased potential for loss of shutdown cooling and loss of inventory events. Decay heat removal following a loss-of-offsite power event in MODE 5 is dependent on AC power for shutdown cooling whereas, in MODE 4, the turbine driven auxiliary feedwater (AFW) pump is available. Therefore, transitioning to MODE 5 is not always the appropriate end state from a risk perspective. Thus, for specific Technical Specification conditions, Westinghouse Topical Report WCAP-16294-A R1 (ADAMS Accession No. ML103430249) justifies MODE 4 as an acceptable alternate end state to Mode 5. The proposed change to the Technical Specifications allows time to perform short-duration repairs, which currently necessitate exiting the original mode of applicability. The MODE 4 Technical Specification end state is applied, and risk is assessed and managed in accordance with Title 10 of the Code of Federal Regulations (10 CFR) Section 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants." This proposed change is consistent with NRC approved Technical Specification Task Force (TSTF) traveler TSTF-432-A Revision 1 (ADAMS Accession No. ML103360003) noticed in the Federal Register (77 FR 27814) of its availability by the NRC on May 11, 2012. The NRC's approval of WCAP-16294-A included four limitations and conditions on its use as identified in Section 4.0 of the NRC Safety Evaluation associated with WCAP-16294-A. Implementation of these stipulations were addressed in the Bases of TSTF-432-A. Florida Power and Light implemented these limitations and conditions at PTN in the adoption of the associated TSTF-432-A Bases. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L05 *(Category 4 - Relaxation of Required Action)* CTS Table 3.3-2 Action 15 states, in part, that with the number of OPERABLE channels one less than the total number of channels, operations may proceed "until performance of the next required ANALOG CHANNEL OPERATIONAL TEST or TRIP ACTUATING DEVICE OPERATIONAL TEST." Similarly, CTS Table 3.3-2 Action 26 states, in part, that with one channel inoperable, operation may proceed "until performance of the next required ANALOG CHANNEL OPERATIONAL TEST or TRIP ACTUATING DEVICE OPERATIONAL TEST." These CTS Actions applies to CTS Table 3.3-2 Functional Units 1.c through 1.f, 2.b, 3.b(3), 4.c, 4.d, 5.c, and 6.b. ITS 3.3.2 ACTION E is the applicable ACTION for Functional Units 1.c through 1.g, 2.b, 4.d (in part), and 6.b while ITS 3.3.2 ACTION I is the applicable ACTION for Functional Units 3.b(3), 4.c, 4.d (in part) when one channel is inoperable, and does not include the restoration time limit of "until performance of the next required ANALOG CHANNEL OPERATIONAL TEST or TRIP

ACTUATING DEVICE OPERATIONAL TEST." This changes the CTS by allowing operation with an inoperable channel for an unlimited amount of time provided the inoperable channel is in the tripped condition.

The purpose of CTS Table 3.3-2 Action 15 and ACTION 26 is to only allow operation until performance of the next required COT or TADOT. This requirement is based upon the assumption that when it is time to test the other OPERABLE channels in the associated Function, the OPERABLE channels cannot be tested with the inoperable channel in trip. However, CTS 3.0.6 (ITS LCO 3.0.5) is a generic allowance that will allow the inoperable channel to be restored to service to perform Surveillances on the other OPERABLE channels in the associated Function. Thus, using this generic allowance, it is possible to test the remaining OPERABLE channels in the associated Function and there is no reason to restrict the generic allowance from applying to these specific channels. As such, the CTS Table 3.3-2 Action 15 and ACTION 26 statement is not necessary and has been deleted. The administrative controls required by ITS LCO 3.0.5 will ensure the time the channel is returned to service in conflict with the requirements of ITS 3.3.2 ACTION E or ACTION I is limited to the time necessary to perform the required testing to demonstrate OPERABILITY of the other channels. In addition, this specific example (taking an inoperable channel out of the tripped condition) is discussed in the Bases of ISTS SR 3.0.5. Therefore, this change is acceptable for the above-described reasons. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L06 *(Category 4 – Relaxation of Required Action)* CTS Table 3.3-2 Actions 20 and 22 do not provide any time to restore the inoperable train. CTS Table 3.3-2 Action 20 applies when Functional Unit 4.b (Steam Line Isolation Automatic Actuation Logic and Actuation Relays) or 6.a (Auxiliary Feedwater Automatic Actuation Logic and Actuation Relays) train is inoperable. CTS Table 3.3-2 Action 22 applies when Functional Unit 5.a (Feedwater Isolation Automatic Actuation Logic and Actuation Relays) train is inoperable. ITS 3.3.2 Required Action D.1 will allow 6 hours to restore an inoperable Function 4.b, 5.a or 6.a train to OPERABLE status prior to requiring a unit shutdown. This changes the CTS by allowing 6 hours to restore the affected train to OPERABLE status prior to starting a shutdown.

The purpose of the ITS 3.3.2 ACTION D is to provide a short period of time to restore the inoperable train. The proposed Completion Time of 6 hours in ITS 3.3.2 ACTION D is acceptable considering that there is another train OPERABLE and the low probability of an event occurring during this interval. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.3 INSTRUMENTATION

3.3.2 Engineered Safety Feature s Actuation System (ESFAS) Instrumentation

3.3.2

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

Applicability

APPLICABILITY: According to Table 3.3.2-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
Action b.2 Action c. A. One or more Functions with one or more required channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.2-1 for the channel(s) or train(s).	Immediately
Table 3.3-2 ACTION 27 B. One channel or train inoperable.	B.1 Restore channel or train to OPERABLE status.	48 hours ~~[~~OR In accordance with the Risk Informed Completion Time Program~~]~~ (1)

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
Table 3.3-2 ACTION 14	C. One train inoperable. INSERT 1	--------------------NOTE-------------------- One train may be bypassed for up to 8 ~~[4]~~ hours for surveillance testing provided the other train is OPERABLE. --		1
		C.1 Restore train to OPERABLE status.	6 ~~24~~ hours ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~	2 1
Table 3.3-2 ACTION 25, ACTION 26	E ~~D~~. One channel inoperable.	~~[------------------NOTE------------------ The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. --~~ ~~----------REVIEWER'S NOTE---------- The below Note should be used for plants with installed bypass test capability: One channel may be bypassed for up to 12 hours for surveillance testing. --]~~		3 2 4
		E ~~D~~.1 Place channel in trip.	6 ~~72~~ hours ~~[~~OR In accordance with the Risk Informed Completion Time Program~~]~~	3 1 1

2

INSERT 1

Table 3.3-2 ACTION 20, ACTION 22	D. One train inoperable.	--------------------NOTE-------------------- One train may be bypassed for up to 8 hours for surveillance testing provided the other train is OPERABLE. --	
		D.1 Restore train to OPERABLE status.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~E. One Containment Pressure channel inoperable.~~	~~[------------------NOTE------------------ One additional channel may be bypassed for up to 12 hours for surveillance testing of other channels. --~~ ~~----------REVIEWER'S NOTE--------- The below Note should be used for plants with installed bypass test capability.~~ ~~One channel may be bypassed for up to 12 hours for surveillance testing. --]~~ ~~E.1 Place channel in bypass.~~	~~72 hours~~
F. One channel or train inoperable.	F.1 Restore channel or train to OPERABLE status.	48 hours ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~

Table 3.3-2
ACTION 17

3

1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
Table 3.3-2 ACTION 23(a) G. One train inoperable.	~~-----NOTE----- One train may be bypassed for up to [4] hours for surveillance testing provided the other train is OPERABLE.~~ ~~-----~~ G.1 Restore train to OPERABLE status.	~~24~~ 48 hours ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~
~~H. One train inoperable.~~	~~-----NOTE----- One train may be bypassed for up to [4] hours for surveillance testing provided the other train is OPERABLE.~~ ~~-----~~ ~~H.1 Restore train to OPERABLE status.~~	~~24 hours~~ ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~

2
2
1
3

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~I. One channel inoperable.~~	~~[-----------------NOTE------------------ The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. ---~~ ~~----------REVIEWER'S NOTE---------- The below Note should be used for plants with installed bypass test capability.~~ ~~One channel may be bypassed for up to 12 hours for surveillance testing. ---]~~ ~~I.1 Place channel in trip.~~	~~72 hours~~ ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~
~~J~~ H. One Main Feedwater Pumps trip channel inoperable.	~~J~~ H.1 Restore channel to OPERABLE status.	48 hours ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~

Table 3.3-2 ACTION 23(b)

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INSERT 2

2 **INSERT 2**

Table 3.3-2 ACTION 15	I. One channel inoperable.	I.1 Place channel in trip.	6 hours
Table 3.3-2 ACTION 21	J. One channel or train inoperable.	J.1 Restore channel or train to OPERABLE status. <u>OR</u> J.2 Declare associated valve inoperable and take the Required Action(s) of LCO 3.7.2	48 hours 48 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~K. One channel inoperable.~~	~~[----------------NOTE---------------- One additional channel may be bypassed for up to [4] hours for surveillance testing. ---------------------------------------~~ ~~---------REVIEWER'S NOTE--------- The below Note should be used for plants with installed bypass test capability:~~ ~~One channel may be bypassed for up to 12 hours for surveillance testing. ---------------------------------------]~~ ~~K.1 Place channel in bypass.~~	~~[6] hours~~
~~L~~ K. One or more channels inoperable.	~~L~~ K.1 Verify interlock is in required state for existing unit condition.	1 hour
~~M~~ L. Required Action and associated Completion Time of Conditions B, ~~C,~~ or ~~K~~ F not met.	~~M~~ L.1 Be in MODE 3. AND ~~M~~ L.2 -------------- NOTE ------------- LCO 3.0.4.a is not applicable when entering MODE 4. ------------------------------------- Be in MODE 4.	6 hours 12 hours
~~N~~ M. Required Action and associated Completion Time of Conditions D, E, ~~F,~~ G, I, J or ~~L~~ K not met.	~~N~~ M.1 Be in MODE 3. AND ~~N~~ M.2 Be in MODE 4.	6 hours 12 hours

Table 3.3-2 ACTION 19

Table 3.3-2 ACTION 17 ACTION 27

Table 3.3-2 ACTION 15 ACTIONS 19-23a ACTIONS 25-26

3 3 3 3 3 3

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ACTIONS (continued)

Table 3.3-2 ACTION 23b

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~O~~ N. Required Action and associated Completion Time of Condition~~s~~ H~~, I, or J~~ not met.	~~O~~ N.1 Be in MODE 3.	6 hours

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INSERT 3

SURVEILLANCE REQUIREMENTS

---NOTE---

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

Table 4.3-2

SURVEILLANCE		FREQUENCY
SR 3.3.2.1	INSERT 4 Perform CHANNEL CHECK.	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~
SR 3.3.2.2	INSERT 5 Perform ACTUATION LOGIC TEST.	~~[92 days on a STAGGERED TEST BASIS~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

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INSERT 3

Table 3.3-2 ACTION 14			
	O. Required Action and associated Completion Time of Condition C not met.	O.1 Be in MODE 3. AND O.2 ------------- NOTE ------------- LCO 3.0.4.a is not applicable when entering MODE 4. ------------------------------------ Be in MODE 4.	12 hours 18 hours

DOC L04

2 **INSERT 4**

Table 4.3-2, Note (3)

---------------------------NOTE--------------------------
The provisions of SR 3.0.4 are not applicable for entering Mode 3 for Functional Units 1.d, 1.e, 1.f, 1.g, 4.d, and 4.e, provided that the applicable surveillances are completed within 96 hours from entering Mode 3.
----

2 **INSERT 5**

Table 4.3-2, Note (3)

---------------------------NOTE--------------------------
The provisions of SR 3.0.4 are not applicable for entering Mode 3 for Functional Units 1.b and 4.b provided that the applicable surveillances are completed within 96 hours from entering Mode 3.

SURVEILLANCE REQUIREMENTS (continued)

Table 4.3-2

SURVEILLANCE		FREQUENCY
~~SR 3.3.2.3~~	~~-----NOTE-----~~ ~~The continuity check may be excluded.~~ ~~----------~~ ~~Perform ACTUATION LOGIC TEST.~~	~~[31 days on a STAGGERED TEST BASIS~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~ 3
~~-----REVIEWER'S NOTE-----~~ ~~The Frequency remains at 31 days on a STAGGERED TEST BASIS for plants with a Relay Protection System.~~ ~~----------~~		4 2
~~SR 3.3.2.4~~	~~Perform MASTER RELAY TEST.~~	~~[92 days on a STAGGERED TEST BASIS~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~ 3 1 1
SR 3.3.2.~~5~~ 3	Perform COT. INSERT 6	~~[184 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 3 1 1

2 **INSERT 6**

Table 4.3-2, Note (5)

----------------------------NOTE---------------------------
Test of alarm function for Functional Units 1.d, 1.e, 1.f, 1.g, 4.d, and 4.e, not required when alarm locked in.

SURVEILLANCE REQUIREMENTS (continued)

Table 4.3-2

SURVEILLANCE		FREQUENCY
~~SR 3.3.2.6~~	~~Perform SLAVE RELAY TEST.~~	~~[[92] days~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~
SR 3.3.2.~~7~~ 4	-----------------------------NOTE------------------------------ Verification of relay setpoints not required. -- Perform TADOT.	~~[[92] days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~
SR 3.3.2.~~8~~ 5	-----------------------------NOTE------------------------------ Verification of setpoint not required for manual initiation functions. -- Perform TADOT.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

SURVEILLANCE REQUIREMENTS (continued)

Table 4.3-2

SURVEILLANCE		FREQUENCY
SR 3.3.2.~~9~~ 6	------------------------------NOTE------------------------------ This Surveillance shall include verification that the time constants are adjusted to the prescribed values. -- Perform CHANNEL CALIBRATION.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~
~~SR 3.3.2.10~~	~~------------------------------NOTE------------------------------~~ ~~Not required to be performed for the turbine driven AFW pump until [24] hours after SG pressure is ≥ [1000] psig.~~ ~~--~~ ~~Verify ESFAS RESPONSE TIMES are within limit.~~	~~[[18] months on a STAGGERED TEST BASIS~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~
~~SR 3.3.2.11~~	~~------------------------------NOTE------------------------------~~ ~~Verification of setpoint not required.~~ ~~--~~ ~~Perform TADOT.~~	~~Once per reactor trip breaker cycle~~

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Table 3.3.2-1 (page 1 of 11)
Engineered Safety Feature Actuation System Instrumentation

Table 3.3-2	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	~~[NOMINAL(f) TRIP SETPOINT]~~	
	1. Safety Injection							
1.a	a. Manual Initiation	1,2,3,4	2	B	SR 3.3.2.~~8~~ 5	NA	~~NA~~	5
1.b	b. 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~~	
1.c	c. Containment Pressure - High ~~1~~	1,2,3	3	~~D~~ E	SR 3.3.2.~~1~~ 2 ~~SR 3.3.2.5(b)(c)~~ SR 3.3.2.~~9~~ 6(b)(c) ~~SR 3.3.2.10~~	≤ ~~[3.86]~~ 4.5 psig	~~[3.6] psig~~	
1.d	d. Pressurizer Pressure - Low	1,2,3 (a)	~~[~~3~~]~~	~~D~~ E	SR 3.3.2.1 3 SR 3.3.2.~~5~~ 6(b)(c) SR 3.3.2.~~9~~(b)(c) ~~SR 3.3.2.10~~	≥ ~~[1839]~~ 1712 psig	~~[1850] psig~~	1, 3, 2
	e. ~~Steam Line Pressure~~							
	~~(1) Low~~	~~1,2,3 [(a)]~~	~~3 per steam line~~	~~D~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.5(b)(c)~~ ~~SR 3.3.2.9(b)(c)~~ ~~SR 3.3.2.10~~	~~≥ [635](d) psig~~	~~[675](d) psig~~	
1.e	~~(2)~~ High Differential Pressure Between Steam Line~~s~~ Header and any Steam Generator	1,2,3 (a)	3 per steam line	~~D~~ E	~~[~~SR 3.3.2.1~~]~~ 3 SR 3.3.2.~~5~~(b)(c) 6 SR 3.3.2.~~9~~(b)(c) ~~SR 3.3.2.10~~	≤ ~~[106]~~ 114 psig	~~[97] psig~~	

Table 3.3-2 Note # (a) Above the P-11 (Pressurizer Pressure) interlock.

Action b.1, Table 4.3-2 Note (a) (b) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

Action a, Table 4.3-2 Note (b) (c) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (field setting) to confirm channel performance. The NTSP and the methodologies used to determine the as-found and as-left tolerances are specified in ~~[insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference]~~ the Technical Requirements Manual and UFSAR Section 7.2, respectively. 1

Table 3.3-3 Note (4) (d) Time constants used in the lead/lag controller are $t_1 \geq$ ~~[~~50~~]~~ seconds and $t_2 \leq$ ~~[~~5~~]~~ seconds.

~~REVIEWER'S NOTE~~

~~(f) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ 4

Table 3.3.2-1 (page 2 of 11)
Engineered Safety Feature Actuation System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	~~[NOMINAL[(l)] TRIP SETPOINT]~~ 5
	1. Safety Injection						
1.f	f. ~~High~~ Steam line Flow ~~in Two Steam Lines~~ - High	1,2,3 (e)	2 per steam line	~~D~~ E	SR 3.3.2.1 SR 3.3.2.~~5~~ 3 (b)(c) SR 3.3.2.~~9~~ 6 (b)(c) ~~SR 3.3.2.10~~	(f)	~~(g)~~
	Coincident with Tavg - Low ~~Low~~	1,2,3 (e)	1 per loop	~~D~~ E	SR 3.3.2.1 SR 3.3.2.~~5~~ 3 (b)(c) SR 3.3.2.~~9~~ 6 (b)(c) ~~SR 3.3.2.10~~	≥ ~~[550.6]~~ 542.5°F	~~[553]°F~~
1.f	g. ~~High~~ Steam line Flow ~~in Two Steam Lines~~ - High	1,2,3 (e)	2 per steam line	~~D~~ E	SR 3.3.2.1 SR 3.3.2.~~5~~ 3 (b)(c) SR 3.3.2.~~9~~ 6 (b)(c) ~~SR 3.3.2.10~~	(f)	~~(g)~~
	Coincident with Steam ~~Line~~ Generator Pressure - Low	1,2,3 (e)	1 per steam ~~line~~ generator	~~D~~ E	SR 3.3.2.1 SR 3.3.2.~~5~~ 3 (b)(c) SR 3.3.2.~~9~~ 6 (b)(c) ~~SR 3.3.2.10~~	≥ ~~[635]~~ 607 (d) psig	~~[675] psig~~
	2. Containment Spray						
	~~a. Manual Initiation~~	~~1,2,3,4~~	~~2 per train, 2 trains~~	~~B~~	~~SR 3.3.2.8~~	~~NA~~	~~NA~~

1 3

Action b.1, Table 4.3-2 Note (a) (b) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

Action a, Table 4.3-2 Note (b) (c) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (field setting) to confirm channel performance. The NTSP and the methodologies used to determine the as-found and as-left tolerances are specified in ~~[insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference]~~ the Technical Requirements Manual and UFSAR Section 7.2, respectively. 1

Table 3.3-3 Note (4) (d) Time constants used in the lead/lag controller are $t_1 \geq$ ~~[~~50~~]~~ seconds and $t_2 \leq$ ~~[~~5~~]~~ seconds.

Table 3.3-2 Note * (e) Above the ~~P-12~~ ~~(~~T_{avg} - Low ~~Low)~~ interlock.

Table 3.3-3 Function 1.f and 4.d Allowable Value (f) Less than or equal to a function defined as ΔP corresponding to ~~[44]~~ 41.2% ~~full~~ steam flow ~~below [20]~~ at 0% load, and ~~ΔP~~ increasing linearly from ~~[44]% full steam flow at~~ [20]% load to ~~[114]~~ 114.4% ~~full~~ steam flow at [100]% load~~, and ΔP corresponding to [114]% full steam flow above 100% load~~. 1

~~(g) 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.~~

~~REVIEWER'S NOTE~~

~~(l) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ 4

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Table 3.3.2-1 (page 3 of 11)
Engineered Safety Feature Actuation System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	~~[NOMINAL[(l)] TRIP SETPOINT]~~
	2. Containment Spray					NA	NA
2.a	~~b.~~ 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~~		
2.b	~~c.~~ b. Containment Pressure ~~High~~ - ~~3 (~~High High~~)~~	1,2,3	~~4~~ 3	E	SR 3.3.2.~~1~~ 2 SR 3.3.2.~~5~~ 5 ~~(b)(c)~~ SR 3.3.2.~~9~~ 6 (b)(c) ~~SR 3.3.2.10~~	≤ ~~[12.31]~~ 22.6 psig	~~[12.05] psig~~
	~~d. Containment Pressure High - 3 (Two Loop Plants)~~ Coincident with Containment Pressure - High	1,2,3	~~[~~3~~] sets of [2]~~	E	SR 3.3.2.~~1~~ 2 SR 3.3.2.~~5~~ 5 ~~(b)(c)~~ SR 3.3.2.~~9~~ 6 (b)(c) ~~SR 3.3.2.10~~	≤ ~~[12.31]~~ 4.5 psig	~~[12.05] psig~~
	3. Containment Isolation						
	a. Phase A Isolation						
3.a.1)	(1) Manual Initiation	1,2,3,4	2	B	SR 3.3.2.~~8~~ 5	NA	~~NA~~
3.a.2)	(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.a.3)	(3) Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					

5 1 3 2

Action b.1, Table 4.3-2 Note (a) (b) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

Action a, Table 4.3-2 Note (b) (c) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (field setting) to confirm channel performance. The NTSP and the methodologies used to determine the as-found and as-left tolerances are specified in ~~[insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference]~~ the Technical Requirements Manual and UFSAR Section 7.2, respectively. 1

~~REVIEWER'S NOTE~~
~~(l) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ 4

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Table 3.3.2-1 (page 4 of 11)
Engineered Safety Feature Actuation System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	~~[NOMINAL(l) TRIP SETPOINT]~~ 5
	3. Containment Isolation						
	b. Phase B Isolation						
3.b.1)	(1) Manual Initiation	1,2,3,4	2 ~~per train, 2 trains~~	~~B~~ F	SR 3.3.2.~~8~~ 5	NA	~~NA~~
3.b.2)	(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.b.3)	(3) Containment Pressure ~~High - 3 (~~High High~~)~~ INSERT 7	1,2,3	~~[4]~~ 3	~~E~~ I	SR 3.3.2.~~1~~ 2 SR 3.3.2.~~5~~ 5 ~~(b)(c)~~ SR 3.3.2.~~9~~ 6 (b)(c) ~~SR 3.3.2.10~~	≤ ~~[12.31]~~ 22.6 psig	~~[12.05] psig~~
	4. Steam Line Isolation						
4.a.	a. Manual Initiation	1,2 ~~(j)~~ g,3 ~~(j)~~ g	~~2~~ 1 per steam line	~~F~~ J	SR 3.3.2.~~8~~ 5	NA	~~NA~~
4.b.	b. Automatic Actuation Logic and Actuation Relays	1,2 ~~(j)~~ g,3 ~~(j)~~ g	2 trains	~~G~~ D	SR 3.3.2.2 ~~SR 3.3.2.4~~ ~~SR 3.3.2.6~~	NA	~~NA~~
4.c.	c. Containment Pressure - High -High ~~2~~ INSERT 8	1,2 ~~(j)~~,3 ~~(j)~~ g	~~[4]~~ 3	~~D~~ I	SR 3.3.2.~~1~~ 2 SR 3.3.2.~~5~~ 5 ~~(b)(c)~~ SR 3.3.2.~~9~~ 6 (b)(c) ~~SR 3.3.2.10~~	≤ ~~[6.61]~~ 22.6 psig	~~[6.35] psig~~

1 3 2

Action b.1, Table 4.3-2 Note (a) (b) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

Action a, Table 4.3-2 Note (b) (c) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (field setting) to confirm channel performance. The NTSP and the methodologies used to determine the as-found and as-left tolerances are specified in ~~[insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference]~~ the Technical Requirements Manual and UFSAR Section 7.2, respectively. 1

DOC L01 ~~(j)~~ (g) Except when all MSIVs are closed ~~and [de-activated]~~.

~~REVIEWER'S NOTE~~

~~(l) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ 4

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INSERT 7

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3.b.(3)	Coincident with Containment Pressure — High	1,2,3	3	I	SR 3.3.2.2 5 SR 3.3.2.~~7~~ 6 SR 3.3.2.~~8~~(b)(c)	≤4.5 psig

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INSERT 8

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4.c	Coincident with Containment Pressure — High	1,2,3 g	3	I	SR 3.3.2.2 5 SR 3.3.2.~~7~~ 6 SR 3.3.2.~~8~~(b)(c)	≤4.5 psig

Table 3.3.2-1 (page 5 of 11)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	~~[NOMINAL (l) TRIP SETPOINT]~~
~~4. Steam Line Isolation~~						
~~d. Steam Line Pressure~~						
~~(1) Low~~	~~1,2 (j), 3 (j) (a)~~	~~3 per steam line~~	~~D~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.5 (b)(c)~~ ~~SR 3.3.2.9 (b)(c)~~ ~~SR 3.3.2.10~~	~~≥ [635] (d) psig~~	~~[675] (d) psig~~
~~(2) Negative Rate - High~~	~~3 (h) (j)~~	~~3 per steam line~~	~~D~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.5 (b)(c)~~ ~~SR 3.3.2.9 (b)(c)~~ ~~SR 3.3.2.10~~	~~≤ [121.6] (i) psi~~	~~[110] (i) psi~~

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

Action b.1, Table 4.3-2 Note (a)

(b) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

Action a, Table 4.3-2 Note (b)

(c) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (field setting) to confirm channel performance. The NTSP and the methodologies used to determine the as-found and as-left tolerances are specified in ~~[insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference]~~ the Technical Requirements Manual and UFSAR Section 7.2, respectively. 1

Table 3.3-3 Note (4)

(d) Time constants used in the lead/lag controller are $t_1 \geq$ ~~[~~50~~]~~ seconds and $t_2 \leq$ ~~[~~5~~]~~ seconds. 1

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

~~(i) Time constant utilized in the rate/lag controller is ≥ [50] seconds.~~ 3

DOC L01

(~~j~~ g) Except when all MSIVs are closed ~~and [de-activated]~~. 1

~~REVIEWER'S NOTE~~

~~(l) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ 4

Table 3.3.2-1 (page 6 of 11)
Engineered Safety Feature Actuation System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	~~[NOMINAL TRIP SETPOINT]~~ (f)	
	4. Steam Line Isolation							5
4.d.	~~e.~~ d. ~~High~~ Steam Line Flow - HIGH ~~in Two Steam Lines~~	1,2 ~~(j)~~ (g),3 ~~(j)~~ (g)	2 per steam line	~~D~~ I	SR 3.3.2.1 3 SR 3.3.2.~~5~~ 4 (b)(c) SR 3.3.2.~~9~~ (b)(c) ~~SR 3.3.2.10~~	(f)	~~(g)~~	
	Coincident with T_{avg} - Low ~~Low~~	1,2 ~~(j)~~ (g),3 (e) ~~(j)~~ (g)	1 per loop	~~D~~ E	SR 3.3.2.1 3 SR 3.3.2.~~5~~ 4 (b)(c) SR 3.3.2.~~9~~ (b)(c) ~~SR 3.3.2.10~~	≥ ~~[550.6]~~ 542.5°F	~~[553]°F~~	1, 3
4.d.	~~f.~~ e. ~~High~~ Steam Line Flow - HIGH ~~in Two Steam Lines~~	1,2 ~~(j)~~ (g),3 ~~(j)~~ (g)	2 per steam line	~~D~~ I	SR 3.3.2.1 3 SR 3.3.2.~~5~~ 4 (b)(c) SR 3.3.2.~~9~~ (b)(c) ~~SR 3.3.2.10~~	(f)	~~(g)~~	
	Coincident with Steam ~~Line~~ Generator Pressure - Low	1,2 ~~(j)~~ (g),3 ~~(j)~~ (g)	1 per steam ~~line~~ generator	~~D~~ I	SR 3.3.2.1 3 SR 3.3.2.~~5~~ 6 (b)(c) SR 3.3.2.~~9~~ (b)(c) ~~SR 3.3.2.10~~	≥ ~~[635]~~ 607 ~~(d)~~ psig	~~[675](d) psig~~	

Action b.1, Table 4.3-2 Note (a) (b) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

Action a, Table 4.3-2 Note (b) (c) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (field setting) to confirm channel performance. The NTSP and the methodologies used to determine the as-found and as-left tolerances are specified in ~~[insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference]~~ the Technical Requirements Manual and UFSAR Section 7.2, respectively. 1

Table 3.3-3 Note (4) (d) Time constants used in the lead/lag controller are $t^1 \geq$ ~~[~~50~~]~~ seconds and $t^2 \leq$ ~~[~~5~~]~~ seconds. 1

Table 3.3-2 Note * (e) Above the ~~P-12~~ ~~(~~T_{avg} - Low ~~Low)~~ interlock.

Table 3.3-3 Function 1.f and 4.d Allowable Value (f) Less than or equal to a function defined as ΔP corresponding to ~~[44]~~ 41.2% ~~full~~ steam flow ~~below [20]~~ at 0% load, and ~~ΔP~~ increasing linearly from ~~[44]% full steam flow at~~ ~~[~~20~~]~~% load to ~~[114]~~ 114.4% ~~full~~ steam flow at ~~[~~100~~]~~% load~~, and ΔP corresponding to [114]% full steam flow above 100% load~~. 1

~~(g) 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.~~ 5

DOC L01 ~~(j)~~ (g) Except when all MSIVs are closed ~~and [de-activated]~~. 1

~~REVIEWER'S NOTE~~

~~(l) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ 4

Table 3.3.2-1 (page 7 of 11)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	~~[NOMINAL(l) TRIP SETPOINT]~~
~~4. Steam Line Isolation~~						
~~g. High Steam Flow~~	~~1,2 (i),3 (i)~~	~~2 per steam line~~	~~D~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.5(b)(c)~~ ~~SR 3.3.2.9(b)(c)~~ ~~SR 3.3.2.10~~	~~≤ [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 Tavg - Low Low~~	~~1,2 (i),3 (e) (i)~~	~~[2] per loop~~	~~D~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.5(b)(c)~~ ~~SR 3.3.2.9(b)(c)~~ ~~SR 3.3.2.10~~	~~≥ [550.6]°F~~	~~[553]°F~~
~~h. High High Steam Flow~~	~~1,2 (i),3 (i)~~	~~2 per steam line~~	~~D~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.5(b)(c)~~ ~~SR 3.3.2.9(b)(c)~~ ~~SR 3.3.2.10~~	~~≤ [130]% of full steam flow at full load steam pressure~~	~~[ ] of full steam flow at full load steam pressure~~
~~Coincident with Safety Injection~~	~~Refer to Function 1 (Safety Injection) for all initiation functions and requirements.~~					

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Action b.1, Table 4.3-2 Note (a) (b) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

Action a, Table 4.3-2 Note (b) (c) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (field setting) to confirm channel performance. The NTSP and the methodologies used to determine the as-found and as-left tolerances are specified in ~~[insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference]~~ the Technical Requirements Manual and UFSAR Section 7.2, respectively. 1

Table 3.3-2 Note * (e) Above the ~~P-12~~ ~~(~~T_{avg} - Low ~~Low)~~ interlock. 2

DOC L01 (~~i~~ g) Except when all MSIVs are closed ~~and [de-activated]~~. 1

~~REVIEWER'S NOTE~~

~~(l) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ 4

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Table 3.3.2-1 (page 8 of 11)
Engineered Safety Feature Actuation System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	~~[NOMINAL(l) TRIP SETPOINT]~~
	5. ~~Turbine Trip and~~ Feedwater Isolation						
5.a.	a. Automatic Actuation Logic and Actuation Relays	1, 2 ~~(k)~~ (h), ~~[3]~~ ~~(k)~~ (h)	2 trains	~~H[G]~~ D	SR 3.3.2.2 ~~SR 3.3.2.4~~ ~~SR 3.3.2.6~~	NA	~~NA~~
5.c.	b. SG Water Level - High High ~~(P-14)~~	1,2 ~~(k)~~ (h),[3]~~(k)~~ (h)	~~[~~3~~]~~ per SG	I~~[D]~~	SR 3.3.2.1 (b)(c) SR 3.3.2.~~5~~ 6 (b)(c) SR 3.3.2.~~9~~(b)(c) ~~SR 3.3.2.10~~	≤ ~~[84.2]%~~ 80.5% NR	~~[82.4]%~~
5.b.	c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
	6. Auxiliary Feedwater (i)						
6.a.	a. Automatic Actuation Logic and Actuation Relays ~~(Solid State Protection System)~~	1,2,3	2 trains	~~G~~ D	SR 3.3.2.2 ~~SR 3.3.2.4~~ ~~SR 3.3.2.6~~	NA	~~NA~~
	~~b. Automatic Actuation Logic and Actuation Relays (Balance of Plant ESFAS)~~	~~1,2,3~~	~~2 trains~~	~~G~~	~~SR 3.3.2.3~~	~~NA~~	~~NA~~

5 1 3 2

Action b.1, Table 4.3-2 Note (a) (b) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

Action a, Table 4.3-2 Note (b) (c) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (field setting) to confirm channel performance. The NTSP and the methodologies used to determine the as-found and as-left tolerances are specified in ~~[insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference]~~ the Technical Requirements Manual and UFSAR Section 7.2, respectively. 1

DOC L02 (~~k~~ h) Except when all MFIVs, MFRVs, ~~[~~and associated bypass valves~~]~~ are closed ~~and [de-activated]~~ ~~[~~or isolated by a closed manual valve~~]~~. 1

Table 4.3-2 Note # # # (i) Auxiliary Feedwater manual initiation is included in Specification 3.7.5. 2

~~REVIEWER'S NOTE~~

~~(j) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ 4

Table 3.3.2-1 (page 9 of 11)
Engineered Safety Feature Actuation System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	~~[NOMINAL[(f)] TRIP SETPOINT]~~ 5
	6. Auxiliary Feedwater (i)						
6.b.	~~c.~~ b. SG Water Level - Low Low	1,2,3	~~[~~3~~]~~ per SG	~~D~~ E	SR 3.3.2.1 SR 3.3.2.~~5~~ 3 [(b)(c)] SR 3.3.2.~~9~~ 6 [(b)(c)] ~~SR 3.3.2.10~~	≥ ~~[30.4]%~~ 15.5% NR See LCO 3.3.5 for Allowable Values	~~[32.2]%~~
6.c.	~~d.~~ c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
6.d.	~~e.~~ d. ~~Loss of Offsite Power~~ Bus Stripping	1,2,3	~~[3]~~ 1 per bus	~~F~~ G	SR 3.3.2.~~7~~ 4 SR 3.3.2.~~9~~ 6 [(b)(c)] ~~SR 3.3.2.10~~	~~≥ [2912] V with ≤ 0.8 sec time delay~~	~~[2975] V with ≤ 0.8 sec time delay~~
	~~f. Undervoltage Reactor Coolant Pump~~	~~1,2~~	~~[3] per bus~~	~~I~~	~~SR 3.3.2.7~~ ~~SR 3.3.2.9[(b)(c)]~~ ~~SR 3.3.2.10~~	~~≥ [69]% bus voltage~~	~~[70]% bus voltage~~
6.e.	~~g.~~ e. Trip of all Main Feedwater ~~Pumps~~ breakers	1,2	~~[2]~~ 1 per ~~pump~~ breaker	~~J~~ H	SR 3.3.2.~~8~~ 5 ~~[(b)(c)]~~ ~~SR 3.3.2.9[(b)(c)]~~ ~~SR 3.3.2.10~~	~~≥ [ ] psig~~ NA	~~[ ] psig~~
	~~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[(b)(c)]~~	~~≥ [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~~	~~NA~~	~~NA~~

1 3

Action b.1, Table 4.3-2 Note (a) — (b) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

Action a, Table 4.3-2 Note (b) — (c) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (field setting) to confirm channel performance. The NTSP and the methodologies used to determine the as-found and as-left tolerances are specified in ~~[insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference]~~ the Technical Requirements Manual and UFSAR Section 7.2, respectively. 1

~~REVIEWER'S NOTE~~

~~(f) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ 4

Table 4.3-2 Note # # # — (i) Auxiliary Feedwater manual initiation is included in Specification 3.7.5. 2

Table 3.3.2-1 (page 10 of 11)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	~~[NOMINAL(l) TRIP SETPOINT]~~
~~7. Automatic Switchover to Containment Sump~~						
~~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(b)(c)~~ ~~SR 3.3.2.9(b)(c)~~ ~~SR 3.3.2.10~~	~~≥ [15]% and ≤ [ ]%~~	~~[ ]% and [ ]%~~
~~Coincident with Safety Injection~~	~~Refer to Function 1 (Safety Injection) for all initiation functions and requirements.~~					
~~c. RWST Level - Low Low~~	~~1,2,3,4~~	~~4~~	~~K~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.5(b)(c)~~ ~~SR 3.3.2.9(b)(c)~~ ~~SR 3.3.2.10~~	~~≥ [15]%~~	~~[18]%~~
~~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(b)(c)~~ ~~SR 3.3.2.9(b)(c)~~ ~~SR 3.3.2.10~~	~~≥ [30] in. above el. [703] ft~~	~~[ ] in. above el. [ ]ft~~

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Action b.1, Table 4.3-2 Note (a)

b) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

Action a, Table 4.3-2 Note (b)

(c) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (field setting) to confirm channel performance. The NTSP and the methodologies used to determine the as-found and as-left tolerances are specified in ~~[insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference]~~ the Technical Requirements Manual and UFSAR Section 7.2, respectively.

1

~~REVIEWER'S NOTE~~

~~(l) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~

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Table 3.3.2-1 (page 11 of 11)
Engineered Safety Feature Actuation System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	~~[NOMINAL[(l)] TRIP SETPOINT]~~
	7 ~~8~~. ESFAS Interlocks						
	~~a. Reactor Trip, P-4~~	~~1,2,3~~	~~1 per train, 2 trains~~	~~F~~	~~SR 3.3.2.11~~	~~NA~~	~~NA~~
8.a.	a ~~b~~. Pressurizer Pressure, P-11	1,2,3	2 ~~3~~	K ~~L~~	~~SR 3.3.2.1~~ 3 SR 3.3.2.~~5~~ 6 SR 3.3.2.~~9~~	≤ 2018 ~~[1996]~~ psig	~~[ ] psig~~
8.b.	b ~~c~~. T_{avg} - Low ~~Low~~, ~~P-12~~	1,2,3	2 ~~[1] per loop~~	K ~~L~~	~~SR 3.3.2.1~~ 3 SR 3.3.2.~~5~~ 6 SR 3.3.2.~~9~~	≥ 542.5 ~~[550.6]~~°F	~~[553]° F~~

~~REVIEWER'S NOTE~~

~~(l) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~

5 4 1 3 2

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.2, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

1. The Improved Standard Technical Specifications (ISTS) contain bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

2. Changes are made (additions, deletions, and/or changes) to the ISTS that reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

3. Changes are made (additions, deletions, and/or changes) to the ISTS that reflect the plant-specific nomenclature, number, reference, system description, analysis, or licensing basis description. Where an addition/deletion has occurred, subsequent alpha-numeric designators have been changed for any applicable affected ACTIONS, SURVEILLANCE REQUIREMENTS, FUNCTIONS, and Footnotes.

4. The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This Note is not meant to be retained in the final version of the plant specific submittal.

5. The Nominal Trip Setpoints (NTSPs) are located in the Technical Requirements Manual as stated in Footnote (c).

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.3 INSTRUMENTATION

B 3.3.2 Engineered Safety Features Actuation System (ESFAS) Instrumentation

BASES

BACKGROUND

The ESFAS initiates necessary safety systems, based on the values of selected unit parameters, to protect against violating core design limits and the Reactor Coolant System (RCS) pressure boundary, and to mitigate accidents. This is achieved by specifying limiting safety system settings (LSSS) in terms of parameters directly monitored by the ESFAS, as well as specifying LCOs on other reactor system parameters and equipment performance.

Technical Specifications are required by 10 CFR 50.36 to include LSSS for variables that have significant safety functions. LSSS are defined by the regulation as "Where a LSSS is specified for a variable on which a safety limit has been placed, the setting must be chosen so that automatic protective actions will correct the abnormal situation before a Safety Limit (SL) is exceeded." The Analytical Limit is the limit of the process variable at which a protective action is initiated, as established by the safety analysis, to ensure that a SL is not exceeded. Any automatic protection action that occurs on reaching the Analytical Limit therefore ensures that the SL is not exceeded. However, in practice, the actual settings for automatic protection channels must be chosen to be more conservative than the Analytical Limit to account for instrument loop uncertainties related to the setting at which the automatic protective action would actually occur.

~~-------------------------------- REVIEWER'S NOTE ---------------------------------~~
~~The term "[Limiting Trip Setpoint (LTSP)]" is generic terminology for the calculated field setting (setpoint) value calculated by means of the plant-specific setpoint methodology documented in a document controlled under 10 CFR 50.59. The term [LTSP] indicates that no additional margin has been added between the Analytical Limit and the calculated trip setting.~~

~~For most Westinghouse plants the term [Nominal Trip Setpoint (NTSP)] is used in place of the term [LTSP], and [NTSP] will replace [LTSP] in the Bases descriptions. "Field setting" is the suggested terminology for the actual setpoint implemented in the plant surveillance procedures where margin has been added to the calculated field setting. The as-found and as-left tolerances will apply to the field setting implemented in the Surveillance procedures to confirm channel performance.~~

BASES

BACKGROUND (continued)

~~Licensees are to insert the name of the document(s) controlled under 10 CFR 50.59 that contain the methodology for calculating the as-left and as-found tolerances, in Note c of Table 3.3.2-1 for the phrase "[insert the name of a document controlled under 10 CFR 50.59 such as the Technical Requirements Manual or any document incorporated into the facility FSAR]" throughout these Bases.~~

~~Where the [NTSP] is not included in Table 3.3.2-1, the plant-specific location for the [NTSP] must be cited in Note c of Table 3.3.2-1. The brackets indicate plant-specific terms may apply, as reviewed and approved by the NRC.~~ 1

the Technical Requirements Manual

The ~~[~~Nominal Trip Setpoint (NTSP)~~]~~ specified in ~~Table 3.3.2-1~~ is a predetermined setting for a protection channel chosen to ensure automatic actuation prior to the process variable reaching the Analytical Limit and thus ensuring that the SL would not be exceeded. As such, the ~~[~~NTSP~~]~~ accounts for uncertainties in setting the channel (e.g., calibration), uncertainties in how the channel might actually perform (e.g., repeatability), changes in the point of action of the channel over time (e.g., drift during surveillance intervals), and any other factors which may influence its actual performance (e.g., harsh accident environments). In this manner, the ~~[~~NTSP~~]~~ ensures that SLs are not exceeded. Therefore, the ~~[~~NTSP~~]~~ meets the definition of an LSSS (Ref. 1). 3 2 3 3

Technical Specifications contain values related to the OPERABILITY of equipment required for safe operation of the facility. OPERABLE is defined in Technical Specifications as "...being capable of performing its safety functions(s)." Relying solely on the ~~[~~NTSP~~]~~ to define OPERABILITY in Technical Specifications would be an overly restrictive requirement if it were applied as an OPERABILITY limit for the "as-found" value of a protection channel setting during a surveillance. This would result in Technical Specification compliance problems, as well as reports and corrective actions required by the rule which are not necessary to ensure safety. For example, an automatic protection channel with a setting that has been found to be different from the ~~[~~NTSP~~]~~ due to some drift of the setting may still be OPERABLE since drift is to be expected. This expected drift would have been specifically accounted for in the setpoint methodology for calculating the ~~[~~NTSP~~]~~ and thus the automatic protective action would still have ensured that the SL would not be exceeded with the "as-found" setting of the protection channel. Therefore, the channel would still be OPERABLE since it would have performed its safety function and the only corrective action required would be to reset the channel within the established as-left tolerance around the ~~[~~NTSP~~]~~ to account for further drift during the next surveillance interval. 3 3 3 3

BASES

BACKGROUND (continued)

~~[Note: Alternatively, a Technical Specification format incorporating an Allowable Value only column may be proposed by a licensee. In this case, the [NTSP] value and the methodologies used to calculate the as-found and as-left tolerances must be specified in [insert the name of a document controlled under 10 CFR 50.59 such as the Technical Requirements Manual or any document incorporated into the facility FSAR].~~ Changes to the actual plant trip setpoint or ~~[~~NTSP~~]~~ value would be controlled by 10 CFR 50.59 or administratively as appropriate, and adjusted per the setpoint methodology and applicable surveillance requirements. 3

During Anticipated Operational Occurrences (AOOs), which are those events expected to occur one or more times during the unit life, the acceptable limits are:

1. The Departure from Nucleate Boiling Ratio (DNBR) shall be maintained above the SL value to prevent departure from nucleate boiling (DNB),

2. Fuel centerline melt shall not occur, and

3. The RCS pressure SL of ~~[~~2735~~]~~ psig shall not be exceeded. 3

Operation within the SLs of Specification 2.0, "Safety Limits (SLs)," also maintains the above values and assures that offsite dose will be within the 10 CFR 50 .67 ~~and 10 CFR 100~~ criteria during AOOs. 2

Accidents are events that are analyzed even though they are not expected to occur during the unit life. The acceptable limit during accidents is that offsite dose shall be maintained within an acceptable fraction of 10 CFR 50.67 ~~100~~ limits. Different accident categories are allowed a different fraction of these limits, based on probability of occurrence. Meeting the acceptable dose limit for an accident category is considered having acceptable consequences for that event. 2

The ESFAS instrumentation is segmented into three distinct but interconnected modules as identified below:

- Field transmitters or process sensors and instrumentation: provide a measurable electronic signal based on the physical characteristics of the parameter being measured,

BASES

BACKGROUND (continued)

- Signal processing equipment including analog protection system, field contacts, and protection channel sets: provide signal conditioning, bistable setpoint comparison, process algorithm actuation, compatible electrical signal output to protection system channels, and control board/control room/miscellaneous indications, and

- Safeguards Logic Racks ~~Solid State Protection System (SSPS)~~ including input, logic, and output bays: initiates the proper unit shutdown or engineered safety feature (ESF) actuation in accordance with the defined logic and based on the bistable outputs from the signal process control and protection system.

