NUCLEAR ENERGY INSTITUTE

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October 14 1998

Dr. William D. Beckner, Branch Chief
Technical Specifications Branch
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Mail Code O-13 H15
Washington, DC 20555-0001

PROJECT NUMBER: 689

Dear Dr. Beckner:

Enclosed is modified Improved Technical Specification NUREGs NEI Technical Specification Task Force (TSTF) Traveler number TSTF-135 Rev. 3.

Also enclosed is a revised priority list for all in process TSTF Travelers. The updated list reflects input from your staff, recent document approvals, the addition of new items and feedback received in our joint meeting held September 24, 1998. The format modifications agreed to at the meeting are also incorporated.

Please contact me at (202) 739-8105 if you have any questions or need to meet with industry experts on these recommended changes.

Sincerely,

for James W. Davis

Enclosures

c: Deborah L. Johnson
Stewart L. Magruder NRR-DRPM
Technical Specification Task Force

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Industry/TSTF Standard Technical Specification Change Traveler

3.3 - RPS and ESFAS Instrumentation

Priority/Classification: 3) Improve Specifications

NUREGs Affected: ☐ 1430 ☑ 1431 ☐ 1432 ☐ 1433 ☐ 1434

Description:

Several improvements are made to the RPS and ESFAS Instrumentation, as well as the BPDS (3.3.1, 3.3.2, and 3.3.9) Specifications to enhance cor. istency with standard ITS presentation. Individual changes are described and justified in the Justification section.

Justification:

Several improvements are made to the Instrumentation (3.3.1 and 3.3.2) Specifications to enhance consistency with standard ITS presentation; thereby improving usability. (Note: For reference, the following numbered justifications are consistent with the previous revisions of TSTF-135).

4. Functions with an Applicability of "With RTBs closed and Rod Control System capable of rod withdrawal" are revised to state "With Rod Control System capable of rod withdrawal or one or more rods not fully inserted. " Similarly, the related Required Actions (C.2 and K.2) are revised to exit this Applicability in lieu of opening RTBs. This provides an alternative to opening the RTBs since the revised Applicability and ACTIONS still assure the function and intent of opening the RTBs, but also provide for activities that require RTBs closed (e.g., COTs on certain channels).

(Additional Rev. 2 justification)
The Actions for failure to restore inoperable channels to Operable Status for certain Functions (Manual, Source Range, RTBs, RTB Undervoltage and Shunt, and AAL) are revised. Each of these Actions to "open the RTBs" is intended to assure that rods cannot be withdrawn, thereby eliminating the possibility for control rod related positive reactivity and for heat input into the reactor coolant. While this change replaces these specific methods of precluding rod withdrawal, rod withdrawal remains assured of being prohibited by plant/system configuration with the proposed actions.

This change provides for a consistent presentation of the required action; only the specific method is relocated from the Technical Specifications to the Bases. Since the revised Actions still assure rod withdrawal is precluded, this detail is not required to be in the TS to provide adequate protection of the public health and safety. There is no overall effect from the change. The requirement that the control rods are inserted and are not capable of being withdrawn is being maintained. Therefore, relocation of this detail is acceptable.

This change (allowing alternate options to preclude rod withdrawal) is necessary to eliminate undesirable secondary effects of opening the RTBs. By opening the RTBs, plant interlock P-4 is tripped, which results in isolation of normal feedwater. Forcing reliance on AFW in this condition is not the intent nor is it desirable over the continued use of norma feedwater.

5. ACTION L and the SRM Applicability for MODES 3, 4, and 5 with RTBs open (including Footnote (f)) have been removed from this LCO. These requirements are not related to RTS, but involve BDPS Instrumentation. The Bases states that the SRM requirement in MODES 3, 4, and 5 with RTBs open is only for BDPS. Therefore, these requirements are placed in BDPS Instrumentation LCO 3.3.9. Since the ACTIONS for BDPS LCO 3.3.9 already encompass the appropriate requirements, moving the SRM requirements involves only Bases changes to LCO 3.3.9, the addition of a CHANNEL CHECK Surveillance, and a Note excluding neutron detectors from a CHANNEL CALIBRATION.