Field Transmitters or Sensors

To meet the design demands for redundancy and reliability, more than one, and often as many as four, field transmitters or sensors are used to measure unit parameters. In many cases, field transmitters or sensors that input to the ESFAS are shared with the Reactor Trip System (RTS). In some cases, the same channels also provide control system inputs. To account for calibration tolerances and instrument drift, which are assumed to occur between calibrations, statistical allowances are provided in the ~~[~~NTSP~~]~~ and Allowable Value. The OPERABILITY of each transmitter or sensor is determined by either "as-found" calibration data evaluated during the CHANNEL CALIBRATION or by qualitative assessment of field transmitter or sensor, as related to the channel behavior observed during performance of the CHANNEL CHECK. 3

Signal Processing Equipment

Generally, three or four channels of process control equipment are used for the signal processing of unit parameters measured by the field instruments. The process control equipment provides signal conditioning, comparable output signals for instruments located on the main control board, and comparison of measured input signals with ~~[~~NTSPs~~]~~ derived from Analytical Limits established by the safety analyses. Analytical Limits are defined in FSAR, Chapter ~~[~~6~~]~~ (Ref. 2) , Chapter ~~[~~7~~]~~ (Ref. 3), and Chapter 14 ~~[15]~~ (Ref. 4). If the measured value of a unit parameter exceeds the predetermined setpoint, an output from a bistable is forwarded to the safeguards logic racks ~~SSPS~~ for decision evaluation. Channel separation is maintained up to and through the input bays. However, not all unit parameters require four channels of sensor measurement and signal processing. Some unit parameters provide input only to the safeguards logic racks ~~SSPS~~, while others provide input to the safeguards logic racks ~~SSPS~~, the main control board, the unit computer, and one or more control systems. 3

BASES

BACKGROUND (continued)

Generally, if a parameter is used only for input to the protection circuits, three channels with a two-out-of-three logic are sufficient to provide the required reliability and redundancy. If one channel fails in a direction that would not result in a partial Function trip, the Function is still OPERABLE with a two-out-of-two logic. If one channel fails such that a partial Function trip occurs, a trip will not occur and the Function is still OPERABLE with a one-out-of-two logic.

Generally, if a parameter is used for input to the ~~SSPS~~ safeguards logic racks and a control function, four channels with a two-out-of-four logic are sufficient to provide the required reliability and redundancy. The circuit must be able to withstand both an input failure to the control system, which may then require the protection function actuation, and a single failure in the other channels providing the protection function actuation. Again, a single failure will neither cause nor prevent the protection function actuation.

These requirements are described in IEEE-279-1971 (Ref. 5). The actual number of channels required for each unit parameter is specified in Reference 3.

~~[~~NTSPs~~]~~ and ESFAS Setpoints ~~[~~Allowable Values~~]~~ 3

The trip setpoints used in the bistables are based on the analytical limits ~~stated in Reference 3~~. The calculation of the ~~[~~NTSPs~~]~~ specified in ~~Table~~ the TRM ~~3.3.2-1~~ is such that adequate protection is provided when all sensor and processing time delays are taken into account. To allow for calibration tolerances, instrumentation uncertainties, instrument drift, and severe environment errors for those ESFAS channels that must function in harsh environments as defined by 10 CFR 50.49 (Ref. 6), the Allowable Values specified in Table 3.3.2-1 in the accompanying LCO are conservative with respect to the analytical limits. A detailed description of the methodology used to calculate the Allowable Values and ESFAS ~~[~~NTSPs~~]~~ including their explicit uncertainties, is provided in ~~the plant specific~~ UFSAR Chapter 7.2 ~~setpoint methodology study~~ (Ref. 7) which incorporates all of the known uncertainties applicable to each channel. The as-left tolerance and as-found tolerance band methodology is provided in ~~[insert the name of a~~ UFSAR Chapter 7.2 ~~document controlled under 10 CFR 50.59 such as the Technical Requirements Manual or any document incorporated into~~ the facility ~~FSAR]~~. The magnitudes of these uncertainties are factored into the determination of each ESFAS ~~[~~NTSP~~]~~ and corresponding Allowable Value. The nominal ESFAS setpoint entered into the bistable is more conservative than that specified by the ~~[~~NTSP~~]~~ to account for measurement errors detectable by the CHANNEL OPERATIONAL TEST (COT). The Allowable Value serves as the as-found Technical Specification OPERABILITY limit for the purpose of the COT.

BASES

BACKGROUND (continued)

The ~~{~~NTSP~~}~~ is the value at which the bistables are set and is the expected value to be achieved during calibration. The ~~{~~NTSP~~}~~ value is the LSSS and ensures the safety analysis limits are met for the surveillance interval selected when a channel is adjusted based on stated channel uncertainties. 3 Any bistable is considered to be properly adjusted when the "as-left" ~~{~~NTSP~~}~~ value is within the as-left tolerance for CHANNEL CALIBRATION uncertainty allowance (i.e., + rack calibration and comparator setting uncertainties). The ~~{~~NTSP~~}~~ value is therefore considered a "nominal value" (i.e., expressed as a value without inequalities) for the purposes of the COT and CHANNEL CALIBRATION. 3 3

~~{~~Nominal Trip Setpoints~~}~~, in conjunction with the use of as-found and as-left tolerances together with the requirements of the Allowable Value ensure that the consequences of Design Basis Accidents (DBAs) will be acceptable, providing the unit is operated from within the LCOs at the onset of the DBA and the equipment functions as designed. 3

Note that the Allowable Values listed in Table 3.3.2-1 are the least conservative value of the as-found setpoint that a channel can have during a periodic CHANNEL CALIBRATION, COT, or a TADOT.

Each channel can be tested on line to verify that the signal processing equipment and setpoint accuracy is within the specified allowance requirements of Reference 3. Once a designated channel is taken out of service for testing, a simulated signal is injected in place of the field instrument signal. The process equipment for the channel in test is then tested, verified, and calibrated. SRs for the channels are specified in the SR section.

~~Solid State Protection System~~ Safeguards Logic Racks

The ~~SSPS~~ safeguards logic rack equipment is used for the decision logic processing of outputs from the signal processing equipment bistables. To meet the redundancy requirements, two trains of ~~SSPS~~ safeguards logic racks, each performing the same functions, are provided. If one train is taken out of service for maintenance or test purposes, the second train will provide ESF actuation for the unit. If both trains are taken out of service or placed in test, a reactor trip will result. Each train is packaged in its own cabinet for physical and electrical separation to satisfy separation and independence requirements.

The ~~SSPS~~ safeguards logic racks perform~~s~~ the decision logic for most ESF equipment actuation; generates the electrical output signals that initiate the required actuation; and provides the status, permissive, and annunciator output signals to the main control room of the unit.

BASES

BACKGROUND (continued)

The bistable outputs from the signal processing equipment are sensed by the ~~SSPS~~ safeguards logic rack equipment and combined into logic matrices that represent combinations indicative of various transients. If a required logic matrix combination is completed, the system will send actuation signals via master and slave relays to those components whose aggregate Function best serves to alleviate the condition and restore the unit to a safe condition. Examples are given in the Applicable Safety Analyses, LCO, and Applicability sections of this Bases.

Each ~~SSPS~~ safeguards logic train has a built in testing device that can ~~automatically~~ test the decision logic matrix functions and the actuation channels 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.~~

The actuation of ESF components is accomplished through master and slave relays. The ~~SSPS~~ safeguards logic racks energize~~s~~ 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.~~ 2

~~-----------------------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.~~ 1
~~--~~

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

Each of the analyzed accidents can be detected by one or more ESFAS Functions. One of the ESFAS Functions is the primary actuation signal for that accident. An ESFAS Function may be the primary actuation signal for more than one type of accident. An ESFAS Function may also be a secondary, or backup, actuation signal for one or more other accidents. For example, Pressurizer Pressure - Low is a primary

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

actuation signal for small loss of coolant accidents (LOCAs) and a backup actuation signal for steam line breaks (SLBs) outside containment.

Functions such as manual initiation, not specifically credited in the accident safety analysis, are implicitly credited in the safety analysis and the NRC staff approved licensing basis for the unit. These Functions may provide protection for conditions that do not require dynamic transient analysis to demonstrate Function performance. These Functions may also serve as backups to Functions that were credited in the accident analysis (Ref. 4).

Permissive and interlock setpoints allow the blocking of trips during plant startups, and restoration of trips when the permissive conditions are not satisfied, but they are not explicitly modeled in the Safety Analyses. These permissives and interlocks ensure that the starting conditions are consistent with the safety analysis, before preventive or mitigating actions occur. Because these permissives or interlocks are only one of multiple conservative starting assumptions for the accident analysis, they are generally considered as nominal values without regard to measurement accuracy.

The LCO requires all instrumentation performing an ESFAS Function, listed in Table 3.3.2-1 in the accompanying LCO, to be OPERABLE. The Allowable Value specified in Table 3.3.2-1 is the least conservative value of the as-found setpoint that the channel can have when tested, such that a channel is OPERABLE if the as-found setpoint is within the as-found tolerance and is conservative with respect to the Allowable Value during the CHANNEL CALIBRATION or COT. As such, the Allowable Value
differs from the ~~[~~NTSP~~]~~ by an amount ~~[~~greater than or~~]~~ equal to the 3
expected instrument channel uncertainties, such as drift, during the surveillance interval. In this manner, the actual setting of the channel
~~[~~NTSP~~]~~ will ensure that a SL is not exceeded at any given point of time as 3
long as the channel has not drifted beyond expected tolerances during the surveillance interval. Note that, although the channel is OPERABLE under these circumstances, the trip setpoint must be left adjusted to a value within the as-left tolerance, in accordance with uncertainty assumptions stated in the referenced setpoint methodology (as-left criteria), and confirmed to be operating within the statistical allowances of the uncertainty terms assigned (as-found criteria).

If the actual setting of the channel is found to be conservative with respect to the Allowable Value but is beyond the as-found tolerance band, the channel is OPERABLE, but degraded. The degraded condition of the channel will be evaluated during performance of the SR. This evaluation
will consist of resetting the channel setpoint to the ~~[~~NTSP~~]~~ (within the 3

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

allowed tolerance) and evaluating the channel response. If the channel is functioning as required and expected to pass the next surveillance, then the channel can be restored to service at the completion of the surveillance.

A trip setpoint may be set more conservative than the ~~[~~NTSP~~]~~ as necessary in response to plant conditions. However, in this case, the OPERABILITY of this instrument must be verified based on the ~~[~~field setting~~]~~ and not the ~~[~~NTSP~~]~~. Failure of any instrument renders the affected channel(s) inoperable and reduces the reliability of the affected Functions. 3 3

The LCO generally requires OPERABILITY of four or three channels in each instrumentation function and two channels in each logic and manual initiation function. The two-out-of-three and the two-out-of-four configurations allow one channel to be tripped during maintenance or testing without causing an ESFAS initiation. Two logic or manual initiation channels are required to ensure no single random failure disables the ESFAS.

The required channels of ESFAS instrumentation provide unit protection in the event of any of the analyzed accidents. ESFAS protection functions are as follows:

1. Safety Injection

Safety Injection (SI) provides two primary functions:

1. Primary side water addition to ensure maintenance or recovery of reactor vessel water level (coverage of the active fuel for heat removal, clad integrity, and for limiting peak clad temperature to < 2200°F), and

2. Boration to ensure recovery and maintenance of SDM (k_{eff}< 1.0).

These functions are necessary to mitigate the effects of high energy line breaks (HELBs) both inside and outside of containment. The SI signal is also used to initiate other Functions such as:

- Phase A Isolation,
- Containment ~~Purge~~ Ventilation Isolation,

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

- Reactor Trip,
- Turbine Trip,
- Feedwater Isolation,
- Start of ~~motor driven~~ auxiliary feedwater (AFW) pumps,
- Start the Emergency Diesel Generators,
- Start Sequencer Equipment Loading
- ~~Control room ventilation isolation~~, and 2
- ~~Enabling automatic switchover of Emergency Core Cooling Systems (ECCS) suction to containment sump~~.

These other functions ensure:

- Isolation of nonessential systems through containment penetrations,
- Trip of the turbine and reactor to limit power generation,
- Isolation of main feedwater (MFW) to limit secondary side mass losses,
- Start of AFW to ensure secondary side cooling capability~~,~~ and
- Isolation of the control room to ensure habitability~~, and~~ 2
- ~~Enabling ECCS suction from the refueling water storage tank (RWST) switchover on low low RWST level to ensure continued cooling via use of the containment sump~~.

a. Safety Injection - Manual Initiation

The LCO requires one channel per train to be OPERABLE. The operator can initiate SI at any time by using either of two ~~switches~~ pushbuttons in the control room. This action will cause actuation of all components in the same manner as any of the automatic actuation signals. 2

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

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Each channel consists of one push button and the interconnecting wiring to the actuation logic cabinet. Each push button actuates both trains. This configuration does not allow testing at power.

b. Safety Injection - Automatic Actuation Logic and Actuation Relays

This LCO requires two trains to be OPERABLE. Actuation logic consists of all circuitry housed within the actuation subsystems, including the initiating relay contacts responsible for actuating the ESF equipment.

Manual and automatic initiation of SI must be OPERABLE in MODES 1, 2, and 3. In these MODES, there is sufficient energy in the primary and secondary systems to warrant automatic initiation of ESF systems. Manual Initiation is also required in MODE 4 even though automatic actuation is not required. In this MODE, adequate time is available to manually actuate required components in the event of a DBA, but because of the large number of components actuated on a SI, actuation is simplified by the use of the manual actuation push buttons. Automatic actuation logic and actuation relays must be OPERABLE in MODE 4 to support system level manual initiation.

These Functions are not required to be OPERABLE in MODES 5 and 6 because there is adequate time for the operator to evaluate unit conditions and respond by manually starting individual systems, pumps, and other equipment to mitigate the consequences of an abnormal condition or accident. Unit pressure and temperature are very low and many ESF components are administratively locked out or otherwise prevented from actuating to prevent inadvertent overpressurization of unit systems.

c. Safety Injection - Containment Pressure - High ~~1~~ 2

This signal provides protection against the following accidents:

- SLB inside containment,
- LOCA, and
- Feed line break inside containment.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Containment Pressure - High ~~1~~ provides no input to any control functions. Thus, three OPERABLE channels are sufficient to satisfy protective requirements with a two-out-of-three logic. The transmitters (d/p cells) and electronics are located outside of containment with the sensing line (high pressure side of the transmitter) located inside containment. 2

Thus, the high pressure Function will not experience any adverse environmental conditions and the ~~[~~NTSP~~]~~ reflects only steady state instrument uncertainties. 3

Containment Pressure - High ~~1~~ must be OPERABLE in MODES 1, 2, and 3 when there is sufficient energy in the primary and secondary systems to pressurize the containment following a pipe break. In MODES 4, 5, and 6, there is insufficient energy in the primary or secondary systems to pressurize the containment. 2

d. Safety Injection - Pressurizer Pressure – Low

This signal provides protection against the following accidents:

- Inadvertent opening of a steam generator (SG) relief or safety valve,
- SLB,
- A spectrum of rod cluster control assembly ejection accidents (rod ejection),
- Inadvertent opening of a pressurizer relief or safety valve,
- LOCAs, and
- SG Tube Rupture.

~~At some units pressurizer pressure provides both control and protection functions: input to the Pressurizer Pressure Control System, reactor trip, and SI. Therefore, the actuation logic must be able to withstand both an input failure to control system, which may then require the protection function actuation, and a single failure in the other channels providing the protection function actuation. Thus, four OPERABLE channels are required~~ 2

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

~~to satisfy the requirements with a two-out-of-four logic. For units that have dedicated protection and control channels, only three protection channels are necessary to satisfy the protective requirements.~~ 2

The transmitters are located inside containment, with the taps in the vapor space region of the pressurizer, and thus possibly experiencing adverse environmental conditions (LOCA, SLB inside containment, rod ejection). Therefore, the ~~[~~NTSP~~]~~ reflects the inclusion of both steady state and adverse environmental instrument uncertainties. 3

This Function must be OPERABLE in MODES 1, 2, and 3 (above P-11) to mitigate the consequences of an HELB inside containment. This signal may be manually blocked by the operator below the P-11 setpoint. Automatic SI actuation below this pressure setpoint is then performed by the Containment Pressure - High ~~1~~ signal. 2

This Function is not required to be OPERABLE in MODE 3 below the P-11 setpoint. Other ESF functions are used to detect accident conditions and actuate the ESF systems in this MODE. In MODES 4, 5, and 6, this Function is not needed for accident detection and mitigation.

e. Safety Injection - Steam Line Pressure

~~(1) Steam Line Pressure – Low~~

~~Steam Line Pressure - Low provides protection against the following accidents:~~

- ~~SLB,~~
- ~~Feed line break, and~~
- ~~Inadvertent opening of an SG relief or an SG safety valve.~~

~~Steam Line Pressure - Low provides no input to any control functions. Thus, three OPERABLE channels on each steam line are sufficient to satisfy the protective requirements with a two-out-of-three logic on each steam line.~~ 2

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

~~With the transmitters typically located inside the steam tunnels, it is possible for them to experience adverse environmental conditions during a secondary side break. Therefore, the [NTSP] reflects both steady state and adverse environmental instrument uncertainties.~~

~~This Function is anticipatory in nature and has a typical lead/lag ratio of 50/5.~~

~~Steam Line Pressure - Low must be OPERABLE in MODES 1, 2, and 3 (above P-11) when a secondary side break or stuck open valve could result in the rapid depressurization of the steam lines. This signal may be manually blocked by the operator below the P-11 setpoint. Below P-11, feed line break is not a concern. Inside containment SLB will be terminated by automatic SI actuation via Containment Pressure - High 1, and outside containment SLB will be terminated by the Steam Line Pressure - Negative Rate - High signal for steam line isolation. This Function is not required to be OPERABLE in MODE 4, 5, or 6 because there is insufficient energy in the secondary side of the unit to cause an accident.~~

(~~2~~1) Steam Line Pressure - High Differential Pressure Between the Steam Generator and any Steam Line~~s~~

Steam Line Pressure - High Differential Pressure Between the Steam Generator and any Steam Line~~s~~ provides protection against the following accidents:

- SLB,
- Feed line break, and
- Inadvertent opening of an SG relief or an SG safety valve.

Steam Line Pressure - High Differential Pressure Between the Steam Generator and any Steam Line~~s~~ provides no input to any control functions. Thus, three OPERABLE channels on each steam line are sufficient to satisfy the requirements, with a two-out-of-three logic on each steam line.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

With the transmitters typically located inside the steam tunnels, it is possible for them to experience adverse environmental conditions during a SLB event. Therefore, the ~~[~~NTSP~~]~~ reflects both steady state and adverse environmental instrument uncertainties. Steam line high differential pressure must be OPERABLE in MODES 1, 2, and 3 (above P-11) when a secondary side break or stuck open valve could result in the rapid depressurization of the steam line(s). This Function is not required to be OPERABLE in MODE 4, 5, or 6 because there is not sufficient energy in the secondary side of the unit to cause an accident. 3 2

This Function is not required to be OPERABLE in MODE 3 below the P-11 setpoint.

f, g. Safety Injection - ~~High~~ Steam Line Flow High ~~in Two Steam Lines~~ Coincident With T_{avg} - Low Low or Coincident With Steam Generator ~~Line~~ Pressure – Low 2

These Functions (1.f and 1.g) provide protection against the following accidents:

- SLB, and
- the inadvertent opening of a~~n~~ SG relief or a~~n~~ SG safety valve.

Two steam line flow channels per steam line are required OPERABLE for these Functions. The steam line flow channels 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. ~~High steam flow in two steam lines is acceptable in the case of a single steam line fault due to the fact that the remaining intact steam lines will pick up the full turbine load. The increased steam flow in the remaining intact lines will actuate the required second high steam flow trip~~. Additional protection is provided by Function 1.e~~.(2)~~, High Differential Pressure Between ~~Steam~~ the Steam Generator and any Line~~s~~. 2

One channel of T_{avg} per loop and one channel of low steam Generator ~~line~~ pressure per steam line are required OPERABLE. For each parameter, the channels for all loops or steam lines are 2

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

combined in a logic such that two channels tripped will cause a trip for the parameter. For example, for three loop units, the low steam line pressure channels are combined in two-out-of- three logic. Thus, the Function trips on one-out-of-two high flow in any two-out-of-three steam lines if there is one-out-of-one low low T_{avg} trip in any two-out-of-three RCS loops, or if there is a one-out-of-one low pressure trip in any two-out-of-three steam lines. Since the accidents that this event protects against cause both low steam line pressure and low low T_{avg}, provision of one channel per loop or steam line ensures no single random failure can disable both of these Functions. The steam line pressure channels provide no control inputs. The T_{avg} channels provide control inputs, but the control function cannot initiate events that the Function acts to mitigate.

The Allowable Value for high steam flow is a linear function that varies with power level. The function is a ΔP corresponding to ~~44~~ 41.2% of full steam flow between 0% and 20% load to ~~114~~ 114.4% of full steam flow at 100% load. The nominal trip setpoint is similarly calculated. 1

With the transmitters typically located inside the containment (T_{avg}) or inside the steam tunnels (High Steam Flow), it is possible for them to experience adverse steady state environmental conditions during a SLB event. Therefore, the ~~[~~NTSP~~]~~ reflects both steady state and adverse environmental instrument uncertainties. The Steam Line Pressure - Low signal was discussed previously under Function 1.e~~.(1)~~. 3 2

This Function must be OPERABLE in MODES 1, 2, and 3 (above ~~P-12~~ the Tavg – Low interlock) when a secondary side break or stuck open valve could result in the rapid depressurization of the steam line(s). This signal may be manually blocked by the operator when below the ~~P-12~~ the Tavg – Low interlock setpoint. Above ~~P-12~~ the Tavg – Low interlock, this Function is automatically unblocked. This Function is not required OPERABLE below ~~P-12~~ the Tavg – Low interlock because the reactor is not critical, so feed line break is not a concern. SLB may be addressed by Containment Pressure High ~~1~~ (inside containment) or by High Steam Line Flow ~~in Two Steam Lines~~ coincident with Steam ~~Line~~ Generator Pressure - Low, for Steam Line Isolation, followed by High Differential Pressure Between ~~Two~~ the steam generator and any Steam Line~~s~~, for SI. This Function is not required to be OPERABLE in MODE 4, 5, or 6 because there is insufficient energy in the secondary side of the unit to cause an accident. 2

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

2. Containment Spray

Containment Spray provides ~~three~~ two primary functions:

1. Lowers containment pressure and temperature after an HELB in containment, and 2
2. Reduces the amount of radioactive iodine in the containment atmosphere~~, and~~ 2
3. ~~Adjusts the pH of the water in the containment recirculation sump after a large break LOCA~~.

These functions are necessary to:

- Ensure the pressure boundary integrity of the containment structure, and 2
- Limit the release of radioactive iodine to the environment in the event of a failure of the containment structure~~, and~~ 2
- ~~Minimize corrosion of the components and systems inside containment following a LOCA~~. 2

The containment spray actuation signal starts the containment spray pumps and aligns the discharge of the pumps to the containment spray nozzle headers in the upper levels of containment. Water is initially drawn from the RWST by the containment spray pumps ~~and mixed with a sodium hydroxide solution from the spray additive tank~~. 2 When the RWST reaches the low low level setpoint, the spray pump suctions are shifted to the containment sump if continued containment spray is required. Containment spray is actuated automatically ~~manually~~ by Containment Pressure - High ~~3 or~~ -High coincident with Containment Pressure - High ~~High~~. 2

~~a. Containment Spray - Manual Initiation~~

~~The operator can initiate containment spray at any time from the control room by simultaneously turning two containment spray actuation switches in the same train. Because an inadvertent actuation of containment spray could have such serious consequences, two switches must be turned simultaneously to initiate containment spray. There are two sets of two switches each in the control room. Simultaneously turning the two~~ 2

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

~~switches in either set will actuate containment spray in both trains in the same manner as the automatic actuation signal. Two Manual Initiation switches in each train are required to be OPERABLE to ensure no single failure disables the Manual Initiation Function. Note that Manual Initiation of containment spray also actuates Phase B containment isolation~~. 2

~~b~~ a. Containment Spray - Automatic Actuation Logic and Actuation Relays 2

Automatic actuation logic and actuation relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b.

Manual and automatic initiation of containment spray must be OPERABLE in MODES 1, 2, and 3 when there is a potential for an accident to occur, and sufficient energy in the primary or secondary systems to pose a threat to containment integrity due to overpressure conditions. ~~Manual initiation is also required in MODE 4, even though automatic actuation is not required. In this MODE, adequate time is available to manually actuate required components in the event of a DBA~~. ~~However, because of the large number of components actuated on a containment spray, actuation is simplified by the use of the manual actuation push buttons.~~ Automatic actuation logic and actuation relays must be OPERABLE in MODE 4 to support system level manual initiation. In MODES 5 and 6, there is insufficient energy in the primary and secondary systems to result in containment overpressure. In MODES 5 and 6, there is also adequate time for the operators to evaluate unit conditions and respond, to mitigate the consequences of abnormal conditions by manually starting individual components. 2

~~c.~~ b. Containment Spray - Containment Pressure 2

This signal provides protection against a LOCA or a SLB inside containment. The transmitters (d/p cells) are located outside of containment with the sensing line (high pressure side of the transmitter) located inside containment. The transmitters and electronics are located outside of containment. Thus, they will not experience any adverse environmental conditions and the ~~[~~NTSP~~]~~ reflects only steady state instrument uncertainties. 3

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

This is one of the only Functions that requires the bistable output to energize to perform its required action. It is not desirable to have a loss of power actuate containment spray, since the consequences of an inadvertent actuation of containment spray could be serious. Note that this Function also has the inoperable channel placed in bypass rather than trip to decrease the probability of an inadvertent actuation.

~~Two different logic configurations are typically used. Three and four loop units use four channels in a two-out-of-four logic configuration. This configuration may be called the Containment Pressure - High 3 Setpoint for three and four loop units, and Containment Pressure - High High Setpoint for other units. Some two loop units use three sets of two channels, each set combined in a one-out-of-two configuration, with these outputs combined so that two-out-of-three sets tripped initiates containment spray. This configuration is called Containment Pressure - High 3 Setpoint. Since containment pressure is not used for control, both of these arrangements exceed the minimum redundancy requirements. Additional redundancy is warranted because this Function is energized to trip.~~ 2

Containment Pressure - ~~[High 3]~~ ~~[~~High High~~]~~ coincident with Containment Pressure-High must be OPERABLE in MODES 1, 2, and 3 when there is sufficient energy in the primary and secondary sides to pressurize the containment following a pipe break. In MODES 4, 5, and 6, there is insufficient energy in the primary and secondary sides to pressurize the containment and reach the Containment Pressure - ~~High 3~~ ~~(~~High High~~)~~ setpoints. 3 2

3. <u>Containment Isolation</u>

Containment Isolation provides isolation of the containment atmosphere, and all process systems that penetrate containment, from the environment. This Function is necessary to prevent or limit the release of radioactivity to the environment in the event of a large break LOCA.

There are two separate Containment Isolation signals, Phase A and Phase B. Phase A isolation isolates all automatically isolable process lines, except component cooling water (CCW), at a relatively low containment pressure indicative of primary or secondary system leaks. For these types of events, forced circulation cooling using the reactor coolant pumps (RCPs) and SGs is the preferred (but not required) method of decay heat removal. Since CCW is required to support RCP operation, not isolating CCW on the low pressure

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Phase A signal enhances unit safety by allowing operators to use forced RCS circulation to cool the unit. Isolating CCW on the low pressure signal may force the use of feed and bleed cooling, which could prove more difficult to control.

Phase A containment isolation is actuated automatically by SI, or manually via the automatic actuation logic. All process lines penetrating containment, with the exception of CCW, are isolated.

CCW is not isolated at this time to permit continued operation of the RCPs with cooling water flow to the thermal barrier heat exchangers and air or oil coolers. All process lines not equipped with remote operated isolation valves are manually closed, or otherwise isolated, prior to reaching MODE 4.

Manual Phase A Containment Isolation is accomplished by either of two switches in the control room. Either switch actuates both trains. Note that manual actuation of Phase A Containment Isolation also actuates Containment Purge and Exhaust Isolation.

The Phase B signal isolates CCW. This occurs at a relatively high containment pressure that is indicative of a large break LOCA or a SLB. For these events, forced circulation using the RCPs is no longer desirable. Isolating the CCW at the higher pressure does not pose a challenge to the containment boundary because the CCW System is a closed loop inside containment. Although some system components do not meet all of the ASME Code requirements applied to the containment itself, the system is continuously pressurized to a pressure greater than the Phase B setpoint. Thus, routine operation demonstrates the integrity of the system pressure boundary for pressures exceeding the Phase B setpoint. Furthermore, because system pressure exceeds the Phase B setpoint, any system leakage prior to initiation of Phase B isolation would be into containment. Therefore, the combination of CCW System design and Phase B isolation ensures the CCW System is not a potential path for radioactive release from containment.

Phase B containment isolation is actuated by Containment Pressure - High ~~3~~ -High coincident with Containment Pressure High ~~or Containment Pressure - High High~~, or manually, via the automatic actuation logic, as previously discussed. For containment pressure to reach a value high enough to actuate Containment Pressure - High ~~3~~ High or Containment Pressure - High ~~High~~, a large break LOCA or SLB must have occurred and containment spray must 2

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

have been actuated. RCP operation will no longer be required and CCW to the RCPs is, therefore, no longer necessary. The RCPs can be operated with seal injection flow alone and without CCW flow to the thermal barrier heat exchanger.

~~Manual Phase B Containment Isolation is accomplished by the same switches that actuate Containment Spray.~~ When the two ~~switches in either~~ pushbuttons are pushed ~~set are turned~~ simultaneously, Phase B Containment Isolation ~~and Containment Spray~~ will be actuated in both trains. 2

a. Containment Isolation - Phase A Isolation

(1) Phase A Isolation - Manual Initiation

Manual Phase A Containment Isolation is actuated by either of two ~~switches~~ pushbuttons in the control room. Either ~~switch~~ pushbutton actuates both trains. Note that manual initiation of Phase A Containment Isolation also actuates Containment ~~Purge~~ Ventilation Isolation. 2

(2) Phase A Isolation - Automatic Actuation Logic and Actuation Relays

Automatic Actuation Logic and Actuation Relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b.

Manual and automatic initiation of Phase A Containment Isolation must be OPERABLE in MODES 1, 2, and 3, when there is a potential for an accident to occur. Manual initiation is also required in MODE 4 ~~even though automatic actuation is not required~~. In this MODE, adequate time is available to manually actuate required components in the event of a DBA, but because of the large number of components actuated on a Phase A Containment Isolation, actuation is simplified by the use of the manual actuation push buttons. Automatic actuation logic and actuation relays must be OPERABLE in MODE 4 to support system level manual initiation. In MODES 5 and 6, there is insufficient energy in the primary or secondary systems to pressurize the containment to require Phase A Containment Isolation. There also is adequate time for the operator to evaluate unit conditions and manually actuate individual isolation valves in response to abnormal or accident conditions. 2

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

(3) Phase A Isolation - Safety Injection

Phase A Containment Isolation is also initiated by all Functions that initiate SI , except manual SI initiation. The Phase A Containment Isolation requirements for these Functions are the same as the requirements for their SI function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 1, SI, is referenced for all initiating Functions and requirements.

b. Containment Isolation - Phase B Isolation

Phase B Containment Isolation is accomplished by Manual Initiation, Automatic Actuation Logic and Actuation Relays, and by Containment Pressure channels (the same channels that actuate Containment Spray, Function 2). The Containment Pressure trip of Phase B Containment Isolation is energized to trip in order to minimize the potential of spurious trips that may damage the RCPs.

(1) Phase B Isolation - Manual Initiation

(2) Phase B Isolation - Automatic Actuation Logic and Actuation Relays

Manual and automatic initiation of Phase B containment isolation must be OPERABLE in MODES 1, 2, and 3, when there is a potential for an accident to occur. Manual initiation is also required in MODE 4 ~~even though automatic actuation is not required~~. In this MODE, adequate time is available to manually actuate required components in the event of a DBA. However, because of the large number of components actuated on a Phase B containment isolation, actuation is simplified by the use of the manual actuation push buttons. Automatic actuation logic and actuation relays must be OPERABLE in MODE 4 to support system level manual initiation. In MODES 5 and 6, there is insufficient energy in the primary or secondary systems to pressurize the containment to require Phase B containment isolation. There also is adequate time for the operator to evaluate unit conditions and manually actuate individual isolation valves in response to abnormal or accident conditions. 2

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

(3) Phase B Isolation - Containment Pressure

The basis for containment pressure MODE applicability is as discussed for ESFAS Function 2.c above.

4. Steam Line Isolation

Isolation of the main steam lines provides protection in the event of a SLB inside or outside containment. Rapid isolation of the steam lines will limit the steam break accident to the blowdown from one SG, at most. For a SLB upstream of the main steam isolation valves (MSIVs), inside or outside of containment, closure of the MSIVs limits the accident to the blowdown from only the affected SG. For a SLB downstream of the MSIVs, closure of the MSIVs terminates the accident as soon as the steam lines depressurize. For units that do not have steam line check valves, Steam Line Isolation also mitigates the effects of a feed line break and ensures a source of steam for the turbine driven AFW pump during a feed line break.

a. Steam Line Isolation - Manual Initiation

Manual initiation of Steam Line Isolation can be accomplished from the control room. There are ~~two~~ three pushbuttons ~~switches~~ in the control room and ~~either~~ each pushbutton initiates ~~switch can initiate~~ action to immediately close ~~all~~ its associated MSIV~~s~~. The LCO requires ~~two~~ one channel per steam line ~~channels~~ to be OPERABLE. 2

b. Steam Line Isolation - Automatic Actuation Logic and Actuation Relays

Automatic actuation logic and actuation relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b.

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 a 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 all MSIVs are closed ~~and [de-activated]~~. In MODES 4, 5, and 6, there is insufficient energy in the RCS and SGs to experience a SLB or other accident releasing significant quantities of energy. 3

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

c. Steam Line Isolation - Containment Pressure - High ~~2~~ High coincident with Containment Pressure - High 2

This Function actuates closure of the MSIVs in the event of a LOCA or a SLB inside containment to maintain at least one unfaulted SG as a heat sink for the reactor, and to limit the mass and energy release to containment. The transmitters (d/p cells) are located outside containment with the sensing line (high pressure side of the transmitter) located inside containment. Containment Pressure - High ~~2~~ High coincident with Containment Pressure - High provides no input to any control functions. Thus, three OPERABLE channels are sufficient to satisfy protective requirements with two-out-of-three logic. However, for enhanced reliability, this Function was designed with four channels and a two-out-of-four logic. The transmitters and electronics are located outside of containment. Thus, they will not experience any adverse environmental conditions, and the ~~[~~NTSP~~]~~ reflects only steady state instrument uncertainties. 2 3

Containment Pressure - High ~~2~~ High coincident with Containment Pressure - High must be OPERABLE in MODES 1, 2, and 3, when there is sufficient energy in the primary and secondary side to pressurize the containment following a pipe break. This would cause a significant increase in the containment pressure, thus allowing detection and closure of the MSIVs. The Steam Line Isolation Function remains OPERABLE in MODES 2 and 3 unless all MSIVs are closed ~~and [de-activated]~~. In MODES 4, 5, and 6, there is not enough energy in the primary and secondary sides to pressurize the containment to the Containment Pressure - High ~~2~~ High coincident with Containment Pressure - High setpoint. 2 3

~~d. Steam Line Isolation - Steam Line Pressure~~

~~(1) Steam Line Pressure – Low~~

~~Steam Line Pressure - Low provides closure of the MSIVs in the event of a SLB to maintain at least one unfaulted SG as a heat sink for the reactor, and to limit the mass and energy release to containment. This Function provides closure of the MSIVs in the event of a feed line break to ensure a supply of steam for the turbine driven AFW pump. Steam Line Pressure - Low was discussed previously under SI Function 1.e.1.~~ 2

~~Steam Line Pressure - Low Function must be OPERABLE in MODES 1, 2, and 3 (above P-11), with any main steam valve open, when a secondary side break or stuck open~~

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

~~valve could result in the rapid depressurization of the steam lines. This signal may be manually blocked by the operator below the P-11 setpoint. Below P-11, an inside containment SLB will be terminated by automatic actuation via Containment Pressure - High 2. Stuck valve transients and outside containment SLBs will be terminated by the Steam Line Pressure - Negative Rate - High signal for Steam Line Isolation below P-11 when SI has been manually blocked. The Steam Line Isolation Function is required in MODES 2 and 3 unless 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.~~

~~(2) Steam Line Pressure - Negative Rate – High~~

~~Steam Line Pressure - Negative Rate - High provides closure of the MSIVs for a SLB when less than the P-11 setpoint, to maintain at least one unfaulted SG as a heat sink for the reactor, and to limit the mass and energy release to containment. When the operator manually blocks the Steam Line Pressure - Low main steam isolation signal when less than the P-11 setpoint, the Steam Line Pressure - Negative Rate - High signal is automatically enabled. Steam Line Pressure - Negative Rate - High provides no input to any control functions. Thus, three OPERABLE channels are sufficient to satisfy requirements with a two-out-of-three logic on each steam line~~.

~~Steam Line Pressure - Negative Rate - High must be OPERABLE in MODE 3 when less than the P-11 setpoint, when a secondary side break or stuck open valve could result in the rapid depressurization of the steam line(s). In MODES 1 and 2, and in MODE 3, when above the P-11 setpoint, this signal is automatically disabled and the Steam Line Pressure - Low signal is automatically enabled. The Steam Line Isolation Function is required to be OPERABLE in MODES 2 and 3 unless all MSIVs are closed and [de-activated]. In MODES 4, 5, and 6, there is insufficient energy in the primary and secondary sides to have a SLB or other accident that would result in a release of significant enough quantities of energy to cause a cooldown of the RCS.~~

2

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

~~While the transmitters may experience elevated ambient temperatures due to a SLB, the trip function is based on rate of change, not the absolute accuracy of the indicated steam pressure. Therefore, the [NTSP] reflects only steady state instrument uncertainties.~~ 2

d,e ~~e, f~~. Steam Line Isolation - ~~High~~ Steam Line Flow - High ~~in Two Steam Lines~~ Coincident with T_{avg} - Low ~~Low~~ or Coincident With Steam Generator ~~Line~~ Pressure - Low ~~(Three and Four Loop Units)~~

These Functions (4.d ~~e~~ and 4.e ~~f~~) provide closure of the MSIVs during a SLB or inadvertent opening of an SG relief or a 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. 2

These Functions were discussed previously as Functions 1.f. and 1.g.

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. 3

~~g. Steam Line Isolation - High Steam Flow Coincident With Safety Injection and Coincident With Tavg - Low Low (Two Loop Units)~~

~~This Function provides closure of the MSIVs during a 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.~~

~~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.~~ 2

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

~~The High Steam Flow Allowable Value is a ΔP corresponding to 25% of full steam flow at no load steam pressure. The Trip Setpoint is similarly calculated.~~

~~With the transmitters (d/p cells) typically located inside the steam tunnels, it is possible for them to experience adverse environmental conditions during a SLB event. Therefore, the [NTSP] reflect both steady state and adverse environmental instrument uncertainties.~~

~~The main steam line isolates only if the high steam flow signal occurs coincident with a SI and low low RCS average temperature. The Main Steam Line Isolation Function requirements for the SI Functions are the same as the requirements for their SI function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 1, SI, is referenced for all initiating functions and requirements.~~

~~Two channels of T_{avg} per loop are required to be OPERABLE. The T_{avg} channels are combined in a logic such that two channels tripped cause a trip for the parameter. The accidents that this Function protects against cause reduction of T_{avg} in the entire primary system. Therefore, the provision of two OPERABLE channels per loop in a two-out-of-four configuration ensures no single random failure disables the 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 a SLB event. Therefore, the [NTSP] reflects both steady state and adverse environmental instrumental uncertainties.~~

~~This Function must be OPERABLE in MODES 1 and 2, and in MODE 3, when above 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~~ 2

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

~~MODES 2 and 3 unless 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.~~

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

~~This Function provides closure of the MSIVs during a steam line break (or inadvertent opening of a 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.~~

~~Two steam line flow channels per steam line are required to be 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 Allowable Value for high steam flow is a ΔP, corresponding to 130% of full steam flow at full steam pressure. The Trip Setpoint is similarly calculated.~~ 2

~~With the transmitters typically located inside the steam tunnels, it is possible for them to experience adverse environmental conditions during a SLB event. Therefore, the [NTSP] reflects both steady state and adverse environmental instrument uncertainties.~~

~~The main steam lines isolate only if the high steam flow signal occurs coincident with a SI signal. The Main Steam Line Isolation Function requirements for the SI Functions are the same as the requirements for their SI function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 1, SI, is referenced for all initiating functions and requirements.~~

~~This Function must be OPERABLE in MODES 1, 2, and 3 when a secondary side break or stuck open valve could result in rapid depressurization of the steam lines unless 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.~~

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

5. ~~Turbine Trip and~~ Feedwater Isolation 2

The primary functions of the ~~Turbine Trip and~~ Feedwater Isolation signals are to prevent damage to the turbine due to water in the steam lines, and to stop the excessive flow of feedwater into the SGs. These Functions are necessary to mitigate the effects of a high water level in the SGs, which could result in carryover of water into the steam lines and excessive cooldown of the primary system. The SG high water level is due to excessive feedwater flows. 2

The Function is actuated when the level in any SG exceeds the high high setpoint, and performs the following functions:

- Trips the main turbine,
- Trips the MFW pumps,
- Initiates feedwater isolation, and
- Shuts the MFW regulating valves and the bypass feedwater regulating valves.

This Function is actuated by SG Water Level - High High, or by a SI signal. ~~The RTS also initiates a turbine trip signal whenever a reactor trip (P-4) is generated~~. In the event of SI, the unit is taken off line and the turbine generator must be tripped. The MFW System is also taken out of operation and the AFW System is automatically started. The SI signal was discussed previously. 2

a. ~~Turbine Trip and~~ Feedwater Isolation - Automatic Actuation Logic and Actuation Relays 2

Automatic Actuation Logic and Actuation Relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b.

b. ~~Turbine Trip and~~ Feedwater Isolation - Steam Generator Water Level - High High ~~(P-14)~~ 2

This signal provides protection against excessive feedwater flow. The ~~ESFAS~~ SG water level instruments provide input to the SG Water Level Control System. Therefore, the actuation logic must be able to withstand both an input failure to the control system (which may then require the protection function actuation) and a 2

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

single failure in the other channels providing the protection function actuation. ~~Thus, four OPERABLE channels are required to satisfy the requirements with a two-out-of-four logic. For units that have dedicated protection and control channels, only three protection channels are necessary to satisfy the protective requirements. For other units that have only three channels, a median signal selector is provided or justification is provided in NUREG-1218 (Ref. 8).~~ INSERT 1 2

The transmitters (d/p cells) are located inside containment. However, the events that this Function protects against cannot cause a severe environment in containment. Therefore, the ~~[~~NTSP~~]~~ reflects only steady state instrument uncertainties. 3

Steam Generator overfill protection is not part of the Engineered Safety Features Actuation System (ESFAS) and is added to the Technical Specifications only in accordance with NRC Generic Letter 89-19 (Ref 8).

c. ~~Turbine Trip and~~ Feedwater Isolation - Safety Injection 2

~~Turbine Trip and~~ Feedwater Isolation is also initiated by all Functions that initiate SI. The Feedwater Isolation Function requirements for these Functions are the same as the requirements for their SI function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead Function 1, SI, is referenced for all initiating functions and requirements. 2

~~Turbine Trip and~~ Feedwater Isolation Functions must be OPERABLE in MODES 1 and 2 ~~[~~and 3~~]~~ except when all MFIVs, MFRVs, ~~[~~and associated bypass valves~~]~~ are closed ~~and [de-activated]~~ ~~[~~or isolated by a closed manual valve~~]~~ when the MFW System is in operation and the turbine generator may be in operation. In MODES ~~[3,]~~ 4, 5, and 6, the MFW System and the turbine generator are not in service and this Function is not required to be OPERABLE. 2 3

6. Auxiliary Feedwater

The AFW System is designed to provide a secondary side heat sink for the reactor in the event that the MFW System is not available. The system has three ~~two motor driven pumps and a~~ turbine driven pump s, making them ~~it~~ available during normal unit operation, during a loss of AC power, a loss of MFW, and during a Feedwater System pipe break. The normal source of water for the AFW System is the condensate storage tank (CST) ~~(normally not safety related). A low level in the CST will automatically realign the pump suctions to the Essential Service Water (ESW) System (safety related).~~ The AFW System is aligned so that upon a pump start, flow is initiated to the respective SGs immediately. 2 2

2 **INSERT 1**

Steam Generator Level Protection Channels I, II, III, and IV are designed to combine redundant sensors, independent channel circuitry, coincident trip logic and different parameter measurements so that a safe and reliable system is provided that is single failure proof. Channels I and II are used for level protection while channel IV is used for level control. Channel III is used for both protection and control. The steam generator overfill protection is initiated on a S/G Hi-Hi Level signal, based on a 2 out of 3 initiating logic which is safety related.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

a. Auxiliary Feedwater - Automatic Actuation Logic and Actuation Relays ~~(Solid State Protection System)~~ 2

Automatic actuation logic and actuation relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b.

~~b. Auxiliary Feedwater - Automatic Actuation Logic and Actuation Relays (Balance of Plant ESFAS)~~ 2

~~Automatic actuation logic and actuation relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b.~~

b ~~c.~~ Auxiliary Feedwater - Steam Generator Water Level - Low Low 2

SG Water Level - Low Low provides protection against a loss of heat sink. A feed line break, inside or outside of containment, or a loss of MFW, would result in a loss of SG water level. ~~SG Water Level - Low Low provides input to the SG Level Control System. Therefore, the actuation logic must be able to withstand both an input failure to the control system which may then require a protection function actuation and a single failure in the other channels providing the protection function actuation. Thus, four OPERABLE channels are required to satisfy the requirements with two-out-of-four logic. For units that have dedicated protection and control channels, only three protection channels are necessary to satisfy the protective requirements. For other units that have only three channels, a median signal selector is provided or justification is provided in Reference 8.~~ 2

With the transmitters (d/p cells) located inside containment and thus possibly experiencing adverse environmental conditions (feed line break), the ~~[~~NTSP~~]~~ reflects the inclusion of both steady state and adverse environmental instrument uncertainties. 3

c. ~~d.~~ Auxiliary Feedwater - Safety Injection 2

A SI signal starts the ~~motor driven and~~ turbine driven AFW pumps. The AFW initiation functions are the same as the requirements for their SI function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 1, SI, is referenced for all initiating functions and requirements.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

~~e.~~ d. Auxiliary Feedwater - ~~Loss of Offsite Power~~ Bus Stripping 2

A loss of offsite power to the service buses will be accompanied by a loss of reactor coolant pumping power and the subsequent need for some method of decay heat removal. The loss of offsite power is detected by a voltage drop on each service bus. Loss of power to either service bus will start the turbine driven AFW pumps to ensure that at least one SG contains enough water to serve as the heat sink for reactor decay heat and sensible heat removal following the reactor trip.

Functions 6.a through 6.~~e~~ d must be OPERABLE in MODES 1, 2, and 3 to ensure that the SGs remain the heat sink for the reactor. SG Water Level - Low Low in any operating SG will cause the ~~motor driven~~ AFW pumps to start. The system is aligned so that upon a start of the pump, water immediately begins to flow to the SGs. ~~SG Water Level - Low Low in any two operating SGs will cause the turbine driven pumps to start.~~ These Functions do not have to be OPERABLE in MODES 5 and 6 because there is not enough heat being generated in the reactor to require the SGs as a heat sink. In MODE 4, AFW actuation does not need to be OPERABLE because either AFW or residual heat removal (RHR) will already be in operation to remove decay heat or sufficient time is available to manually place either system in operation. 2 2

~~f. Auxiliary Feedwater - Undervoltage Reactor Coolant Pump~~

~~A loss of power on the buses that provide power to the RCPs provides indication of a pending loss of RCP forced flow in the RCS. The Undervoltage RCP Function senses the voltage downstream of each RCP breaker. A loss of power, or an open RCP breaker, on two or more RCPs, will start the turbine driven AFW pump to ensure that at least one SG contains enough water to serve as the heat sink for reactor decay heat and sensible heat removal following the reactor trip~~. 2

~~g.~~ e. Auxiliary Feedwater - Trip of All Main Feedwater Pump~~s~~ breakers 2

A Trip of all MFW pump~~s~~ breakers is an indication of a loss of MFW and the subsequent need for some method of decay heat and sensible heat removal to bring the reactor back to no load temperature and pressure. A turbine driven MFW pump is equipped with ~~two pressure switches on the control air/oil line for the speed control system. A low pressure signal from either of these pressure switches indicates a trip of that pump. Motor~~ 2

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

~~driven MFW pumps are equipped with~~ a breaker position sensing channel. An open supply breaker indicates that the pump is not running. ~~Two OPERABLE channels per pump satisfy redundancy requirements with one-out-of-two taken twice logic~~. A trip of all MFW pump~~s~~ breakers starts the ~~motor driven and~~ turbine driven AFW pumps to ensure that at least one SG is available with water to act as the heat sink for the reactor. 2 2

Function~~s 6.f and~~ 6.~~g~~e must be OPERABLE in MODES 1 and 2. This ensures that at least one SG is provided with water to serve as the heat sink to remove reactor decay heat and sensible heat in the event of an accident. In MODES 3, 4, and 5, the ~~RCPs and~~ MFW pumps may be normally shut down, and thus neither pump trip is indicative of a condition requiring automatic AFW initiation. 2 2

~~h. Auxiliary Feedwater - Pump Suction Transfer on Suction Pressure – Low~~

~~A low pressure signal in the AFW pump suction line protects the AFW pumps against a loss of the normal supply of water for the pumps, the CST. Two pressure switches are located on the AFW pump suction line from the CST. A low pressure signal sensed by any one of the switches will cause the emergency supply of water for both pumps to be aligned, or cause the AFW pumps to stop until the emergency source of water is aligned. ESW (safety grade) is then lined up to supply the AFW pumps to ensure an adequate supply of water for the AFW System to maintain at least one of the SGs as the heat sink for reactor decay heat and sensible heat removal.~~

~~Since the detectors are located in an area not affected by HELBs or high radiation, they will not experience any adverse environmental conditions and the [NTSP] reflects only steady state instrument uncertainties.~~ 2

~~This Function must be OPERABLE in MODES 1, 2, and 3 to ensure a safety grade supply of water for the AFW System to maintain the SGs as the heat sink for the reactor. This Function does not have to be OPERABLE in MODES 5 and 6 because there is not enough heat being generated in the reactor to require the SGs as a heat sink. In MODE 4, AFW automatic suction transfer does not need to be OPERABLE because RHR will already be in operation, or sufficient time is available to place RHR in operation, to remove decay heat.~~

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

~~7. Automatic Switchover to Containment Sump~~

~~At the end of the injection phase of a LOCA, the RWST will be nearly empty. Continued cooling must be provided by the ECCS to remove decay heat. The source of water for the ECCS pumps is automatically switched to the containment recirculation sump. The low head residual heat removal (RHR) pumps and containment spray pumps draw the water from the containment recirculation sump, the RHR pumps pump the water through the RHR heat exchanger, inject the water back into the RCS, and supply the cooled water to the other ECCS pumps. Switchover from the RWST to the containment sump must occur before the RWST empties to prevent damage to the RHR pumps and a loss of core cooling capability. For similar reasons, switchover must not occur before there is sufficient water in the containment sump to support ESF pump suction. Furthermore, early switchover must not occur to ensure that sufficient borated water is injected from the RWST. This ensures the reactor remains shut down in the recirculation mode.~~

~~a. Automatic Switchover to Containment Sump - Automatic Actuation Logic and Actuation Relays~~

~~Automatic actuation logic and actuation relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b.~~

~~b, c~~. ~~Automatic Switchover to Containment Sump - Refueling Water Storage Tank (RWST) Level - Low Low Coincident With Safety Injection and Coincident With Containment Sump Level – High~~

~~During the injection phase of a LOCA, the RWST is the source of water for all ECCS pumps. A low low level in the RWST coincident with a SI signal provides protection against a loss of water for the ECCS pumps and indicates the end of the injection phase of the LOCA. The RWST is equipped with four level transmitters. These transmitters provide no control functions. Therefore, a two-out-of-four logic is adequate to initiate the protection function actuation. Although only three channels would be sufficient, a fourth channel has been added for increased reliability.~~

2

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

~~The RWST - Low Low Allowable Value/Trip Setpoint has both upper and lower limits. The lower limit is selected to ensure switchover occurs before the RWST empties, to prevent ECCS pump damage. The upper limit is selected to ensure enough borated water is injected to ensure the reactor remains shut down. The high limit also ensures adequate water inventory in the containment sump to provide ECCS pump suction.~~

~~The transmitters are located in an area not affected by HELBs or post accident high radiation. Thus, they will not experience any adverse environmental conditions and the [NTSP] reflects only steady state instrument uncertainties.~~

~~Automatic switchover occurs only if the RWST low low level signal is coincident with SI. This prevents accidental switchover during normal operation. Accidental switchover could damage ECCS pumps if they are attempting to take suction from an empty sump. The automatic switchover Function requirements for the SI Functions are the same as the requirements for their SI function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 1, SI, is referenced for all initiating Functions and requirements.~~ 2

~~-----REVIEWER'S NOTE-----~~
~~In some units, additional protection from spurious switchover is provided by requiring a Containment Sump Level - High signal as well as RWST Level - Low Low and SI. This ensures sufficient water is available in containment to support the recirculation phase of the accident. A Containment Sump Level - High signal must be present, in addition to the SI signal and the RWST Level - Low Low signal, to transfer the suctions of the RHR pumps to the containment sump. The containment sump is equipped with four level transmitters. These transmitters provide no control functions. Therefore, a two-out-of-four logic is adequate to initiate the protection function actuation. Although only three channels would be sufficient, a fourth channel has been added for increased reliability. The containment sump level Trip Setpoint/Allowable Value is selected to ensure enough borated water is injected to ensure the reactor remains shut down. The high limit also ensures adequate water inventory in the containment sump to provide ECCS pump suction. The transmitters are located inside containment and thus possibly experience adverse environmental conditions. Therefore, the [NTSP] reflects the inclusion of both steady state and environmental instrument uncertainties.~~

~~Units only have one of the Functions, 7.b or 7.c.~~
~~----------~~ 1

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

~~These Functions must be OPERABLE in MODES 1, 2, 3, and 4 when there is a potential for a LOCA to occur, to ensure a continued supply of water for the ECCS pumps. These Functions are not required to be OPERABLE in MODES 5 and 6 because there is adequate time for the operator to evaluate unit conditions and respond by manually starting systems, pumps, and other equipment to mitigate the consequences of an abnormal condition or accident. System pressure and temperature are very low and many ESF components are administratively locked out or otherwise prevented from actuating to prevent inadvertent overpressurization of unit systems~~. 2

7 ~~8~~. Engineered Safety Feature Actuation System Interlocks 2

To allow some flexibility in unit operations, several interlocks are included as part of the ESFAS. These interlocks permit the operator to block some signals, automatically enable other signals, prevent some actions from occurring, and cause other actions to occur. The interlock Functions back up manual actions to ensure bypassable functions are in operation under the conditions assumed in the safety analyses.

~~a. Engineered Safety Feature Actuation System Interlocks - Reactor Trip, P-4~~

~~The P-4 interlock is enabled when a reactor trip breaker (RTB) and its associated bypass breaker is open. Once the P-4 interlock is enabled, automatic SI initiation is blocked after a [ ] second time delay. This Function allows operators to take manual control of SI systems after the initial phase of injection is complete. Once SI is blocked, automatic actuation of SI cannot occur until the RTBs have been manually closed. The functions of the P-4 interlock are:~~ 2

- ~~Trip the main turbine,~~
- ~~Isolate MFW with coincident low Tavg,~~
- ~~Prevent reactuation of SI after a manual reset of SI,~~
- ~~Transfer the steam dump from the load rejection controller to the unit trip controller, and~~
- ~~Prevent opening of the MFW isolation valves if they were closed on SI or SG Water Level - High High.~~

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

~~Each of the above Functions is interlocked with P-4 to avert or reduce the continued cooldown of the RCS following a reactor trip. An excessive cooldown of the RCS following a reactor trip could cause an insertion of positive reactivity with a subsequent increase in generated power. To avoid such a situation, the noted Functions have been interlocked with P-4 as part of the design of the unit control and protection system.~~

~~None of the noted Functions serves a mitigation function in the unit licensing basis safety analyses. Only the turbine trip Function is explicitly assumed since it is an immediate consequence of the reactor trip Function. Neither turbine trip, nor any of the other four Functions associated with the reactor trip signal, is required to show that the unit licensing basis safety analysis acceptance criteria are not exceeded.~~ 2

~~The RTB position switches that provide input to the P-4 interlock only function to energize or de-energize or open or close contacts. Therefore, this Function has no adjustable trip setpoint with which to associate a [NTSP] and Allowable Value.~~

~~This Function must be OPERABLE in MODES 1, 2, and 3 when the reactor may be critical or approaching criticality. This Function does not have to be OPERABLE in MODE 4, 5, or 6 because the main turbine, the MFW System, and the Steam Dump System are not in operation.~~

~~b.~~ a. Engineered Safety Feature Actuation System Interlocks - Pressurizer Pressure, P-11 2

The P-11 interlock permits a normal unit cooldown and depressurization without actuation of SI ~~or main steam line isolation~~. With two-out-of-three pressurizer pressure channels (discussed previously) less than the P-11 setpoint, the operator can manually block the Pressurizer Pressure - Low and ~~Steam Line Pressure - Low SI signals and the Steam Line Pressure - Low steam line isolation signal~~ High Differential Pressure between the Steam Generator and any Steam Line (previously discussed). ~~When the Steam Line Pressure - Low steam line isolation signal is manually blocked, a main steam isolation signal on Steam Line Pressure - Negative Rate - High is enabled. This provides protection for a SLB by closure of the MSIVs.~~ With two-out-of-three pressurizer pressure channels above the P-11 setpoint, the Pressurizer Pressure - Low and ~~Steam Line Pressure - Low SI signals~~ High Differential Pressure between the Steam Generator and any Steam Line ~~and the Steam Line Pressure - Low steam line isolation signal~~ are automatically enabled. ~~The operator can also enable~~

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

~~these trips by use of the respective manual reset buttons. When the Steam Line Pressure - Low steam line isolation signal is enabled, the main steam isolation on Steam Line Pressure - Negative Rate - High is disabled. The [NTSP] reflects only steady state instrument uncertainties.~~

This Function must be OPERABLE in MODES 1, 2, and 3 to allow an orderly cooldown and depressurization of the unit without the actuation of SI or main steam isolation. This Function does not have to be OPERABLE in MODE 4, 5, or 6 because system pressure must already be below the P-11 setpoint for the requirements of the heatup and cooldown curves to be met.

b. ~~c.~~ Engineered Safety Feature Actuation System Interlocks - T_{avg} - Low ~~Low~~, ~~P-12~~ 2

On increasing reactor coolant temperature, the the Tavg – Low ~~P-12~~ interlock reinstates SI on High Steam Flow Coincident With Steam Line Pressure - Low or Coincident With T_{avg} - Low ~~Low~~ and provides an arming signal to the Steam Dump System. On decreasing reactor coolant temperature, the Tavg – Low ~~P-12~~ interlock allows the operator to manually block SI on High Steam Flow Coincident With Steam Line Pressure - Low or Coincident with T_{avg} - Low ~~Low~~. On a decreasing temperature, the Tavg – Low ~~P-12~~ interlock also removes the arming signal to the Steam Dump System to prevent an excessive cooldown of the RCS due to a malfunctioning Steam Dump System. 2 2

Since T_{avg} is used as an indication of bulk RCS temperature, this Function meets redundancy requirements with one OPERABLE channel in each loop. ~~In three loop units,~~ these channels are used in two-out-of-three logic. ~~In four loop units, they are used in two-out-of-four logic.~~ 2

This Function must be OPERABLE in MODES 1, 2, and 3 when a secondary side break or stuck open valve could result in the rapid depressurization of the steam lines. This Function does not have to be OPERABLE in MODE 4, 5, or 6 because there is insufficient energy in the secondary side of the unit to have an accident.

The ESFAS instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

BASES

ACTIONS

~~-------------------------REVIEWER'S NOTE-----------------------------------~~
~~In Table 3.3.2-1, Functions 7.b and 7.c were not included in the generic evaluations approved in either WCAP-10271, as supplemented, WCAP-15376 or WCAP-14333. In order to apply the WCAP-10271, as supplemented, and WCAP-15376 or WCAP-14333 TS relaxations to plant specific Functions not evaluated generically, licensees must submit plant specific evaluations for NRC review and approval.~~
~~--~~ 1

A Note has been added in the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed on Table 3.3.2-1.

In the event a channel's ~~[~~NTSP~~]~~ is found nonconservative with respect to the Allowable Value, or the channel is not functioning as required, or the transmitter, instrument Loop, signal processing electronics, or bistable is found inoperable, then all affected Functions provided by that channel must be declared inoperable and the LCO Condition(s) entered for the protection Function(s) affected. When the Required Channels in Table 3.3.2-1 are specified (e.g., on a per steam line, per loop, per SG, etc., basis), then the Condition may be entered separately for each steam line, loop, SG, etc., as appropriate. 3

When the number of inoperable channels in a trip function exceed those specified in one or other related Conditions associated with a trip function, then the unit is outside the safety analysis. Therefore, LCO 3.0.3 should be immediately entered if applicable in the current MODE of operation.

~~-------------------------REVIEWER'S NOTE-----------------------------------~~
~~Certain LCO Completion Times are based on approved topical reports. In order for a licensee to use these times, the licensee must justify the Completion Times as required by the staff Safety Evaluation Report (SER) for the topical report.~~
~~--~~ 1

A.1

Condition A applies to all ESFAS protection functions.

Condition A addresses the situation where one or more channels or trains for one or more Functions are inoperable at the same time. The Required Action is to refer to Table 3.3.2-1 and to take the Required Actions for the protection functions affected. The Completion Times are those from the referenced Conditions and Required Actions.

BASES

ACTIONS (continued)

B.1

Condition B applies to manual initiation of:

- SI, and 2
- ~~Containment Spray,~~ 2
- Phase A Isolation~~, and~~ 2
- ~~Phase B Isolation~~. 2

This action addresses the train orientation of the ~~SSPS~~ ESFAS for the functions listed above. If a channel or train is inoperable, 48 hours is allowed to return it to an OPERABLE status. ~~[~~Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.~~]~~ ~~Note that for containment spray and Phase B isolation, failure of one or both channels in one train renders the train inoperable. Condition B, therefore, encompasses both situations.~~ The specified Completion Time is reasonable considering that there are two automatic actuation trains and another manual initiation train OPERABLE for each Function, and the low probability of an event occurring during this interval. 3 2

C.1

Condition C applies to the automatic actuation logic and actuation relays for the following functions:

- SI,
- Containment Spray,
- Phase A Isolation, and 2
- Phase B Isolation~~, and~~ 2
- ~~Automatic Switchover to Containment Sump~~. 2

BASES

ACTIONS (continued)

6 This action addresses the train orientation of the ~~SSPS~~ ESFAS and the master and slave relays. If one train is inoperable, ~~2~~4 hours are allowed to restore the train to OPERABLE status. ~~[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]~~ ~~The 24 hours allowed for restoring the inoperable train to OPERABLE status is justified in Reference 9.~~ The specified Completion Time is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval. 2 3 2

8 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 9 ~~assumption~~ of WCAP-10271-P-A (Ref. ~~10~~) ~~that 4 hours is the average time required to perform train surveillance~~. 3 2

INSERT 2

E ~~D~~.1

Condition E ~~D~~ applies to:

- SI/ Containment Pressure - High ~~1~~,
- SI/ Pressurizer Pressure - Low ~~(two, three, and four loop units)~~,
- ~~Steam Line Pressure - Low,~~
- SI/Differential Pressure between Steam Line Header and any Steam Generator ~~Steam Line Differential Pressure~~ - High,
- SI/ ~~High~~ Steam Line Flow -High ~~in Two Steam Lines~~ Coincident With T_{avg} - Low ~~Low~~ or Coincident With Steam Generator ~~Line~~ Pressure - Low,
- Containment Spray/ Containment Pressure - High ~~2~~ -High coincident with Containment Pressure-High,
- ~~Steam Line Pressure - Negative Rate - High,~~
- Steam Line isolation/ ~~High Steam Flow Coincident With Safety Injection Coincident With~~ T_{avg} - Low ~~Low~~, and

2

2

INSERT 2

D.1

Condition D applies to the automatic actuation logic and actuation relays for the following functions:

- Steam Line Isolation,
- Feedwater Isolation, and
- Auxiliary Feedwater.

This action addresses the train orientation and the master and slave relays. If one train is inoperable, 6 hours are allowed to restore the train to OPERABLE status. The specified Completion Time is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval.

The Required Actions are modified by a Note that allows one train to be bypassed for up to 8 hours for surveillance testing, provided the other train is OPERABLE. This allowance is based on the reliability analysis assumption of WCAP-10271-P-A (Ref. 10).

BASES

ACTIONS (continued)

- ~~High High Steam Flow Coincident With Safety Injection,~~ 2

- ~~High Steam Flow in Two Steam Lines Coincident With Tavg - Low Low,~~

- AFW/ SG Water level - Low Low ~~(two, three, and four loop units), and~~

- ~~[SG Water level - High High (P-14) (two, three, and four loop units).~~ . ~~]~~ 3

If one channel is inoperable, 6/ ~~72~~ hours are allowed to restore the channel to OPERABLE status or to place it in the tripped condition. ~~[~~Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.~~]~~ Generally, this Condition applies to functions that operate on two-out-of-three logic. Therefore, failure of one channel places the Function in a two-out-of-two configuration. One channel must be tripped to place the Function in a one-out-of-three configuration that satisfies redundancy requirements. The 72 hours allowed to restore the channel to OPERABLE status or to place it in the tripped condition is justified in Reference 9. 3

~~[The Required Actions are modified by a Note that allows the inoperable channel to be bypassed for up to 12 hours for surveillance testing of other channels. The 12 hours allowed for testing, are justified in Reference 9.]~~ 3

~~REVIEWER'S NOTE~~
~~The below text should be used for plants with installed bypass test capability:~~

~~The Required Actions are modified by a Note that allows placing one channel in bypass for up to 12 hours while performing routine surveillance testing. The 12 hour time limit is justified in Reference 9.~~ 1

~~E.1~~

~~Condition E applies to:~~

- ~~Containment Spray Containment Pressure - High 3 (High, High) (two, three, and four loop units), and~~ 2

- ~~Containment Phase B Isolation Containment Pressure - High 3 (High~~, ~~High).~~

BASES

ACTIONS (continued)

~~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. 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.~~

~~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 bypass condition within 72 hours, is sufficient to assure that the 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.~~

~~[The Required Actions are modified by a Note that allows one additional channel to be bypassed for up to 12 hours for surveillance testing. Placing a second channel in the bypass condition for up to 12 hours for testing purposes is acceptable based on the results of Reference 9.]~~

2

~~-----------------------------REVIEWER'S NOTE-----------------------------~~
~~The below text should be used for plants with installed bypass test capability:~~

~~The Required Actions are modified by a Note that allows placing one channel in bypass for up to 12 hours while performing routine surveillance testing. The 12 hour time limit is justified in Reference 9.~~
~~--~~

1

BASES

ACTIONS (continued)

F.1

Condition F applies to:

- Manual Initiation of ~~Steam~~ Containment Isolation - Phase B ~~Line Isolation,~~
- ~~Loss of Offsite Power,~~
- ~~Auxiliary Feedwater Pump Suction Transfer on Suction Pressure - Low, and~~
- ~~P-4 Interlock~~.

For the Manual Initiation ~~and the P-4 Interlock Functions,~~ this action addresses the train orientation of the ~~SSPS~~ ESFAS. ~~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 is allowed to return it to OPERABLE status. ~~[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]~~ The specified Completion Time is reasonable considering the nature of these Functions, the available redundancy, and the low probability of an event occurring during this interval.

G.1

Condition G applies to the ~~automatic actuation logic and actuation relays for the Steam Line Isolation [Turbine Trip and Feedwater Isolation,] and AFW actuation Functions~~ AFW/Bus Stripping Function.

~~The action addresses the train orientation of the SSPS and the master and slave relays for these functions.~~ If one train is inoperable, ~~24~~ 48 hours are allowed to restore the train to OPERABLE status. ~~[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The 24 hours allowed for restoring the inoperable train to OPERABLE status is justified in Reference 9.~~ The Completion Time for restoring a train to OPERABLE status is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval.

BASES

ACTIONS (continued)

~~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. 10) assumption that 4 hours is the average time required to perform channel surveillance.~~

~~[H.1~~

~~Condition H applies to the automatic actuation logic and actuation relays for the Turbine Trip and Feedwater Isolation Function~~.

~~This action addresses the train orientation of the SSPS and the master and slave relays for this Function. If one train is inoperable, 24 hours are allowed to restore the train to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The 24 hours allowed for restoring the inoperable train to OPERABLE status is justified in Reference 9. The Completion Time for restoring a train to OPERABLE status is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval.~~

~~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. 10) assumption that 4 hours is the average time required to perform channel surveillance.]~~

~~I.1~~

~~Condition I applies to:~~

- ~~[SG Water Level - High High (P-14) (two, three, and four loop units), and]~~
- ~~Undervoltage Reactor Coolant Pump.~~

~~If one channel is inoperable, 72 hours are allowed to restore one channel to OPERABLE status or to place it in the tripped condition. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If placed in the tripped condition, the Function is then in a partial trip condition where one-out-of-two or one-out-of-three logic will result in actuation.~~

2

BASES

ACTIONS (continued)

~~[The Required Actions are modified by a Note that allows the inoperable channel to be bypassed for up to [12] hours for surveillance testing of other channels. The 72 hours allowed to place the inoperable channel in the tripped condition, and the 12 hours allowed for a second channel to be in the bypassed condition for testing, are justified in Reference 9.]~~ 2

~~-------------------------REVIEWER'S NOTE------------------------------------~~
~~The below text should be used for plants with installed bypass test capability:~~

~~The Required Actions are modified by a Note that allows placing one channel in bypass for up to 12 hours while performing routine surveillance testing. The 72 hours allowed to place the inoperable channel in the tripped condition, and the 12 hours allowed for a second channel to be in the bypassed condition for testing, are justified in Reference 9.~~
~~---~~ 2

H
~~J~~.1 2

H
Condition ~~J~~ applies to the AFW pump start on trip of all MFW pumps. 2

ESFAS
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 channel is inoperable, 48 hours are allowed to return it to an OPERABLE status. ~~[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]~~ The allowance of 48 hours to return the train to an OPERABLE status is justified ~~in Reference 10~~. 3 2

because the Function is an anticipatory ESFAS function that is neither credited in accident analyses nor relied on for safe shutdown or accident mitigation

~~K.1~~

~~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~~ 2

BASES

ACTIONS (continued)

~~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 Function may be in a partial trip condition (assuming the inoperable channel has failed high).~~ 2

~~[The Required Actions are modified by a Note that allows placing a second channel in the bypass condition for up to [4] hours for surveillance testing. The total of [12] hours to reach MODE 3 and [4] hours for a second channel to be bypassed is acceptable based on the results of Reference 11.]~~

~~-------------------------REVIEWER'S NOTE-----------------------------------~~
~~The below text should be used for plants with installed bypass test capability:~~

~~The Required Actions are modified by a Note that allows placing one channel in bypass for up to 12 hours while performing routine surveillance testing. The channel to be tested can be tested in bypass with the inoperable channel also in bypass. The total of [12] hours to reach MODE 3 and [4] hours for a second channel to be bypassed is acceptable based on the results of Reference 11.~~ 1
~~--~~

INSERT 3

K
~~L~~.1 2

K Tavg – Low
Condition ~~L~~ applies to the P-11 and ~~P-12~~ ~~[and P-14]~~ interlocks. 2 3

With one or more channels inoperable, the operator must verify that the interlock is in the required state for the existing unit condition. This action manually accomplishes the function of the interlock. Determination must be made within 1 hour. The 1-hour Completion Time is equal to the time allowed by LCO 3.0.3 to initiate shutdown actions in the event of a complete loss of ESFAS function.

2 **INSERT 3**

I.1

Condition I applies to:

- Containment Isolation / Containment Pressure – High High coincident with Containment Pressure - High,
- Steam Line Isolation / Containment Pressure – High High coincident with Containment Pressure - High,
- Steam Line Isolation / Steam Flow – High, and
- Steam Line Isolation / Steam Flow – High coincident with Steam Generator Pressure - Low.
- Feedwater Isolation / Steam Generator Water Level - High High

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 is then in a partial trip condition where one-out-of-two or one-out-of-three logic will result in actuation.

The 6 hours allowed to place the inoperable channel in the tripped condition are justified in Reference 10.

J.1 and J.2

Condition J applies to:

- Steam Line Isolation - Manual Initiation,

For the Manual Initiation this action addresses the individual isolation of each steam line. If a train or channel is inoperable, 48 hours is allowed to return it to OPERABLE status. The specified Completion Time is reasonable considering the nature of this Function, the available redundancy, and the low probability of an event occurring during this interval. If the channel is inoperable the Required Action is not to shut down the unit but rather to follow the directions of Specification 3.6.3 for an inoperable containment isolation valve.

BASES

ACTIONS (continued)

~~M~~L.1 and ~~M~~L.2 2

If the Required Action and associated Completion Time of Condition B~~, C,~~ or F ~~K~~ is not met, the unit must be placed in a MODE in which overall plant risk is reduced. This is accomplished by placing the unit in MODE 3 within 6 hours and MODE 4 within 12 hours. 2

Remaining within the Applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 12). In MODE 4 the Steam Generators and Residual Heat Removal System are available to remove decay heat, which provides diversity and defense in depth. As stated in Reference 12, the steam turbine driven Auxiliary Feedwater Pump must be available to remain in MODE 4. Should Steam Generator cooling be lost while relying on this Required Action, there are preplanned actions to ensure long-term decay heat removal. Voluntary entry into MODE 5 may be made as it is also acceptable from a risk perspective.

Required Action ~~M~~L.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit. 2

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, these Functions are no longer required OPERABLE.

~~N~~M.1 and ~~N~~M.2 2

If the Required Action and associated Completion Time of Condition D, E, ~~F, G, or L~~ G, I, J, or K is not met, the unit must be placed in MODE 3 within 6 hours and MODE 4 within 12 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, these Functions are no longer required OPERABLE. 2

~~O~~N.1 2

If the Required Action and associated Completion Time of Condition H~~, I, or J~~ is not met, the unit must be placed in MODE 3 within 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, these Functions are no longer required OPERABLE. 2

SURVEILLANCE REQUIREMENTS

INSERT 4

~~REVIEWER'S NOTE~~
~~In Table 3.3.2-1, Functions 7.b and 7.c were not included in the generic evaluations approved in either WCAP-10271, as supplemented, or WCAP-14333. In order to apply the WCAP-10271, as supplemented, and WCAP-14333 TS relaxations to plant specific Functions not evaluated generically, licensees must submit plant specific evaluations for NRC review and approval.~~ 1

~~REVIEWER'S NOTE~~
~~Notes b and c are applied to the setpoint verification Surveillances for all Engineered Safety Feature Actuation System (ESFAS) Instrumentation Function in Table 3.3.2-1 unless one or more of the following exclusions apply:~~

INSERT 4

O.1 and O.2

If the Required Action and associated Completion Time of Condition C is not met, the unit must be placed in a MODE in which overall plant risk is reduced. This is accomplished by placing the unit in MODE 3 within 12 hours and MODE 4 within 18 hours.

Remaining within the Applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 12). In MODE 4 the Steam Generators and Residual Heat Removal System are available to remove decay heat, which provides diversity and defense in depth. As stated in Reference 12, the steam turbine driven Auxiliary Feedwater Pump must be available to remain in MODE 4. Should Steam Generator cooling be lost while relying on this Required Action, there are preplanned actions to ensure long-term decay heat removal. Voluntary entry into MODE 5 may be made as it is also acceptable from a risk perspective.

Required Action O.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

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, these Functions are no longer required OPERABLE.

BASES

SURVEILLANCE REQUIREMENTS (continued)

1. ~~Manual actuation circuits, automatic actuation logic circuits or instrument functions that derive input from contacts which have no associated sensor or adjustable device, e.g., limit switches, breaker position switches, manual actuation switches, float switches, proximity detectors, etc. are excluded. In addition, those permissives and interlocks that derive input from a sensor or adjustable device that is tested as part of another TS function are excluded.~~

2. ~~Settings associated with safety relief valves are excluded. The performance of these components is already controlled (i.e., trended with as-left and as-found limits) under the ASME Code for Operation and Maintenance of Nuclear Power Plants testing program.~~

3. ~~Functions and Surveillance Requirements which test only digital components are normally excluded. There is no expected change in result between SR performances for these components. Where separate as-left and as-found tolerance is established for digital component SRs, the requirements would apply.~~

~~--~~

1

The SRs for each ESFAS Function are identified by the SRs column of Table 3.3.2-1.

A Note has been added to the SR Table to clarify that Table 3.3.2-1 determines which SRs apply to which ESFAS Functions.

Note that each channel of process protection supplies both trains of the ESFAS. When testing channel I, train A and train B must be examined. Similarly, train A and train B must be examined when testing channel II, channel III, and channel IV (if applicable). The CHANNEL CALIBRATION and COTs are performed in a manner that is consistent with the assumptions used in analytically calculating the required channel accuracies.

~~---------------------------REVIEWER'S NOTE---------------------------~~
~~Certain Frequencies are based on approved topical reports. In order for a licensee to use these times, the licensee must justify the Frequencies as required by the staff SER for the topical report.~~
~~--~~

2

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.1

Performance of the CHANNEL CHECK 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, including indication and reliability. 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.

INSERT 5

~~[The Frequency of 12 hours 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.~~ 3

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----REVIEWER'S NOTE-----~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~-----------------------------------]~~ 1

SR 3.3.2.2

SR 3.3.2.2 is the performance of an ACTUATION LOGIC TEST using the semiautomatic tester. 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

2 **INSERT 5**

The SR is modified by a Note stating that the provisions of SR 3.0.4 are not applicable for entering Mode 3 for the specified Functional Units, provided that the applicable surveillances are completed within 96 hours from entering Mode 3.

BASES

SURVEILLANCE REQUIREMENTS (continued)

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 that there is an intact voltage signal path to the master relay coils. ~~[The Frequency of every 92 days on a STAGGERED TEST BASIS is justified in Reference 13.~~

~~OR~~

INSERT 6

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~

2

1

~~SR 3.3.2.3~~

~~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 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.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~

2

2

2 **INSERT 6**

The SR is modified by a Note stating that the provisions of SR 3.0.4 are not applicable for entering Mode 3 for the specified Functional Units, provided that the applicable surveillances are completed within 96 hours from entering Mode 3.

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~SR 3.3.2.4~~

~~SR 3.3.2.4 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 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. The time allowed for the testing on a STAGGERED TEST BASIS (4 hours) is justified in Reference 13. [The Frequency of 92 days is justified in Reference 10.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----REVIEWER'S NOTE-----~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~-----]~~

SR 3.3.2.~~5~~

SR 3.3.2.~~5~~ 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 conservative with respect to the Allowable Values specified in Table 3.3.2-1. 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 COT 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 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.

BASES

SURVEILLANCE REQUIREMENTS (continued)

The "as-found" and "as-left" values must also be recorded and reviewed for consistency with the assumptions of Reference 7.

~~[The Frequency of 184 days is justified in Reference 13.~~

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------REVIEWER'S NOTE-----------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~

SR 3.3.2.~~5~~3 is modified by two Notes as identified in Table 3.3.2-1. The first Note requires evaluation of channel performance for the condition where the as-found setting for the channel setpoint is outside its as-found tolerance but conservative with respect to the Allowable Value. Evaluation of channel performance will verify that the channel will continue to behave in accordance with safety analysis assumptions and the channel performance assumptions in the setpoint methodology. The purpose of the assessment is to ensure confidence in the channel performance prior to returning the channel to service. For channels determined to be OPERABLE but degraded, after returning the channel to service the performance of these channels will be evaluated under the plant Corrective Action Program. Entry into the Corrective Action Program will ensure required review and documentation of the condition. The second Note requires that the as-left setting for the channel be returned to within the as-left tolerance of the ~~[~~NTSP~~]~~. Where a setpoint more conservative than the ~~[~~NTSP~~]~~ is used in the plant surveillance procedures (field setting), the as-left and as-found tolerances, as applicable, will be applied to the surveillance procedure setpoint. This will ensure that sufficient margin to the Safety Limit and/or Analytical Limit is maintained. If the as-left channel setting cannot be returned to a setting within the as-left tolerance of the ~~[~~NTSP~~]~~, then the channel shall be declared inoperable.

~~-----------------------------REVIEWER'S NOTE-----------------------------~~
~~The bracketed section '[NTSP and the]' of the sentence in Note (c) in Table 3.3.2-1 is not required in plant-specific Technical Specifications which include a [Nominal Trip Setpoint] column in Table 3.3.2-1.~~
~~---~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

The second Note also requires that the ~~[~~NTSP and the~~]~~ methodologies for calculating the as-left and the as-found tolerances be in ~~[insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference]~~. UFSAR Section 7.2 INSERT 7 3

~~SR 3.3.2.6~~ 2

~~SR 3.3.2.6 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. [The Frequency of 92 days is adequate, based on industry operating experience, considering instrument reliability and operating history data.~~ 2

~~OR~~ 2

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------REVIEWER'S NOTE-----------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~--]~~ 1

SR 3.3.2.~~7~~ 4 2

SR 3.3.2.~~7~~ 4 is the performance of a TADOT. This test is a check of the Bus Stripping ~~Loss of Offsite Power, Undervoltage RCP, and AFW Pump Suction Transfer on Suction Pressure - Low~~ Function~~s~~. ~~Each Function is tested up to, and including, the master transfer relay coils.~~ 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 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. 2

2 **INSERT 7**

The SR is modified by a Note stating that testing of the alarm function for Functional Units 1.d, 1.e, 1.f, 1.g, 4.d, and 4.e, not required when alarm locked in.

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~The test also includes trip channels 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 of 92 days is adequate. It is based on industry operating experience, considering instrument reliability and operating history data.~~ 2 3

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~ 1

SR 3.3.2.~~8~~ 5 2

SR 3.3.2.~~8~~ 5 is the performance of a TADOT. This test is a check of the Manual Actuation Functions and AFW pump start on trip of all MFW pumps. Each Manual Actuation Function is tested up to, and including, the master relay coils. 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 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. In some instances, the test includes actuation of the end device (i.e., pump starts, valve cycles, etc.). ~~[The Frequency of 18 months is adequate, based on industry operating experience and is consistent with the typical refueling cycle.~~ 2 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~-------------------------------REVIEWER'S NOTE-------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~

~~SR 3.3.2.8 is modified by two Notes as identified in Table 3.3.2-1. The first Note requires evaluation of channel performance for the condition where the as-found setting for the channel setpoint is outside its as-found tolerance but conservative with respect to the Allowable Value. Evaluation of channel performance will verify that the channel will continue to behave in accordance with safety analysis assumptions and the channel performance assumptions in the setpoint methodology. The purpose of the assessment is to ensure confidence in the channel performance prior to returning the channel to service. For channels determined to be OPERABLE but degraded, after returning the channel to service the performance of these channels will be evaluated under the plant Corrective Action Program. Entry into the Corrective Action Program will ensure required review and documentation of the condition. The second Note requires that the as-left setting for the channel be returned to within the as-left tolerance of the [NTSP]. Where a setpoint more conservative than the [NTSP] is used in the plant surveillance procedures (field setting), the as-left and as-found tolerances, as applicable, will be applied to the surveillance procedure setpoint. This will ensure that sufficient margin to the Safety Limit and/or Analytical Limit is maintained. If the as-left channel setting cannot be returned to a setting within the as-left tolerance of the [NTSP], then the channel shall be declared inoperable.~~

~~-------------------------------REVIEWER'S NOTE-------------------------------~~
~~The bracketed section '[NTSP and the]' of the sentence in Note (c) in Table 3.3.2-1 is not required in plant-specific Technical Specifications which include a [Nominal Trip Setpoint] column in Table 3.3.2-1.~~
~~---~~

~~The second Note also requires that the [NTSP and the] methodologies for calculating the as-left and the as-found tolerances be in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].~~

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

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.~~9~~6 2

SR 3.3.2.~~9~~6 is the performance of a CHANNEL CALIBRATION. 2

CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. 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.