7. ACTION H and the second part of Function 4 Applicability (MODE 2(e)) is deleted since it provides no real compensatory measures. In accordance with LCO 3.0.4, the IRMs must be OPERABLE prior to entering the remaining applicability (MODE 2 above P-6). With ACTION H (being deleted) allowing indefinite operation, startup was allowed up to P-6, with no restriction. Therefore, the deleted ACTION and Applicability, which essentially ensures the same thing, is not needed.

(Additional Rev. 2 justification) In conjunction with this deletion, applicability information listed in Conditions F and G

("THERMAL POWER > P-6 and < P-10") is deleted. This applicability information was necessary since the Condition H applied to the same Function inoperability, but in a different applicability. With the deletion of Action H and it's associated applicability information, this information in Conditions F and G is no longer necessary, is inconsistent with other Actions, and is deleted.

New Item: The elimination of Required Actions B.2.2 and U.2.2 is an editorial change only. The Applicability of the Functions that reference Conditions B and U are only MODES 1 and 2. Therefore, once the Required Action B.2.1 or U.2.1 (to be in MODE 3) are completed, the Condition would be exited and no further Required Action of this Condition must be completed. In each case, if the Function remained inoperable when MODE 3 was reached, and either rods were withdrawn or were capable of being withdrawn, Condition C would apply and would require actions equivalent to the deleted B.2.2 and U.2.2 (refer to Item 4, above, for specific changes.)

Editorial Items previously included in TSTF-135, but for which no specific justification was given:

* Specification 3.1.1, Condition A and Required Action A.1 are modified to include "or train(s)" since some of the Functions and associated Conditions of the RTS Specification are presented on a "train" basis. This also provides consistency with Action A of Specification 3.3.2.

Revision History

OG Revision 0 Revision Status: Closed

Revision Proposed by WOG

Revision Description:
Original Issue

Owners Group Review Information

Date Originated by OG: 07-Feb-96

Owners Group Comments
(No Comments)

Owners Group Resolution: Approved Date: 15-Jun-96

TSTF Review Information

TSTF Received Date: 02-Jul-96 Date Distributed for Review 05-Aug-96

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF Comments:

CEOG - NA. This Traveler violated the "one change per Traveler" rule in spades.
WOG - This presentation was requested by NRC.

TSTF Resolution: Approved Date: 10-Oct-96

NRC Review Information

NRC Received Date: 22-Jan-97 NRC Reviewer: Schulten, C.

NRC Comments:

4/19/97 - HICB responded with initial assessment; full review will take six weeks to complete (4/19 + 6 weeks = end of May, 1997)
10/1/97 - TSTF agreed to submit a revision package.

Final Resolution: NRC Requests Changes: TSTF Will Revise Final Resolution Date: 01-Oct-97

TSTF Revision 1 Revision Status: Closed

Revision Proposed by NRC

Revision Description:
Revised to address NRC comments. Revised Justification items 6, 14, and 15. Revised markups. Provided description of proposed changes to the NRC on March 10, 1998.

TSTF Review Information

TSTF Received Date: 27-Oct-97 Date Distributed for Review

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF Comments:
Rev 1 markup sent to NRC with TSTF knowledge.

TSTF Resolution: Approved Date: 10-Mar-98

NRC Review Information

NRC Received Date: 10-Mar-98 NRC Reviewer:

NRC Comments:
Provided description of proposed changes to the NRC on March 10, 1998.

4/7/98 - NRC rejects. Text follows:
TSTF-135 is rejected for the following reasons: (1) The package proposes extensive changes with inadequate justification. Adequate justification would be that the format is not usable or that requirements represent unsafe practices or may result in an operational hardship. Changes appear to be based on preference of style rather than safety or clarity. (2) The package proposes changes that would require the staff to re-evaluate its approval of Westinghouse Topical Report WCAP-10271-P-A and other staff positions. Such other staff positions include specifying interlocks as functions for the RTS and ESFAS and entering TS conditions on function basis rather than on a channel basis. (3) Justification for many of the proposed changes is scant, and the TSTF has not been completely responsive to staff requests for additional information. (4) There does not appear to be industry consensus that many of the proposed changes are needed or would be incorporated. Currently 6 Westinghouse units have converted to the improved STS and 18 units are under review. Of these 24 units, only 4 (2 plants) propose to adopt TSTF-135.