~~[The Frequency of [18] months is based on the assumption of an [18] month calibration interval in the determination of the magnitude of equipment drift in the setpoint methodology.~~ 3

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 1
~~---]~~

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.~~9~~6 is modified by two Notes as identified in Table 3.3.2-1. The first Note requires evaluation of channel performance for the condition where the as-found setting for the channel setpoint is outside its as-found tolerance but conservative with respect to the Allowable Value. Evaluation of channel performance will verify that the channel will continue to behave in accordance with safety analysis assumptions and the channel performance assumptions in the setpoint methodology. The purpose of the assessment is to ensure confidence in the channel performance prior to returning the channel to service. For channels determined to be OPERABLE but degraded, after returning the channel to service the performance of these channels will be evaluated under the 2

BASES

SURVEILLANCE REQUIREMENTS (continued)

plant Corrective Action Program. Entry into the Corrective Action Program will ensure required review and documentation of the condition. The second Note requires that the as-left setting for the channel be returned to within the as-left tolerance of the ~~[~~NTSP~~]~~. Where a setpoint more conservative than the ~~[~~NTSP~~]~~ is used in the plant surveillance procedures (field setting), the as-left and as-found tolerances, as applicable, will be applied to the surveillance procedure setpoint. This will ensure that sufficient margin to the Safety Limit and/or Analytical Limit is maintained. If the as-left channel setting cannot be returned to a setting within the as-left tolerance of the ~~[~~NTSP~~]~~, then the channel shall be declared inoperable. 3 2

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~The bracketed section '[NTSP and the]' of the sentence in Note (c) in Table 3.3.2-1 is not required in plant-specific Technical Specifications which include a [Nominal Trip Setpoint] column in Table 3.3.2-1.~~
~~--~~ 1

The second Note also requires that the ~~[~~NTSP and the~~]~~ methodologies for calculating the as-left and the as-found tolerances be in ~~[insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference]~~ UFSAR Section 7.2. 3

~~SR 3.3.2.10~~

~~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. 14). 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).~~ 2

~~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 calculated assuming the time constants are set at their nominal values. The response time may be measured by a series of overlapping tests such that the entire response time is measured.~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~-----------------------------REVIEWER'S NOTE--~~
~~Applicable portions of the following Bases are applicable for plants adopting WCAP-13632-P-A (Ref. 15). and/or WCAP-14036-P (Ref. 16), and the methodology contained in Attachment 1 to TSTF-569.~~
~~---~~

1

~~Response time may be verified by actual response time tests in any series of sequential, overlapping or total channel measurements, or by the summation of allocated sensor, signal processing and actuation logic response times with actual response time tests on the remainder of the channel. Allocations for sensor response times may be obtained from: (1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), (2) in place, onsite, or offsite (e.g., vendor) test measurements, or (3) utilizing vendor engineering specifications. WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," (Ref. 15) dated January 1996, provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the WCAP. Response time verification for other sensor types must be demonstrated by test.~~

~~WCAP-14036-P, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," (Ref. 16) provides the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response time. The allocations for sensor, signal conditioning, and actuation logic response times must be verified prior to placing the component in operational service and re-verified following maintenance that may adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for repair are of the same type and value. Specific components identified in the WCAP may be replaced without verification testing. One example where response time could be affected is replacing the sensing assembly of a transmitter.~~

2

~~The response time may be verified for components that replace the components that were previously evaluated in Ref. 15 and Ref. 16, provided that the components have been evaluated in accordance with the NRC approved methodology as discussed in Attachment 1 to TSTF-569, "Methodology to Eliminate Pressure Sensor and Protection Channel (for Westinghouse Plants only) Response Time Testing," (Ref. 17).~~

2

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~[ESF RESPONSE TIME tests are conducted on an [18] month STAGGERED TEST BASIS. Testing of the final actuation devices, which make up the bulk of the response time, is included in the testing of each channel. The final actuation device in one train is tested with each channel. Therefore, staggered testing results in response time verification of these devices every [18] months. The [18] month Frequency is consistent with the typical refueling cycle and is based on unit operating experience, which shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-------------------------------REVIEWER'S NOTE-------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~

2

1

~~This SR is modified by a Note that clarifies that the turbine driven AFW pump is tested within 24 hours after reaching [1000] psig in the SGs.~~

~~SR 3.3.2.11~~

~~SR 3.3.2.11 is the performance of a TADOT as described in SR 3.3.2.8, except that it is performed for the P-4 Reactor Trip Interlock, and the Frequency is once per RTB cycle. 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 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. This Frequency is based on operating experience demonstrating that undetected failure of the P-4 interlock sometimes occurs when the RTB is cycled.~~

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

2

BASES

REFERENCES

1. Regulatory Guide 1.105, "Setpoint for Safety Related Instrumentation," Revision 3.

2. UFSAR, Chapter ~~[~~6~~]~~. 2 3

3. UFSAR, Chapter ~~[~~7~~]~~. 2 3

4. UFSAR, Chapter ~~[15]~~ 14. 2 3

5. IEEE-279-1971.

6. 10 CFR 50.49.

7. ~~Plant-specific setpoint methodology study.~~ UFSAR Section 7.2 2

8. ~~NUREG-1218, April 1988~~ NRC Generic Letter 89-19, September 1989. 2

~~9. WCAP-14333-P-A, Rev. 1, October 1998.~~ 2

~~10~~ 9. WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990. 2

~~11. [Plant specific evaluation reference.]~~ 2

~~12~~ 10. WCAP-16294-NP-A, Rev. 1, "Risk-Informed Evaluation of Changes to Technical Specification Required Action Endstates for Westinghouse NSSS PWRs," June 2010. 2

~~13. WCAP-15376, Rev. 0, October 2000.~~

~~14. Technical Requirements Manual, Section 15, "Response Times."~~

~~15. WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," January 1996.~~

~~16. WCAP-14036-P, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," December 1995.~~

~~17. Attachment 1 to TSTF-569, "Methodology to Eliminate Pressure Sensor and Protection Channel (for Westinghouse Plants only) Response Time Testing."~~

2

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.2 BASES, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

1. The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This Note is not meant to be retained in the final version of the plant specific submittal.

2. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specification (ISTS) Bases that reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description. Where a deletion/addition has occurred, subsequent alpha-numeric designators have been changed for any applicable affected ACTIONS, SURVEILLANCE REQUIREMENTS, FUNCTIONS, and Footnotes.

3. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.3.2, ENGINEERED SAFETY FEATURES ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 3

ITS 3.3.3 – POST ACCIDENT MONITORING (PAM) INSTRUMENTATION

Current Technical Specification (CTS) Markup
and Discussion of Changes (DOCs)

ITS

A01

INSTRUMENTATION

ACCIDENT MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

LCO 3.3.3 3.3.3.3 The accident monitoring instrumentation channels shown in Table 3.3-5 shall be OPERABLE.

Applicability APPLICABILITY: ~~As shown in Table 3.3-5.~~ MODES 1, 2, and 3

ACTIONS ACTION: ACTIONS A-I

A02

a. ~~As shown in Table 3.3-5.~~

ACTIONS NOTE b. Separate Action entry is allowed for each Instrument.

SURVEILLANCE REQUIREMENTS

SR 3.3.3.1
SR 3.3.3.2

4.3.3.3 Each accident monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION at the frequencies shown in ~~Table 4.3-4~~ the SFCP.

ITS SR 3.3.3.2 NOTE: Neutron detectors are excluded from CHANNEL CALIBRATION.

L01

A02

ITS

Table 3.3.3.1

A01

TABLE 3.3-5

ACCIDENT MONITORING INSTRUMENTATION

CONDITION REFERENCED FROM REQUIRED ACTION G.1

ITS

Function	FUNCTION ~~INSTRUMENT~~	REQUIRED ~~TOTAL NO. OF~~ CHANNELS	A03 ~~MINIMUM CHANNELS OPERABLE~~	A02 ~~APPLICABLE MODES~~	~~ACTIONS~~	
1	1. Containment Pressure (Wide Range)	2	~~1~~	~~1, 2, 3~~	~~31, 32~~ D, E, F, G, H	A01
2	2. Containment Pressure (Narrow Range)	~~2~~ 1	~~1~~	~~1, 2, 3~~	H ~~36~~ D, G, H	A04
3	3. Reactor Coolant Outlet Temperature T_{HOT} (Wide Range)	~~2-2 Detectors per Channel~~ 2 per loop	~~1-2 Detectors per Channel~~	~~1, 2, 3~~	~~31, 32~~ D, E, F, G, H	
4	4. Reactor Coolant Inlet Temperature T_{COLD} (Wide Range)	~~2-2 Detectors per Channel~~ 2 per loop	~~1-2 Detectors per Channel~~	~~1, 2, 3~~	H ~~31, 32~~ D, E, F, G, H	A05
5	5. Reactor Coolant Pressure – Wide Range	2	~~1~~	~~1, 2, 3~~	~~31, 32~~ D, E, F, G, H	
6	6. Pressurizer Water Level	2	~~1~~	~~1, 2, 3~~	H ~~31, 32~~ D, E, F, G, H	
7	7. Auxiliary Feedwater Flow Rate	2/steam generator	~~1/steam generator~~	~~1, 2, 3~~	~~31, 32~~ D, E, F, G, H	
8	8. Reactor Coolant System Subcooling Margin Monitor	2~~(2)~~	~~1(2)~~	~~1, 2, 3~~	H ~~31, 32~~ D, E, F, G, H	
9	9. PORV Position Indicator (Primary Detector)	1/valve	~~1/valve~~	~~1, 2, 3~~	~~33~~ A, G, H	
10	10. PORV Block Valve Position Indicator	1/valve	~~1/valve~~	~~1, 2, 3~~	H ~~33~~ A, G, H	
11	11. Safety Valve Position Indicator (Primary Detector)	1/valve	~~1/valve~~	~~1, 2, 3~~	~~32~~ F, G, H	
12	12. Containment Water Level (Narrow Range)	~~2~~ 1	~~1~~	~~1, 2, 3~~	H ~~36~~ D, G, H	A04
13	13. Containment Water Level (Wide Range)	2	~~1~~	~~1, 2, 3~~	H ~~31, 32~~ D, E, F, G, H	

ITS

Table 3.3.3.1

A01

TABLE 3.3-5 (Continued)

ACCIDENT MONITORING INSTRUMENTATION

Function	~~INSTRUMENT~~	~~TOTAL NO. OF CHANNELS~~	~~MINIMUM CHANNELS OPERABLE~~ (A03)	~~APPLICABLE MODES~~ (A02)	~~ACTIONS~~ (A01)	ITS
14	14. In Core Thermocouples (Core Exit Thermocouples)	(b) 4/~~core~~ quadrant	~~2/core quadrant~~	~~1, 2, 3~~	H ~~31, 32~~	D, E, F, G, H (A01)
15	15. Containment High Range Area Radiation	1 ~~2~~	~~1~~	~~1, 2, 3~~	I ~~34~~	C, G, I (A04)
16	16. Reactor Vessel Level Monitoring System	2~~(1)~~	~~1(1)~~	~~1, 2, 3~~	~~37, 38~~	D, E, F, G, I
17	17. Neutron Flux, Backup NIS (Wide Range)	2	~~1~~	~~1, 2, 3~~	H ~~31, 32~~	D, E, F, G, H
	~~18. DELETED~~					
	~~19. DELETED~~					(A01)
18	18 ~~20~~. RWST Water Level	2	~~1~~	~~1, 2, 3~~	H ~~31, 32~~	D, E, F, G, H (A01)
19	19 ~~21~~. Steam Generator Water Level (Narrow Range)	2/stm. Gen.	~~1/stm. Gen.~~	~~1, 2, 3~~	~~31, 32~~	D, E, F, G, H
20	20 ~~22~~. Containment Isolation Valve Position Indication*	(a) 1/valve	~~1/valve~~	~~1, 2, 3~~	H ~~39~~	B

TABLE NOTATIONS

L02

~~1. A channel is eight sensors in a probe. A channel is OPERABLE if a minimum of four sensors are OPERABLE.~~

A06

(b) The core exit thermocouples (CETs) are not divided into channels; four thermocouples per core quadrant are required to be OPERABLE.

~~2. Inputs to this instrument are from instrument items 3, 4, 5 and 14 of this Table.~~

LA01

~~* Applicable for containment isolation valve position indication designated as post-accident monitoring instrumentation (containment isolation valves which receive containment isolation Phase A, Phase B, or containment ventilation isolation signals).~~

L02

(a) Not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

ITS

Table 3.3.3.1

A01

TABLE 3.3-5 (Continued)

ACTION STATEMENTS

5.6.5

A01

ACTION D

ACTION E

ACTION 31 With the number of OPERABLE accident monitoring instrumentation channel(s) less than the Total Number of Channels either restore the inoperable channel(s) to OPERABLE status within 30 days, or submit a Special Report to the Commission pursuant to Specification ~~6.9.2~~ within the next 14 days outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the system to OPERABLE status.

See ITS 5.6.5

ACTION F

ACTION H

ACTION 32 With the number of OPERABLE accident monitoring instrumentation channels less than the Minimum Channels OPERABLE, either restore the inoperable channel(s) to OPERABLE status within 7 days, or be in at least HOT STANDBY within the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours.

within 1 hour

L03

ACTION A

ACTION 33 Close the associated block valve and open its circuit breaker.

ACTION C

ACTION 34 With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirements, initiate the preplanned alternate method of monitoring the appropriate parameter(s), within 72 hours, and:

ACTION C

1) Either restore the inoperable channel(s) to OPERABLE status within 7 days of the event, or

5.6.5

A01

ACTION I

2) Prepare and submit a Special Report to the Commission pursuant to Specification ~~6.9.2~~ within the next 14 days outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the system to OPERABLE status.

See ITS 5.6.5

ACTION 35 DELETED

ACTION D

ACTION H

ACTION 36 With the number of OPERABLE accident monitoring instrumentation channels less than the Minimum Channel OPERABLE, either restore the inoperable channel to OPERABLE status within 30 days, or be in at least HOT STANDBY within the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours.

ACTION D

ACTION E

ACTION 37 With the number of OPERABLE channels one less than the Total Number of Channels, restore the system to OPERABLE status within 30 days. If repairs are not feasible without shutting down, prepare and submit a Special Report to the Commission pursuant to Specification ~~6.9.2~~ within the next 14 days outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

5.6.5

A01

See ITS 5.6.5

A01

Table 3.3.3.1

TABLE 3.3-5 (Continued)

ACTION STATEMENTS

ACTION F

ACTION 38 With the number of OPERABLE channels less than the Minimum Channels OPERABLE requirements, restore the inoperable channel(s) to OPERABLE status within 7 days. If repairs are not feasible without shutting down:

1. Initiate an alternate method of monitoring the reactor vessel inventory; and

5.6.5

ACTION I

2. Prepare and submit a Special Report to the Commission pursuant to Specification ~~6.9.2~~ within the next 14 days outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status; and

A01

See ITS 5.6.5

3. Restore at least one channel to OPERABLE status at the next scheduled refueling.

ACTION 39 With the number of OPERABLE channels less than the Minimum Channels OPERABLE requirement, verify position by an alternate means ~~(e.g. administrative controls, ERDADS, alternate position indication, or visual observation)~~ within 2 hours, and restore the inoperable channel(s) within 7 days, or comply with the provisions of Specification ~~3.6.4~~ for an inoperable containment isolation valve.

LA02

ACTION B

3.6.3

A01

TABLE 4.3-4

ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT		CHANNEL CHECK	CHANNEL CALIBRATION
1.	Containment Pressure (Wide Range)	SFCP	SFCP
2.	Containment Pressure (Narrow Range)	SFCP	SFCP
3.	Reactor Coolant Outlet Temperature - T_{HOT} (Wide Range)	SFCP	SFCP
4.	Reactor Coolant Inlet Temperature - T_{COLD} (Wide Range)	SFCP	SFCP
5.	Reactor Coolant Pressure - Wide Range	SFCP	SFCP
6.	Pressurizer Water Level	SFCP	SFCP
7.	Auxiliary Feedwater Flow Rate	SFCP	SFCP
8.	Reactor Coolant System Subcooling Margin Monitor	SFCP	SFCP
9.	PORV Position Indicator (Primary Detector)	SFCP	SFCP
10.	PORV Block Valve Position Indicator	SFCP	SFCP
11.	Safety Valve Position Indicator (Primary Detector)	SFCP	SFCP
12.	Containment Water Level (Narrow Range)	SFCP	SFCP
13.	Containment Water Level (Wide Range)	SFCP	SFCP
14.	In Core Thermocouples (Core Exit Thermocouples)	SFCP	SFCP
15.	Containment - High Range Area Radiation Monitor	SFCP	SFCP~~*~~
16.	Reactor Vessel Level Monitoring System	SFCP	SFCP
17.	Neutron Flux, Backup NIS (Wide Range)	SFCP	SFCP
~~18.~~	~~DELETED~~		
~~19.~~	~~DELETED~~		
20.	RWST Water Level	SFCP	SFCP
21.	Steam Generator Water Level (Narrow Range)	SFCP	SFCP
22.	Containment Isolation Valve Position Indication	SFCP	SFCP

A02

~~*Acceptable criteria for calibration are provided in Table II.F.1-3 of NUREG-0737.~~

LA03

A01

INSTRUMENTATION

3/4 3.3.3.6 DELETED

A01

TABLE 3.3-8

DELETED

A01

TABLE 4.3-6

DELETED

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications-Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS 3.3.3.3 APPLICABILITY and ACTION refer to Table 3.3.5 for the MODES of Applicability and ACTIONS, and Surveillance Requirement (SR) 4.3.3.3 references Table 4.3-4 for the SR Frequencies. Table 4.3-4 references the Surveillance Frequency Control Program (SFCP). ITS 3.3.3 APPLICABILITY, ACTIONS, and SRs are contained in the Technical Specification under the APPLICABILITY, ACTIONS, and SRs Sections. The specific frequencies in each SR reference the SFCP. This changes the CTS by moving the APPLICABILITY, ACTIONS, and SR Frequencies to the respective specific sections under the Limiting Condition for Operation (LCO) Section in the Technical Specification. As part of this move will be the deletion of CTS Table 4.3-4.

This change is acceptable because the specific information will remain in ITS but moved from Tables to within the Technical Specification under the specific Sections. The SR Frequencies will continue to reference the SFCP but moved with the SRs to the Technical Specification under the SR Section. This change is classified as administrative because no technical change is being made to the Technical Specification.

A03 CTS Table 3.3-5 contain a Total No. of Channels Column and a Minimum Channels Operable Column. ITS Table 3.3.3-1 will contain a Required Channels Column. This changes the CTS by retaining the Total No. of Channels Column but renaming it as "Required Channels" and deleting the Minimum Channels Operable Column.

CTS Table 3.3-5 and ITS Table 3.3.3-1 references the number of Channels that correspond to the number that initiate entry into the Actions. In CTS Table 3.3-5 this number is mostly contained in the Total No. of Channels column with a few contained in the Minimum Channels Operable. In ITS Table 3.3.3-1, the number of inoperable channels that initiate entry into the Actions will be contained in the Required Channels column. This change is acceptable because the required number of channels that initiate entry into the Actions remain in the Table. This change is designated as administrative because no technical change is being made to the Technical Specification.

A04 CTS Table 3.3-5 Containment Pressure (Narrow Range), Containment Water Level (Narrow Range), and Containment High Range Area Radiation Instruments require two Total No. of Channels. ITS Table 3.3.3-1 Containment Pressure (Narrow Range), Containment Water Level (Narrow Range), and Containment High Range Area Radiation Functions require one channel. This changes the CTS by listing the required number of channels that initiate entry into the Actions.

The CTS Table 3.3-5 Containment Pressure (Narrow Range), Containment Water Level (Narrow Range), and Containment High Range Area Radiation Instruments require two Total No. of Channels; however, no Action is required until less than one channel is OPERABLE. The ITS Table 3.3.3-1 Containment Pressure (Narrow Range), Containment Water Level (Narrow Range), and Containment High Range Area Radiation Functions require one channel to be OPERABLE. This is consistent with the required number that initiate entry into the Actions. This is acceptable because if one channel of the above listed functions is inoperable no Action is required, thus requiring two channels to be OPERABLE is not necessary. This change is designated as administrative because no technical change is being made to the CTS.

A05 CTS Table 3.3-5 Reactor Coolant Outlet Temperature T_{HOT} (Wide Range) and Reactor Coolant Outlet Temperature T_{COLD} (Wide Range) Instruments require 2-2 Detectors per Channel. ITS 3.3.3-1 Reactor Coolant Outlet Temperature T_{HOT} (Wide Range) and Reactor Coolant Outlet Temperature T_{COLD} (Wide Range) Instruments requires 2 per Loop. This changes the CTS by changing the wording of the required channels from 2-2 Detectors per Channel to 2 per Loop.

The purpose of the CTS requirement is to specify the number of detectors per channel (loop) which is 2 of 2 channels. The ITS will specify 2 per loop which is more descriptive of what is required. This change is acceptable because the ITS describes the requirement for the number of detectors more clearly. This change is designated as administrative because no technical change is being made to the CTS.

A06 ITS Table 3.3.3-1 contain a Note (b) for the core exit thermocouples that states in part that the core exit thermocouples (CETs) are not divided into channels and that four CETs per quadrant are required to be OPERABLE. CTS 3.3-5 does not contain a similar Note. This changes the CTS by adding a descriptive Note for the CETs describing that they are not divided into channels and that four per quadrant are required to be OPERABLE.

This change makes the PTN ITS consistent with the details in the NUREG-1431 in that a description of the CETs are included in a Note. This change is acceptable because a statement that the CETs are not divided into channels provides clarity to the heading that states "Required Channels." This change is designated as administrative because the addition of a clarifying Note is not a technical change to the CTS.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS Table 3.3-5 contains the following Notes for the Core Exit Thermocouples, Power Operated Relief Valve (PORV) Position Indicator and PORV Block Valve Position Indicator, and Containment Isolation Valve Position Indication Instruments, respectively:

1. *A channel is eight sensors in a probe. A channel is OPERABLE if a minimum of four sensors are OPERABLE.*

2. *Inputs to this instrument are from instrument items 3, 4, 5, and 14 of this Table.*

* *Applicable for containment isolation valve position indication designated as post-accident monitoring instrumentation (containment isolation valves which receive containment isolation Phase A, Phase B, or containment ventilation isolation signals).*

ITS Table 3.3.3-1 does not contain these Notes. This changes the CTS by moving the CTS Notes to outside of Technical Specifications.

The removal of these details contained in Notes from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirements for the instrumentation to be OPERABLE and the Actions to take when required instruments are inoperable. Also, this change is acceptable because these types of procedural details will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LA02 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements).* CTS Action 39, for the Containment Isolation Valve Position Indication, contains examples for an alternate means to verify position indication, *(e.g., administrative controls ERDADS, alternate position indication, or visual observation)*. ITS ACTION B, for the Containment Isolation Valve Position

Indication, does not contain examples for alternate means to verify position indication. This changes the CTS by not including examples of alternate means for verifying containment isolation valve positions.

The removal of examples of the alternate means to verify containment isolation valve positions is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirements to verify containment isolation valve position indication by an alternate means. Also, this change is acceptable because these types of procedural details will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LA03 *(Type 4 – Removal of LCO, SR, or other TS requirement to the TRM, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS Table 4.3-4 contains a Note (*) for the Containment High Range Area Radiation Monitor CHANNEL CALIBRATION that the acceptable criteria for calibration are provided in Table II.F.1-3 of NUREG 0737. The ITS CHANNEL CALIBRATION for the Containment High Range Area Radiation Monitor will not contain where the acceptable criteria is located. This changes the CTS by not including where the acceptable criteria for the CHANNEL CALIBRATION is located.

The removal of the acceptable criteria for the Containment High Range Area Radiation Monitor is acceptable because this type of information is not necessary to be included in the Technical Specifications in order to provide adequate protection of public health and safety. The ITS retains the requirement to perform a CHANNEL CALIBRATION. Also, this change is acceptable because these types of procedural details will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L01 *(Category 6 – Relaxation of Surveillance Requirement Acceptance Criteria)* CTS 4.3.3.3 requires that each accident monitoring instrument be demonstrated OPERABLE by performance of a CHANNEL CALIBRATION in accordance with the SFCP. ITS 3.3.3.2 requires performance of a CHANNEL CALIBRATION also but is modified by a Note stating, "Neutron detectors are excluded from CHANNEL CALIBRATION." This changes the CTS by excluding Neutron detectors from the Source and Intermediate Range CHANNEL CALIBRATIONS.

The purpose of a CHANNEL CALIBRATION is to ensure that the channel responds within the necessary range and accuracy to known values of the parameter that the channel monitors. Thus, to perform a channel calibration of a neutron flux channel would require including the neutron flux detector in the calibration. Inclusion of neutron flux detectors in the CHANNEL CALIBRATION process is impractical in power reactor applications because to do so would require subjecting the detectors to known neutron fluxes. This change is designated as less restrictive because less stringent SRs are being applied in the ITS than were applied in the CTS.

L02 *(Category 1 – Relaxation of LCO Requirements)* CTS Table 3.3-5 requires one Containment Isolation Valve Position Indication per valve to be OPERABLE. ITS Table 3.3.3-1 requires one Containment Isolation Valve Position Indication per valve to be OPERABLE except those isolation valves that are isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. This changes the CTS by not requiring valve position indication when the containment isolation valve is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

This change is acceptable because the containment isolation valve position indication will continue to ensure that the isolation valves that are not secured in their isolation position have OPERABLE position indication. Valves already in the isolated position and are locked, sealed, or otherwise secured in position are not required have the valve position verified in the event of a Design Basis Accident (DBA) because the valves are already in the required position and secured to prevent changing from the required position. This change is designated as less restrictive because less stringent requirements are being applied in the ITS than were applied in the CTS.

L03 *(Category 3 – Relaxation of Completion Time)* CTS ACTION 33 requires closure of the associated PORV Block Valve and opening of its circuit breaker when the PORV or PORV Block Valve Position Indication Channel is inoperable. ITS ACTION A requires closure of the associated PORV Block Valve and opening of its circuit breaker when the PORV or PORV Block Valve Position Indication Channel is inoperable within one hour. This changes the CTS by requiring the closure of the associated PORV Block Valve and opening of its circuit breaker within one hour when currently there is no specific time requirement for closure when the PORV or PORV Block Valve Position Indication Channel is inoperable. The presumption is that since the CTS does not contain a Completion Time that closure must occur immediately along with opening the circuit breaker.

The purpose of CTS and ITS is to ensure the PORV penetration(s) are closed via the PORV Block Valves when the PORV or PORV Block Valve position indication is inoperable. This will ensure that a potential Loss of Coolant Accident (LOCA) through the PORVs will be contained. This change is acceptable because the Completion Time is consistent with safe operation under the specified Condition. CTS 3.4.4 contains a Completion Time of one hour to close the block valves when either the PORV or PORV Block Valves are inoperable. ITS 3.4.11 contains a requirement to close the Block Valves within one hour when the PORV Block Valves are inoperable. The one hour is reasonable, based on the small potential for challenges to the system during this time period and provides time to correct the situation. This change is designated as less restrictive because additional time is allowed to perform required remedial actions than was allowed in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.3 INSTRUMENTATION

3.3.3 Post Accident Monitoring (PAM) Instrumentation

3.3.3.3

LCO 3.3.3 The PAM instrumentation for each Function in Table 3.3.3-1 shall be OPERABLE.

Applicability

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

ACTION b

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

-----NOTE-----
Not Applicable for Containment Area Radiation Monitor, Safety Valve Position Indicator, PORV Position Indicator, PORV Block Valve Position Indicator, and Containment Isolation Valve Position Indication Functions.
----- 2

INSERT 1

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION 31 ACTION 37 ACTION 35 ACTION 36 ~~A.~~ D One or more Functions with one required channel inoperable. OR One or more quadrants with one or two required Core Exit Thermocouples inoperable.	~~A~~ D.1 Restore required channel to OPERABLE status.	30 days -----NOTE----- Not Applicable for Containment Pressure (Narrow Range) and Containment Water Level (Narrow Range) Functions. ----- 2 1 2
ACTION 31 ACTION 37 ACTION 35 ACTION 36 ~~B~~ E. Required Action and associated Completion Time of Condition ~~A~~ D not met.	~~B~~ E.1 Initiate action in accordance with Specification 5.6.5.	Immediately 1 2
ACTION 32 ~~C~~ F. One or more Functions with two required channels inoperable. OR One or more safety valves with required position indicator channel inoperable. OR One or more quadrants with three or more required Core Exit Thermocouples inoperable.	~~C~~ F.1 Restore one channel to OPERABLE status. AND F.2 -----NOTE----- ACTION F.2 is only applicable for the Reactor Vessel Level Monitoring System. ----- Initiate an alternate method of monitoring the reactor vessel inventory.	7 days 7 days 1 2
ACTION 32 ACTION 33 ACTION 34 ACTION 36 ACTION 37 ~~D~~ G. Required Action and associated Completion Time of ~~Condition C~~ Conditions A, B, C, or F not met. OR Required Action and associated Completion Time of Condition D not met for Containment Pressure (Narrow Range) and Containment Water Level (Narrow Range) Functions.	~~D~~ G.1 Enter the Condition referenced in Table 3.3.3-1 for the channel.	Immediately 1 2 2

CTS

2

INSERT 1

ACTION 33	A. One or more PORVs or PORV Block Valves with required position indicator channel inoperable.	A.1 Close associated Block Valve. <u>AND</u> A.2 Remove power from associated Block Valve.	1 hour 1 hour
ACTION 39	B. One or more containment isolation valves with required position indication channel inoperable.	B.1 Verify Containment Isolation Valve position by an alternate means. AND B.2.1 Restore required Position Indication channel to OPERABLE status. <u>OR</u> B.2.2 Enter LCO 3.6.3 for Valve(s) with the inoperable Position Indication channel.	2 hours 7 days 7 days
ACTION 34	C. One or more Containment High Range Area Radiation Monitors with one required channel inoperable.	C.1 Initiate an alternate method of monitoring containment area radiation. <u>AND</u> C.2 Restore the inoperable channel(s) to OPERABLE status.	72 hours 7 days

ACTIONS (continued)

	CONDITION	REQUIRED ACTION		COMPLETION TIME	
ACTION 32 ACTION 36	H ~~E~~. As required by Required Action G ~~D~~.1 and referenced in Table 3.3.3-1.	H ~~E~~.1 AND H ~~E~~.~~-~~2	Be in MODE 3. Be in MODE 4.	6 hours 12 hours	1
ACTION 34 ACTION 38	I ~~F~~. As required by Required Action G ~~D~~.1 and referenced in Table 3.3.3-1.	I ~~F~~.1	Initiate action in accordance with Specification 5.6.5.	Immediately	1

SURVEILLANCE REQUIREMENTS

---NOTE---

SR 3.3.3.1 and SR 3.3.3.2 apply to each PAM instrumentation Function in Table 3.3.3-1.

	SURVEILLANCE		FREQUENCY	
4.3.3.3	SR 3.3.3.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	~~[31 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	3

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY
4.3.3.3 DOC L01	SR 3.3.3.2	------------------------------NOTE------------------------------ Neutron detectors are excluded from CHANNEL CALIBRATION. --- Perform CHANNEL CALIBRATION.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 3

Table 3.3-5

Table 3.3.3-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

CTS		FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION ~~D~~ G.1
		INSERT 2 Instrument		
17	17	1. ~~Power Range~~ Neutron Flux, Backup NIS (Wide Range)	2	~~E~~ H
		~~2. Source Range Neutron Flux~~	~~2~~	~~E~~ H
3	3	3. Reactor Coolant System (RCS) Hot Leg Temperature	2 per loop	~~E~~ H
4	4	4. RCS Cold Leg Temperature	2 per loop	~~E~~ H
5	5	5. ~~RCS~~ Reactor Coolant Pressure (Wide Range)	2	~~E~~ H
16	16	6. Reactor Vessel ~~Water~~ Level Monitoring System	2	~~F~~ I
13	13	7. Containment ~~Sump~~ Water Level (Wide Range)	2	~~E~~ H
1	1	8. Containment Pressure (Wide Range)	2	~~E~~ H
22	20	9. ~~Penetration Flow Path~~ Containment Isolation Valve Position Indication	1 per valve ~~2 per penetration flow path(a)(b)~~	~~E~~ H
15	15	10. Containment Area Radiation (High Range)	2	~~F~~ I
6	6	11. Pressurizer Water Level	2	~~E~~ H
21	19	12. Steam Generator Water Level (~~Wide~~ Narrow Range)	2 per steam generator	~~E~~ H
14		~~13. Condensate Storage Tank Level~~	~~2~~	~~E~~ H
14	14.a	14. In Core Thermocouples (Core Exit Thermocouples) / 14. Core Exit Temperature - Quadrant [1]	2~~(c)~~ 4(b)	~~E~~ H
14	14.b	15. Core Exit Temperature - Quadrant [2]	2~~(c)~~ 4(b)	~~E~~ H
14	14.c	16. Core Exit Temperature - Quadrant [3]	2~~(c)~~ 4(b)	~~E~~ H
7	14.d	17. Core Exit Temperature - Quadrant [4]	2~~(c)~~ 4(b)	~~E~~ H
	7	18. Auxiliary Feedwater Flow Rate	2 per steam generator	~~E~~ H

(a) Not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

~~(b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.~~

(~~c~~ b) ~~A channel consists of two core exit thermocouples (CETs)~~ The core exit thermocouples (CETs) are not divided into channels; four thermocouples per core quadrant are required to be OPERABLE.

~~REVIEWER'S NOTE~~

~~Table 3.3.3-1 shall be amended for each unit as necessary to list:~~
~~1. All Regulatory Guide 1.97, Type A instruments and~~
~~2. All Regulatory Guide 1.97, Category I, non-Type A instruments in accordance with the unit's Regulatory Guide 1.97, Safety Evaluation Report.~~

CTS

INSERT 2

Instrument		FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION G.1
2	2.	Containment Pressure (Narrow Range)	1	H
8	8.	Reactor Coolant System Subcooling Margin Monitor	2	H
9	9.	PORV Position Indicator (Primary Detector)	1/valve	H
10	10.	PORV Block Valve Position Indicator	1/valve	H
11	11.	Safety Valve Position Indicator (Primary Detector)	1/valve	H
12	12.	Containment Water Level (Narrow Range)	1	H
18	18.	RWST Water Level	2	H

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.3, POST ACCIDENT MONITORING (PAM) INSTRUMENTATION

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specifications (ISTS) that reflect the plant-specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. Changes are made to the ISTS to be consistent with the Current Licensing Basis. Some of the current Technical Specification Instrumentation is unique and thus some aspects of the Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) were adopted. This includes any new Conditions, Notes, etc. that were added to the Actions to include or exclude certain Functions, deletions of Notes that are not applicable, and revising Notes to make the ITS applicable to PTN. Also included are any numbering changes to make the ITS consistent with the CTS.

3. The ISTS contains bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

4. The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This Note is not meant to be retained in the final version of the plant specific submittal.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.3 INSTRUMENTATION

B 3.3.3 Post Accident Monitoring (PAM) Instrumentation

BASES

BACKGROUND

The primary purpose of the PAM instrumentation is to display unit variables that provide information required by the control room operators during accident situations. This information provides the necessary support for the operator to take the manual actions for which no automatic control is provided and that are required for safety systems to accomplish their safety functions for Design Basis Accidents (DBAs).

The OPERABILITY of the accident monitoring instrumentation ensures that there is sufficient information available on selected unit parameters to monitor and to assess unit status and behavior following an accident.

The availability of accident monitoring instrumentation is important so that responses to corrective actions can be observed and the need for, and magnitude of, further actions can be determined. These essential instruments are identified by unit specific documents (Ref. 1) addressing the recommendations of Regulatory Guide 1.97 (Ref. 2) as required by Supplement 1 to NUREG-0737 (Ref. 3).

The instrument channels required to be OPERABLE by this LCO include two classes of parameters identified during unit specific implementation of Regulatory Guide 1.97 as Type A and Category I variables.

Type A variables are included in this LCO because they provide the primary information required for the control room operator to take specific manually controlled actions for which no automatic control is provided, and that are required for safety systems to accomplish their safety functions for DBAs. Because the list of Type A variables differs widely between units, Table 3.3.3-1 in the accompanying LCO contains no examples of Type A variables, except for those that may also be Category I variables.

Category I variables are the key variables deemed risk significant because they are needed to:

- Determine whether other systems important to safety are performing their intended functions,

- Provide information to the operators that will enable them to determine the likelihood of a gross breach of the barriers to radioactivity release, and

BASES

BACKGROUND (continued)

- Provide information regarding the release of radioactive materials to allow for early indication of the need to initiate action necessary to protect the public, and to estimate the magnitude of any impending threat.

These key variables are identified by the unit specific Regulatory Guide 1.97 analyses (Ref. 1). These analyses identify the unit specific Type A and Category I variables and provide justification for deviating from the NRC proposed list of Category I variables.

~~-----------------------------REVIEWER'S NOTE-----------------------------~~
~~Table 3.3.3-1 provides a list of variables typical of those identified by the unit specific Regulatory Guide 1.97 analyses. Table 3.3.3-1 in unit specific Technical Specifications (TS) shall list all Type A and Category I variables identified by the unit specific Regulatory Guide 1.97 analyses, as amended by the NRC's Safety Evaluation Report (SER).~~
~~---~~ 2

The specific instrument Functions listed in Table 3.3.3-1 are discussed in the LCO section.

APPLICABLE SAFETY ANALYSES

The PAM instrumentation ensures the operability of Regulatory Guide 1.97 Type A and Category I variables so that the control room operating staff can:

- Perform the diagnosis specified in the emergency operating procedures (these variables are restricted to preplanned actions for the primary success path of DBAs), e.g., loss of coolant accident (LOCA),

- Take the specified, pre-planned, manually controlled actions, for which no automatic control is provided, and that are required for safety systems to accomplish their safety function,

- Determine whether systems important to safety are performing their intended functions,

- Determine the likelihood of a gross breach of the barriers to radioactivity release,

- Determine if a gross breach of a barrier has occurred, and

BASES

APPLICABLE SAFETY ANALYSES (continued)

- Initiate action necessary to protect the public and to estimate the magnitude of any impending threat.

PAM instrumentation that meets the definition of Type A in Regulatory Guide 1.97 satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii). Category I, non-Type A, instrumentation must be retained in TS because it is intended to assist operators in minimizing the consequences of accidents. Therefore, Category I, non-Type A, variables are important for reducing public risk.

LCO

The PAM instrumentation LCO provides OPERABILITY requirements for Regulatory Guide 1.97 Type A monitors, which provide information required by the control room operators to perform certain manual actions specified in the unit Emergency Operating Procedures. These manual actions ensure that a system can accomplish its safety function, and are credited in the safety analyses. Additionally, this LCO addresses Regulatory Guide 1.97 instruments that have been designated Category I, non-Type A.

The OPERABILITY of the PAM instrumentation ensures there is sufficient information available on selected unit parameters to monitor and assess unit status following an accident. This capability is consistent with the recommendations of Reference 1.

LCO 3.3.3 requires two OPERABLE channels for most Functions. Two OPERABLE channels ensure no single failure prevents operators from getting the information necessary for them to determine the safety status of the unit, and to bring the unit to and maintain it in a safe condition following an accident.

Furthermore, OPERABILITY of two channels allows a CHANNEL CHECK during the post accident phase to confirm the validity of displayed information. More than two channels may be required at some units if the unit specific Regulatory Guide 1.97 analyses (Ref. 1) determined that failure of one accident monitoring channel results in information ambiguity (that is, the redundant displays disagree) that could lead operators to defeat or fail to accomplish a required safety function.

as follows:
- Containment Pressure (Narrow Range)
- Containment Water Level (Narrow Range)
- PORV Position Indicator
- PORV Block Valve Position Indicator
- Safety Valve Position Indicator
- Containment Isolation Valve Position Indication

The exception to the two channel requirement is ~~Penetration Flow Path Containment Isolation Valve (CIV) Position. In this case, the important information is the status of the containment penetrations. The LCO requires one position indicator for each active CIV. This is sufficient to redundantly verify the isolation status of each isolable penetration either via indicated status of the active valve and prior knowledge of a passive~~ 1

BASES

LCO (continued)

~~valve, or via system boundary status. If a normally active CIV is known to be closed and deactivated, position indication is not needed to determine status. Therefore, the position indication for valves in this state is not required to be OPERABLE.~~ 1

Table 3.3.3-1 provides a list of variables typical of those identified by the unit specific Regulatory Guide 1.97 (Ref. 1) analyses. Table 3.3.3-1 in unit specific TS should list all Type A and Category I variables identified by the unit specific Regulatory Guide 1.97 analyses, as amended by the NRC's SER.

Type A and Category I variables are required to meet Regulatory Guide 1.97 Category I (Ref. 2) design and qualification requirements for seismic and environmental qualification, single failure criterion, utilization of emergency standby power, immediately accessible display, continuous readout, and recording of display.

Listed below are discussions of the specified instrument Functions listed in Table 3.3.3-1. These discussions are intended as examples of what should be provided for each Function when the unit specific list is prepared.

INSERT 1

, Backup NIS (Wide Range)

17 ~~1, 2.~~ ~~Power Range and Source Range~~ Neutron Flux 1 3

is

wide

~~Power Range and Source Range~~ Neutron Flux indication is provided to verify reactor shutdown. The ~~two~~ range~~s are~~ necessary to cover the full range of flux that may occur post accident. 1

The Neutron Flux, Backup Nuclear Instrumentation is utilized for providing additional independent neutron flux indication in the control room, on the alternate shutdown panel and on the DCS / SPDS. This instrumentation does not interface with the reactor trip protection circuitry and does not perform any control functions. It meets the requirements of Regulatory Guide 1.97, Rev. 3. and 10 CFR 50.48(c). NFPA 805.

T_{HOT} and T_{COLD} (Wide Range)

Neutron flux is used for accident diagnosis, verification of subcriticality, and diagnosis of positive reactivity insertion.

Outlet and Inlet

3, 4. Reactor Coolant System (RCS) ~~Hot and Cold Leg~~ Temperatures 1 3

RCS Hot and Cold Leg Temperatures are Category I variables provided for verification of core cooling and long term surveillance.

by providing input into the RCS Subcooling Margin Monitor

RCS hot and cold leg temperatures are used to determine RCS subcooling margin. RCS subcooling margin will allow termination of safety injection (SI), if still in progress, or reinitiation of SI if it has been stopped. RCS subcooling margin is also used for unit stabilization and cooldown control. 1

1 **INSERT 1**

8. Reactor Coolant System Subcooling Margin Monitor

This RCS Subcooling Monitoring System includes two pressure transmitters to measure RCS pressure and one dual RTD in each hot and cold leg to measure RCS temperature. Reactor coolant system hot leg temperature (1 per loop per Qualified Safety Parameters Display System (QSPDS) channel), cold leg temperature (1 per loop per QSPDS channel) and RCS pressure (1 per QSPDS channel) are routed in two redundant channels to the computer room for saturation margin calculations.

The Subcooling margin will be displayed in the two channel "Inadequate Core Cooling System" (ICCS) displays in the Control Room. Specifically, the operator actions pertinent to subcooled margin concern are the following:

a) Maintain the RCS hot leg temperature and pressurizer pressure stable, using Auxiliary Feedwater, steam dump, or initiating Safety Injection as indicated in the Emergency Operating Procedures, when the pressurizer pressure or subcooling margin drops below an evaluated pressure or temperature, respectively.

b) If voiding in the RCS should occur, sub-cooled margin no longer exists, the operator must ensure that the reactor coolant pumps are shut off.

9, 10. PORV and PORV Block Valve Position Indicator

The PORVs are air operated valves that are controlled to open at a specific set pressure when the pressurizer pressure increases and close when the pressurizer pressure decreases. The PORVs may also be manually operated from the control room. The Block valves, which are normally open, are located between the pressurizer and the PORVs. The block valves are used to isolate the PORVs in case of excessive leakage or a stuck open PORV. Block valve closure is accomplished manually using controls in the control room. A stuck open PORV is, in effect, a small break loss of coolant accident (LOCA). As such, block valve closure terminates the RCS depressurization and coolant inventory loss.

Position of the PORV and PORV Block Valves post-Accident is critical because if the PORVs are stuck in the open position a LOCA can occur and it is critical that the block valves are closed and maintained closed. Indication of the PORV and PORV Block valves ensure position of both valves are maintained in the desired position.

11. Safety Valve Position Indicator (Primary Detector)

Regulatory Guide 1.97 allows either valve position indication or main steam flow indication to satisfy this recommendation. The main steam safety valve position indication is monitored by measuring main steam flow.

18. RWST Water Level

The RWST Level is designed type A variable due to its use in determining the cold leg recirculation mode switchover or R.C. pump stop during Loss of Reactor Coolant Accident (LOCA).

BASES

LCO (continued)

The RCS Hot and Cold Leg Temperature utilize the terms detector and channel. The term channel (in the context of the specification) refers to one of the two channels of QSPDS. Each channel has three detectors as inputs, one from each loop. For example, Resistance Temperature Detectors TE-3-413A, TE-3-423A, and TE-3-433A are the three detectors which feed QSPDS Channel A for Unit 3. The Required Channels is two (with two of the three detectors required). To call a channel OPERABLE, it must have at least two of its three detectors OPERABLE.

In addition, RCS cold leg temperature is used in conjunction with RCS hot leg temperature to verify the unit conditions necessary to establish natural circulation in the RCS.

~~Reactor outlet temperature inputs to the Reactor Protection System are provided by two fast response resistance elements and associated transmitters in each loop.~~ The channels provide indication over a range of ~~32~~ 0°F to ~~700~~ 750°F. 1 4

5. Reactor Coolant ~~System~~ Pressure (Wide Range)

RCS wide range pressure is a Category I variable provided for verification of core cooling and RCS integrity long term surveillance.

RCS pressure is used to verify delivery of SI flow to RCS from at least one train when the RCS pressure is below the pump shutoff head. RCS pressure is also used to verify closure of manually closed spray line valves ~~and pressurizer power operated relief valves (PORVs)~~.