The staff feels that it could work with a proposal that addressed four items of TSTF-135 if submitted separately. These items relate to the following TSTF-135 Justification numbers: (1) The part of justification number 3 that addresses LCO 3.0.3. (2) Justification number 4, regarding the capability of rod withdrawal. (3) Justification number 5, regarding Source Range Monitors. (4) Justification number 7, regarding Intermediate Range Monitors. The staff finds a number of licensees wanting to use one or more of these proposed changes.

4/21/97 - NRC/TSTF meeting. NRC just wants the four pieces addressed. NRC will not withdraw reject.

Final Resolution: Superceded by Revision Final Resolution Date: 07-Apr-98

TSTF Revision 1 Revision Status: Closed

TSTF Revision 2 Revision Status: Closed

Revision Proposed by WOG

Revision Description:
Complete revision of Traveler in response to NRC comments.

TSTF Review Information

TSTF Received Date: 17-Aug-98 Date Distributed for Review 17-Aug-98

OG Review Completed: ☐ BWOG ☑ WOG ☐ CEOG ☐ BWROG

TSTF Comments:
(No Comments)

TSTF Resolution: Approved Date: 25-Jun-98

NRC Review Information

NRC Received Date: 01-Sep-98 NRC Reviewer:

NRC Comments:
TSTF agreed to revise at the 9/24/98 TSTF/NRC meeting.

Final Resolution: Superceded by Revision Final Resolution Date: 24-Sep-98

TSTF Revision 3 Revision Status: Active Next Action: NRC

Revision Proposed by NRC

Revision Description:
Made an editorial correction to the justification, withdraws the change to Table 3.3.2-1, Function 4.d(2) and associated footnote (h), and revised the LCO Bases for Boron Dilution Protection System.

TSTF Review Information

TSTF Received Date: 06-Oct-98 Date Distributed for Review

OG Review Completed: ☐ BWOG ☐ WOG ☐ CEOG ☐ BWROG

TSTF Comments:
(No Comments)

TSTF Resolution: Date:

Incorporation Into the NUREGs

File to BBS/LAN Date: TSTF Informed Date: TSTF Approved Date:

NUREG Rev Incorporated:

Affected Technical Specifications

S/A 3.3.1 Bases RTS Instrumentation

Action 3.3.1 Bases	RTS Instrumentation	
SR 3.3.1	RTS Instrumentation	
	Change Description:	Table 3.3.1-1, Functions 4 and 5, editorial changes and changes to footnotes
Action 3.3.1.A	RTS Instrumentation	
Action 3.3.1.A Bases	RTS Instrumentation	
Action 3.3.1.B	RTS Instrumentation	
Action 3.3.1.B Bases	RTS Instrumentation	
Action 3.3.1.C	RTS Instrumentation	
Action 3.3.1.C Bases	RTS Instrumentation	
Action 3.3.1.F	RTS Instrumentation	
Action 3.3.1.F Bases	RTS Instrumentation	
Action 3.3.1.G	RTS Instrumentation	
Action 3.3.1.G Bases	RTS Instrumentation	
Action 3.3.1.H	RTS Instrumentation	
	Change Description:	Deleted
Action 3.3.1.H Bases	RTS Instrumentation	
	Change Description:	Deleted
Action 3.3.1.I	RTS Instrumentation	
	Change Description:	Renamed to H and Revised
Action 3.3.1.I Bases	RTS Instrumentation	
	Change Description:	Renamed to H and Revised
Action 3.3.1.J	RTS Instrumentation	
	Change Description:	Renamed to I
Action 3.3.1.J Bases	RTS Instrumentation	
	Change Description:	Renamed to I
Action 3.3.1.K	RTS Instrumentation	
	Change Description:	Renamed to J and Revised
Action 3.3.1.K Bases	RTS Instrumentation	
	Change Description:	Renamed to J and Revised
Action 3.3.1.L	RTS Instrumentation	
	Change Description:	Deleted
Action 3.3.1.L Bases	RTS Instrumentation	
	Change Description:	Deleted