In addition to these verifications, RCS pressure is used for determining RCS subcooling margin by providing input into the RCS Subcooling Margin Monitor. RCS subcooling margin will allow termination of SI, if still in progress, or reinitiation of SI if it has been stopped. RCS pressure can also be used: 1

- to determine whether to terminate actuated SI or to reinitiate stopped SI,
- to determine when to reset SI and shut off low head SI,
- to manually restart low head SI,
- as reactor coolant pump (RCP) trip criteria, and
- to make a determination on the nature of the accident in progress and where to go next in the procedure.

RCS subcooling margin is also used for unit stabilization and cooldown control.

BASES

LCO (continued)

RCS pressure is also related to three decisions about depressurization. They are:

- to determine whether to proceed with primary system depressurization,
- to verify termination of depressurization, and
- to determine whether to close accumulator isolation valves during a controlled cooldown/depressurization.

A final use of RCS pressure is to determine whether to operate the pressurizer heaters.

In some units, RCS pressure is a Type A variable because the operator uses this indication to monitor the cooldown of the RCS following a steam generator tube rupture (SGTR) or small break LOCA. Operator actions to maintain a controlled cooldown, such as adjusting steam generator (SG) pressure or level, would use this indication. Furthermore, RCS pressure is one factor that may be used in decisions to terminate RCP operation.

16 ~~6~~. Reactor Vessel ~~Water~~ Level Monitoring System 3

Reactor Vessel Water Level is provided for verification and long term surveillance of core cooling. It is also used for accident diagnosis and to determine reactor coolant inventory adequacy.

The Reactor Vessel Water Level Monitoring System provides a direct measurement of the collapsed liquid level above the fuel alignment plate. The collapsed level represents the amount of liquid mass that is in the reactor vessel above the core. Measurement of the collapsed water level is selected because it is a direct indication of the water inventory.

There are two Reactor Vessel Water Level channels. A channel contains eight sensors in a probe. A channel is OPEABLE if a minimum of four sensors are OPERABLE.

12, 13. ~~7~~. Containment ~~Sump~~ Water Level (Wide Range) and Narrow Range 3

Containment ~~Sump~~ Water Level is provided for verification and long term surveillance of RCS integrity.

Containment Sump Water Level is used to determine:

- containment sump level accident diagnosis,

BASES

LCO (continued)

Both the containment sump and containment level instrumentation consist of redundant level transmitters designed to operate in a post-accident environment. The signal receivers are located outside containment, remote from the sensing elements. Indication and recording are provided in the control room.

- when to begin the recirculation procedure, and
- whether to terminate SI, if still in progress.

1, 2

~~8~~. Containment Pressure (Wide Range) and (Narrow Range) 1 3

Two containment pressure channels derived from pressure taps reflect the effectiveness of the containment and cooling systems and other Engineered Safety Features. Redundant pressure transmitters are provided for the narrow range (-6 to +18 psig), and additional redundant pressure transmitters cover the wide range (0 to180 psig). High pressure indicates high temperatures and reduced pressure indicates reduced temperatures. Indicators and alarms are provided in the control room to inform the operator of system status and to guide actions taken during recovery operations. Containment pressure indication will be used to distinguish between various incidents.

Containment Pressure (Wide Range) is provided for verification of RCS and containment OPERABILITY.

Containment pressure is used to verify closure of main steam isolation valves (MSIVs), and containment spray Phase B isolation when High ~~-3~~ and High-High containment pressure is reached.

20

~~9~~. ~~Penetration Flow Path~~ Containment Isolation Valve Position Indication 1 3

Penetration Flow Path CIV Position is provided for verification of Containment OPERABILITY, and Phase A and Phase B isolation.

When used to verify Phase A and Phase B isolation, the important information is the isolation status of the containment penetrations. The LCO requires one channel of valve position indication in the control room to be OPERABLE for each active CIV in a containment penetration flow path, i.e., two total channels of CIV position indication for a penetration flow path with two active valves. For containment penetrations with only one active CIV having control room indication, Note (b) requires a single channel of valve position indication to be OPERABLE. This is sufficient to redundantly verify the isolation status of each isolable penetration either via indicated status of the active valve, as applicable, and prior knowledge of a passive valve, or via system boundary status. If a normally active CIV is known to be closed and deactivated, position indication is not needed to determine status. Therefore, the position indication for valves in this state is not required to be OPERABLE. Note (a) to the Required Channels states that the Function is not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. Each penetration is treated separately and each penetration flow path is considered a separate function. Therefore, separate Condition entry is allowed for each inoperable penetration flow path.

BASES

LCO (continued)

15

~~10~~. Containment Area Radiation (High Range) 3

Containment Area Radiation is provided to monitor for the potential of significant radiation releases and to provide release assessment for use by operators in determining the need to invoke site emergency plans. Containment radiation level is used to determine if a high energy line break (HELB) has occurred, and whether the event is inside or outside of containment.

6 Water

~~11~~. Pressurizer Level 3

Pressurizer Level is used to determine whether to terminate SI, if still in progress, or to reinitiate SI if it has been stopped. Knowledge of pressurizer water level is also used to verify the unit conditions necessary to establish natural circulation in the RCS and to verify that the unit is maintained in a safe shutdown condition.

19 Narrow

~~12~~. Steam Generator Water Level (~~Wide~~ Range) 3

SG Water Level is provided to monitor operation of decay heat removal via the SGs. The Category I indication of SG level is the extended startup range level instrumentation. The ~~extended startup~~ range level covers a span of ~~≥ 6 inches to ≤ 394 inches above the lower tubesheet~~ 30.1" to 138.2". The measured differential pressure is displayed in inches of water at 68°F.

Temperature compensation of this indication is performed manually by the operator. Redundant monitoring capability is provided by two trains of instrumentation. The uncompensated level signal is input to the unit computer, a control room indicator, and the Emergency Feedwater Control System.

SG Water Level (~~Wide~~ Narrow Range) is used to:

- identify the faulted SG following a tube rupture,
- verify that the intact SGs are an adequate heat sink for the reactor,
- determine the nature of the accident in progress (e.g., verify an SGTR), and
- verify unit conditions for termination of SI during secondary unit HELBs outside containment.

BASES

LCO (continued)

At some units, operator action is based on the control room indication of SG level. The RCS response during a design basis small break LOCA depends on the break size. For a certain range of break sizes, the boiler condenser mode of heat transfer is necessary to remove decay heat. Extended startup range level is a Type A variable because the operator must manually raise and control SG level to establish boiler condenser heat transfer. Operator action is initiated on a loss of subcooled margin. Feedwater flow is increased until the indicated extended startup range level reaches the boiler condenser setpoint.

~~13. Condensate Storage Tank (CST) Level~~

~~CST Level is provided to ensure water supply for auxiliary feedwater (AFW). The CST provides the ensured safety grade water supply for the AFW System. The CST consists of two identical tanks connected by a common outlet header. Inventory is monitored by a 0 inch to 144 inch level indication for each tank. CST Level is displayed on a control room indicator, strip chart recorder, and unit computer. In addition, a control room annunciator alarms on low level.~~

~~At some units, CST Level is considered a Type A variable because the control room meter and annunciator are considered the primary indication used by the operator.~~ 3

~~The DBAs that require AFW are the loss of electric power, steam line break (SLB), and small break LOCA.~~

~~The CST is the initial source of water for the AFW System. However, as the CST is depleted, manual operator action is necessary to replenish the CST or align suction to the AFW pumps from the hotwell.~~

In Core Thermocouples (Core Exit Thermocouples)

14~~, 15, 16, 17~~. ~~Core Exit Temperature~~ 3

Core Exit Temperature is provided for verification and long term surveillance of core cooling.

Core Exit Temperature is also used for determining subcooling margin by providing input into the RCS Subcooling Margin Monitor. 1

~~An evaluation was made of the minimum number of valid core exit thermocouples (CET) necessary for measuring core cooling. The evaluation determined the reduced complement of CETs necessary to detect initial core recovery and trend the ensuing core heatup. The evaluations account for core nonuniformities, including incore effects of the radial decay power distribution, excore effects of condensate runback in the hot legs, and nonuniform inlet~~

BASES

LCO (continued)

Incore Thermocouples (Core Exit Thermocouples), utilizes the term channel. There are **NO** channels of Incore Thermocouples as stated previously, the term Channel refers to one of the two QSPDS channels. NUREG 0737, Section II.F.2 (Ref. 3), Attachment 1, Item (3) describes what is required from instrumentation standpoint: A display should be provided with the capability for selective reading of a minimum of 16 OPERABLE thermocouples, four from each core quadrant. This description is the basis for the Technical Specification, and clarifies the requirement for Incore Thermocouples. If there are fewer than four thermocouples per core quadrant, Action D is required to be entered. If thee are fewer than two thermocouples per quadrant, Action F also applies. There is **NO** regulatory requirement that these two or four thermocouples per core quadrant be assigned to or divided between the two channels of QSPDS. There are more than four thermocouples in every core quadrant. It takes four thermocouples per core quadrant to satisfy the Technical Specifications. For example, if there are only three operable thermocouples in a quadrant, in 30 days one must be restored or a Special Report submitted within the next 14 days.

~~temperatures. Based on these evaluations, adequate core cooling is ensured with two valid Core Exit Temperature channels per quadrant with two CETs per required channel. The CET pair are oriented radially to permit evaluation of core radial decay power distribution. Core Exit Temperature is used to determine whether to terminate SI, if still in progress, or to reinitiate SI if it has been stopped. Core Exit Temperature is also used for unit stabilization and cooldown control.~~ 1

~~Two OPERABLE channels of Core Exit Temperature are required in each quadrant to provide indication of radial distribution of the coolant temperature rise across representative regions of the core. Power distribution symmetry was considered in determining the specific number and locations provided for diagnosis of local core problems. Therefore, two randomly selected thermocouples are not sufficient to meet the two thermocouples per channel requirement in any quadrant. The two thermocouples in each channel must meet the additional requirement that one is located near the center of the core and the other near the core perimeter, such that the pair of Core Exit Temperatures indicate the radial temperature gradient across their core quadrant. Unit specific evaluations in response to Item II.F.2 of NUREG-0737 (Ref. 3) should have identified the thermocouple pairings that satisfy these requirements. Two sets of two thermocouples ensure a single failure will not disable the ability to determine the radial temperature gradient.~~

7 ~~18~~. <u>Auxiliary Feedwater Flow</u> Rate 3

AFW Flow is provided to monitor operation of decay heat removal via the SGs.

The AFW Flow to each SG is determined from a differential pressure measurement calibrated for a range of 0 gpm to 1200 gpm. Redundant monitoring capability is provided by two independent trains of instrumentation for each SG. Each differential pressure transmitter provides an input to a control room indicator and the unit computer. Since the primary indication used by the operator during an accident is the control room indicator, the PAM specification deals specifically with this portion of the instrument channel.

AFW flow is used three ways:

- to verify delivery of AFW flow to the SGs,
- to determine whether to terminate SI if still in progress, in conjunction with SG water level (narrow range), and

BASES

LCO (continued)

- to regulate AFW flow so that the SG tubes remain covered.

At some units, AFW flow is a Type A variable because operator action is required to throttle flow during an SLB accident to prevent the AFW pumps from operating in runout conditions. AFW flow is also used by the operator to verify that the AFW System is delivering the correct flow to each SG. However, the primary indication used by the operator to ensure an adequate inventory is SG level. 1

APPLICABILITY

The PAM instrumentation LCO is applicable in MODES 1, 2, and 3. These variables are related to the diagnosis and pre-planned actions required to mitigate DBAs. The applicable DBAs are assumed to occur in MODES 1, 2, and 3. In MODES 4, 5, and 6, unit conditions are such that the likelihood of an event that would require PAM instrumentation is low; therefore, the PAM instrumentation is not required to be OPERABLE in these MODES.

ACTIONS

A Note has been added in the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed on Table 3.3.3-1. The Completion Time(s) of the inoperable channel(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function. When the Required Channels in Table 3.3.3-1 are specified (e.g., on a per steam line, per loop, per SG, etc., basis) then the Condition may be entered separately for each steam line, loop, SG, etc., as appropriate.

INSERT 2 1

D ~~A~~.1

Condition ~~A~~ applies when one or more Functions have one required channel that is inoperable. Required Action ~~A~~.1 requires restoring the inoperable channel to OPERABLE status within 30 days. The 30 day Completion Time is based on operating experience and takes into account the remaining OPERABLE channel (or in the case of a Function that has only one required channel, other non-Regulatory Guide 1.97 instrument channels to monitor the Function), the passive nature of the instrument (no critical automatic action is assumed to occur from these instruments), and the low probability of an event requiring PAM instrumentation during this interval. 1 3

or when one or more quadrants with one or two required Core Exit Thermocouples inoperable.

The Condition is modified by a Note that excludes the Containment Area Radiation Monitor, Safety Valve Position Indicator, PORV Position Indicator, PORV Block Valve Position Indicator, and Containment Isolation Valve Position Indication Functions from Condition D. 1

3 **INSERT 2**

A.1 and A.2

Condition A applies when one or more PORVs or PORV Block Valves with required position indicator channel inoperable. The Required Action A.1 and A.2 require closure of the associated Block Valve and removal of power, respectively. The Completion Time is one hour. The one hour is consistent with ITS 3.4.11, "Pressurizer Power Operator Relief Valves," for isolating the penetration with a closed and deactivated PORV Block Valve. The one hour also supplies a limited amount of time to restore the inoperable PORV or PORV Block Valve, while limiting the time there could be a path for the release of RCS inventory.

B.1, B.2.1, and B.2.2

Condition B applies when one or more containment isolation valves with required position indication channel inoperable. Required Action B.1 requires within 2 hours the containment isolation valve position be verified by alternate means. Required Action B.2.1 required restoration of position indication channel within 7 days or LCO 3.6.3 be entered for the valves with the inoperable position indication channel. The Completion Time for restoration is appropriate considering the valve position has been verified by an alternate means. Entry into LCO 3.6.3 is appropriate because the valve is considered inoperable if the position indication channel is inoperable.

C.1 and C.2

Condition C applies when one or more Containment Area Radiation Monitors have one required channel inoperable. Required Action E.1 requires initiating an alternate method of monitoring containment area radiation within 72 hours. Required Action E.2 requires restoring the inoperable channel(s) to OPERABLE status within 7 days. The 7-day Completion Time is appropriate because an alternate method is in place to monitor the containment area radiation.

BASES

ACTIONS (continued)

~~B~~.1 E

Condition ~~B~~ E applies when the Required Action and associated Completion Time for Condition ~~A~~ D are not met. This Required Action specifies initiation of actions in Specification 5.6.5, which requires a written report to be submitted to the NRC immediately. This report discusses the cause of the inoperability and identifies proposed restorative actions. This action is appropriate in lieu of a shutdown requirement since alternative actions are identified before loss of functional capability, and given the likelihood of unit conditions that would require information provided by this instrumentation. 3

The Condition is modified by a Note that excludes the Containment Pressure (Narrow Range) and Containment Water Level (Narrow Range) Functions from Condition E. 1

~~C~~.1 F

, when one or more safety valves with required position indicator channel is inoperable, or when one or more quadrants with three or more required Core Exit Thermocouples are inoperable 1

Condition ~~C~~ F applies when one or more Functions have two inoperable required channels (i.e., two channels inoperable in the same Function). 3
Required Action ~~C~~ F.1 requires restoring one channel in the Function(s) to OPERABLE status within 7 days. The Completion Time of 7 days is based on the relatively low probability of an event requiring PAM instrument operation and the availability of alternate means to obtain the required information. Required Action F.2 is only applicable to the Reactor Vessel Level Monitoring System Function and requires the initiation of an alternate method of monitoring the reactor vessel inventory within 7 days. Continuous operation with two required channels inoperable in a Function is not acceptable because the alternate indications may not fully meet all performance qualification requirements applied to the PAM instrumentation. Therefore, requiring restoration of one inoperable channel of the Function limits the risk that the PAM Function will be in a degraded condition should an accident occur. 3 1

~~D~~ G.1

Condition ~~D~~ G applies when the Conditions A, C, or F are Required Action and associated Completion Time of ~~Condition C is~~ not met or Required Action and associated Completion Time of Condition D not met for Containment Pressure (Narrow Range) and Containment Water Level (Narrow Range) Functions. Required Action ~~D~~ G.1 requires entering the appropriate Condition referenced in Table 3.3.3-1 for the channel immediately. The applicable Condition referenced in the Table is Function dependent. Each time an inoperable channel has not met the Required Action of ~~Condition C~~ Conditions A, C, or F, and the associated Completion Time has expired, Condition ~~D~~ G is entered for that channel and provides for transfer to the appropriate subsequent Condition. 1 3

BASES

ACTIONS (continued)

~~E~~H.1 and ~~E~~H.2 3

If the Required Action and associated Completion Time of ~~Condition C is~~ Conditions A, C, or F are not met and Table 3.3.3-1 directs entry into Condition ~~E~~H, the unit must be brought to a MODE where the requirements of this LCO do not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and MODE 4 within 12 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.

~~F~~H.1 3

~~At this unit,~~ alternate means of monitoring Reactor Vessel Water Level and Containment Area Radiation have been developed ~~and tested~~. 1
These alternate means may be temporarily installed if the normal PAM 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 5.6.5, 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 PAM channels, justify the areas in which they are not equivalent, and provide a schedule for restoring the normal PAM channels.

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that SR 3.3.3.1 and SR 3.3.3.~~3~~2 apply to each PAM instrumentation Function in Table 3.3.3-1. 1

SR 3.3.3.1

Performance of the CHANNEL CHECK 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 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. The high radiation instrumentation should be compared to similar unit instruments located throughout the unit.

BASES

SURVEILLANCE REQUIREMENTS (continued)

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including isolation, 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. If the channels are within the criteria, it is an indication that the channels are OPERABLE.

As specified in the SR, a CHANNEL CHECK is only required for those channels that are normally energized.

~~[The Frequency of 31 days is based on operating experience that demonstrates that 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.~~ 4

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 2
~~--]~~

SR 3.3.3.2

CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to measured parameter with the necessary range and accuracy. This SR is modified by a Note that excludes neutron detectors. The calibration method for neutron detectors is specified in the Bases of LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation." Whenever a sensing element is replaced, the next required CHANNEL CALIBRATION of the Core Exit thermocouple sensors is accomplished by an inplace cross calibration that compares the other sensing elements with the recently installed sensing element. ~~[The Frequency of 18 months is based on operating experience and consistency with the typical industry refueling cycle.~~ 4

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~OR~~ 4

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----REVIEWER'S NOTE-----~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 2
~~-----]~~

REFERENCES

[1. ~~Unit specific document (e.g., FSAR, NRC Regulatory Guide 1.97 SER letter).]~~ 4

NRC SER (McDonald to Woody) dated March 20, 1986, "Instrumentation To Follow The Course Of An Accident – Conformance To Regulatory Guide 1.97, Rev. 3."

2. Regulatory Guide 1.97, ~~[date]~~ Rev. 3, May 1983. 4

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

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.3 BASES, POST ACCIDENT MONITORING (PAM) INSTRUMENTATION

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specifications (ISTS) Bases that reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This Note is not meant to be retained in the final version of the plant specific submittal.

3. Changes are made to be consistent with changes made to the Specification.

4. The ISTS contains bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.3.3, POST ACCIDENT MONITORING (PAM) INSTRUMENTATION

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 4

ITS 3.3.4 – CONTROL ROOM EMERGENCY VENTILATION SYSTEM (CREVS) ACTUATION INSTRUMENTATION

Current Technical Specification (CTS) Markup
and Discussion of Changes (DOCs)

ITS

INSTRUMENTATION A01

3/4.3.2 ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

LCO 3.3.4 — 3.3.2 The Engineered Safety Feature Actuation System (ESFAS) instrumentation channels ~~and interlocks~~ shown in Table 3.3-2 shall be OPERABLE with their Trip Setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-3. A01

Table 3.3.4.1 Footnote (b)&(c)

APPLICABILITY — APPLICABILITY: As shown in Table 3.3-2.

ACTION:

Table 3.3.4.1 Footnote (c)

a. With an ESFAS Instrumentation or Interlock Trip Setpoint less conservative than the value shown in the Trip Setpoint column but more conservative than the value shown in the Allowable Value column of Table 3.3-3, adjust the Setpoint consistent with the Trip Setpoint value within permissible calibration tolerance.

Table 3.3.4.1 Footnote (c)

b. With an ESFAS Instrumentation or Interlock Trip Setpoint less conservative than the value shown in the Allowable Value column of Table 3.3-3, either:

Table 3.3.4.1 Footnote (b)

1. Adjust the Setpoint consistent with the Trip Setpoint value of Table 3.3-3 and determine ~~within 12 hours~~ that the affected channel is OPERABLE; or M01

Table 3.3.4.1 Footnote (c) ACTION A

2. Declare the channel inoperable and apply the applicable ACTION statement requirements of Table 3.3-2 until the channel is restored to OPERABLE status with its setpoint adjusted consistent with the Trip Setpoint value.

ACTION A

c. With an ESFAS instrumentation channel or interlock inoperable, take the ACTION shown in Table 3.3-2.

SURVEILLANCE REQUIREMENTS

SR 3.3.4.1 – SR 3.3.4.3 — 4.3.2.1 Each ESFAS instrumentation channel and interlock and the automatic actuation logic and relays shall be demonstrated OPERABLE by performance of the ESFAS Instrumentation Surveillance Requirements specified in Table 4.3-2.

ITS

Table 3.3.4-1

A01

TABLE 3.3-2 (Continued)
ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

ITS	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
See ITS 3.3.5	7. Loss of Power (Continued)					
	c. 480 V Load Centers 3A, 3B, 3C, 3D and 4A, 4B, 4C, 4D Degraded Voltage	2 per load center	2 on any load center	2 per load center	1, 2, 3, 4	18
See ITS 3.3.2	8. Engineered Safety Features Actuation System Interlocks					
	a. Pressurizer Pressure	3	2	2	1, 2, 3	19
	b. T_{avg} - Low	3	2	2	1, 2, 3	19
	9. Control Room Ventilation Isolation					
Function 1	a. Automatic Actuation Logic and Actuation Relays	2	1	2	1, 2, 3, 4**	24A, 24B
Function 4	b. Safety Injection	~~See Item 1. above for all Safety Injection initiating functions and requirements.~~				
	~~c. Deleted~~					
Function 3	d. Containment Isolation Manual Phase A or Manual Phase B	~~2~~	~~1~~	~~2~~	~~1, 2, 3, 4~~	~~17~~
Function 2	e. Control Room Air Intake Radiation ~~Level~~	2	1	2	All	24A, 24B , (a)(b)

Refer to LCO 3.3.2 "Containment Isolation," Function 3 for all initiation functions and requirements.

Refer to LCO 3.3.2 "Safety Injection" for all initiation functions and requirements.

A02

ITS

Table 3.3.4-1

A01

TABLE 3.3-2 (Continued)

TABLE NOTATION

See ITS 3.3.2

Trip function may be blocked in this MODE below the Pressurizer Pressure Interlock Setpoint of 2000 psig.

See ITS 3.3.6

Channels are for particulate radioactivity and for gaseous radioactivity. Either an OPERABLE particulate radioactivity or gaseous radioactivity channel will satisfy the Minimum Channels OPERABLE requirement.

Auxiliary feedwater manual initiation is included in Specification 3.7.1.2.

See ITS 3.3.2

Steam Generator overfill protection is not part of the Engineered Safety Features Actuation System (ESFAS), and is added to the Technical Specifications only in accordance with NRC Generic Letter 89-19.

* Trip function may be blocked in this MODE below the T_{avg}--Low Interlock Setpoint.

Endnote (a)

** Only during movement of irradiated fuel within the containment.

ACTION STATEMENTS

See ITS 3.3.2

ACTION 14 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, be in at least HOT STANDBY within 12 hours and in COLD SHUTDOWN within the following 30 hours; however, one channel may be bypassed for up to 8 hours for surveillance testing per Specification 4.3.2.1, provided the other channel is OPERABLE.

ACTION 15 - With the number of OPERABLE channels one less than the Total Number of Channels, operation may proceed until performance of the next required ANALOG CHANNEL OPERATIONAL TEST or TRIP ACTUATING DEVICE OPERATIONAL TEST provided the inoperable channel is placed in the tripped condition within 6 hours.

See ITS 3.3.6

ACTION 16 - With the number of OPERABLE channels less than the Minimum Channels OPERABLE requirement, operation may continue provided the Containment purge supply, exhaust and instrument air bleed valves are maintained closed. (The instrument air bleed valves may be opened intermittently under administrative controls).

See ITS 3.3.2

ACTION 17 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

Endnote (b)

(a) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

Endnote (c)

(b) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTS) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTS are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the surveillance procedures (field settings) to confirm channel performance. The NTS and methodologies used to determine the as-found and the as-left tolerances are specified in UFSAR Section 7.2

ITS

A01

TABLE 3.3-2 (Continued)

TABLE NOTATION (Continued)

ACTION A

ACTION 24A - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, within 7 days restore the inoperable channel to OPERABLE status or place the Control Room Emergency Ventilation System in the recirculation mode.

ACTION B

ACTION 24B - With the number of OPERABLE channels two less than the Minimum Channels OPERABLE requirement, either:

R.A. B.2

1. Immediately place the Control Room Emergency Ventilation System in the recirculation mode with BOTH Control Room emergency recirculation fans operating, OR

R.A. B.1.1

2. a. Immediately place the Control Room Emergency Ventilation System in the recirculation mode with ONE Control Room emergency recirculating fan operating, AND

R.A. B.1.2

b. Restore at least one inoperable channel to OPERABLE status within 7 days, or be in

ACTION C

at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. If this ACTION applies to both Units simultaneously, then be in at least HOT STANDBY within the next 12 hours ~~and in COLD SHUTDOWN within the following 30 hours.~~

L01

See ITS 3.3.2

ACTION 25 - With number of OPERABLE channels one less than the Total number of channels, STARTUP and/or POWER OPERATION may proceed provided the inoperable channel is placed in the tripped condition within 6 hours or in accordance with the Risk Informed Completion Time Program.

ACTION 26 - With one channel inoperable, operation may proceed until performance of the next required ANALOG CHANNEL OPERATIONAL TEST or TRIP ACTUATING DEVICE OPERATIONAL TEST provided the inoperable channel is place in the tripped condition within 6 hours or in accordance with the Risk Informed Completion Time Program.

ACTION 27 - With one channel inoperable, restore the inoperable channel to OPERABLE status within 48 hours or in accordance with the Risk Informed Completion Time Program, or be in HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

ACTION D

Required Action and associated Completion Time for Condition A or B not met during movement of irradiated fuel assemblies within containment, suspend movement of irradiated fuel assemblies immediately.

Insert ACTION D

A03

ITS
Table 3.3.4-1

A01

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM
INSTRUMENTATION TRIP SETPOINTS

LA01

	FUNCTIONAL UNIT	ALLOWABLE VALUE	TRIP SETPOINT	
See ITS 3.3.2	8. Engineering Safety Features Actuation System Interlocks			
	a. Pressurizer Pressure	≤2018 psig	Nominal 2000 psig	
	b. Tavg--Low	≥542.5°F	Nominal 543°F	
	9. Control Room Ventilation Isolation			
Function 1	a. Automatic Actuation Logic and Actuation Relays	N.A.	~~N.A.~~	
Function 4	b. Safety Injection Refer to LCO 3.2.2, "ESFAS Instrumentation," Function 1, for all irradiation functions and requirements.	~~See Item 1. above for all Safety Injection Allowable Values.~~	~~See Item 1. above for all Safety Injection Trip Setpoints.~~	A01
	~~c. Deleted~~			
Function 3	~~d.~~ c. Containment Isolation Manual Phase A or Manual Phase B	N.A.	N. A.	LA01
Function 2	~~e.~~ d. Air Intake Radiation Level	≤2.83 mR/hr	≤2 mR/hr	

ITS

A01

Table 3.3.4-1

TABLE 4.3-2 (Continued)
ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

	CHANNEL FUNCTIONAL UNIT	SR 3.3.4.1 CHANNEL CHECK	SR 3.3.4.3 CHANNEL CALIBRATION	SR 3.3.4.2 ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST #	MODES FOR WHICH SURVEILLANCE IS REQUIRED	
	8. Engineering Safety Features Actuation System Interlocks							See ITS 3.3.2
	a. Pressurizer Pressure	N.A.	SFCP	SFCP(5)	N.A.	N.A.	1, 2, 3(3)	
	b. Tavg--Low	N.A.	SFCP	SFCP(5)	N.A.	N.A.	1, 2, 3(3)	
	9. Control Room Ventilation Isolation							A02
Function 1	a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.	(4)	
Function 4	b. Safety Injection	~~See Item 1. above for all Safety Injection Surveillance Requirements.~~				Refer to LCO 3.3.2 "Safety Injection" Function 1, for all initiation functions and requirements.		
	~~c. Deleted~~							
Function 3	d. Containment Isolation Manual Phase A or Manual Phase B	~~N.A.~~	~~N.A.~~	~~N.A.~~	~~SFCP~~	~~N.A.~~	~~1, 2, 3, 4~~	
Function 2	e. Control Room Air Intake Radiation Level	SFCP	SFCP	SFCP	N.A.	N.A.	All	

Refer to LCO 3.3.2 "Containment Isolation," Function 3, for all initiation functions and requirements.

ITS

Table 3.3.4-1

A01

TABLE 4.3-2 (Continued)
ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

TABLE NOTATIONS

In accordance with the Surveillance Frequency Control Program each Actuation Logic Test shall include energization of each relay and verification of OPERABILITY of each relay.

See ITS 3.3.2

Endnote (b)

(a) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

Endnote (c)

(b) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTS) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTS are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the surveillance procedures (field settings) to confirm channel performance. The NTS and methodologies used to determine the as-found and the as-left tolerances are specified in UFSAR Section 7.2

(1) Each train shall be tested in accordance with the Surveillance Frequency Control Program.

(2) Auxiliary feedwater manual initiation is included in Specification 3.7.1.2.

(3) The provisions of Specification 4.0.4 are not applicable for entering Mode 3, provided that the applicable surveillances are completed within 96 hours from entering Mode 3.

See ITS 3.3.2

Table 3.3.4-1 9 .Function 9.A & Endnote (a)

(4) Applicable in MODES 1, 2, 3, 4 or during movement of irradiated fuel within the containment.

(5) Test of alarm function not required when alarm locked in.

See ITS 3.3.2

DISCUSSION OF CHANGES
ITS 3.3.4, CREVS

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications - Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS 3.3.2, Table 3.3-2 Function 9, contains sub-functions that initiate Control Room Emergency Ventilation System (CREVS). These subfunctions also are part of other Functions that also initiate those Functions. In this case the requirements for these subfunctions such as the number of channels required, Surveillance Requirements (SRs), Modes of Applicability, etc. are located in those Functions and are being referenced in the CREVS ITS. Specifically, the Automatic Actuation for CREVS will be listed only. The Containment Isolation sub-function that initiates CREVS will be located in 3.3.6, Containment Isolation. Safety Injection will be listed in 3.3.2 under Safety Injection.

A03 CTS 3.3.2 Table 3.3-2 Function 9, CREVS, does not contain a specific ACTION if the Required Action and associated Completion Times cannot be met during movement of irradiated fuel assemblies within containment. ITS 3.3.4 ACTION D requires suspending movement of irradiated fuel assemblies within containment when the Required Action and associated Completion Times cannot be met during movement of irradiated fuel assemblies within containment. This changes the CTS by adding a specific Action when the Required Action and associated Completion Times cannot be met during movement of irradiated fuel assemblies within containment.

The added ACTION when Required Action and associated Completion Times cannot be met during movement of irradiated fuel assemblies within containment requires suspending movement of irradiated fuel assemblies within containment. This ITS change is acceptable because it adds a specific action not contained in the CTS, although the only Action that can be taken within the CTS is to exit the Applicability which would require suspending the movement of irradiated fuel assemblies within containment. The addition of this Action would immediately reduce the risk of accidents that would require CREVS actuation. Since the Actions taken in both ITS and CTS, although specifically stated in ITS, would be equivalent, this change is considered Administrative because no technical changes are being made.

MORE RESTRICTIVE CHANGES

M01 CTS 3.3.2 Action b.1 requires the adjustment of the setpoint consistent with the Trip Setpoint value and determine within 12 hours that the affected channel is OPERABLE. ITS Table 3.3.4-1 Table Notation (b) requires that the affected channel be evaluated to verify that it is functioning as required before the channel is returned to service. This changes the CTS by requiring the channel to be verified OPERABLE prior to placing the channel back in service.

The purpose of the Required Actions when the channel is found to be outside the allowable value is to make the proper adjustments to place the channel back within the allowable value. The proposed change requires the channel to be evaluated to be OPERABLE prior to placing the channel back in service versus placing the channel back in service and then evaluating the channel is OPERABLE within 12 hours. This change is acceptable because the purpose of the assessment is to ensure confidence in the channel performance prior to returning the channel to service. For channels determined to be OPERABLE but degraded, after returning the channel to service the performance of these channels will be evaluated under the plant Corrective Action Program. Entry into the Corrective Action Program will ensure required review and documentation of the condition. This change is classified as More Restrictive because more stringent Required Actions are being incorporated.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 3.3.3 requires the CREVS instrumentation to be OPERABLE with their Trip Setpoints set consistent with the values shown in the Trip Setpoint column. However, CTS ACTIONs require that with Instrumentation Setpoint less conservative than the value shown in the Trip Setpoint column, the setpoint is verified to be more conservative than the value in the Allowable Value column and within the calibration tolerance. When the setpoint is less conservative than the Allowable Value, the setpoint is adjusted consistent with the Trip Setpoint value of Table 3.3-3 and determined within 12 hours that the affected channel is OPERABLE; or the channel is declared inoperable and the applicable ACTION statement requirements of Table 3.3-1 applied. CTS 3.3.2 specifies both the Trip Setpoints and Allowable Values for the Engineered Safety Features Actuation System (ESFAS) Instrumentation Functional Units. ITS 3.3.4 requires the CREVS instrumentation for each Function in Table 3.3.4-1 to be OPERABLE. ITS Table 3.3.4-1 specifies only the Allowable Values for the ESFAS Instrumentation Functions. The Allowable Values represent the OPERABILITY limit of the channels in ITS. This changes the CTS by moving the Trip Setpoints to the Technical Requirements Manual (TRM).

The purpose of actuation setpoints is to ensure the mitigation of and minimize the consequences of accidents. The PTN Instrument Setpoint Methodology calculates nominal trip setpoints (NTSPs) using methods consistent with the guidance provided in NRC Regulatory Guide (RG) 1.105, "Setpoints for Safety-Related Instrumentation," and ANSI/ISA Standard 67.04, "Setpoints for Nuclear Safety-Related Instrumentation." Additionally, pre-defined limits (double-sided Operability (as-found) limits and as-left limits) are determined for each instrument consistent with the guidance provided in NRC RG 1.105 and ANSI/ISA–RP67.04, "Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation." The instrument Operability limit band in plant uncertainty calculations is synonymous with the as-found acceptance criteria band specified in ITS and is centered about the nominal equipment setting (clarified in calculations as the NTSP). The PTN Instrument Setpoint Methodologies, including the method of determining instrument uncertainties, were reviewed by the NRC during the review of the power uprate to 2300 Mwt (NRC ADAMS Accession Nos. ML013390234) and the Extended Power Uprate (EPU) (NRC ADAMS Accession Nos. ML11293A365). In the NRC staff's approval of the 2300 Mwt power uprate amendment the NRC staff the staff determined that the proposed setpoint changes were acceptable because the staff had previously reviewed and approved the setpoint methodology used to determine the setpoint (WCAP-12745). In the NRC staff's approval of the PTN EPU amendment the NRC staff determined that the PTN setpoint methodology (WCAP-17070) was acceptable for this license amendment because the setpoint calculation provide adequate safety margins between the Allowable Value (AV) and Allowable Limit (AL), as well as adequate safety margin between the NTSP and AL.

The removal of these details for meeting Technical Specification requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS retains the AV associated with the ESFAS Instrumentation, which are designated as the Operability limits for the required instrument Functions. Footnotes (b) and (c) in Table 3.3.4-1 ensure channel performance continues to verify that the channel will behave in accordance with safety analysis assumptions and the channel performance assumptions in the setpoint methodology consistent with the NRC guidance specified in RIS 2006-17. Also, this change is acceptable because these types of procedural details will be adequately controlled in the Technical Requirements Manual (TRM). Any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L01 *(Category 4 – Relaxation of Required Action)* CTS 3.3.2, Table 3.3-2, Actions 24B, for the control room air intake radiation levels identify degraded conditions. If the degraded condition is not resolved within a prescribed amount of time CTS 3.3.2, Table 3.3-2, Actions 24B provides actions to shut down the unit to MODE 5 (cold shutdown). ITS 3.3.4 Action C states that if the Required

Action and associated Completion Time of Condition A are not met, the unit must be in MODE 3 in 6 hours and MODE 4 in 12 hours, and is modified by a Note stating that LCO 3.0.4.a is not applicable when entering MODE 4. This changes the CTS by allowing a Required Action end state of hot shutdown (Mode 4) rather than an end state of cold shutdown (Mode 5).

One purpose of CTS 3.3.2, Table 3.3-2, Action 24B is to provide an end state, a condition that the reactor must be placed in, if the Required Actions allowing remedial measures to be taken in response to the degraded conditions with continued operation are not met. End states are usually defined based on placing the unit into a mode or condition in which the Technical Specification Limiting Condition for Operation (LCO) is not applicable. MODE 5 is the current end state for LCOs that are applicable in MODES 1 through 4. This change is acceptable because the risk of the transition from MODE 1 to MODES 4 or 5 depends on the availability of alternating current (AC) sources and the ability to remove decay heat, such that remaining in MODE 4 may be safer. During the realignment from MODE 4 to MODE 5, there is an increased potential for loss of shutdown cooling and loss of inventory events. Decay heat removal following a loss-of-offsite power event in MODE 5 is dependent on AC power for shutdown cooling whereas, in MODE 4, the turbine driven auxiliary feedwater (AFW) pump is available. Therefore, transitioning to MODE 5 is not always the appropriate end state from a risk perspective. Thus, for specific Technical Specification conditions, Westinghouse Topical Report WCAP-16294-A R1 (ADAMS Accession No. ML103430249) justifies MODE 4 as an acceptable alternate end state to Mode 5. The proposed change to the Technical Specifications allows time to perform short-duration repairs, which currently necessitate exiting the original mode of applicability. The MODE 4 Technical Specification end state is applied, and risk is assessed and managed in accordance with Title 10 of the Code of Federal Regulations (10 CFR) Section 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants." This proposed change is consistent with NRC approved Technical Specification Task Force (TSTF) traveler TSTF-432-A Revision 1 (ADAMS Accession No. ML103360003) with its availability noticed in the Federal Register (77 FR 27814) by the NRC on May 11, 2012. The NRC's approval of WCAP-16294-A included four limitations and conditions on its use as identified in Section 4.0 of the NRC Safety Evaluation associated with WCAP-16294-A. Implementation of these stipulations were addressed in the Bases of TSTF-432-A. Florida Power and Light implemented these limitations and conditions at PTN in the adoption of the associated TSTF-432-A Bases. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.3 INSTRUMENTATION

Table 3.3-2 FU 9

3.3.~~7~~ 4 Control Room Emergency ~~Filtration~~ Ventilation System (CRE~~FS~~ V) Actuation Instrumentation

LCO 3.3.2

LCO 3.3.~~7~~ 4 The CRE~~FS~~ V actuation instrumentation ~~for each Function~~ in Table 3.3.~~7~~ 4-1 shall be OPERABLE. 1

Applicability

APPLICABILITY: According to Table 3.3.~~7~~ 4-1.

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
ACTION 24A A. One ~~or more Functions with one~~ channel inoperable.	A.1	~~-------------NOTE-------------~~ ~~[Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.]~~ ~~-----------------------------------~~ Place ~~one~~ CRE~~F~~ V S ~~train~~ in ~~emergency [radiation protection]~~ recirculation mode.	7 days 2 3 1 2
ACTION 24B B. ~~One or more Functions with~~ two channels ~~or two trains~~ inoperable. ACTION 24B.2.a		~~-----------------NOTE-----------------~~ ~~[Place in the toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.]~~ ~~--~~	2 3
	B.1.1	Place ~~one~~ CRE~~F~~ V S ~~train~~ in ~~emergency [radiation protection]~~ recirculation mode with one control room emergency recirculating fan operating. <u>AND</u>	Immediately 1 2

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION 24B.2.b	B.1.2 ~~Enter applicable Conditions and Required Actions for one CREFS train made inoperable by inoperable CREFS actuation instrumentation.~~ Restore one channel to OPERABLE status	~~Immediately~~ 7 days
	OR	
ACTION 24B.1	B.2 Place ~~both trains~~ CREVS in ~~emergency [radiation protection]~~ recirculation mode with both control room emergency recirculating fans operating.	~~Immediately~~ 7 days
ACTION 24B.2.b 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.	6 hours
	AND	
	C.2 --------------NOTE-------------- LCO 3.0.4.a is not applicable when entering MODE 4. ------------------------------------- Be in MODE 4.	12 hours
D. Required Action and associated Completion Time for Condition A or B not met during movement of ~~[recently]~~ irradiated fuel assemblies within containment.	D.1 Suspend movement of ~~[recently]~~ irradiated fuel assemblies within containment.	Immediately
~~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]~~

3 2 2 2 1 2

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CTS

SURVEILLANCE REQUIREMENTS

------------------------------NOTE------------------------------
Refer to Table 3.3.~~7~~-1 4 to determine which SRs apply for each CRE~~F~~S V Actuation Function. 1

	SURVEILLANCE	FREQUENCY
Table 4.3-2 Channel Check	SR 3.3.~~7~~.1 4 Perform CHANNEL CHECK.	~~[12 hours~~ 1 ~~OR~~ 2 In accordance with the Surveillance Frequency Control Program ~~]~~
Table 4.3-2 Analog Channel Operational Test	SR 3.3.~~7~~.2 4 Perform COT.	~~[92 days~~ 1 ~~OR~~ 2 In accordance with the Surveillance Frequency Control Program ~~]~~
	~~SR 3.3.7.3 Perform ACTUATION LOGIC TEST.~~	~~[31 days on a STAGGERED TEST BASIS~~ 3 ~~OR~~ 2 ~~In accordance with the Surveillance Frequency Control Program]~~

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
~~SR 3.3.7.4 Perform MASTER RELAY TEST.~~	~~[31 days on a STAGGERED TEST BASIS~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~
~~-----REVIEWER'S NOTE-----~~ ~~The Frequency of 92 days on a STAGGERED TEST BASIS is applicable to the actuation logic processed through the Relay or Solid State Protection System.~~ ~~----------~~ ~~SR 3.3.7.5 -----NOTE-----~~ ~~This Surveillance is only applicable to the actuation logic of the ESFAS Instrumentation.~~ ~~----------~~ ~~Perform ACTUATION LOGIC TEST.~~	~~[92 days on a STAGGERED TEST BASIS~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
~~REVIEWER'S NOTE~~ ~~The Frequency of 92 days on a STAGGERED TEST BASIS is applicable to the master relays processed through the Solid State Protection System.~~		
~~SR 3.3.7.6~~	~~NOTE~~ ~~This Surveillance is only applicable to the master relays of the ESFAS Instrumentation.~~ ~~Perform MASTER RELAY TEST.~~	~~[92 days on a STAGGERED TEST BASIS~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~
~~SR 3.3.7.7~~	~~Perform SLAVE RELAY TEST.~~	~~[[92] days~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~

CTS

~~SURVEILLANCE REQUIREMENTS (continued)~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.3.7.8~~	~~-----NOTE-----~~ ~~Verification of setpoint is not required.~~ ~~-----~~ ~~Perform TADOT.~~	~~[[18] months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~
Table 4.3-2 Channel Calibration SR 3.3.~~7~~.~~9~~ 4 3	Perform CHANNEL CALIBRATION.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

1
3
1
2

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CTS

Table 3.3-2

Table 3.3.~~7~~-1 (page 1 of 1) 4
CRE~~F~~S Actuation Instrumentation V

1

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE ~~TRIP SETPOINT~~
~~1. Manual Initiation~~	~~1, 2, 3, 4, [5, 6], (a)~~	~~2 trains~~	~~SR 3.3.7.8~~	~~NA~~
Function 9.a ~~2~~ 1 .Automatic Actuation Logic and Actuation Relays	1, 2, 3, 4, ~~[5, 6],~~ (a)	2 ~~trains~~	NA ~~SR 3.3.7.3~~ ~~SR 3.3.7.4~~ ~~SR 3.3.7.5~~ ~~SR 3.3.7.6~~ ~~SR 3.3.7.7~~	NA
~~3.~~ ~~Control Room~~ Radiation Level				
~~a. Control Room Atmosphere~~	~~1, 2, 3, 4 [5, 6], (a)~~	~~[2]~~	~~SR 3.3.7.1~~ ~~SR 3.3.7.2~~ ~~SR 3.3.7.9~~	~~≤ [2] mR/hr~~
Function 9.d 2 ~~b.~~ Control Room Air Intake~~s~~	1, 2, 3, 4, ~~[5, 6]~~, (a)	~~[~~2~~]~~	SR 3.3.7.1 SR 3.3.7.2 SR 3.3.7.~~9~~ 3 b.c	≤ ~~[2]~~ 2.83 mR/hr
Function 9.b 4. Safety Injection	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 1, for all initiation functions and requirements.			