Action 3.3.1.M	RTS Instrumentation	
	Change Description:	Renamed to K and Revised
Action 3.3.1.M Bases	RTS Instrumentation	
	Change Description:	Relabeled K and Revised
Action 3.3.1.N	RTS Instrumentation	
	Change Description:	Renamed to L and Revised
Action 3.3.1.N Bases	RTS Instrumentation	
	Change Description:	Relabeled to L
Action 3.3.1.O	RTS Instrumentation	
	Change Description:	Renamed to M
Action 3.3.1.O Bases	RTS Instrumentation	
	Change Description:	Relabeled to M
Action 3.3.1.P	RTS Instrumentation	
	Change Description:	Renamed to N
Action 3.3.1.P Bases	RTS Instrumentation	
	Change Description:	Relabeled to N
Action 3.3.1.Q	RTS Instrumentation	
	Change Description:	Relabeled to O
Action 3.3.1.Q Bases	RTS Instrumentation	
	Change Description:	Relabeled to O
Action 3.3.1.R	RTS Instrumentation	
	Change Description:	Relabeled to P
Action 3.3.1.R Bases	RTS Instrumentation	
	Change Description:	Relabeled to P
Action 3.3.1.S	RTS Instrumentation	
	Change Description:	Relabeled to Q
Action 3.3.1.S Bases	RTS Instrumentation	
	Change Description:	Relabeled to Q
Action 3.3.1.T	RTS Instrumentation	
	Change Description:	Relabeled to R
Action 3.3.1.T	RTS Instrumentation	
	Change Description:	Relabeled to R
Action 3.3.1.U	RTS Instrumentation	
	Change Description:	Renamed to S and Revised
Action 3.3.1.U	RTS Instrumentation	
	Change Description:	Renamed to S and Revised

Action 3.3.1.V	RTS Instrumentation	
	Change Description:	Deleted
Action 3.3.1.V Bases	RTS Instrumentation	
	Change Description:	Deleted
Action 3.3.2.L	ESFAS Instrumentation	
Action 3.3.2.L Bases	ESFAS Instrumentation	
LCO 3.3.9 Bases	BDPS	
SR 3.3.9.1	BDPS	
	Change Description:	Inserted
SR 3.3.9.1	BDPS	
	Change Description:	Relabeled SR 3.3.9.2
SR 3.3.9.1 Bases	BDPS	
	Change Description:	Relabeled SR 3.3.9.2
SR 3.3.9.1 Bases	BDPS	
	Change Description:	Inserted
SR 3.3.9.2	BDPS	
	Change Description:	Relabeled SR 3.3.9.3
SR 3.3.9.2 Bases	BDPS	
	Change Description:	Relabeled SR 3.3.9.3

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BASES INSERT(S)
SECTION 3.3

Bases 3.3.1

INSERT 1 (to Bases pages B 3.3-39 and B 3.3-44)

action must be initiated within the same 48 hours to ensure that all rods are fully inserted, and the Rod Control System must be placed in a condition incapable of rod withdrawal within the next hour.

INSERT to Bases page B 3.3-178

SR 3.3.9.1

Performance of the CHANNEL CHECK once every 12 hours 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.

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

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

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3.3 INSTRUMENTATION

3.3.1 Reactor Trip System (RTS) Instrumentation

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

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more required channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.1-1 for the channel(s) or train(s).	Immediately
B. One Manual Reactor Trip channel inoperable.	B.1 Restore channel to OPERABLE status. OR	48 hours
	B.2 ~~1~~ Be in MODE 3. AND	54 hours
	~~B.2.2 Open reactor trip breakers (RTBs).~~	~~55 hours~~

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One channel or train inoperable.	C.1 Restore channel or train to OPERABLE status.	48 hours
	OR	
	C.2.1 Initiate action to fully ~~Open RTBs~~ insert all rods	48 ~~49~~ hours
	AND	
	C.2.2 Place the Rod Control System in a condition incapable of rod withdrawal.	49 hours
D. One Power Range Neutron Flux – High channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 4 hours for surveillance testing and setpoint adjustment of other channels. ----------	
	D.1.1 Place channel in trip.	6 hours
	AND	
	D.1.2 Reduce THERMAL POWER to ≤ 75% RTP.	12 hours
	OR	
	D.2.1 Place channel in trip.	6 hours
	AND	

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. (continued)	----------NOTE---------- Only required to be performed when the Power Range Neutron Flux input to QPTR is inoperable. ----------	
	D.2.2 Perform SR 3.2.4.2.	Once per 12 hours
	OR	
	D.3 Be in MODE 3.	12 hours
E. One channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. ----------	
	E.1 Place channel in trip.	6 hours
	OR	
	E.2 Be in MODE 3.	12 hours
F. ~~THERMAL POWER > P-6 and < P-10~~ one Intermediate Range Neutron Flux channel inoperable.	F.1 Reduce THERMAL POWER to < P-6.	2 hours
	OR	
	F.2 Increase THERMAL POWER to > P-10.	2 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
G. ~~THERMAL POWER > P-6 and < P-10,~~ two Intermediate Range Neutron Flux channels inoperable.	G.1	Suspend operations involving positive reactivity additions.	Immediately
	AND		
	G.2	Reduce ~~THERMAL~~ POWER to < P-6.	2 hours
~~H. THERMAL POWER < P-6, one or two Intermediate Range Neutron Flux channels inoperable.~~	~~H.1~~	~~Restore channel(s) to OPERABLE status.~~	~~Prior to increasing THERMAL POWER to > P-6~~
(H) ~~I.~~ One Source Range Neutron Flux channel inoperable.	(H) ~~I~~.1	Suspend operations involving positive reactivity additions.	Immediately
(I) ~~J.~~ Two Source Range Neutron Flux channels inoperable.	(I) ~~J~~.1	Open Reactor Trip Breakers (RTBs).	Immediately
(J) ~~K.~~ One Source Range Neutron Flux channel inoperable.	(J) ~~K~~.1	Restore channel to OPERABLE status.	48 hours
	OR		
(J) ~~K~~.2.1	Initiate action to ~~Open RTBs.~~ fully insert all rods		48 ~~49~~ hours
	AND		
J.2.2	Place the Rod Control System in a condition incapable of rod withdrawal.		49 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
L. Required Source Range Neutron Flux channel[(s)] inoperable.	L.1 Suspend operations involving positive reactivity additions. AND L.2 Close unborated water source isolation valves. AND L.3 Perform SR 3.1.1.1.	Immediately 1 hour 1 hour AND Once per 12 hours thereafter
~~M.~~ (K) One channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. ---------- ~~M.~~ (K).1 Place channel in trip. OR ~~M.~~ (K).2 Reduce THERMAL POWER to < P-7.	 6 hours 12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
L. One Reactor Coolant Flow - Low (Single Loop) channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. ----------	
	L.1 Place channel in trip.	6 hours
	OR	
	L.2 Reduce THERMAL POWER to < P-8.	10 hours
M. One Reactor Coolant Pump Breaker Position channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. ----------	
	M.1 Restore channel to OPERABLE status.	6 hours
	OR	
	M.2 Reduce THERMAL POWER to < P-8.	10 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
P. N One Turbine Trip channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. ----------	
	P. N.1 Place channel in trip.	6 hours
	OR	
	P. N.2 Reduce THERMAL POWER to < [P-9].	10 hours
O. O One train inoperable.	----------NOTE---------- One train may be bypassed for up to [4] hours for surveillance testing provided the other train is OPERABLE. ----------	
	O. O.1 Restore train to OPERABLE status.	6 hours
	OR	
	O. O.2 Be in MODE 3.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~R.~~ P. One RTB train inoperable.	----------NOTES---------- 1. One train may be bypassed for up to 2 hours for surveillance testing, provided the other train is OPERABLE. 2. One RTB may be bypassed for up to 2 hours for maintenance on undervoltage or shunt trip mechanisms, provided the other train is OPERABLE. ----------	
	~~R.~~ P.1 Restore train to OPERABLE status.	1 hour
	OR	
	~~R.~~ P.2 Be in MODE 3.	7 hours
~~S.~~ Q. One channel or more inoperable.	~~S.~~ Q.1 Verify interlock is in required state for existing unit conditions.	1 hour
	OR	
	~~S.~~ Q.2 Be in MODE 3.	7 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
T./R. One channel or more inoperable. (S)	T./R. 1 Verify interlock is in required state for existing unit conditions.	1 hour
	OR	
	T./R. 2 Be in MODE 2.	7 hours
U./S. One trip mechanism inoperable for one RTB.	U./S. 1 Restore inoperable trip mechanism to OPERABLE status.	48 hours
	OR	
	S U.2.1 Be in MODE 3.	54 hours
	AND	
	U.2.2 Open RTB.	55 hours
V. Two RTS trains inoperable.	V.1 Enter LCO 3.0.3.	Immediately