1 1 3 1 2

Table 3.3-2 Notation ** & Table 4.3-2 Notation 4)

(a) During movement of ~~[recently]~~ irradiated fuel assemblies within the containment.

2 1

Function 9.c

3. Containment Isolation Manual Phase A or Manual Phase B — Refer to LCO 3.3.2 "Containment Isolation," for all initiation functions and requirements.

3

(b) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

1

Actions b.1 & b.2

(c) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTS) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTS are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the surveillance procedures (field settings) to confirm channel performance. The NTS and methodologies used to determine the as-found and the as-left tolerances are specified in UFSAR Section 7.2

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.4, CREVS INSTRUMENTATION

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specifications (ISTS) that reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS contains bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

3. Changes made to reflect the current licensing basis.

4. The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This Note is not meant to be retained in the final version of the plant specific submittal.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.3 INSTRUMENTATION

B 3.3.~~7~~4 Control Room Emergency ~~Filtration~~ Ventilation System (CR~~EFS~~EVS) Actuation Instrumentation 1

BASES

BACKGROUND

The CR~~EFS~~EVS provides an enclosed control room environment from which the unit can be operated following an uncontrolled release of radioactivity. During normal operation, the ~~Auxiliary Building~~ Control Room Ventilation System provides control room ventilation. Upon receipt of an actuation signal, the CRE~~F~~VS initiates filtered ventilation and pressurization of the control room. This system is described in the Bases for LCO 3.7.10, "Control Room Emergency ~~Filtration~~ Ventilation System." 1 1

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 ~~both trains of the~~ CRE~~F~~VS. The control room operator can also initiate CRE~~F~~VS trains by manual ~~switches~~ pushbuttons in the control room. The CRE~~F~~VS 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." 1

APPLICABLE SAFETY ANALYSES

The control room must be kept habitable for the operators stationed there during accident recovery and post accident operations. 1

The CRE~~F~~VS acts to ~~terminate~~ limit the supply of unfiltered outside air to the control room, 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.

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

The radiation monitor actuation of the CRE~~F~~VS in MODES 5 and 6, and during movement of ~~[recently]~~ irradiated fuel assemblies are the primary means to ensure control room habitability in the event of a fuel handling or waste gas decay tank rupture accident. 1 3

The CRE~~F~~VS actuation instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

BASES

LCO

V The LCO requirements ensure that instrumentation necessary to initiate the CRE~~F~~S is OPERABLE. 1

~~1. Manual Initiation~~

~~The LCO requires two channels OPERABLE. The operator can initiate the CREFS 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.~~ 1

~~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.~~

1
~~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 V specified conditions for the CRE~~F~~S 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 V manner that only the CRE~~F~~S function is affected, the Conditions applicable to their SI function need not be entered. The less V restrictive Actions specified for inoperability of the CRE~~F~~S Functions specify sufficient compensatory measures for this case. 1 1 1

2
~~3~~. Control Room Radiation

The LCO specifies two required ~~Control Room Atmosphere Radiation Monitors and two required~~ Control Room Air Intake Radiation Monitors to ensure that the radiation monitoring instrumentation V necessary to initiate the CRE~~F~~S remains OPERABLE. 1 1

~~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.~~ 1

BASES

LCO (continued)

INSERT 1

4. <u>Safety Injection</u>

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

APPLICABILITY

V The CRE~~F~~S Functions must be OPERABLE in MODES 1, 2, 3, 4, and during movement of ~~[recently]~~ 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. 1 3

V The Applicability for the CRE~~F~~S actuation on the 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. 1

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.

A Note has been added to the ACTIONS indicating that separate Condition entry is allowed for each Function. The Conditions of this Specification may be entered independently for each Function listed in 4 Table 3.3.~~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. 4

<u>A.1</u>

V Condition A applies to the actuation logic train Function of the CRE~~F~~S, the radiation monitor channel Functions, and the manual channel Functions. 1

1 **INSERT 1**

3. Containment Isolation

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

BASES

ACTIONS (continued)

If one train is inoperable, or one control room air intake radiation monitor channel is inoperable in one or more Functions, 7 days are permitted to restore it to OPERABLE status. 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 CRE~~F~~S V 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. 1 1

~~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 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.~~ 4

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

Condition B applies to the failure of two CRE~~F~~S V actuation trains, two radiation monitor channels, or two manual channels. The first Required Action is to place ~~one~~ CRE~~F~~S V ~~train in the~~ emergency ~~[radiation protection]~~ recirculation 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. The applicable Conditions and Required Actions of LCO 3.7.10 must also be entered for the CRE~~F~~S V train 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. 1 3 1 1

Alternatively, both trains may be placed in the emergency ~~[radiation protection]~~ recirculation mode. This ensures the CRE~~F~~S V function is performed even in the presence of a single failure. 3

~~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.~~ 4

BASES

ACTIONS (continued)

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 overall plant risk is reduced. To achieve this status, the unit must be brought to MODE 3 within 6 hours and MODE 4 within 12 hours.

Remaining within the Applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 1). In MODE 4 the steam generators and Residual Heat Removal System are available to remove decay heat, which provides diversity and defense in depth. As stated in Reference 1, the steam turbine driven auxiliary feedwater pump must be available to remain in MODE 4. Should steam generator cooling be lost while relying on this Required Action, there are preplanned actions to ensure long-term decay heat removal. Voluntary entry into MODE 5 may be made as it is also acceptable from a risk perspective.

Required Action C.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

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

Condition D applies when the Required Action and associated Completion Time for Condition A or B have not been met when ~~[recently]~~ 3
irradiated fuel assemblies are being moved. Movement of ~~[recently]~~ irradiated fuel assemblies must be suspended immediately to reduce the risk of accidents that would require CRE~~F~~S actuation. 1
V

BASES

ACTIONS (continued)

~~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.~~ 4

SURVEILLANCE REQUIREMENTS V

A Note has been added to the SR Table to clarify that Table 3.3.~~7~~ 4 -1 determines which SRs apply to which CRE~~F~~S Actuation Functions. 4 1

SR 3.3.~~7~~ 4 .1 1

Performance of the CHANNEL CHECK 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, 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 of 12 hours 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.~~ 3

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~-------------------------------REVIEWER'S NOTE--------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~--]~~

SR 3.3.~~7~~.2

A COT is performed on each required channel to ensure the entire channel will perform the intended function. This test verifies the capability of the instrumentation to provide the CRE~~F~~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 COT 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. There is a plant specific program which verifies that the instrument channel functions as required by verifying the as-left and as-found setting are consistent with those established by the setpoint methodology. ~~[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.~~

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-------------------------------REVIEWER'S NOTE--------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~--]~~

~~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~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~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 acceptable based on instrument reliability and industry operating experience.~~

~~OR~~ 4

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~--]~~

~~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 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.~~ 4

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~--]~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~[SR 3.3.7.5~~

~~SR 3.3.7.5 is the performance of an ACTUATION LOGIC TEST. The train being tested is placed in the bypass condition, thus preventing inadequate 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 ever 92 days on a STAGGERED TEST BASIS. The Surveillance interval is justified in Reference 2.~~ 3

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~--]~~

~~The SR is modified by a Note stating that the Surveillance is only applicable to the actuation logic of the ESFAS Instrumentation.]~~

~~[SR 3.3.7.6~~

~~SR 3.3.7.6 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 92 days on a STAGGERED TEST BASIS. The Surveillance interval is justified in Reference 2.~~ 3

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~-------------------------------REVIEWER'S NOTE-------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 3
~~---]~~

~~The SR is modified by a Note stating that the Surveillance is only applicable to the master relays of the ESFAS Instrumentation.]~~

~~SR 3.3.7.7~~

~~SR 3.3.7.7 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.~~ 4

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-------------------------------REVIEWER'S NOTE-------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~

~~SR 3.3.7.8~~

~~SR 3.3.7.8 is the performance of a TADOT. This test is a check of the Manual Actuation Functions. Each Manual Actuation Function is tested up to, and including, the master relay coils. 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 TADOT of a relay. This is acceptable~~ 4

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~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. 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 of 18 months is based on the known reliability of the Function and the redundancy available, and has been shown to be acceptable through operating experience.~~ 4

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~

~~The SR is modified by a Note that excludes verification of setpoints during the TADOT. The Functions tested have no setpoints associated with them.~~

4.3
SR 3.3.~~7~~ ~~9~~ 1

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.

There is a plant specific program which verifies that the instrument channel functions as required by verifying the as-left and as-found setting are consistent with those established by the setpoint methodology.

~~[The Frequency of 18 months is based on operating experience and is consistent with the typical industry refueling cycle.~~ 3

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~--~~]

REFERENCES

1. WCAP-16294-NP-A, Rev. 1, "Risk-Informed Evaluation of Changes to Technical Specification Required Action Endstates for Westinghouse NSSS PWRs," June 2010.

~~2. WCAP-15376, Rev. 0, October 2000.~~

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.4 BASES, CREV INSTRUMENTATION

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specifications (ISTS) Bases that reflect the plant-specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This Note is not meant to be retained in the final version of the plant specific submittal.

3. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

4. Changes are made to the Turkey Point Nuclear Generating Station (PTN) Improved Technical Specifications (ITS) Bases to reflect changes made to the ITS.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.3.4, CONTROL ROOM EMERGENCY VENTILATION SYSTEM (CREVS) ACTUATION INSTRUMENTATION

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 5

ITS 3.3.5 – LOSS OF POWER (LOP) EMERGENCY DIESEL GENERATOR (EDG) START INSTRUMENTATION

Current Technical Specification (CTS) Markup
and Discussion of Changes (DOCs)

INSTRUMENTATION

3/4.3.2 ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

Loss of Power (LOP) Emergency Diesel Generator (EDG) Start

A02

LCO 3.3.5 3.3.2 The ~~Engineered Safety Feature Actuation System (ESFAS)~~ instrumentation channels ~~and interlocks~~ shown in Table ~~3.3-2~~ shall be OPERABLE ~~with their Trip Setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-3~~.

LA01

Applicability APPLICABILITY: As shown in Table 3.3-2.

ACTION:

Add proposed ACTIONS Note

A03

a. With an ESFAS Instrumentation or Interlock Trip Setpoint less conservative than the value shown in the Trip Setpoint column but more conservative than the value shown in the Allowable Value column of Table 3.3-3, adjust the Setpoint consistent with the Trip Setpoint value within permissible calibration tolerance.

See ITS 3.3.2

b. With an ESFAS Instrumentation or Interlock Trip Setpoint less conservative than the value shown in the Allowable Value column of Table 3.3-3, either:

1. Adjust the Setpoint consistent with the Trip Setpoint value of Table 3.3-3 and determine within 12 hours that the affected channel is OPERABLE; or

2. Declare the channel inoperable and apply the applicable ACTION statement requirements of Table 3.3-2 until the channel is restored to OPERABLE status with its setpoint adjusted consistent with the Trip Setpoint value.

ACTION A c. With an ESFAS instrumentation channel or interlock inoperable, take the ACTION shown in Table 3.3-2.

SURVEILLANCE REQUIREMENTS

Table 3.3.5-1 4.3.2.1 Each ESFAS instrumentation channel and interlock and the automatic actuation logic and relays shall be demonstrated OPERABLE by performance of the ESFAS Instrumentation Surveillance Requirements specified in Table 4.3-2.

Table 3.3.5 -1

TABLE 3.3-2 (Continued)
ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

ITS ACTION LA02 A04

	FUNCTIONAL UNIT	~~TOTAL NO. OF CHANNELS~~	~~CHANNELS TO TRIP~~	~~MINIMUM~~ REQUIRED CHANNELS OPERABLE	APPLICABLE MODES	ACTION
	6. Auxiliary Feedwater### (Continued)					
	b. Stm. Gen. Water Level--Low-Low	3/steam generator	2/steam generator in any steam generator	2/steam generator	1, 2, 3	26
	c. Safety Injection	See Item 1. above for all Safety Injection initiating functions and requirements.				
	d. Bus Stripping	1/bus	1/bus	1/bus	1, 2, 3	23(a)
	e. Trip of all Main Feed-water Pumps Breakers	1/breaker	(1/breaker) /operating pump	(1/breaker) /operating pump	1, 2	23(b) See ITS 3.3.2
	7. Loss of Power					
1.a	a. 4.16 kV Busses A and B (Loss of Voltage)	~~2/bus~~	~~2/bus~~	2/bus	1, 2, 3, 4	18
1.b	b. 480 V Load Centers 3A, 3B, 3C, 3D and 4A, 4B, 4C, 4D Undervoltage	~~2 per load center~~	~~2 on any load center~~	2 per load center	1, 2, 3, 4	18
	Coincident with: Safety Injection	See Table 3.3.2-1 Item 1. ~~above~~ for all Safety Injection initiating functions and requirements.				

LA02

A05

TURKEY POINT – UNITS 3 & 4 3/4 3-19 AMENDMENT NOS. 284 AND 278

Table 3.3.5-1

ITS ACTION

LA02

A04

TABLE 3.3-2 (Continued)
ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	~~TOTAL NO. OF CHANNELS~~	~~CHANNELS TO TRIP~~	~~MINIMUM~~ REQUIRED CHANNELS OPERABLE	APPLICABLE MODES	ACTION
7. Loss of Power (Continued)					
1.c c. 480 V Load Centers 3A, 3B, 3C, 3D and 4A, 4B, 4C, 4D Degraded Voltage	~~2 per load center~~	~~2 on any load center~~	2 per load center	1, 2, 3, 4	18
8. Engineered Safety Features Actuation System Interlocks					See ITS 3.3.2
a. Pressurizer Pressure	3	2	2	1, 2, 3	19
b. T_{avg} - Low	3	2	2	1, 2, 3	19
9. Control Room Ventilation Isolation					
a. Automatic Actuation Logic and Actuation Relays	2	1	2	1, 2, 3, 4**	16
b. Safety Injection	See Item 1. above for all Safety Injection initiating functions and requirements.				
c. Deleted					
d. Containment Isolation Manual Phase A or Manual Phase B	2	1	2	1, 2, 3, 4	17
e. Control Room Air Intake Radiation Level	2	1	2	All	24A, 24B

See ITS 3.3.7

A01

ITS

TABLE 3.3-2 (Continued)

TAB Add proposed Required ActionB.1

L01

ACTION 18 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the inoperable channel is placed in the tripped condition within 6 hours. Both channels of any one load center may be taken out of service for up to 8 hours in order to perform surveillance testing per Specification 4.3.2.1.

ACTION A

Add proposed Required Action C.1

L02

ACTION 19 - With less than the Minimum Number of Channels OPERABLE, within 1 hour determine by observation of the associated permissive annunciator window(s) that the interlock is in its required state for the existing plant condition, or apply Specification 3.0.3.

ACTION 20 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, be in at least HOT STANDBY within 6 hours and in at least HOT SHUTDOWN within the following 6 hours; however, one channel may be bypassed for up to 8 hours for surveillance testing per Specification 4.3.2.1 provided the other channel is OPERABLE.

ACTION 21 - With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or declare the associated valve inoperable and take the ACTION required by Specification 3.7.1.5.

ACTION 22 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, be in at least HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 8 hours for surveillance testing per Specification 4.3.2.1 provided the other channel is OPERABLE.

ACTION 23 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement:

(a) Restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

(b) Restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours.

See ITS 3.3.2

Table 3.3.5-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM
INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	ALLOWABLE VALUE	TRIP SETPOINT
5. Feedwater Isolation (Continued)		
c. Steam Generator Water Level High-High	≤80.5% of narrow range instrument span	80% of narrow range instrument span
6. Auxiliary Feedwater (3)		
a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.
b. Steam Generator Water Level--Low-Low	≥15.5% of narrow range instrument span.	16% of narrow range instrument span
c. Safety Injection	See Item 1. for all Safety Injection Allowable Values.	See Item 1. above for all Safety Injection Trip Setpoints.
d. Bus Stripping	See Item 7. below for all Bus Stripping Allowable Values.	See Item 7. below for all Bus Stripping Trip Setpoints.
e. Trip of All Main Feedwater Pump Breakers	N.A.	N.A. See ITS 3.3.2
7. Loss of Power		
1.a a. 4.16 kV Busses A and B (Loss of Voltage)	N.A.	N.A.

Table 3.3.5-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM
INSTRUMENTATION TRIP SETPOINTS

LA03

FUNCTIONAL UNIT	~~ALLOWABLE VALUE#~~	~~TRIP SETPOINT~~ ALLOWABLE VALUE
7. Loss of Power (Continued)		
1.b b. 480V Load Centers Undervoltage		
Load Center		
3A	~~[–]~~	430V ±3V (10 sec ±1 sec delay)
3B	~~[–]~~	438V ±3V (10 sec ±1 sec delay)
3C	~~[–]~~	434V ±3V (10 sec ±1 sec delay)
3D	~~[–]~~	434V ±3V (10 sec ±1 sec delay)
4A	~~[–]~~	435V ±3V (10 sec ±1 sec delay)
4B	~~[–]~~	434V ±3V (10 sec ±1 sec delay)
4C	~~[–]~~	434V ±3V (10 sec ±1 sec delay)
4D	~~[–]~~	430V ±3V (10 sec ±1 sec delay)
Coincident with: Safety Injection and	~~See Item 1. above for all Safety Injection Allowable Values~~.	See Item 1. above for all Safety Injection Trip Setpoints.
Diesel Generator Breaker Open	~~N.A.~~	N.A.

Table 3.3.5-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM
INSTRUMENTATION TRIP SETPOINTS

LA03

FUNCTIONAL UNIT	~~ALLOWABLE VALUE#~~	~~TRIP SETPOINT~~ ALLOWABLE VALUE
7. Loss of Power (Continued)		
1.c c. 480V Load Centers Degraded Voltage		
Load Center		
3A	~~[ ]~~	424V ±3V (60 sec ±30 sec delay)
3B	~~[ ]~~	427V ±3V (60 sec ±30 sec delay)
3C	~~[ ]~~	437V ±3V (60 sec ±30 sec delay)
3D	~~[ ]~~	435V ±3V (60 sec ±30 sec delay)
4A	~~[ ]~~	430V ±3V (60 sec ±30 sec delay)
4B	~~[ ]~~	436V ±3V (60 sec ±30 sec delay)
4C	~~[ ]~~	434V ±3V (60 sec ±30 sec delay)
4D	~~[ ]~~	434V ±3V (60 sec ±30 sec delay)
Coincident with: Diesel Generator Breaker Open	~~N.A.~~.	N.A.

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM
INSTRUMENTATION TRIP SETPOINTS

TABLE NOTATIONS

(1) Deleted

(2) Containment Gaseous Monitor Setpoint = $\frac{(1.11 \, x \, 10^{-3})}{(\quad F \quad)} \mu Ci/cc,$

Containment Gaseous Monitor Allowable Value = $\frac{(1.22 \, x \, 10^{-3})}{(\quad F \quad)} \mu Ci/cc,$

Where F = $\frac{\text{Actual Purge Flow}}{\text{Design Purge Flow (35,000 CFM)}}$

Setpoint may vary according to current plant conditions provided that the release rate does not exceed allowable limits provided in the Offsite Dose Calculation Manual.

See ITS 3.3.6

(3) Auxiliary feedwater manual initiation is included in Specification 3.7.1.2.

(4) Time constants utilized in lead-lag controller for Steam Generator Pressure-Low and Steam Line Pressure-Low are $\tau_1 \geq 50$ seconds and $\tau_2 \leq 5$ seconds. CHANNEL CALIBRATION shall ensure that these time constants are adjusted to these values.

See ITS 3.3.2

~~# If no Allowable Value is specified, as indicated by [ ], the trip setpoint shall also be the allowable value.~~

LA03

Table 3.3.5-1

TURKEY POINT – UNITS 3 & 4

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

	CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST #	MODES FOR WHICH SURVEILLANCE IS REQUIRED
	6. Auxiliary Feedwater (Continued)						
	c. Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.					
	d. Bus Stripping	N.A.	SFCP	N.A.	SFCP	N.A.	1, 2, 3
	e. Trip of All Main Feedwater Pump Breakers.	N.A.	N.A.	N.A.	SFCP	N.A.	1. 2
	7. Loss of Power						
1.a	a. 4.16 kV busses A and B (Loss of Voltage)	N.A.	SFCP	N.A.	SFCP	N.A.	1, 2, 3, 4
1.b	b. 480V Load Centers 3A, 3B, 3C, 3D and 4A, 4B, 4C, 4D Undervoltage	SFCP	SFCP	N.A.	SFCP(1)	N.A.	1, 2, 3, 4
	Coincident with: Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.					
1.c	c. 480V Load Centers 3A, 3B, 3C, 3D and 4A, 4B, 4C, 4D Degraded Voltage	SFCP	SFCP	N.A.	SFCP(1)	N.A.	1, 2, 3, 4

See ITS 3.3.2

Add proposed SR for Coincident with Diesel Generator Breaker Open
A07

Add proposed SR for Coincident with Diesel Generator Breaker Open
A07

3/4 3-36

AMENDMENT NOS. 263 AND 258

TABLE 4.3-2 (Continued)
ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

See ITS 3.3.2

TABLE NOTATIONS

In accordance with the Surveillance Frequency Control Program each Actuation Logic Test shall include energization of each relay and verification of OPERABILITY of each relay.

(a) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

(b) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTS) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTS are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the surveillance procedures (field settings) to confirm channel performance. The NTS and methodologies used to determine the as-found and the as-left tolerances are specified in UFSAR Section 7.2

A06

~~(1) Each train shall be tested in accordance with the Surveillance Frequency Control Program.~~

(2) Auxiliary feedwater manual initiation is included in Specification 3.7.1.2.

(3) The provisions of Specification 4.0.4 are not applicable for entering Mode 3, provided that the applicable surveillances are completed within 96 hours from entering Mode 3.

(4) Applicable in MODES 1, 2, 3, 4 or during movement of irradiated fuel within the containment.

See ITS 3.3.2

(5) Test of alarm function not required when alarm locked in.

TURKEY POINT – UNITS 3 & 4 3/4 3-38 AMENDMENT NOS. 283 AND 277

DISCUSSION OF CHANGES
ITS 3.3.5, LOSS OF POWER (LOP) EMERGENCY DIESEL GENERATOR (EDG) START INSTRUMENTATION

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications-Westinghouse Plants" (ISTS) and additional Technical Specification Task Force (TSTF) travelers included in this submittal.

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS 3.3.2.1, "Engineered Safety Feature Actuation System Instrumentation," requires the Engineered Safety Feature Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-3 to be OPERABLE. ITS 3.3.5, "Loss of Power (LOP) Emergency Diesel Generator (EDG) Start Instrumentation," requires specific channels for the Loss of Voltage, Undervoltage, and Degraded Voltage Functions to be OPERABLE without any interlock channels. This changes the CTS by having a separate Specification for the LOP EDG Start Instrumentation in lieu of including it with the ESFAS Instrumentation Specification.

This change is acceptable because the technical requirements for the LOP EDG start instrumentation are maintained with the change in format. The LOP EDG Start Instrumentation Specification continues to require the start of the EDGs on Loss of Voltage, Undervoltage, and Degraded Voltage signals. This change is designated as administrative because it does not result in a technical change to the CTS.

A03 CTS 3.3.2.1 Actions provide the compensatory actions to take when Loss of Power instrumentation is inoperable. ITS 3.3.5 ACTIONS provide the compensatory actions for inoperable LOP EDG start instrumentation. The ITS 3.3.5 ACTIONS include a Note that allows separate Condition entry for each Function. This modifies the CTS by providing a specific allowance to enter the Action for each inoperable LOP EDG Start Instrumentation Function.

This change is acceptable because it clearly states the current requirement. The CTS considers each Loss of Power Function to be separate and independent from the other. This change is designated as administrative because it does not result in technical changes to the CTS.

A04 CTS Table 3.3-2 specifies the "TOTAL NO. OF CHANNELS" and the "MINIMUM CHANNELS OPERABLE" associated with each ESFAS Functional Unit. CTS Table 3.3-2 ACTIONS specify the conditions of inoperable channels where action is required. CTS Table 3.3-2 Action 18 specifies that with the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the inoperable channel is placed in the tripped condition within 6 hours. ITS Table 3.3.5-1 supplies one column "Required Channels," that lists the number of channels required below which Action must be taken. The ITS "Required Channels" column value is the value used in CTS below which Action must be taken from the CTS Table 3.3-2 "Total NO. of Channels" column as identified by the CTS Actions.

This change is acceptable because the requirements for when actions must be taken remain unchanged. The ITS "REQUIRED CHANNELS" column reflects the current requirements in the CTS ACTIONS for when actions are required to be taken. This change is designated as administrative because it does not result in technical changes to the CTS.

A05 CTS Tables 3.3-2, 3.3-3, and 4.3-2 contain the requirements for the Safety Injection Functional Units (Functional Units 1.a through 1.f). ITS Table 3.3.5-1 includes Functional Units that operate in coincident to a Safety Injection actuation signal but does not include the Functional Unit requirements of the Safety Injection signal. This changes the CTS by not including the Safety Injection Functional Unit requirements in Table 3.3.5-1.

This change is acceptable because the requirements for the Safety Injection Functional Units unchanged. CTS Tables 3.3-2, 3.3-3, and 4.3-2 include the requirements for both the Safety Injection Functional Units and the Loss of Power Functional Units. In CTS Tables 3.3-2, 3.3-3, and 4.3-2 one of the Functional Units under the Loss of Power Function is Functional Unit 7.b, Undervoltage, that includes 480-volt Load Centers Undervoltage channels and Safety Injection. For the Loss of Power Function, the requirements listed for the Safety Injection signal provide a similar statement in all three tables stating to see Item 1. above for all Safety Injection initiating functions and requirements." ITS Table 3.3.5-1 Safety Injection Functional Unit refers the reader to ITS Table 3.3.2-1 for the Safety Injection Functional Units requirements. This change is designated as administrative because it does not result in technical changes to the CTS.

A06 CTS Table 4.3-2, includes Note (1) that states, "Each train shall be tested in accordance with the Surveillance Frequency Control Program." CTS Table 4.3-2, Note (1) applies to CTS Table 4.3-2 Functional Units 7.b, and 7.c Trip Actuating Device Operational Tests (TADOT). CTS 4.3.2.1 states that each ESFAS instrumentation channel and interlock and the automatic actuation logic and relays shall be demonstrated OPERABLE by performance of the ESFAS Instrumentation Surveillance Requirements (SRs) specified in Table 4.3-2. CTS Table 4.3-2 states that the SRs for these Functional Units is in accordance with the Surveillance Frequency Control Program (SFCP). ITS SR 3.3.5.2, "Perform ACTUATION LOGIC TEST," states that the Frequency is, "In accordance with the Surveillance Frequency Control Program." This changes the CTS by deleting Note (1) which is a redundant statement to the CTS Required Surveillance and the ITS stated Frequency.

This change is acceptable because the SRs remain unchanged. The ITS "Frequency" column reflects the current SRs in CTS Table 4.3-2 including Note (1) for what is required to be performed for these Functional Units. This change is designated as administrative because it does not result in technical changes to the CTS.

A07 ITS 3.3.5 Table 3.3.5-1, in part, lists the required undervoltage and degraded voltage tests for the 480 V load centers, which are to include a configuration coincident with the EDG breaker open. CTS 3.3.2 Table 4.3-2 does not include this configuration. This changes the CTS by adding the test configuration for both the undervoltage and degraded voltage 480 V load center TADOT, which includes the EDG breaker being open.

An undervoltage monitoring system on the 480 V safety related load centers is provided so that load center undervoltage concurrent with a Safety Injection signal would initiate transfer to onsite power. A set of two instantaneous undervoltage relays on each safety related load center are installed to monitor the load center voltage. The two relays in each load center are connected in an "AND" logic and when actuated due to a undervoltage concurrent with a Safety Injection signal and an open EDG breaker, would initiate a sequencer time delay. After timing out, the sequencer will initiate load shedding, onsite power connection and sequencing of the necessary loads.

In addition, a degraded voltage without a Safety Injection signal protection scheme also monitors load center voltages. Upon detection of load center degraded voltage, the scheme initiates a signal to the sequencers which transfers power on the 480 V safety related load center buses from offsite power to onsite power sources. A sequencer logic interlock with a closed EDG breaker disables this inverse time and definite time-delay relay logic circuit once the EDG is connected to the 4.16 kV bus and the startup and auxiliary transformer breakers are open.

This change is acceptable because the actuation logic includes input from the EDG breaker configuration and, therefore, it is appropriate to include this input during the TADOT. Because the EDG breaker position input is part of the actuation scheme, this change simply clarifies that configuration to be established for the TADOT. This change is designated as administrative because it does not result in technical changes to the CTS.

<u>MORE RESTRICTIVE CHANGES</u>

None

<u>RELOCATED SPECIFICATIONS</u>

None

REMOVED DETAIL CHANGES

LA01 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 3.3.2.1 requires the ESFAS instrumentation and interlocks setpoints to be set consistent with the Trip Setpoint values shown in Table 3.3-3. CTS 3.3.2.1 Action a. is required to be entered when the setpoint is less conservative than the Allowable Value. The channel is to be declared inoperable until adjusted consistent with the Trip Setpoint value. CTS Table 3.3-3 specifies the Trip Setpoints and Allowable Values for the ESFAS Instrumentation Functions. ITS 3.3.5 requires the LOP EDG Start Instrumentation Functions to be OPERABLE. ITS Table 3.3.5-1 specifies the Allowable Values for the LOP EDG Start Instrumentation Functions. This changes the CTS by moving the Trip Setpoints and associated requirements to the Technical Requirements Manual (TRM).

The removal of these details for meeting Technical Specification requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the Allowable Values associated with the LOP EDG Start Instrumentation. Also, this change is acceptable because these types of procedural details will be adequately controlled in the TRM. Any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LA02 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 3.3-2 has three columns stating various requirements for each function labeled, "TOTAL NO. OF CHANNELS," "CHANNELS TO TRIP," and "MINIMUM CHANNELS OPERABLE." ITS Table 3.3.5-1 does not retain the "TOTAL NO. OF CHANNELS" or "CHANNELS TO TRIP" columns. This changes the CTS by moving the information of the "TOTAL NO. OF CHANNELS" and "CHANNELS TO TRIP" columns to the Bases.

The removal of these details, which are related to system design, from the Technical Specifications, is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for the number of required channels and the appropriate Condition to enter if a required channel becomes inoperable. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA03 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 3.3.2 requires the Engineered Safety Feature Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-2 to be OPERABLE with their Trip Setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-3. However, CTS 3.3.2 ACTION only requires a determination of OPERABILITY with an ESFAS Instrumentation or Interlock Trip Setpoint less conservative than the value shown in the Allowable Value column of Table 3.3-3. When the setpoint is less conservative than the Allowable Value, the setpoint is adjusted consistent with the Trip Setpoint value of Table 3.3-3 and determine within 12 hours that the affected channel is OPERABLE; or the channel is declared inoperable and the applicable ACTION statement requirements of Table 3.3-2 applied. CTS Table 3.3-3 specifies both the Trip Setpoints and Allowable Values for the ESFAS Instrumentation Functional Units. In addition, for Functional Unit 7, Table 3.3-3 Note # states that if no Allowable Value is specified, as indicated by [ ], the trip setpoint shall also be the allowable value. ITS 3.3.5 requires the LOP EDG Start instrumentation for each Function in Table 3.3.5-1 to be OPERABLE. ITS Table 3.3.5-1 specifies only the Allowable Values for the ESFAS Instrumentation Functions. The Allowable Values represent the OPERABILITY limit of the channels in ITS. This changes the CTS by renaming the Functional Unit 7 Nominal Trip Setpoints as Allowable Values and by moving the Trip Setpoints to the Technical Requirements Manual (TRM).

The purpose of actuation setpoints is to ensure the mitigation of and minimize the consequences of accidents. The PTN Instrument Setpoint Methodology calculates nominal trip setpoints (NTSPs) using methods consistent with the guidance provided in NRC Regulatory Guide (RG) 1.105, "Setpoints for Safety-Related Instrumentation," and ANSI/ISA Standard 67.04, "Setpoints for Nuclear Safety-Related Instrumentation." Additionally, pre-defined limits (double-sided Operability (as-found) limits and as-left limits) are determined for each instrument consistent with the guidance provided in NRC RG 1.105 and ANSI/ISA–RP67.04, "Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation." The instrument Operability limit band in plant uncertainty calculations is synonymous with the as-found acceptance criteria band specified in ITS and is centered about the nominal equipment setting (clarified in calculations as the NTSP). The PTN Instrument Setpoint Methodologies, including the method of determining instrument uncertainties, were reviewed by the NRC during the review of the power uprate to 2300 Mwt (NRC ADAMS Accession Nos. ML013390234) and the Extended Power Uprate (EPU) (NRC ADAMS Accession Nos. ML11293A365). In the NRC staff's approval of the 2300 Mwt power uprate amendment the NRC staff the staff determined that the proposed setpoint changes were acceptable because the staff had previously reviewed and approved the setpoint methodology used to determine the setpoint (WCAP-12745). In the NRC staff's approval of the PTN EPU amendment the NRC staff determined that the PTN setpoint methodology (WCAP-17070) was acceptable for this license amendment because the setpoint calculation provide adequate safety margins between the Allowable Value (AV) and Allowable Limit (AL), as well as adequate safety margin between the NTSP and AL.

The removal of these details for meeting Technical Specification requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS retains the Allowable Values associated with the ESFAS Instrumentation, which are designated as the Operability limits for the required instrument Functions. Footnotes (a) and (b) in Table 3.3.2-1 ensure channel performance continues to verify that the channel will behave in accordance with safety analysis assumptions and the channel performance assumptions in the setpoint methodology consistent with the NRC guidance specified in RIS 2006-17. Also, this change is acceptable because these types of procedural details will be adequately controlled in the TRM. Any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L01 *(Category 4 – Relaxation of Required Action)* CTS Table 3.3-2 Action 18 provides requirements for when one Loss of Voltage, Undervoltage, or Degraded Voltage channel is inoperable. With more than one channel of these Functional Units inoperable, the shutdown requirements of CTS 3.0.3 would apply because the applicable CTS Table 3.3-2 Actions do not address this condition. ITS 3.3.5 ACTION B requires, with one or more Functions with two or more channels inoperable, restoration of all but one channel per bus or train to OPERABLE status in 1 hour. This changes the CTS to allow more than one channel per Functional Unit of the Loss of Voltage, Undervoltage, and Degraded Voltage Functions to be inoperable.

The Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. This change is acceptable because the Required Action are consistent with safe operation under the specified Condition, considering a reasonable time for repairs or replacement of minor failures and the low probability of a Design Basis Accident (DBA) occurring during the investigation/repair period. The ITS ACTION will allow 1 hour to restore all but one channel per Functional Unit to OPERABLE status prior to declaring the associated supported EDG inoperable and following those Required Actions. In addition, the 1-hour time is consistent with the 1*hour time to initiate a unit shutdown provided in CTS 3.0.3. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L02 *(Category 4 – Relaxation of Required Action)* CTS Table 3.3-2 Action 18 requires, with the number of OPERABLE channels one less than the total number of channels, that the inoperable channel be placed in trip within 6 hours. If this action is not accomplished, the shutdown requirements of CTS 3.0.3 would apply. ITS 3.3.5 Required Action C.1 states that when the Required Action and associated Completion Time are not met, that the applicable Condition(s) and Required Action(s) for the associated EDG made inoperable by LOP EDG start instrumentation be immediately entered. This changes the CTS by allowing the associated EDG to be declared inoperable instead of entering CTS 3.0.3 and shutting down the unit.

The Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. This change is acceptable because the Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the repair period. This instrumentation provides a start signal for the EDGs (i.e., it supports EDG OPERABILITY) and the appropriate action in this condition is to declare the EDG inoperable. The current requirements are overly restrictive. For example, if a EDG were inoperable for other reasons, then a 72-hour Completion Time is provided. However, if an instrument is inoperable but the EDG is otherwise fully OPERABLE, then an immediate shutdown is required. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.3 INSTRUMENTATION

3.3.5 Loss of Power (LOP) Emergency Diesel Generator ~~(DG)~~ (EDG) Start Instrumentation (1)

3.3.2 LCO 3.3.5 The LOP EDG instrumentation for each Function in Table 3.3.5-1 ~~[Three] channels per bus of the loss of voltage Function and [three] channels per bus of the degraded voltage Function~~ shall be OPERABLE. (1)

Applicability APPLICABILITY: According to Table 3.3.5-1 ~~MODES 1, 2, 3, and 4,~~
~~When associated DG is required to be OPERABLE by LCO 3.8.2, "AC Sources - Shutdown~~." (1)

ACTIONS

---NOTE---

DOC A05 Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
Action 18 A. 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.~~ Both channels of any one load center may be taken out of service for up to 8 hours in order to perform surveillance testing. (1) ------------------------------------- Place channel in trip.	~~[~~6~~]~~ hours (2) ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~ (2)

ACTIONS (continued)

	CONDITION	REQUIRED ACTION		COMPLETION TIME	
DOC L01	B. One or more Functions with two or more channels ~~per bus~~ inoperable.	B.1	Restore all but one channel ~~per bus~~ to OPERABLE status.	1 hour ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~	1 2
DOC L02	C. Required Action and associated Completion Time not met.	C.1	Enter applicable Condition(s) and Required Action(s) for the associated E DG made inoperable by LOP DG start instrumentation.	Immediately	1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
Table 4.3-2	SR 3.3.5.1	~~[~~ Perform CHANNEL CHECK.	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ ~~]~~	2 2

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
Table 4.3-2	SR 3.3.5.2	Perform TADOT.	~~[[31] days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	2 2
Table 4.3-2	SR 3.3.5.3	Perform CHANNEL CALIBRATION ~~with [Nominal Trip Setpoint and Allowable Value] as follows:~~ ~~a. [Loss of voltage Allowable Value ≥ [2912] V and ≤ [ ] V with a time delay of [0.8] ± [ ] second.~~ ~~Loss of voltage Nominal Trip Setpoint [2975] V with a time delay of [0.8] ± [ ] second.]~~ ~~b. [Degraded voltage Allowable Value ≥ [3683] V and ≤ [ ] V with a time delay of [20] ± [ ] seconds.~~ ~~Degraded voltage Nominal Trip Setpoint [3746] V with a time delay of [20] ± [ ] seconds.]~~	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	1

INSERT 1

CTS

1

INSERT 1

Tables 3.3-2, 3.3-3, and 4.3-2

TABLE 3.3.5-1
Loss of Power Emergency Diesel Generator Start Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Loss of Power					
7.a a. 4.16 kV Buses A and B (Loss of Voltage)	1,2,3,4	2/bus	A	SR 3.3.5.2 SR 3.3.5.3	NA
7.b b. 480V Load Centers Undervoltage					
3A	1,2,3,4	2/load center	A	SR 3.3.5.1 SR 3.3.5.2 SR3.3.5.3	430V[a]
3B	1,2,3,4	2/load center	A	SR 3.3.5.1 SR 3.3.5.2 SR3.3.5.3	438V[a]
3C	1,2,3,4	2/load center	A	SR 3.3.5.1 SR 3.3.5.2 SR3.3.5.3	434V[a]
3D	1,2,3,4	2/load center	A	SR 3.3.5.1 SR 3.3.5.2 SR3.3.5.3	434V[a]
4A	1,2,3,4	2/load center	A	SR 3.3.5.1 SR 3.3.5.2 SR3.3.5.3	435V[a]
4B	1,2,3,4	2/load center	A	SR 3.3.5.1 SR 3.3.5.2 SR3.3.5.3	434V[a]
4C	1,2,3,4	2/load center	A	SR 3.3.5.1 SR 3.3.5.2 SR3.3.5.3	434V[a]
			A		
4D	1,2,3,4	2/load center	A	SR 3.3.5.1 SR 3.3.5.2 SR3.3.5.3	430V[a]
Coincident with: Safety Injection, and	See Table 3.3.2-1 Item 1. for all Safety Injection initiation functions and requirements.				
Coincident with: Diesel Generator Breaker Open				SR 3.3.5.2	N/A

(a) ±3V (10 sec. ± 1 sec. delay)

Tables 3.3-2, 3.3-3, and 4.3-2

TABLE 3.3.5-1 (continued)
Loss of Power Emergency Diesel Generator Start Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
7.c	c. 480V Load Centers Degraded Voltage					
	3A	1,2,3,4	2/load center	A	SR 3.3.5.1 SR 3.3.5.2 SR3.3.5.3	424V(b)
	3B	1,2,3,4	2/load center	A	SR 3.3.5.1 SR 3.3.5.2 SR3.3.5.3	427V(b)
	3C	1,2,3,4	2/load center	A	SR 3.3.5.1 SR 3.3.5.2 SR3.3.5.3	437V(b)
	3D	1,2,3,4	2/load center	A	SR 3.3.5.1 SR 3.3.5.2 SR3.3.5.3	435V(b)
	4A	1,2,3,4	2/load center	A	SR 3.3.5.1 SR 3.3.5.2 SR3.3.5.3	430V(b)
	4B	1,2,3,4	2/load center	A	SR 3.3.5.1 SR 3.3.5.2 SR3.3.5.3	436V(b)
	4C	1,2,3,4	2/load center	A	SR 3.3.5.1 SR 3.3.5.2 SR3.3.5.3	434V(b)
	4D	1,2,3,4	2/load center	A	SR 3.3.5.1 SR 3.3.5.2 SR3.3.5.3	434V(b)
	Coincident with: Diesel Generator Breaker Open				SR 3.3.5.2	N/A

(b) ±3V (60 sec. ± 30 sec. delay)

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.5, LOSS OF POWER (LOP) EMERGENCY DIESEL GENERATOR (EDG) START INSTRUMENTATION

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specifications (ISTS) that reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

3. Changes are made (additions, deletions, and/or changes) to the ISTS that reflect the plant-specific nomenclature, number, reference, system description, analysis, or licensing basis description. Where an addition/deletion has occurred, subsequent alpha-numeric designators have been changed for any applicable affected ACTIONS, SURVEILLANCE REQUIREMENTS, FUNCTIONS, and Footnotes.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.3 INSTRUMENTATION

B 3.3.5 Loss of Power (LOP) Emergency Diesel Generator ~~(DG)~~ (EDG) Start Instrumentation 1

BASES

BACKGROUND

EDG

The ~~DG~~s provide a source of emergency power when offsite power is either unavailable or is insufficiently stable to allow safe unit operation. Undervoltage protection will generate a LOP start if a loss of voltage ~~or degraded voltage condition occurs in the switchyard~~ occurs on 4.16 kV Bus A or B, an undervoltage condition occurs on safety related load centers, or a degraded voltage occurs on the safety related load centers. There are ~~two~~ three LOP start signals~~, one~~ for each 4.16 kV vital bus. 1

INSERT 1 ~~Three undervoltage relays with inverse time characteristics are provided on each 4160 Class 1E instrument bus for detecting a sustained degraded voltage condition or a loss of bus voltage. The relays are combined in a two-out-of-three logic to generate a LOP signal if the voltage is below 75% for a short time or below 90% for a long time.~~ The LOP start actuation is described in FSAR, Section ~~8.3~~ 8.2 (Ref. 1). 1

The Allowable Value in conjunction with the trip setpoint and LCO establishes the threshold for Engineered Safety Features Actuation System (ESFAS) action to prevent exceeding acceptable limits such that the consequences of Design Basis Accidents (DBAs) will be acceptable. The Allowable Value is considered a limiting value such that a channel is OPERABLE if the setpoint is found not to exceed the Allowable Value during the CHANNEL CALIBRATION. Note that although a channel is OPERABLE under these circumstances, the setpoint must be left adjusted to within the established calibration tolerance band of the setpoint in accordance with uncertainty assumptions stated in the referenced setpoint methodology, (as-left-criteria) and confirmed to be operating within the statistical allowances of the uncertainty terms assigned.

Allowable Values and LOP ~~DG~~ EDG Start Instrumentation Setpoints 1

~~-----REVIEWER'S NOTE-----~~
~~Alternatively, a TS format incorporating an Allowable Value only may be proposed by a licensee. In this case the Nominal Trip Setpoint value is located in the TS Bases or in a licensee controlled document outside the TS. Changes to the trip setpoint value would be controlled by 10 CFR 50.59 or administratively as appropriate, and adjusted per the setpoint methodology and applicable surveillance requirements. At their option, the licensee may include the trip setpoint in the surveillance requirement as shown, or suggested by the licensee's setpoint methodology.~~
~~----------~~ 2

1 INSERT 1

The relaying scheme for Bus A is independent of that for Bus B. Load shedding, EDG start, and sequencing will occur for both buses only upon a concurrent loss of voltage on each bus. To provide reliability, the two instantaneous undervoltage relays are connected across two secondaries of the potential transformer for each bus. Thus, failure of a single relay or voltage source would not cause a spurious transfer. Therefore, undervoltage on one bus alone is sufficient for the separation of that system from offsite sources, while the other bus, if not disturbed, would still be fed from offsite sources.

An undervoltage monitoring system on the 480V safety related load centers is provided so that load center undervoltage concurrent with a SIS would initiate transfer to onsite power. A set of two instantaneous undervoltage relays on each safety related load center are installed to monitor the load center voltage. The two relays in each load center are connected in an AND logic and when actuated due to a undervoltage concurrent with a SIS and an open EDG breaker would initiate a sequencer time delay. After timing out, the sequencer will initiate load shedding, onsite power connection and sequencing of the necessary loads.

In addition to the load center undervoltage concurrent with safety injection signal protection scheme as described above, a degraded voltage without a safety injection signal protection scheme also monitors load center voltages. This scheme upon detection of load center degraded voltage initiates a signal to the sequencers which transfers power on the 480V safety-related load center buses from off-site power to on-site power sources. Each load center bus has two inverse time relays (one per channel) to protect against large transient voltage drops of short duration and two (one per channel) definite time-delay relays to protect for degraded voltage over long durations. These four protective relays for each load center are interconnected in a two out of two channel trip logic such that the logic trips if degraded voltage is detected by either Channel 1 inverse time or definite time delay relay concurrently with either Channel 2 inverse time or definite time delay relay. This relay logic circuitry is interlocked with "a" contacts of the 4.16 kV breaker feeding that load center and the 480 volt load center main (incoming) breaker (manually operated). The interlock with the 4.16 kV and 480V load center breakers disables this circuit when one or both of the applicable breakers are opened to take that load center out of service for maintenance. A sequencer logic interlock with a closed EDG breaker disables this inverse time and definite time-delay relay logic circuit once the EDG is connected to the 4.16 kV bus and the startup and auxiliary transformer breakers are open.

BASES

BACKGROUND (continued)

The Trip Setpoints used in the relays are based on the analytical limits presented in FSAR, Chapter ~~15~~ 14 (Ref. 2). The selection of these trip setpoints is such that adequate protection is provided when all sensor and processing time delays are taken into account. 1

Setpoints adjusted consistent with the requirements of the Allowable Value ensure that the consequences of accidents will be acceptable, providing the unit is operated from within the LCOs at the onset of the accident and that the equipment functions as designed.

Allowable Values and/or Nominal Trip Setpoints are specified for each Function in SR 3.3.5.3. Nominal Trip Setpoints are also specified in the unit specific setpoint calculations. The trip setpoints are selected to ensure that the setpoint measured by the surveillance procedure does not exceed the Allowable Value if the relay is performing as required. If the measured setpoint does not exceed the Allowable Value, the relay is considered OPERABLE. Operation with a trip setpoint less conservative than the nominal Trip Setpoint, but within the Allowable Value, is acceptable provided that operation and testing is consistent with the assumptions of the unit specific setpoint calculation (Ref. 3).

APPLICABLE SAFETY ANALYSES

The LOP ~~DG~~ EDG start instrumentation is required for the Engineered Safety Features (ESF) Systems to function in any accident with a loss of offsite power. Its design basis is that of the ESF Actuation System (ESFAS). 1

Accident analyses credit the loading of the ~~DG~~ EDG based on the loss of offsite power during a loss of coolant accident (LOCA). The actual ~~DG~~ EDG start has historically been associated with the ESFAS actuation. The ~~DG~~ EDG loading has been included in the delay time associated with each safety system component requiring ~~DG~~ EDG supplied power following a loss of offsite power. The analyses assume a non-mechanistic ~~DG~~ EDG loading, which does not explicitly account for each individual component of loss of power detection and subsequent actions. 1 1

The required channels of LOP ~~DG~~ EDG start instrumentation, in conjunction with the ESF systems powered from the ~~DG~~ EDGs, provide unit protection in the event of any of the analyzed accidents discussed in Reference 2, in which a loss of offsite power is assumed. 1

The delay times assumed in the safety analysis for the ESF equipment include the ~~10~~ 15 second ~~DG~~ EDG start delay, and the appropriate sequencing delay, if applicable. The response times for ESFAS actuated equipment in LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation," include the appropriate ~~DG~~ EDG loading and sequencing delay. 1 1

1

BASES

APPLICABLE SAFETY ANALYSES (continued)

EDG

The LOP ~~DG~~ start instrumentation channels satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

EDG

two channels per bus for loss of voltage for 4.16 KV bus and both loss of voltage and degraded voltage for 480 V load centers

EDG

The LCO for LOP ~~DG~~ start instrumentation requires that ~~[three] channels per bus of both the loss of voltage and degraded voltage~~ Functions 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 [three] channels 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 channel is OPERABLE with a trip setpoint value 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 a value within the "as-left" calibration tolerance band of the Nominal Trip Setpoint. A trip setpoint may be set more conservative than the Nominal Trip Setpoint as necessary in response to plant conditions. Loss of the 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.~~

1

1

1

1

APPLICABILITY

EDG

The 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 a LOP or degraded power to the vital bus.~~

1

1

ACTIONS

~~REVIEWER'S NOTE~~

~~In TS 3.3.5, "Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation," the loss of power function was not included in the generic evaluations approved in either WCAP-10271, as supplemented, or WCAP-14333. In order to apply relaxations similar to those in WCAP-10271, as supplemented, or WCAP-14333, licensees must submit plant specific evaluations for NRC review and approval.~~

2

In the event a channel's trip setpoint is found nonconservative with respect to the Allowable Value, or the channel is found inoperable, then the function that channel provides must be declared inoperable and the LCO Condition entered for the particular protection function affected.

1

1

BASES

ACTIONS (continued)

Because the required channels are specified on a per bus basis, the Condition may be entered separately for each bus as appropriate.

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

A.1

EDG

Condition A applies to the LOP ~~DG~~ start Functions with one loss of voltage or one degraded voltage channel per bus inoperable. 1

, one undervoltage,

or load center

~~If one channel is inoperable, Required Action A.1 requires that channel to be placed in trip within [6] hours [or in accordance with the Risk Informed Completion Time Program]. With a channel in trip, the LOP DG start instrumentation channels are configured to provide a one-out-of-three logic to initiate a trip of the incoming offsite power.~~

INSERT 2

1

~~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.~~

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

~~B.1~~

~~Condition B applies when more than one loss of voltage or more than one degraded voltage channel per bus are inoperable.~~

~~Required Action B.1 requires restoring all but one channel per bus to OPERABLE status. The 1 hour Completion Time should allow ample time to repair most failures and takes into account the low probability of an event requiring a LOP start occurring during this interval. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]~~ 1

1 **INSERT 2**

If one channel is inoperable, Required Action A.1 requires that channel to be placed in trip within hours. With a channel in trip, the LOP EDG start instrumentation channels are configured to provide a one-out-of-one 4.16 kV Bus Loss of Voltage logic to initiate a trip of the incoming offsite power and a one-out-of-two 480-volt Load Center undervoltage or degraded voltage logic to initiate a trip of the incoming offsite power.

A Note is added to allow both channels of any one load center to be taken out of service for up to 8 hours in order to perform surveillance testing. This allowance is made where bypassing the channel does not cause an actuation and where at least one other channel is monitoring that parameter.

BASES

ACTIONS (continued)

~~C~~ B.1 5

Condition ~~C~~ B applies to each of the LOP ~~DG~~ EDG start Functions when the Required Action and associated Completion Time for Condition A ~~or B~~ are not met. 1 5

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~~ EDG made inoperable by failure of the LOP ~~DG~~ EDG start instrumentation are required to be entered immediately. The actions of those LCOs provide for adequate compensatory actions to assure unit safety. 1

SURVEILLANCE REQUIREMENTS

SR 3.3.5.1

Performance of the CHANNEL CHECK 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 of 12 hours 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.~~ 4

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~--]~~

2

SR 3.3.5.2

SR 3.3.5.2 is the performance of a TADOT. 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 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 test checks trip devices that provide actuation signals directly, bypassing the analog process control equipment. For these tests, the relay trip setpoints are verified and adjusted as necessary. There is a plant specific program which verifies that the instrument channel functions as required by verifying the as-left and as-found setting are consistent with those established by the setpoint methodology.

~~[The Frequency of 31 days is based on the known reliability of the relays and controls and the multichannel redundancy available, and has been shown to be acceptable through operating experience.~~

~~OR~~

4

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~--]~~

2

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.5.3

SR 3.3.5.3 is the performance of a CHANNEL CALIBRATION.

The setpoints, as well as the response to a loss of voltage and a degraded voltage test, shall include a single point verification that the trip occurs within the required time delay, as shown in Reference 1.

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. There is a plant specific program which verifies that the instrument channel functions as required by verifying the as-left and as-found setting are consistent with those established by the setpoint methodology.

~~[The Frequency of [18] months is based on operating experience and consistency with the typical industry refueling cycle and is justified by the assumption of an [18] month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~ 4

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----REVIEWER'S NOTE-----~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~-----]~~ 2

REFERENCES

1. U FSAR, Section ~~[8.3]~~ 8.2. 1 4
2. U FSAR, Chapter ~~[15]~~ 14 . 1 4
3. ~~Plant specific setpoint methodology study~~ WCAP 12745 and WCAP 17070. 1

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.5 BASES, LOSS OF POWER (LOP) EMERGENCY DIESEL GENERATOR (EDG) START INSTRUMENTATION

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specifications (ISTS) Bases that reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This Note is not meant to be retained in the final version of the plant specific submittal.

3. Changes are made to be consistent with changes made to the Specification

4. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.3.5, LOSS OF POWER (LOP) EMERGENCY DIESEL GENERATOR (EDG) START INSTRUMENTATION

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 6

ITS 3.3.6 – CONTAINMENT VENTILATION ISOLATION INSTRUMENTATION

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

INSTRUMENTATION

3/4.3.2 ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

LCO 3.3.6 3.3.2 The Engineered Safety Feature Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-2 shall be OPERABLE with their Trip Setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-3.

Applicability APPLICABILITY: As shown in Table 3.3.6-1 ~~3.3-2~~. A01

ACTION:

See ITS 3.3.2

~~a. With an ESFAS Instrumentation or Interlock Trip Setpoint less conservative than the value shown in the Trip Setpoint column but more conservative than the value shown in the Allowable Value column of Table 3.3-3, adjust the Setpoint consistent with the Trip Setpoint value within permissible calibration tolerance.~~

~~b. With an ESFAS Instrumentation or Interlock Trip Setpoint less conservative than the value shown in the Allowable Value column of Table 3.3-3, either:~~

~~1. Adjust the Setpoint consistent with the Trip Setpoint value of Table 3.3-3 and determine within 12 hours that the affected channel is OPERABLE; or~~

~~2. Declare the channel inoperable and apply the applicable ACTION statement requirements of Table 3.3-2 until the channel is restored to OPERABLE status with its setpoint adjusted consistent with the Trip Setpoint value.~~

ACTION A, ACTION B c. With an ESFAS instrumentation channel or interlock inoperable, take the ACTION shown in Table 3.3-2.

SURVEILLANCE REQUIREMENTS

Table 3.3.6-1 4.3.2.1 Each ESFAS instrumentation channel and interlock and the automatic actuation logic and relays shall be demonstrated OPERABLE by performance of the ESFAS Instrumentation Surveillance Requirements specified in Table 4.3-2.

TURKEY POINT – UNITS 3 & 4

TABLE 3.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

LA01

A02

Table 3.3.6-1

FUNCTIONAL UNIT	~~TOTAL NO. OF CHANNELS~~	~~CHANNELS TO TRIP~~	~~MINIMUM~~ REQUIRED CHANNELS OPERABLE	APPLICABLE MODES	ACTION
3. Containment Isolation (Continued)					
3) Safety Injection	See Item 1. above for all Safety Injection initiating functions and requirements. (Manual S.I. initiation will not initiate Phase A Isolation).				
b. Phase "B" Isolation					
1) Manual Initiation	2	2 (Both buttons must be pushed simultaneously to actuate)	2	1, 2, 3, 4	17
2) Automatic Actuation Logic and Actuation Relays	2	1	2	1, 2, 3, 4	14
3) Containment Pressure--High-High Coincident with:	3	2	2	1, 2, 3	15
Containment Pressure--High	3	2	2	1, 2, 3	15
c. Containment Ventilation Isolation*					
1) Containment Isolation Manual Phase A or Manual Phase B	See Items 3.a.1 and 3.b.1 above for all Manual Containment Ventilation functions and requirements.				

See ITS 3.3.2

See JFD 3

*Not applicable to Containment Purge and exhaust isolation valves.

TABLE 3.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

LA01 A02

Table 3.3.6-1

FUNCTIONAL UNIT	~~TOTAL NO. OF CHANNELS~~	~~CHANNELS TO TRIP~~	~~MINIMUM~~ REQUIRED CHANNELS OPERABLE	APPLICABLE MODES	ACTION
3. Containment Isolation (Continued)					
2) Automatic Actuation Logic and Actuation Relays	~~2~~	~~1~~	2	1, 2, 3, 4	16
3) Safety Injection	See Item 1. above for all Safety Injection initiating functions requirements.				
4) Containment Radioactivity-High	~~2##~~	~~1~~	1	1, 2, 3, 4	16
4. Steam Line Isolation					
a. Manual Initiation (individual)	1/operating steam line	1/operating steam line	1/operating steam line	1, 2, 3	21
b. Automatic Actuation Logic and Actuation Relays	2	1	2	1, 2, 3	20
c. Containment Pressure--High-High	3	2	2	1, 2, 3	15
Coincident with: Containment Pressure--High	3	2	2	1, 2, 3	15

LA01

See ITS 3.3.2

TURKEY POINT – UNITS 3 & 4 3/4 3-17 AMENDMENT NOS. 137 AND 132

TABLE 3.3-2 (Continued)

TABLE NOTATION

See ITS 3.3.2

Trip function may be blocked in this MODE below the Pressurizer Pressure Interlock Setpoint of 2000 psig.

Add proposed Condition B
A03

Table 3.3.6-1 Note (c)

Channels are for particulate radioactivity and for gaseous radioactivity. Either an OPERABLE particulate radioactivity or gaseous radioactivity channel will satisfy the Minimum Channels OPERABLE requirement.

See ITS 3.3.2

Auxiliary feedwater manual initiation is included in Specification 3.7.1.2.

Steam Generator overfill protection is not part of the Engineered Safety Features Actuation System (ESFAS), and is added to the Technical Specifications only in accordance with NRC Generic Letter 89-19.

* Trip function may be blocked in this MODE below the T_{avg}--Low Interlock Setpoint.

See ITS 3.3.7

** Only during movement of irradiated fuel within the containment.

ACTION STATEMENTS

See ITS 3.3.2

ACTION 14 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, be in at least HOT STANDBY within 12 hours and in COLD SHUTDOWN within the following 30 hours; however, one channel may be bypassed for up to 8 hours for surveillance testing per Specification 4.3.2.1, provided the other channel is OPERABLE.

ACTION 15 - With the number of OPERABLE channels one less than the Total Number of Channels, operation may proceed until performance of the next required ANALOG CHANNEL OPERATIONAL TEST or TRIP ACTUATING DEVICE OPERATIONAL TEST provided the inoperable channel is placed in the tripped condition within 6 hours.

ACTIONS B & D

ACTION 16 - With the number of OPERABLE channels less than the Minimum Channels OPERABLE requirement, operation may continue provided the Containment purge supply, exhaust and instrument air bleed valves are maintained closed. (The instrument air bleed valves may be opened intermittently under administrative controls).

See ITS 3.3.2

ACTION 17 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM
INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	ALLOWABLE VALUE	~~TRIP SETPOINT~~
3. Containment Isolation (Continued)		
2) Automatic Actuation Logic and Actuation Relays	N.A.	N.A.
3) Containment Pressure--High-High	≤22.6 psig	≤20.0 psig
Coincident with: Containment Pressure--High	≤4.5 psig	≤4.0 psig
c. Containment Ventilation Isolation *		
1) Containment Isolation Manual Phase A or Manual Phase B	N.A.	~~N.A.~~
2) Automatic Actuation Logic and Actuation Relays	N.A.	~~N.A.~~
3) Safety Injection	See Item 1. above for all Safety Injection Allowable Values.	~~See Item 1. above for all Safety Injection Trip Setpoints.~~
4) Containment Radioactivity--High	Particulate (R-11) ≤ 5.00 x 10^{-6} μCi/cc Gaseous (R-12) See Note 2	~~Particulate (R-11) ≤ 4.49 x 10^{-6} μCi/cc Gaseous (R-12) See Note 2~~
4. Steam Line Isolation		
a. Manual Initiation	N.A.	N.A.

LA02

See ITS 3.3.2

LA02

See ITS 3.3.2

* Not applicable to Containment purge supply and exhaust isolation valves.

A01

ITS

Table 3.3.6-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM
INSTRUMENTATION TRIP SETPOINTS

TABLE NOTATIONS

~~(1) Deleted~~

(2) ~~Containment Gaseous Monitor Setpoint =~~ $\cancel{\frac{(1.11 \, x \, 10^{-3})}{(F)}} \cancel{\mu Ci/cc,} \cancel{\frac{(3.2 \, x \, 10^{4})}{(F)}} \cancel{CPM,}$

LA02

Table Note (b)

Containment Gaseous Monitor Allowable Value = $\frac{(1.22 \, x \, 10^{-3})}{(\quad F \quad)} \mu Ci/cc,$

Where F = $\frac{\text{Actual Purge Flow}}{\text{Design Purge Flow (35,000 CFM)}}$

Setpoint may vary according to current plant conditions provided that the release rate does not exceed allowable limits provided in the Offsite Dose Calculation Manual.

See ITS 3.3.2

(3) Auxiliary feedwater manual initiation is included in Specification 3.7.1.2.

(4) Time constants utilized in lead-lag controller for Steam Generator Pressure-Low and Steam Line Pressure-Low are $\tau_1 \geq 50$ seconds and $\tau_2 \leq 5$ seconds. CHANNEL CALIBRATION shall ensure that these time constants are adjusted to these values.

See ITS 3.3.5

If no Allowable Value is specified, as indicated by [ ], the trip setpoint shall also be the allowable value.

TURKEY POINT – UNITS 3 & 4

AMENDMENT NOS. 293 AND 286

INSTRUMENTATION

3/4.3.3 MONITORING INSTRUMENTATION

RADIATION MONITORING FOR PLANT OPERATIONS

LIMITING CONDITION FOR OPERATION

Table 3.3.6-1 3.3.3.1 The radiation monitoring instrumentation channels for plant operations shown in Table ~~3.3-4~~ shall be OPERABLE with their Alarm/Trip Setpoints within the specified limits.

3.3.6-1 A01

APPLICABILITY: As shown in Table ~~3.3-4~~.

ACTION:

a. ~~With a radiation monitoring channel Alarm/Trip Setpoint for plant operations exceeding the value shown in Table 3.3-4, adjust the Setpoint to within the limit within 4 hours or declare the channel inoperable.~~ LA02

Table 3.3.6-1 b. With one or more radiation monitoring channels for plant operations inoperable, take the ACTION shown in Table 3.3-4.

c. ~~The provisions of Specification 3.0.3 are not applicable.~~ A04

SURVEILLANCE REQUIREMENTS

Table 3.3.6-1 4.3.3.1 Each radiation monitoring instrumentation channel for plant operations shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and ANALOG CHANNEL OPERATIONAL TEST for the MODES and at the frequencies shown in Table 4.3-3.

TURKEY POINT – UNITS 3 & 4

Table 3.3.6-1

ACTION B

ACTION D

TABLE 3.3-4

RADIATION MONITORING INSTRUMENTATION FOR PLANT OPERATIONS

LA02

FUNCTIONAL UNIT	~~CHANNELS TO TRIP/ALARM~~	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	~~ALARM/TRIP SETPOINT~~	ACTION
1. Containment					
a. Containment Atmosphere Radioactivity-High (Particulate or Gaseous (See Note 1.))	~~1~~	1*	All*	~~Particulate~~ ~~$\leq$ 4.49 x10^{-6} µCi/cc~~ ~~Gaseous~~ ~~See Note 2.~~	26 for MODES 1, 2, 3, 4 or 27 for MODES 5 and 6

TABLE 3.3-4 (Continued)
TABLE NOTATIONS

Table 3.3.6-1 * During movement of irradiated fuel within the containment, comply with Specification 3/4.9.13.

Table 3.3.6-1 Note (c) Note 1 Either the particulate or gaseous channel in the OPERABLE status will satisfy this LCO.

~~Note 2~~ ~~Containment Gaseous Monitor Setpoint~~ $= \cancel{\left(\frac{1.11 \times 10^{-3}}{F}\right)}$ ~~µCi/cc~~

~~Where F =~~ $\cancel{\frac{\text{Actual Purge Flow}}{\text{Design Purge Flow (35,000 CFM)}}}$

~~Setpoint may vary according to current plant conditions provided that the release rate does not exceed allowable limits provided in the Offsite Dose Calculation Manual.~~

LA02

ACTION STATEMENTS

ACTION 26 - In MODES 1 thru 4: With both the Particulate and Gaseous Radioactivity Monitoring Systems inoperable, comply with the following:

RA B.1 1) Table 3.3-2, ACTION 16, and

RA B.2 2) Technical Specification 3.4.6.1, ACTION a.

TABLE 3.3-4 (Continued)

ACTION STATEMENTS (Continued)

ACTION 27 - ~~In MODES 5 or 6 (except during movement of irradiated fuel within the containment): With the number of OPERABLE Channels less than the Minimum Channels OPERABLE requirement perform the following:~~

~~1) Obtain and analyze appropriate grab samples at least once per 24 hours, and~~ L01

~~2) Monitor containment atmosphere with area radiation monitors.~~

RA D.2 ~~Otherwise, isolate all penetrations that provide direct access from the containment atmosphere to the outside atmosphere.~~

RA D.2 During movement of irradiated fuel within the containment: With the number of OPERABLE Channels less than the Minimum Channels OPERABLE requirements, comply with ACTION statement requirements of Specification ~~3.9.9 and 3.9.13~~ 3.9.4. A05

Table 3.3.6-1

TABLE 4.3-3
RADIATION MONITORING INSTRUMENTATION FOR PLANT
OPERATIONS SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. Containment				
a. Containment Atmosphere Radioactivity--High	SR 3.3.6.1 SFCP	SR 3.3.6.3 SFCP	SR 3.3.6.2 SFCP	All

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

	CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST #	MODES FOR WHICH SURVEILLANCE IS REQUIRED
	3. Containment Isolation (Continued)						
See ITS 3.3.2	3) Containment Pressure--High-High Coincident with: Containment	N.A.	SFCP	N.A.	SFCP	SFCP(1)	1, 2, 3
	Pressure--High	N.A.	SFCP	N.A.	SFCP	SFCP(1)	1, 2, 3
	c. Containment Venti-lation Isolation						
SR 3.3.6.3	1) Containment Isolation Manual Phase A or Manual Phase B	N.A.	N.A.	N.A.	SFCP	N.A.	1, 2, 3, 4
	2) Automatic Actua-tion Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.	
	3) Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.					
SR 3.3.6.1 SR 3.3.6.2 SR 3.3.6.4	4) Containment Radio-activity--High	SFCP	SFCP	SFCP	N.A.	N.A.	1, 2, 3, 4
See ITS 3.3.2	4. Steam Line Isolation						
	a. Manual Initiation	N.A.	N.A.	N.A.	SFCP	N.A.	1, 2, 3
	b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	SFCP(1)	1, 2, 3(3)

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications-Westinghouse Plants" (ISTS) and additional Technical Specification Task Force (TSTF) travelers included in this submittal.

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS Table 3.3-2 specifies the "TOTAL NO. OF CHANNELS" and the "MINIMUM CHANNELS OPERABLE" associated with each Engineered Safety Feature Actuation System (ESFAS) Functional Unit. CTS Table 3.3-2 ACTION 18 specifies that where action is required is when the number of OPERABLE channels one less than the Minimum Channels OPERABLE. ITS Table 3.3.6-1 supplies one column "Required Channels," that lists the number of channels required below which Action must be taken. The ITS "Required Channels" column value is the value used in CTS below which Action must be taken whether it is from the CTS Table 3.3-2 "Minimum Channels OPERABLE" column as identified by the CTS Action.

This change is acceptable because the requirements for when actions must be taken remain unchanged. The ITS "REQUIRED CHANNELS" column reflects the current requirements in the CTS ACTIONS for when actions are required to be taken. This change is designated as administrative because it does not result in technical changes to the CTS.

A03 CTS Table 3.3-2 identifies that two Containment Radioactivity – High channels are listed in the "Total NO of Channels" column with the "Minimum Channels Operable" column identifying one channel. CTS Table 3.3-2, "Total NO. of Channels," column for the Containment Radioactivity – High Function is modified by a Note stating that the Channels are for particulate radioactivity and for gaseous radioactivity stating that either an OPERABLE particulate radioactivity or gaseous radioactivity channel will satisfy the Minimum Channels OPERABLE requirement." CTS Action 16 states that with the number of OPERABLE channels less than the Minimum Channels OPERABLE requirement, operation may continue provided the Containment purge supply, exhaust and instrument air bleed valves are maintained closed. Therefore, in CTS, with an Operable Gaseous or Particulate Radioactive monitoring channel operation may continue indefinitely. ITS 3.3.6 Action A requires that with one radioactivity monitor inoperable action to restore the inoperable channel to an OPERABLE status must be initiated immediately. This changes the CTS by requiring action to be taken for one inoperable radiation monitoring channel is inoperable where it was not required in CTS.

This change is acceptable because the channel requirements in ITS 3.3.6 will ensure that the required radiation monitoring channel is OPERABLE. The proposed ITS ACTION for when one channel is inoperable will ensure that Actions used establish remedial measures that when taken minimize risk associated with continued operation are taken to restore the inoperable channel. This change is designated as administrative because similar actions, although not specified in CTS, will be taken in ITS.

A04 CTS 3.3.3.1, "Radiation Monitoring for Plant Operations," ACTION c states that the provisions of Specification 3.0.3 are not applicable. This exception does not exist in ITS 3.3.6. Specification 3.0.3 is applicable in MODES 1, 2, 3, and 4, and establishes remedial actions when a Specification provides no action for a given plant configuration or when a loss of safety function exists. The radiation monitors required to be OPERABLE per CTS 3.3.3.1 are the same as those required by CTS 3.3.2, "Engineered Safety Features Actuation System (ESFAS) Instrumentation." With respect to CTS 3.3.2, the monitors are associated with the Containment Isolation function and, therefore, are required to be OPERABLE in MODES 1, 2, 3, and 4. Because the radiation monitors associated with CTS 3.3.3.1 and the Containment Isolation function of CTS 3.3.2 are the same, it is not appropriate to exempt Specification 3.0.3. Therefore, CTS 3.3.3.1 ACTION c is not being retained in ITS 3.3.6.

This change is acceptable because the requirements for when actions must be taken remain unchanged. CTS 3.3.2 and ITS 3.3.6 govern operation in MODES 1, 2, 3, and 4; therefore, Specification 3.0.3 is applicable. This change is designated as administrative because it does not result in technical changes to the CTS.

A05 CTS Table 3.3-4 ACTION 27 requires compliance with CTS 3.9.9 (Containment Ventilation Isolation System) and CTS 3.9.13 (Radiation Monitoring) when both the gaseous and particulate containment radiation monitors are inoperable in MODE 5 or 6. CTS 3.9.13 is a shortened version of CTS 3.3.3.1 and is being relocated to the Technical Requirements Manual (TRM). When the Containment Ventilation Isolation System is inoperable (which may be a result of both containment radiation monitors being inoperable), the Actions of CTS 3.9.9 require isolating affected penetrations, which is performed in accordance with ITS 3.9.4, "Containment Penetrations." CTS Table 3.3-4 ACTION 27 is simplified in ITS 3.3.6 by requiring direct entry into ITS 3.9.4 when both containment radiation monitors are inoperable.

This change is acceptable because the requirements for what actions must be taken remain unchanged. The Actions of CTS 3.9.9 and CTS 3.9.13 both result in eventual isolation of affected penetrations, which is accomplished by ITS 3.9.4. This change is designated as administrative because it does not result in technical changes to the CTS.

<u>MORE RESTRICTIVE CHANGES</u>

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 3.3-2 has three columns stating various requirements for each function labeled, "TOTAL NO. OF CHANNELS," "CHANNELS TO TRIP," and "MINIMUM CHANNELS OPERABLE." ITS Table 3.3.6-1 does not retain the "TOTAL NO. OF CHANNELS" or "CHANNELS TO TRIP" columns. This changes the CTS by moving the information of the "TOTAL NO. OF CHANNELS" and "CHANNELS TO TRIP" columns to the Bases.

The removal of these details, which are related to system design, from the Technical Specifications, is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for the number of required channels and the appropriate Condition to enter if a required channel becomes inoperable. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA02 (*Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements*) CTS 3.3.2 requires the ESFAS instrumentation channels and interlocks shown in Table 3.3-2 to be OPERABLE with their Trip Setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-3. However, CTS 3.3.2 ACTION only requires a determination of OPERABILITY with an ESFAS Instrumentation or Interlock Trip Setpoint less conservative than the value shown in the Allowable Value column of Table 3.3-3. When the setpoint is less conservative than the Allowable Value, the setpoint is adjusted consistent with the Trip Setpoint value of Table 3.3-3 and determine within 12 hours that the affected channel is OPERABLE; or the channel is declared inoperable and the applicable ACTION statement requirements of Table 3.3-2 applied. CTS Table 3.3-3 specifies both the Trip Setpoints and Allowable Values for the ESFAS Instrumentation Functional Units.

CTS 3.3.3.1 requires radiation monitoring instrumentation channels shown in Table 3.3-4 to be OPERABLE with their Alarm/Trip Setpoints within the specified limits. CTS Table 3.3-4 only specifies Alarm/Trip Setpoints. With the Alarm/Trip Setpoint value exceeded, the Trip Setpoint must be adjusted to within the limit within 4 hours or the channel is declared inoperable. This Specification is largely redundant to the requirements of CTS 3.3.2 above, both involving the same radiation monitors: one gaseous and one particulate containment atmosphere radiation monitor (only one of which is required to be OPERABLE).

ITS 3.3.6 requires the Containment Ventilation Isolation instrumentation for each Function in Table 3.3.6-1 to be OPERABLE. ITS Table 3.3.6-1 specifies only the Allowable Values for the Containment Ventilation Isolation Instrumentation Functions. The Allowable Values represent the OPERABILITY limit of the channels in ITS. This changes the CTS by moving the Trip Setpoints and associated information from CTS 3.3.2 and CTS 3.3.3.1 to the TRM.

The purpose of actuation setpoints is to ensure the mitigation of and minimize the consequences of accidents. The PTN Instrument Setpoint Methodology calculates nominal trip setpoints (NTSPs) using methods consistent with the guidance provided in NRC Regulatory Guide (RG) 1.105, "Setpoints for Safety-Related Instrumentation," and ANSI/ISA Standard 67.04, "Setpoints for Nuclear Safety-Related Instrumentation." Additionally, pre-defined limits (double-sided Operability (as-found) limits and as-left limits) are determined for each instrument consistent with the guidance provided in NRC RG 1.105 and ANSI/ISA–RP67.04, "Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation." The instrument Operability limit band in plant uncertainty calculations is synonymous with the as-found acceptance criteria band specified in ITS and is centered about the nominal equipment setting (clarified in calculations as the NTSP). The PTN Instrument Setpoint Methodologies, including the method of determining instrument uncertainties, were reviewed by the NRC during the review of the power uprate to 2300 Mwt (NRC ADAMS Accession Nos. ML013390234) and the Extended Power Uprate (EPU) (NRC ADAMS Accession Nos. ML11293A365). In the NRC staff's approval of the 2300 Mwt power uprate amendment the NRC staff the staff determined that the proposed setpoint changes were acceptable because the staff had previously reviewed and approved the setpoint methodology used to determine the setpoint (WCAP-12745). In the NRC staff's approval of the PTN EPU amendment the NRC staff determined that the PTN setpoint methodology (WCAP-17070) was acceptable for this license amendment because the setpoint calculation provide adequate safety margins between the Allowable Value (AV) and Allowable Limit (AL), as well as adequate safety margin between the NTSP and AL.

The removal of these details for meeting Technical Specification requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS retains the Allowable Values associated with the Containment Ventilation Isolation Instrumentation, which are designated as the Operability limits for the required instrument Functions. Also, this change is acceptable because these types of procedural details will be adequately controlled in the TRM. Any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L01 *(Category 4 – Relaxation of Required Action)* CTS 3.3.3.1 Table 3.3-4 ACTION 27 Part 1 requires that grab samples of the containment atmosphere be obtained and analyzed once per 24 hours when both the gaseous and particulate containment radiation monitors are inoperable in MODE 5 or 6. Part 2 of this Action requires the containment atmosphere to be monitored via area radiation monitors. If these Actions are not met, further Action is taken to isolate any open containment penetrations. ITS 3.3.6 is not Applicable in MODE 5 or 6 and does not contain Actions for MODE 5 or 6 (absent the movement of recently irradiated fuel within the containment building). This changes the CTS by not retaining these Actions in the ITS.

ITS 3.3.6 provides Required Actions and Completion Times when both the gaseous and particulate containment radiation monitors are inoperable in MODES 1, 2, 3, and 4, and during the movement of recently irradiated fuel in the containment building. These Required Actions and Completion Times are appropriate to mitigate the consequences of a MODE 1, 2, 3, or 4 Design Basis Accident (DBA) or the consequences of a Fuel Handling Accident in any MODE of operation. While containment atmosphere radiation levels in MODES 5 and 6 are administratively monitored via installed and/or portable instruments, it is not necessary to maintain MODE 5 and 6 Actions within the Technical Specifications for such monitoring given that the ITS retains remedial Actions which govern the loss of the gaseous and particulate containment radiation during the movement of recently irradiated fuel in the containment building. This change is consistent with the ISTS. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.3 INSTRUMENTATION

3.3.2

3.3.6 Containment ~~Purge and~~ Ventilation ~~Exhaust~~ Isolation Instrumentation 1

LCO 3.3.2

LCO 3.3.6 The Containment ~~Purge and~~ Ventilation ~~Exhaust~~ Isolation instrumentation for each Function in Table 3.3.6-1 shall be OPERABLE. 1

APPLICABILITY: According to Table 3.3.6-1.

ACTIONS

---NOTE---

Separate Condition entry is allowed for each Function.

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
DOC A03	A. One radiation monitoring channel inoperable.	A.1 ~~Restore~~ Initiate action to restore the affected channel to OPERABLE status.	~~4 hours~~ Immediately	1
3.3.2 ACTION 16 3.3.3.1 ACTION 26	B. ------------NOTE------------ Only applicable in MODE 1, 2, 3, or 4. -------------------------------- One or more Functions with one or more manual or automatic actuation trains inoperable. OR Two ~~or more~~ radiation monitoring channels inoperable. OR 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 purge and exhaust isolation~~ instrument air bleed valves made inoperable by isolation instrumentation. B.2 -------------NOTE------------- Only applicable when both radiation monitoring channels are inoperable. ------------------------------------ Enter applicable Conditions and Required Actions of LCO 3.4.15, "RCS Leakage Detection Instrumentation."	Immediately Immediately	1 3 1

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
3.3.3.1 ACTION 27 C. ------------NOTE------------ Only applicable during movement of ~~[~~recently~~]~~ irradiated fuel assemblies within containment. -------------------------------- One or more Functions with one or more manual or automatic actuation trains inoperable. OR Two ~~or more~~ radiation monitoring channels inoperable. OR Required Action and associated Completion Time for Condition A not met.	C.1	Place and maintain containment purge and exhaust valves in closed position.	Immediately 2
	OR		
	C.2	Enter applicable Conditions and Required Actions of LCO 3.9.4, "Containment Penetrations," for containment purge and exhaust isolation valves and instrument air bleed valves made inoperable by isolation instrumentation.	Immediately 1 1

SURVEILLANCE REQUIREMENTS

-----NOTE-----
Refer to Table 3.3.6-1 to determine which SRs apply for each Containment ~~Purge and Exhaust~~ Ventilation Isolation Function.

SURVEILLANCE		FREQUENCY
Table 4.3-2 Function 3.c.4 SR 3.3.6.1	Perform CHANNEL CHECK.	~~[12 hours~~ 2 ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 1
~~SR 3.3.6.2~~	~~Perform ACTUATION LOGIC TEST.~~	~~[31 days on a STAGGERED TEST BASIS~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~ 1
~~SR 3.3.6.3~~	~~Perform MASTER RELAY TEST.~~	~~[31 days on a STAGGERED TEST BASIS~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~ 1

1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
~~-------REVIEWER'S NOTE-------~~ ~~The Frequency of 92 days on a STAGGERED TEST BASIS is applicable to the actuation logic processed through the Relay or Solid State Protection System.~~ ~~-------~~	
~~[SR 3.3.6.4 -------NOTE-------~~ ~~This Surveillance is only applicable to the actuation logic of the ESFAS Instrumentation.~~ ~~-------~~ ~~Perform ACTUATION LOGIC TEST.~~	~~[92 days on a STAGGERED TEST BASIS]~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~

1

1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY	
~~-----REVIEWER'S NOTE-----~~ ~~The Frequency of 92 days on a STAGGERED TEST BASIS is applicable to the master relays processed through the Solid State Protection System.~~ ~~-----~~ ~~[SR 3.3.6.5~~ ~~-----NOTE-----~~ ~~This Surveillance is only applicable to the master relays of the ESFAS Instrumentation.~~ ~~-----~~ ~~Perform MASTER RELAY TEST.~~		~~[92 days on a STAGGERED TEST BASIS~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~	1
Table 4.3-2 Function 3.c.4	SR 3.3.6.~~6~~ 2 Perform COT.	~~[92 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program]	1 2 2

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
~~SR 3.3.6.7~~	~~Perform SLAVE RELAY TEST.~~	~~[[92] days~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~
~~SR 3.3.6.8~~	~~-------------------------------NOTE-------------------------------~~ ~~Verification of setpoint is not required.~~ ~~---~~ ~~Perform TADOT.~~	~~[[18] months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~
Table 4.3-2 Function 3.c.4 SR 3.3.6.~~9~~ 3	Perform CHANNEL CALIBRATION.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

Table 3.3.6-1 (page 1 of 1)
Containment ~~Purge and Exhaust~~ Ventilation Isolation Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	~~TRIP SETPOINT~~ ALLOWABLE VALUE
	1. ~~Manual Initiation~~ INSERT 1	~~1,2,3,4, (a)~~	~~2~~	~~SR 3.3.6.8~~	~~NA~~
Table 4.3-2 Function 3.c.2	2. Automatic Actuation Logic and Actuation Relays	1,2,3,4, ~~(a)~~	2 trains	NA ~~SR 3.3.6.2~~ ~~SR 3.3.6.3~~ ~~[SR 3.3.6.4]~~ ~~[SR 3.3.6.5]~~ ~~SR 3.3.6.7~~	NA
Table 4.3-2 Function 3.c.4	3. ~~[~~ Containment Radiation (c)				
	a. Gaseous	1,2,3,4, (a)	~~[~~1~~]~~	SR 3.3.6.1 SR 3.3.6.~~6~~ 2 SR 3.3.6.~~9~~ 3	≤ ~~[2 x background]~~ (b)
	b. Particulate	1,2,3,4, (a)	~~[~~1~~]~~	SR 3.3.6.1 SR 3.3.6.~~6~~ 2 SR 3.3.6.~~9~~ 3	≤ ~~[2 x background]~~ 5.00 x 10^{-6} μCi/cc
	~~c. Iodine~~	~~1,2,3,4, (a)~~	~~[1]~~	~~SR 3.3.6.1~~ ~~SR 3.3.6.6~~ ~~SR 3.3.6.9~~	~~≤ [2 x background]~~
	~~d. Area Radiation~~	~~1,2,3,4, (a)~~	~~[1]~~	~~SR 3.3.6.1~~ ~~SR 3.3.6.6~~ ~~SR 3.3.6.9~~	~~≤ [2 x background]]~~
	4. ~~Containment Isolation - Phase A~~ Safety Injection	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function ~~3.a~~ 1., for all initiation functions and requirements.			

(1)

(a) During movement of [recently] irradiated fuel assemblies within containment.

Table 3.3-3 Note 2

(b) $\frac{(1.22 \times 10^{-3})}{(F)} \mu Ci/cc,$

$$\text{Where } F = \frac{\text{Actual Purge Flow}}{\text{Design Purge Flow (35,000 CFM)}}$$

Setpoint may vary according to current plant conditions provided that the release rate does not exceed allowable limits provided in the Offsite Dose Calculation Manual.

Table 3.3-2 Note ##

(c) Either an OPERABLE particulate radioactivity or gaseous radioactivity channel will satisfy the Minimum Channels OPERABLE requirement.

INSERT 1

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1) Containment Isolation Manual Phase A or Manual Phase B	See LCO 3.3.2, Table 3.3.2-1, Items 3.a.1 and 3.b.1 for all Manual Containment Ventilation functions and requirements			

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.6, CONTAINMENT VENTILATION ISOLATION INSTRUMENTATION

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specifications (ISTS) that reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

3. Turkey Point Nuclear Generating Station (PTN) Improved Technical Specifications (ITS) 3.3.6 Required Action B.1 requires entry into LCO 3.6.3, "Containment Isolation Valves," for containment purge and exhaust isolation valves made inoperable by an inoperable Containment Ventilation Isolation System in MODES 1, 2, 3, or 4. PTN Current Technical Specifications (CTS) 3.3.2 Table 3.3-2 contains a Note * stating that the requirements for Containment Ventilation Isolation System OPERABILITY in MODES 1, 2, 3, or 4 are not applicable to Containment Purge and exhaust isolation valves. This is because CTS 3.6.3 (and ITS 3.6.3) which govern containment penetrations requires that the containment purge supply and exhaust isolation valves to be maintained administratively sealed closed and deactivated or the associated penetration(s) shall be isolated by blind flange in MODES 1, 2, 3, or 4. Therefore, ITS 3.3.6 Required Action B.1 is modified to apply only to the instrument air bleed valves that are made inoperable by an inoperable Containment Ventilation Isolation System. Removing reference to the containment purge and exhaust isolation valves does not result in a change to the CTS requirements.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.3 INSTRUMENTATION

B 3.3.6 Containment ~~Purge and Exhaust~~ Ventilation Isolation Instrumentation 1

BASES

BACKGROUND

Containment ~~purge and exhaust~~ Ventilation isolation instrumentation closes the ~~containment isolation valves in the Mini Purge System and the Shutdown Purge System~~ Containment Instrument Air Bleed valves. This action isolates the containment atmosphere from the environment to minimize releases of radioactivity in the event of an accident. The ~~Mini Purge System~~ Containment Instrument Air Bleed valves may be in use during reactor operation and ~~the Shutdown Purge System will be in use~~ with the reactor shutdown. 1 1

Containment ~~purge and exhaust~~ Ventilation isolation initiates on an automatic safety injection (SI) signal through the Containment Isolation - Phase A Function, or by manual actuation of Phase A Isolation. The Bases for LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation," discuss these modes of initiation. 1

INSERT 1 ~~Four radiation monitoring channels are also provided as input to the containment purge and exhaust isolation. The four channels measure containment radiation at two locations. One channel is a containment area gamma monitor, and the other three measure radiation in a sample of the containment purge exhaust. The three purge exhaust radiation detectors are of three different types: gaseous, particulate, and iodine monitors. All four detectors will respond to most events that release radiation to containment. However, analyses have not been conducted to demonstrate that all credible events will be detected by more than one monitor. Therefore, for the purposes of this LCO the four channels are not considered redundant. Instead, they are treated as four one-out-of-one Functions. Since the purge exhaust monitors constitute a sampling system, various components such as sample line valves, sample line heaters, sample pumps, and filter motors are required to support monitor OPERABILITY.~~ 1

~~Each of the purge systems has~~ The Containment Instrument Air Bleed valves have inner and outer containment isolation valves ~~in its supply and exhaust ducts~~. A high radiation signal from any one of the ~~four~~ channels initiates containment ~~purge~~ ventilation isolation, which closes both inner and outer ~~containment isolation valves in the Mini Purge System and the Shutdown Purge System~~ Containment Instrument Air Bleed valves. These ~~systems~~ valves are described in the Bases for LCO 3.6.3, "Containment Isolation Valves." 1

APPLICABLE SAFETY ANALYSES

INSERT 2 ~~The safety analyses assume that the containment remains intact with penetrations unnecessary for core cooling isolated early in the event, within approximately 60 seconds. The isolation of the purge valves has not been analyzed mechanistically in the dose calculations, although its~~ 1

INSERT 1

Containment Ventilation Isolation Valves include the Containment Purge Supply valves, the Containment Purge Exhaust valves and the Instrument Air Bleed valves. Containment Ventilation Isolation is initiated automatically by a safety injection signal or high containment radioactivity (R-11 or R-12) signals or manually by manual initiation of Phase A or Phase B Containment Isolation. The containment purge supply and exhaust isolation valves are maintained administratively sealed closed and deactivated or the associated penetration(s) are isolated by blind flange in MODES 1 through 4.