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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	TRIP SETPOINT[a]
1. Manual Reactor Trip	1,2	2	B	SR 3.3.1.14	NA	NA
	3[b], 4[b], 5[b]	2	C	SR 3.3.1.14	NA	NA
2. Power Range Neutron Flux						
a. High	1,2	4	D	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.16	≤ [111.2]% RTP	≤ [109]% RTP
b. Low	1[c],2	4	E	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11 SR 3.3.1.16	≤ [27.2]% RTP	≤ [25]% RTP
3. Power Range Neutron Flux Rate						
a. High Positive Rate	1,2	4	E	SR 3.3.1.7 SR 3.3.1.11	≤ [6.8]% RTP with time constant ≥ [2] sec	≤ [5]% RTP with time constant ≥ [2] sec
b. High Negative Rate	1,2	4	E	SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.16	≤ [6.8]% RTP with time constant ≥ [2] sec	≤ [5]% RTP with time constant ≥ [2] sec
4. Intermediate Range Neutron Flux	1[c], 2[d]	2	F,G	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11	≤ [31]% RTP	≤ [25]% RTP
~~2[e]~~	~~2~~	~~H~~		~~SR 3.3.1.1~~ ~~SR 3.3.1.8~~ ~~SR 3.3.1.11~~	~~≤ [31]% RTP~~	~~≤ [25]% RTP~~

(continued)

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

(b) With ~~Reactor Trip Breakers (RTBs) closed and~~ Rod Control System capable of rod withdrawal or one or more rods not fully inserted

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

(d) Above the P-6 (Intermediate Range Neutron Flux) interlocks.

~~(e) Below the P-8 (Intermediate Range Neutron Flux) interlocks.~~

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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	TRIP SETPOINT(a)
5. Source Range Neutron Flux	2(e)	2	H, I	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11 SR 3.3.1.16	≤ [1.4 E5] cps	≤ [1.0 E5] cps
	3(b), 4(b), 5(b)	2	I, J	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.16	≤ [1.4 E5] cps	≤ [1.0 E5] cps
~~3(f), 4(f), 5(f)~~	~~[1]~~	~~E~~		~~SR 3.3.1.1~~ ~~SR 3.3.1.11~~	~~N/A~~	~~N/A~~
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 SR 3.3.1.12 SR 3.3.1.16	Refer to Note 1 (Page 3.3-21)	Refer to Note 1 (Page 3.3-21)
7. Overpower ΔT	1,2	[4]	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.12 SR 3.3.1.16	Refer to Note 2 (Page 3.3-22)	Refer to Note 2 (Page 3.3-22)

(continued)

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

(b) With ~~RTBs closed and~~ Rod Control System capable of rod withdrawal or one or more rods not fully inserted