INSERT 2

The radiological effects of a containment purge have been evaluated which is assumed coincident with the beginning of the DBA LOCA. It was assumed that 100% of the radionuclide inventory of the RCS is released instantaneously into the containment at the beginning of the event. The containment purge contribution is modeled as a volumetric flow rate of 7000 cfm released to the environment for a period of 8 seconds before containment isolation valves end the release. As stated in the UFSAR the maximum closure time for these valves is 5 seconds from receipt of an automatic isolation signal. The containment purge is conservatively modeled as a ground level release via the plant vent with no credit for filtration. However, LCO 3.6.3 requires that the containment purge supply and exhaust isolation valves to be maintained administratively sealed closed and deactivated or the associated penetration(s) shall be isolated by blind flange in MODES 1 through 4.

BASES

APPLICABLE SAFETY ANALYSES (continued)

~~rapid isolation is assumed. The containment purge and exhaust isolation radiation monitors act as backup to the SI signal to ensure closing of the purge and exhaust valves. They are also the primary means for automatically isolating containment in the event of a fuel handling accident during shutdown~~. Containment isolation ~~in turn~~ ensures meeting the containment leakage rate assumptions of the safety analyses, and ensures that the calculated accidental offsite radiological doses are below 10 CFR ~~100~~ 50.67 (Ref. 1) limits. ~~[Due to radioactive decay, containment is only required to isolate during fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days).]~~ 1

The containment ~~purge and exhaust~~ Ventilation isolation instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii). 1

LCO

The LCO requirements ensure that the instrumentation necessary to initiate Containment ~~Purge and Exhaust~~ Ventilation Isolation, listed in Table 3.3.6-1, is OPERABLE. 1

1. ~~Manual Initiation~~ Manual Phase A or Manual Phase B Containment Isolation

See LCO 3.3.2, Table 3.3.2-1, Items 3.a.1 and 3.b.1 for all Manual Containment Ventilation Isolation functions and requirements.

~~The LCO requires two channels OPERABLE. The operator can initiate Containment Purge Isolation at any time by using either of two switches in the control room. Either switch actuates both trains. 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

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

BASES

LCO (continued)

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, and ESFAS Function 3.a, Containment Phase A Isolation. The applicable MODES and specified conditions for the containment purge isolation portion of these Functions are different and less restrictive than those for their Phase A isolation and SI roles. If one or more of the SI or Phase A isolation Functions becomes inoperable in such a manner that only the Containment ~~Purge~~ Ventilation Isolation Function is affected, the Conditions applicable to their 1
SI and Phase A isolation Functions need not be entered. The less restrictive Actions specified for inoperability of the Containment ~~Purge~~ Ventilation Isolation Functions specify sufficient compensatory measures 1
for this case.

3. Containment Radiation

The LCO specifies ~~four~~ two required channels of radiation monitors to 1
ensure that the radiation monitoring instrumentation necessary to initiate Containment ~~Purge~~ Ventilation Isolation remains OPERABLE. 1

For sampling systems, channel OPERABILITY involves more than OPERABILITY of the 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.

4. ~~Containment Isolation - Phase A~~ Safety Injection

Refer to LCO 3.3.2, Function ~~3.a.~~ 1., for all initiating Functions and requirements.

APPLICABILITY

The Manual Initiation, Automatic Actuation Logic and Actuation Relays, Containment Isolation - Phase A, and Containment Radiation Functions are required OPERABLE in MODES 1, 2, 3, and 4~~, and during movement of [recently] irradiated fuel assemblies [(i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)] within containment~~. 1
Under these conditions, the potential exists for an accident that could release significant fission product radioactivity into containment. Therefore, the containment ~~purge and exhaust~~ Ventilation isolation instrumentation 1
must be OPERABLE in these MODES.

BASES

APPLICABILITY (continued)

While in MODES 5 and 6 ~~without fuel handling in progress~~, the containment ~~purge and exhaust~~ ventilation 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. 1

The Applicability for the containment ~~purge and exhaust~~ Ventilation isolation on the ESFAS Containment Isolation-Phase A Functions are specified in LCO 3.3.2. Refer to the Bases for LCO 3.3.2 for discussion of the Containment Isolation-Phases A Function Applicability. 1

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 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.

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 3.3.6-1. 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.

A.1

Condition A applies to the failure of one containment ~~purge~~ ventilation isolation radiation monitor channel. Since the ~~four~~ containment radiation monitors measure different parameters, failure of a single channel may result in loss of the radiation monitoring Function for certain events. 1
Consequently, action must be initiated immediately to restore 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.~~ 1

BASES

ACTIONS (continued)

B.1

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

If a train is inoperable, multiple 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.

A Note is added stating that Condition B is only applicable in MODE 1, 2, 3, or 4.

C.1 and C.2

Condition C applies to all Containment ~~Purge and Exhaust~~ Ventilation 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 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 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.

~~A Note states that Condition C is applicable during movement of [recently] irradiated fuel assemblies within containment.~~

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that Table 3.3.6-1 determines which SRs apply to which Containment ~~Purge and Exhaust~~ Ventilation Isolation Functions.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.1

Performance of the CHANNEL CHECK 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, 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 of 12 months 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.~~ 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 3
~~---]~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~SR 3.3.6.2~~

~~SR 3.3.6.2 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 Surveillance interval is acceptable based on instrument reliability and industry operating experience.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program~~.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~

~~SR 3.3.6.3~~

~~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 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.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~-------------------------------REVIEWER'S NOTE-------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~

~~[SR 3.3.6.4~~

~~SR 3.3.6.4 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 92 days on a STAGGERED TEST BASIS. The Surveillance interval is justified in Reference 2.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-------------------------------REVIEWER'S NOTE-------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~

~~The SR is modified by a Note stating that the Surveillance is only applicable to the actuation logic of the ESFAS Instrumentation.]~~

~~[SR 3.3.6.5~~

~~SR 3.3.6.5 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~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~large enough to demonstrate signal path continuity. [This test is performed every 92 days on a STAGGERED TEST BASIS. The Surveillance interval is justified in Reference 2.~~ 2

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 3
~~---]~~

~~The SR is modified by a Note stating that the Surveillance is only applicable to the master relays of the EFAS Instrumentation.]~~ 2

2
SR 3.3.6.~~6~~ 1

A COT is performed on each required channel to ensure the entire channel will perform the intended Function. 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 COT 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 of 92 days is based on the staff recommendation for increasing the availability of radiation monitors according to NUREG-1366 (Ref. 3).~~ 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 3
~~---]~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

This test verifies the capability of the instrumentation to provide the containment purge and exhaust system isolation. There is a plant specific program which verifies that the instrument channel functions as required by verifying the as-left and as-found setting are consistent with those established by the setpoint methodology.

~~SR 3.3.6.7~~

~~SR 3.3.6.7 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. [The Frequency of 92 days is acceptable based on instrument reliability and industry operating experience.~~ 1

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------REVIEWER'S NOTE-----------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 3
~~---]~~

~~SR 3.3.6.8~~ 1

~~SR 3.3.6.8 is the performance of a TADOT. This test is a check of the Manual Actuation Functions. Each Manual Actuation Function is tested up to, and including, the master relay coils. 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~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~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. 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 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.~~ 1

~~[The Frequency of 18 months is based on the known reliability of the Function and the redundancy available, and has been shown to be acceptable through operating experience.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------REVIEWER'S NOTE-----------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 3
~~--]~~

SR 3.3.6.~~9~~3 1

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. There is a plant specific program which verifies that the instrument channel functions as required by verifying the as-left and as-found setting are consistent with those established by the setpoint methodology.

~~[The Frequency of 18 months is based on operating experience and is consistent with the typical industry refueling cycle.~~ 2

~~OR~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---~~] 3

REFERENCES

1. 10 CFR ~~100.11~~ 50.67. 1

2. WCAP-15376, Rev. 0, October 2000.

~~3. NUREG-1366, [date].~~

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.6 BASES, CONTAINMENT VENTILATION ISOLATION INSTRUMENTATION

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specifications (ISTS) Bases that reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

3. The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This Note is not meant to be retained in the final version of the plant specific submittal.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.3.6, CONTAINMENT VENTILATION ISOLATION INSTRUMENTATION

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 7

Relocated/Deleted Current Technical Specifications (CTS)

CTS 3.3.3.2, MOVABLE INCORE DETECTORS

Current Technical Specification (CTS) Markup
and Discussion of Changes (DOCs)

~~INSTRUMENTATION~~

~~MOVABLE INCORE DETECTORS~~

~~LIMITING CONDITION FOR OPERATION~~

~~3.3.3.2 The Movable Incore Detection System shall be OPERABLE with:~~

a. ~~At least 16 detector thimbles when used for recalibration and check of the Excore Neutron Flux~~

~~Detection System and monitoring the QUANDRANT POWER TILT RATIO*, and at least 38~~

~~detector thimbles when used for monitoring~~ $F^N_{\Delta H}$, ~~FQ(Z) and Fxy(Z).~~

~~b. A minimum of two detector thimbles per core quadrant, and~~

~~c. Sufficient movable detectors, drive, and readout equipment to map these thimbles.~~

~~APPLICABLITY: When the Movable Incore Detection System is used for:~~

~~a. Recalibration of the Excore Neutron Flux Detection System, or~~

~~b. Monitoring the QUADRANT POWER TILT RATIO*, or~~

~~c. Measurement of~~ $F^N_{\Delta H}$, ~~FQ(Z) and Fxy(Z).~~

~~ACTION:~~

~~With the Movable Incore Detection System inoperable, do not use the system for the above applicable monitoring or calibration functions. The provisions of Specification 3.0.3 are not applicable.~~

~~SURVEILLANCE REQUIREMENTS~~

~~4.3.3.2 The Movable Incore Detection System shall be demonstrated OPERABLE in accordance with the Surveillance Frequency Control Program by normalizing each detector output when required for~~:

~~a. Recalibration of the Excore Neutron Flux Detection System, or~~

~~b. Monitoring the QUADRANT POWER TILT RATIO*, or~~

~~c. Measurement of~~ $F^N_{\Delta H}$, ~~FQ(Z) and Fxy(Z).~~

~~* Exception to the 16 detector thimble requirement of monitoring the QUADRANT POWER TILT RATIO is acceptable when performing Specification 4.2.4.2 using two sets of four symmetric thimbles.~~

R01

ADMINISTRATIVE CHANGES

None

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

R01 CTS 3.3.3.2 provides the requirements for Movable Incore Detectors with the specified minimum complement of equipment ensures that the measurements obtained from use of this system accurately represent the spatial neutron flux distribution of the core. The operability of this system is demonstrated by irradiating each detector used and determining the acceptability of its voltage curve.

This requirement and the associated Surveillance Requirements (SRs) bear no relation to the conditions or limitations that are necessary to ensure safe reactor operation. While the incores can provide monitoring capability, the detectors are mainly utilized to recalibrate the excore detectors and do not provide input to any trip function. The excores are credited and utilized to provide input to the Reactor Trip System (RTS).

This change is acceptable because CTS 3.3.3.2 does not meet the 10 CFR 50.36(c)(2)(ii) criteria for inclusion into the ITS.

10 CFR 50.36(c)(2)(ii) Criteria Evaluation:

1. Movable Incore Detectors do not constitute an instrumentation system that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary. The Movable Incore Detector System Specification does not satisfy criterion 1.

2. Movable Incore Detectors are not a process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or challenge to the integrity of a fission product barrier. This TS specifies limits on process variables consistent with the structural analysis results. These limits, however, do not reflect initial condition assumptions in the DBA. The Movable Incore Detector System does not satisfy criterion 2.

3. Movable Incore Detectors are not a structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. Movable Incore Detector System specification does not satisfy criterion 3.

4. Movable Incore Detectors were found to be non-significant risk contributor to core damage frequency and offsite releases. These indications are not structures, systems, or components that operating experience or probabilistic safety assessment has shown to be significant to the public health and safety.

Since the selection criteria have not been satisfied, the Movable Incore Detectors LCO and Surveillances, may be relocated to licensee-controlled documents outside the TSs. The movable incores do not provide input to any trip system. The excores are credited and utilized in the RPS.

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

None

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
CTS 3.3.3.2, MOVABLE INCORE DETECTOR SYSTEM

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 8

Improved Standard Technical Specifications (ISTS)
Not Adopted in the Turkey Point ITS

- 3.3.4 – Remote Shutdown System
- 3.3.8 – Fuel Building Air Cleanup System (FBACS) Actuation Instrumentation
- 3.3.9 – Boron Dilution Protection System (BDPS)

ISTS 3.3.4, REMOTE SHUTDOWN SYSTEM

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

1

~~3.3 INSTRUMENTATION~~

~~3.3.4 Remote Shutdown System~~

~~LCO 3.3.4 The Remote Shutdown System Functions shall be OPERABLE.~~

~~APPLICABILITY: MODES 1, 2, and 3.~~

~~ACTIONS~~

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

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. One or more required Functions inoperable.~~	~~A.1 Restore required Function to OPERABLE status.~~	~~30 days~~
~~B. Required Action and associated Completion Time not met.~~	~~B.1 Be in MODE 3.~~ ~~AND~~ ~~B.2 Be in MODE 4.~~	~~6 hours~~ ~~12 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.3.4.1 [Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.~~	~~[31 days~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~

1

1

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SR 3.3.4.2~~	~~Verify each required control circuit and transfer switch is capable of performing the intended function.~~	~~[[18] months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~
~~SR 3.3.4.3~~	~~-------------------------------NOTE-----------------------------~~ ~~Neutron detectors are excluded from CHANNEL CALIBRATION.~~ ~~---~~ ~~Perform CHANNEL CALIBRATION for each required instrumentation channel.~~	~~[[18] months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~
~~SR 3.3.4.4~~	~~[Perform TADOT of the reactor trip breaker open/closed indication.~~	~~[18 months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~

1

JUSTIFICATION FOR DEVIATIONS
ISTS 3.3.4, "REMOTE SHUTDOWN"

1. Improved Standard Technical Specifications (ISTS) 3.3.4, "Remote Shutdown" is not being adopted because Turkey Point Nuclear Generating Station (PTN) does not include a separate Remote Shutdown specification. Therefore, ISTS 3.3.4 is not included in the PTN Improved Technical Specifications.

Improved Standard Technical Specifications (ISTS) Bases Markup and Bases Justification for Deviations (JFDs)

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~~B 3.3 INSTRUMENTATION~~

~~B 3.3.4 Remote Shutdown System~~

~~BASES~~

~~BACKGROUND~~

~~The Remote Shutdown System provides the control room operator with sufficient instrumentation and controls to place and maintain the unit in a safe shutdown condition from a location other than the control room. This capability is necessary to protect against the possibility that the control room becomes inaccessible. A safe shutdown condition is defined as MODE 3. With the unit in MODE 3, the Auxiliary Feedwater (AFW) System and the steam generator (SG) safety valves or the SG atmospheric dump valves (ADVs) can be used to remove core decay heat and meet all safety requirements. The long term supply of water for the AFW System and the ability to borate the Reactor Coolant System (RCS) from outside the control room allows extended operation in MODE 3.~~

~~If the control room becomes inaccessible, the operators can establish control at the remote shutdown panel, and place and maintain the unit in MODE 3. Not all controls and necessary transfer switches are located at the remote shutdown panel. Some controls and transfer switches will have to be operated locally at the switchgear, motor control panels, or other local stations. The unit automatically reaches MODE 3 following a unit shutdown and can be maintained safely in MODE 3 for an extended period of time.~~

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~~The OPERABILITY of the remote shutdown control and instrumentation functions ensures there is sufficient information available on selected unit parameters to place and maintain the unit in MODE 3 should the control room become inaccessible.~~

~~APPLICABLE SAFETY ANALYSES~~

~~The Remote Shutdown System is required to provide equipment at appropriate locations outside the control room with a capability to promptly shut down and maintain the unit in a safe condition in MODE 3.~~

~~The criteria governing the design and specific system requirements of the Remote Shutdown System are located in 10 CFR 50, Appendix A, GDC 19 (Ref. 1).~~

~~The Remote Shutdown System satisfies Criterion 4 of 10 CFR 50.36(c)(2)(ii).~~

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~~BASES~~

~~LCO~~

~~The Remote Shutdown System LCO provides the OPERABILITY requirements of the instrumentation and controls necessary to place and maintain the unit in MODE 3 from a location other than the control room. The instrumentation and controls required are listed in Table B 3.3.4-1.~~

~~The controls, instrumentation, and transfer switches are required for:~~

- ~~Core reactivity control (initial and long term),~~
- ~~RCS pressure control,~~
- ~~Decay heat removal via the AFW System and the SG safety valves or SG ADVs,~~
- ~~RCS inventory control via charging flow, and~~
- ~~Safety support systems for the above Functions, including service water, component cooling water, and onsite power, including the diesel generators.~~

~~A Function of a Remote Shutdown System is OPERABLE if all instrument and control channels needed to support the Remote Shutdown System Function are OPERABLE. In some cases, Table B 3.3.4-1 may indicate that the required information or control capability is available from several alternate sources. In these cases, the Function is OPERABLE as long as one channel of any of the alternate information or control sources is OPERABLE.~~ 1

~~The remote shutdown instrument and control circuits covered by this LCO do not need to be energized to be considered OPERABLE. This LCO is intended to ensure the instruments and control circuits will be OPERABLE if unit conditions require that the Remote Shutdown System be placed in operation.~~

~~APPLICABILITY~~

~~The Remote Shutdown System LCO is applicable in MODES 1, 2, and 3. This is required so that the unit can be placed and maintained in MODE 3 for an extended period of time from a location other than the control room.~~

~~This LCO is not applicable in MODE 4, 5, or 6. In these MODES, the facility is already subcritical and in a condition of reduced RCS energy. Under these conditions, considerable time is available to restore necessary instrument control functions if control room instruments or controls become unavailable.~~

~~BASES~~

~~ACTIONS~~

~~A Remote Shutdown System division is inoperable when each function is not accomplished by at least one designated Remote Shutdown System channel that satisfies the OPERABILITY criteria for the channel's Function. These criteria are outlined in the LCO section of the Bases.~~

~~A Note has been added to the ACTIONS to clarify the application of Completion Time rules. Separate Condition entry is allowed for each Function. 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 addresses the situation where one or more required Functions of the Remote Shutdown System are inoperable. This includes the control and transfer switches for any required Function.~~

~~The Required Action is to restore the required Function to OPERABLE status within 30 days. The Completion Time is based on operating experience and the low probability of an event that would require evacuation of the control room.~~

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~~B.1 and B.2~~

~~If the Required Action and associated Completion Time of Condition A is 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 4 within 12 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~~

~~SR 3.3.4.1~~

~~Performance of the CHANNEL CHECK 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. CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION.~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and readability. If the channels are within the criteria, it is an indication that the channels are OPERABLE. 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.

As specified in the Surveillance, a CHANNEL CHECK is only required for those channels which are normally energized.

[The Frequency of 31 days is based upon operating experience which demonstrates that 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.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. 1

-----------------------------------REVIEWER'S NOTE-----------------------------------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
---]

SR 3.3.4.2

SR 3.3.4.2 verifies each required Remote Shutdown System control circuit and transfer switch performs the intended function. This verification is performed from the remote shutdown panel and locally, as appropriate. Operation of the equipment from the remote shutdown panel is not necessary. The Surveillance can be satisfied by performance of a continuity check. This will ensure that if the control room becomes inaccessible, the unit can be placed and maintained in MODE 3 from the remote shutdown panel and the local control stations. [The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an

~~BASES~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~unplanned transient if the Surveillance were performed with the reactor at power. (However, this Surveillance is not required to be performed only during a unit outage.) Operating experience demonstrates that remote shutdown control channels usually pass the Surveillance test when performed at the [18] month Frequency.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~

~~SR 3.3.4.3~~

~~CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy.~~

~~Whenever a sensing element is replaced, the next required CHANNEL CALIBRATION of the resistance temperature detectors (RTD) sensors is accomplished by an inplace cross calibration that compares the other sensing elements with the recently installed sensing element.~~

~~[The Frequency of [18] months is based upon operating experience and consistency with the typical industry refueling cycle.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

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~~BASES~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~

~~[SR 3.3.4.4~~

~~SR 3.3.4.4 is the performance of a TADOT. This test should verify the OPERABILITY of the reactor trip breakers (RTBs) open and closed indication on the remote shutdown panel, by actuating the RTBs. 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 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 of 18 months is based upon operating experience and consistency with the typical industry refueling outage.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]]~~

~~REFERENCES~~ ~~1. 10 CFR 50, Appendix A, GDC 19.~~

Table B 3.3.4-1 (page 1 of 1)
Remote Shutdown System Instrumentation and Controls

FUNCTION/INSTRUMENT OR CONTROL PARAMETER	REQUIRED NUMBER OF FUNCTIONS
1. Reactivity Control	
a. Source Range Neutron Flux	[1]
b. Reactor Trip Breaker Position	[1 per trip breaker]
c. Manual Reactor Trip	[2]
2. Reactor Coolant System (RCS) Pressure Control	
a. Pressurizer Pressure or RCS Wide Range Pressure	[1]
b. Pressurizer Power Operated Relief Valve (PORV) Control and Block Valve Control	[1, controls must be for PORV & block valves on same line]
3. Decay Heat Removal via Steam Generators (SGs)	
a. RCS Hot Leg Temperature	[1 per loop]
b. RCS Cold Leg Temperature	[1 per loop]
c. AFW Controls Condensate Storage Tank Level	[1]
d. SG Pressure	[1 per SG]
4. RCS Inventory Control	
a. Pressurizer Level	[1]
b. Charging Pump Controls	[1]

-----REVIEWER'S NOTE-----
For channels that fulfill GDC 19 requirements, the number of OPERABLE channels required depends upon the unit licensing basis as described in the NRC unit specific Safety Evaluation Report (SER). Generally, two divisions are required OPERABLE. However, only one channel per a given Function is required if the unit has justified such a design, and NRC's SER accepted the justification.

-----REVIEWER'S NOTE-----
This Table is for illustration purposes only. It does not attempt to encompass every Function used at every unit, but does contain the types of Functions commonly found.

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.4 BASES, "REMOTE SHUTDOWN"

1. Improved Standard Technical Specifications (ISTS) 3.3.4 Bases, "Remote Shutdown" are not included in the Turkey Point Unit 3 and Unit 4 (PTN) ITS because the Specification, ISTS 3.3.4, has not been included in the PTN Improved Technical Specifications.

ISTS 3.3.8, FUEL BUILDING AIR CLEANUP SYSTEM (FBACS) ACTUATION INSTRUMENTATION

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

~~3.3 INSTRUMENTATION~~

~~3.3.8 Fuel Building Air Cleanup System (FBACS) Actuation Instrumentation~~

~~LCO 3.3.8 The FBACS actuation instrumentation for each Function in Table 3.3.8-1 shall be OPERABLE.~~

~~APPLICABILITY: According to Table 3.3.8-1.~~

~~ACTIONS~~

~~-----NOTES-----~~

~~1. LCO 3.0.3 is not applicable.~~

~~2. 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 FBACS train in operation.~~	~~7 days~~
~~B. One or more Functions with two channels or two trains inoperable.~~	~~B.1.1 Place one FBACS train in operation.~~	~~Immediately~~
	~~AND~~	
	~~B.1.2 Enter applicable Conditions and Required Actions of LCO 3.7.13, "Fuel Building Air Cleanup System (FBACS)," for one train made inoperable by inoperable actuation instrumentation.~~	~~Immediately~~
	~~OR~~	
	~~B.2 Place both trains in emergency [radiation protection] mode.~~	~~Immediately~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~C. Required Action and associated Completion Time for Condition A or B not met during movement of [recently] irradiated fuel assemblies in the fuel building.~~	~~C.1 Suspend movement of [recently] irradiated fuel assemblies in the fuel building.~~	~~Immediately~~
~~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 -------------NOTE-------------~~ ~~LCO 3.0.4.a is not applicable when entering MODE 4.~~ ~~--------------------------------~~ ~~Be in MODE 4.~~	~~6 hours~~ ~~12 hours]~~

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~~SURVEILLANCE REQUIREMENTS~~

~~-----NOTE-----~~

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

~~-----~~

~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.3.8.1 Perform CHANNEL CHECK.~~	~~[12 hours~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~

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~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.3.8.2~~	~~Perform COT.~~	~~[92 days~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~
~~SR 3.3.8.3~~	~~[Perform ACTUATION LOGIC TEST.~~	~~[31 days on a STAGGERED TEST BASIS~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~
~~SR 3.3.8.4~~	~~-----------------------------NOTE-----------------------------~~ ~~Verification of setpoint is not required.~~ ~~---~~ ~~Perform TADOT.~~	~~[[18] months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~

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~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.3.8.5~~	~~Perform CHANNEL CALIBRATION.~~	~~[[18] months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~

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~~Table 3.3.8-1 (page 1 of 1)~~
~~FBACS Actuation Instrumentation~~

~~FUNCTION~~	~~APPLICABLE MODES OR SPECIFIED CONDITIONS~~	~~REQUIRED CHANNELS~~	~~SURVEILLANCE REQUIREMENTS~~	~~TRIP SETPOINT~~
~~1. Manual Initiation~~	~~[1,2,3,4], (a)~~	~~2~~	~~SR 3.3.8.4~~	~~NA~~
~~2. [Automatic Actuation Logic and Actuation Relays~~	~~1,2,3,4, (a)~~	~~2 trains~~	~~SR 3.3.8.3~~	~~NA]~~
~~3. Fuel Building Radiation~~				
~~a. Gaseous~~	~~[1,2,3,4], (a)~~	~~[2]~~	~~SR 3.3.8.1~~ ~~SR 3.3.8.2~~ ~~SR 3.3.8.5~~	~~≤ [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~~

~~(a) During movement of [recently] irradiated fuel assemblies in the fuel building.~~

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JUSTIFICATION FOR DEVIATIONS
ISTS 3.3.8, "FUEL BUILDING AIR CLEANUP SYSTEM (FBACS) ACTUATION INSTRUMENTATION"

1. Improved Standard Technical Specifications (ISTS) 3.3.8, "Fuel Building Air Cleanup System (FBACS) Actuation Instrumentation," is not being adopted because Turkey Point Nuclear Generating Station (PTN) analysis does not require this feature. Therefore, ISTS 3.3.8 is not included in the PTN Improved Technical Specifications.

Improved Standard Technical Specifications (ISTS) Bases Markup and Bases Justification for Deviations (JFDs)

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~~B 3.3 INSTRUMENTATION~~

~~B 3.3.8 Fuel Building Air Cleanup System (FBACS) Actuation Instrumentation~~

~~BASES~~

~~BACKGROUND~~

~~The FBACS ensures that radioactive materials in the fuel building atmosphere following a fuel handling accident [involving handling recently irradiated fuel] 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, "Fuel Building Air Cleanup System." The system initiates filtered ventilation of the fuel 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.~~

~~High gaseous and particulate radiation, each monitored by either of two monitors, provides FBACS initiation. Each 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 any monitor or an SI signal from the Engineered Safety Features Actuation System (ESFAS) initiates fuel building isolation and starts the FBACS. These actions function to prevent exfiltration of contaminated air by initiating filtered ventilation, which imposes a negative pressure on the fuel 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.~~ 1

~~APPLICABLE SAFETY ANALYSES~~

~~The FBACS ensures that radioactive materials in the fuel building atmosphere following a fuel handling accident [involving handling recently irradiated fuel] or a LOCA are filtered and adsorbed prior to being exhausted to the environment. This action reduces the radioactive content in the fuel 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 FBACS actuation instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).~~

~~LCO~~

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

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~~BASES~~

~~LCO (continued)~~

~~1. Manual Initiation~~

~~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~~

~~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 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.~~ 1

~~3. Fuel Building Radiation~~

~~The LCO specifies two required Gaseous Radiation Monitor channels and two required Particulate Radiation Monitor channels to ensure that the radiation monitoring instrumentation necessary to initiate the FBACS remains OPERABLE.~~

~~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.~~

~~BASES~~

~~LCO (continued)~~

~~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 FBACS initiation must be OPERABLE in MODES [1, 2, 3, and 4] and when moving [recently] irradiated fuel assemblies in the fuel building, to ensure the FBACS operates to remove fission products associated with leakage after a LOCA or a fuel handling accident [involving handling recently irradiated fuel]. 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 FBACS must be OPERABLE in any MODE during movement of [recently] irradiated fuel assemblies in the fuel building to ensure automatic initiation of the FBACS when the potential for the limiting fuel handling accident exists. [Due to radioactive decay, the FBACS instrumentation is only required to be OPERABLE during fuel handling involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days).]~~ 1

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

~~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 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.~~

~~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 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.~~

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~~BASES~~

~~ACTIONS (continued)~~

~~A second 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.~~

~~A.1~~

~~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 allowed to 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.~~ 1

~~B.1.1, B.1.2, B.2~~

~~Condition B applies to the failure of two FBACS actuation logic trains, two radiation monitors, or two manual channels. The Required Action is to place one 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 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.~~

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

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~~BASES~~

~~ACTIONS (continued)~~

~~C.1~~

~~Condition C applies when the Required Action and associated Completion Time for Condition A or B have not been met and [recently] irradiated fuel assemblies are being moved in the fuel building. Movement of [recently] irradiated fuel assemblies in the fuel building must be suspended immediately to eliminate the potential for events that could require FBACS actuation.~~

~~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 and the unit is in MODE 1, 2, 3, or 4. The unit must be brought to a MODE in which overall plant risk is reduced. To achieve this status, the unit must be brought to MODE 3 within 6 hours and MODE 4 within 12 hours.~~

~~Remaining within the Applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 3). In MODE 4 the steam generators and Residual Heat Removal System are available to remove decay heat, which provides diversity and defense in depth. As stated in Reference 3, the steam turbine driven auxiliary feedwater pump must be available to remain in MODE 4. Should steam generator cooling be lost while relying on this Required Action, there are preplanned actions to ensure long-term decay heat removal. Voluntary entry into MODE 5 may be made as it is also acceptable from a risk perspective.~~ 1

~~Required Action D.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.~~

~~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.~~

 1

~~BASES~~

~~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.~~

~~SR 3.3.8.1~~

~~Performance of the CHANNEL CHECK 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, 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.~~ 1

~~[The Frequency of 12 hours 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.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~

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~~BASES~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SR 3.3.8.2~~

~~A COT is performed on each required channel to ensure the entire channel will perform the intended function. 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 COT 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. This test verifies the capability of the instrumentation to provide the FBACS actuation. There is a plant specific program which verifies that the instrument channel functions as required by verifying the as-left and as-found setting are consistent with those established by the setpoint methodology.~~

~~[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.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~

1

~~SR 3.3.8.3~~

~~[SR 3.3.8.3 is the performance of an ACTUATION LOGIC TEST. All possible logic combinations, with and without applicable permissives, are tested for each protection function. [The actuation logic is tested every 31 days on a STAGGERED TEST BASIS. The Frequency is based on the known reliability of the relays and controls and the multichannel redundancy available, and has been shown to be acceptable through operating experience.~~

~~OR~~

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~~BASES~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
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~~SR 3.3.8.4~~

~~SR 3.3.8.4 is the performance of a TADOT. This test is a check of the manual actuation functions. Each manual actuation function is tested up to, and including, the master relay coils. 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 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. In some instances, the test includes actuation of the end device (e.g., pump starts, valve cycles, etc.). [The Frequency of 18 months is based on operating experience and is consistent with the typical industry refueling cycle.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
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~~The SR is modified by a Note that excludes verification of setpoints during the TADOT. The Functions tested have no setpoints associated with them.~~

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~~BASES~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SR 3.3.8.5~~

~~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. There is a plant specific program which verifies that the instrument channel functions as required by verifying the as-left and as-found setting are consistent with those established by the setpoint methodology.~~

~~[The Frequency of [18] months is based on operating experience and is consistent with the typical industry refueling cycle.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----REVIEWER'S NOTE-----~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
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~~REFERENCES~~

~~1. 10 CFR 100.11.~~

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

~~3. WCAP-16294-NP-A, Rev. 1, "Risk-Informed Evaluation of Changes to Technical Specification Required Action Endstates for Westinghouse NSSS PWRs," June 2010.~~

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.8 BASES, "FUEL BUILDING AIR CLEANUP SYSTEM (FBACS) ACTUATION INSTRUMENTATION"

1. Improved Standard Technical Specifications (ISTS) 3.3.8 Bases, "Fuel Building Air Cleanup System (FBACS) Actuation Instrumentation," are not included in the Turkey Point Unit 3 and Unit 4 (PTN) ITS because the Specification, ISTS 3.3.8, has not been included in the PTN Improved Technical Specifications.

ISTS 3.3.9, BORON DILUTION PROTECTION SYSTEM (BDPS)

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

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~~3.3 INSTRUMENTATION~~

~~3.3.9 Boron Dilution Protection System (BDPS)~~

~~LCO 3.3.9 Two trains of the BDPS shall be OPERABLE.~~

~~APPLICABILITY: MODES [2,] 3, 4, and 5.~~

~~-----NOTE-----~~
~~The boron dilution flux doubling signal may be blocked in MODES 2 and 3 during reactor startup.~~
~~----------~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. One train inoperable.~~	~~A.1 Restore train to OPERABLE status.~~	~~72 hours~~ ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~
~~B. Two trains inoperable.~~ ~~OR~~ ~~Required Action and associated Completion Time of Condition A not met.~~	~~B.1 -----NOTE----- Plant temperature changes are allowed provided the temperature change is accounted for in the calculated SDM. ----------~~ ~~Suspend operations involving positive reactivity additions.~~ ~~AND~~	 ~~Immediately~~

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~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
	~~B.2.1 Restore one train to OPERABLE status.~~	~~1 hour~~
	~~OR~~	
	~~B.2.2.1 Close unborated water source isolation valves.~~	~~1 hour~~
	~~AND~~	
	~~B.2.2.2 Perform SR 3.1.1.1.~~	~~1 hour~~ ~~AND~~ ~~Once per 12 hours thereafter~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.3.9.1 Perform CHANNEL CHECK.~~	~~[12 hours~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~
~~SR 3.3.9.2 Perform COT.~~	~~[[184] days~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~

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~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.3.9.3~~	~~------------------------------NOTE----------------------------~~ ~~Neutron detectors are excluded from CHANNEL CALIBRATION.~~ ~~--~~ ~~Perform CHANNEL CALIBRATION.~~	~~[[18] months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~

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JUSTIFICATION FOR DEVIATIONS
ISTS 3.3.9, "BORON DILUTION PROTECTION SYSTEM (BDPS)"

1. Improved Standard Technical Specifications (ISTS) 3.3.9, "Boron Dilution Protection System (BDPS)," is not being adopted because Turkey Point Nuclear Generating Station (PTN) analysis does not require this feature. Therefore, ISTS 3.3.9 is not included in the PTN Improved Technical Specifications.

Improved Standard Technical Specifications (ISTS) Bases Markup and Bases Justification for Deviations (JFDs)

~~B 3.3 INSTRUMENTATION~~

~~B 3.3.9 Boron Dilution Protection System (BDPS)~~

~~BASES~~

~~BACKGROUND~~	~~The primary purpose of the BDPS is to mitigate the consequences of the inadvertent addition of unborated primary grade water into the Reactor Coolant System (RCS) when the reactor is in a shutdown condition (i.e., MODES 2, 3, 4, and 5).~~ ~~The BDPS utilizes two channels of source range instrumentation. Each source range channel provides a signal to both trains of the BDPS. A unit computer is used to continuously record the counts per minute provided by these signals. At the end of each minute, an algorithm compares the counts per minute value (flux rate) of that 1 minute interval with the counts per minute value for the previous nine, 1 minute intervals. If the flux rate during a 1 minute interval is greater than or equal to twice the flux rate during any of the prior nine 1 minute intervals, the BDPS provides a signal to initiate mitigating actions.~~ ~~Upon detection of a flux doubling by either source range instrumentation train, an alarm is sounded to alert the operator and valve movement is automatically initiated to terminate the dilution and start boration. Valves that isolate the refueling water storage tank (RWST) are opened to supply 2000 ppm borated water to the suction of the charging pumps, and valves which isolate the Chemical and Volume Control System (CVCS) are closed to terminate the dilution.~~ 1
~~APPLICABLE SAFETY ANALYSES~~	~~The BDPS senses abnormal increases in source range counts per minute (flux rate) and actuates CVCS and RWST valves to mitigate the consequences of an inadvertent boron dilution event as described in FSAR, Chapter 15 (Ref. 1). The accident analyses rely on automatic BDPS actuation to mitigate the consequences of inadvertent boron dilution events.~~ ~~The BDPS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).~~
~~LCO~~	~~LCO 3.3.9 provides the requirements for OPERABILITY of the instrumentation and controls that mitigate the consequences of a boron dilution event. Two redundant trains are required to be OPERABLE to provide protection against single failure.~~ ~~Because the BDPS utilizes the source range instrumentation as its detection system, the OPERABILITY of the detection system, (i.e., the flux doubling algorithm, the alarms, and signals to the various valves) for one SRM is also required for each train in the system to be considered OPERABLE. Therefore, with both SRMs inoperable for supporting the BDPS, both trains are inoperable.~~

BASES

APPLICABILITY

The BDPS must be OPERABLE in MODES [2], 3, 4, and 5 because the safety analysis identifies this system as the primary means to mitigate an inadvertent boron dilution of the RCS.

The BDPS OPERABILITY requirements are not applicable in MODE[S] 1 [and 2] because an inadvertent boron dilution would be terminated by a source range trip, a trip on the Power Range Neutron Flux - High (low setpoint nominally 25% RTP), or Overtemperature ΔT. These RTS Functions are discussed in LCO 3.3.1, "RTS Instrumentation."

In MODE 6, a dilution event is precluded by locked valves that isolate the RCS from the potential source of unborated water (according to LCO 3.9.2, "Unborated Water Source Isolation Valves").

The Applicability is modified by a Note that allows the boron dilution flux doubling signal to be blocked during reactor startup in MODES 2 and 3. Blocking the flux doubling signal is acceptable during startup while in MODE 3, provided the reactor trip breakers are closed with the intent to withdraw rods for startup.

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 procedure. Typically, the drift is 1 found to be small and results in a delay of actuation rather than a total loss of function. This determination of setpoint drift is generally made during the performance of a COT when the process instrumentation is set up for adjustment to bring it to 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.

A.1

With one train of the BDPS OPERABLE, Required Action A.1 requires that the inoperable train must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. In this Condition, the remaining the BDPS train is adequate to provide protection. The 72 hour Completion Time is based on the BDPS Function and is consistent with Engineered Safety Feature Actuation System Completion Times for loss of one redundant train. Also, the remaining OPERABLE train provides continuous indication of core power status to the operator, has an alarm function, and sends a signal to both trains of the BDPS to assure system actuation.

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~~BASES~~

~~ACTIONS (continued)~~

~~B.1, B.2.1, B.2.2.1, and B.2.2.2~~

~~With two trains inoperable, or the Required Action and associated Completion Time of Condition A not met, the initial action (Required Action B.1) is to suspend all operations involving positive reactivity additions immediately. This includes withdrawal of control or shutdown rods and intentional boron dilution. A Completion Time of 1 hour is provided to restore one train to OPERABLE status.~~

~~As an alternate to restoring one train to OPERABLE status (Required Action B.2.1), Required Action B.2.2.1 requires valves listed in LCO 3.9.2 (Required Action A.2) to be secured to prevent the flow of unborated water into the RCS. Once it is recognized that two trains of the BDPS are inoperable, the operators will be aware of the possibility of a boron dilution, and the 1 hour Completion Time is adequate to complete the requirements of LCO 3.9.2.~~

~~Required Action B.2.2.2 accompanies Required Action B.2.2.1 to verify the SDM according to SR 3.1.1.1 within 1 hour and once per 12 hours thereafter. This backup action is intended to confirm that no unintended boron dilution has occurred while the BDPS was inoperable, and that the required SDM has been maintained. The specified Completion Time takes into consideration sufficient time for the initial determination of SDM and other information available in the control room related to SDM.~~ 1

~~Required Action B.1 is modified by a Note which permits plant temperature changes provided the temperature change is accounted for in the calculated SDM. Introduction of temperature changes, including temperature increases when a positive MTC exists, must be evaluated to ensure they do not result in a loss of required SDM.~~

~~SURVEILLANCE REQUIREMENTS~~

~~SR 3.3.9.1~~

~~The BDPS trains are subject to a COT and a CHANNEL CALIBRATION.~~

~~Performance of the CHANNEL CHECK ensures that 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.~~

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~~BASES~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~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 senor or the signal processing equipment has drifted outside its limit.~~

~~[The Frequency of 12 hours 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.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
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~~SR 3.3.9.2~~

~~SR 3.3.9.2 requires the performance of a COT to ensure that each train of the BDPS and associated trip setpoint are fully operational. 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 COT 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. This test shall include verification that the boron dilution alarm setpoint is equal to or less than an increase of twice the count rate within a 10 minute period. There is a plant specific program which verifies that the instrument channel functions as required by verifying the as-left and as-found setting are consistent with those established by the setpoint methodology.~~

~~[The Frequency of [184] days is consistent with the requirements for source range channels in WCAP-15376 (Ref. 2).~~

~~OR~~

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~~BASES~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~---------------------------------REVIEWER'S NOTE---------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
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~~SR 3.3.9.3~~

~~SR 3.3.9.3 is the performance of a CHANNEL CALIBRATION. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor except the neutron detector of the SRM circuit. There is a plant specific program which verifies that the instrument channel functions as required by verifying and as-left and as-found setting are consistent with those established by the setpoint methodology. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy. For the BDPS, the CHANNEL~~

~~CALIBRATION shall include verification that on a simulated or actual boron dilution flux doubling signal the centrifugal charging pump suction valves from the RWST open, and the normal CVCS volume control tank discharge valves close in the required closure time of ≤ 20 seconds.~~

~~[The Frequency of 18 months is based on operating experience and consistency with the typical industry refueling cycle.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~---------------------------------REVIEWER'S NOTE---------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
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~~REFERENCES~~ ~~1. FSAR, Chapter [15].~~

~~2. WCAP-15376, Revision 0, October 2000.~~

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.9 BASES, "BORON DILUTION PROTECTION SYSTEM (BDPS)"

1. Improved Standard Technical Specifications (ISTS) 3.3.9 Bases, "Boron Dilution Protection System (BDPS)" are not included in the Turkey Point Unit 3 and Unit 4 (PTN) ITS because the Specification, ISTS 3.3.9, has not been included in the PTN Improved Technical Specifications.