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

~~(f) With the RTBs open. In this condition, source range function does not provide reactor trip but does provide [input to the Boron Dilution Protection System (LCO 3.3.9), and] indication.~~

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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	TRIP SETPOINT(a)
8. Pressurizer Pressure						
a. Low	1(g)	[4]	K	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ [1886] psig	≥ [1900] psig
b. High	1,2	[4]	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≤ [2396] psig	≤ [2385] psig
9. Pressurizer Water Level - High	1(f)	3	K	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≤ [93.8]%	≤ [92]%
10. Reactor Coolant Flow - Low						
a. Single Loop	1(g)	3 per loop	L	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ [89.2]%	≥ [90]%
b. Two Loops	1(g)	3 per loop	K	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ [89.2]%	≥ [90]%

(continued)

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

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

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

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

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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	TRIP SETPOINT(a)
11. Reactor Coolant Pump (RCP) Breaker Position						
a. Single Loop	1 (g)	1 per RCP	M	SR 3.3.1.14	NA	NA
b. Two Loops	1 (h)	1 per RCP	K	SR 3.3.1.14	NA	NA
12. Undervoltage RCPs	1 (f)	[3] per bus	K	SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.16	≥ [4760] V	≥ [4830] V
13. Underfrequency RCPs	1 (f)	[3] per bus	K	SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.16	≥ [57.1] Hz	≥ [57.5] Hz
14. Steam Generator (SG) Water Level [ ] Low Low	1,2	[4 per SG]	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ [30.4]%	≥ [32.3]%
15. SG Water Level [ ] Low	1,2	2 per SG	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ [30.4]%	≥ [32.3]%
Coincident with Steam Flow/ Feedwater Flow Mismatch	1,2	2 per SG	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≤ [42.5]% full steam flow at RTP	≤ [40]% full steam flow at RTP

(continued)

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

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

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

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

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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	TRIP SETPOINT(a)
16. Turbine Trip						
a. Low Fluid Oil Pressure	1(i), (j)	3	N	SR 3.3.1.10 SR 3.3.1.15	≥ [750] psig	≥ [800] psig
b. Turbine Stop Valve Closure	1(i), (j)	4	N	SR 3.3.1.10 SR 3.3.1.15	≥ [1]% open	≥ [1]% open
17. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1,2	2 trains	O	SR 3.3.1.14	NA	NA
18. Reactor Trip System Interlocks						
a. Intermediate Range Neutron Flux, P-6	2(e)	2	Q	SR 3.3.1.11 SR 3.3.1.13	≥ [6E-11] amp	≥ [1E-10] amp
b. Low Power Reactor Trips Block, P-7	1	1 per train	R	SR 3.3.1.11 SR 3.3.1.13	NA	NA
c. Power Range Neutron Flux, P-8	1	4	R	SR 3.3.1.11 SR 3.3.1.13	≤ [50.2]% RTP	≤ [48]% RTP
d. Power Range Neutron Flux, P-9	1	4	R	SR 3.3.1.11 SR 3.3.1.13	≤ [52.2]% RTP	≤ [50]% RTP
e. Power Range Neutron Flux, P-10	1,2	4	Q	SR 3.3.1.11 SR 3.3.1.13	≥ [7.8]% RTP and ≤ [12.2]% RTP	≥ [10]% RTP
f. Turbine Impulse Pressure, P-13	1	2	R	[SR 3.3.1.1] SR 3.3.1.10 SR 3.3.1.13	≤ [12.2]% turbine power	≤ [10]% turbine power

(continued)

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

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

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

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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	TRIP SETPOINT(a)
19. Reactor Trip Breakers (RTBs)	1,2	2 trains	P	SR 3.3.1.4	NA	NA
	3(b), 4(b), 5(b)	2 trains	C	SR 3.3.1.4	NA	NA
20. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms	1,2	1 each per RTB	S	SR 3.3.1.4	NA	NA
	3(b), 4(b), 5(b)	1 each per RTB	C	SR 3.3.1.4	NA	NA
21. Automatic Trip Logic	1,2	2 trains	O	SR 3.3.1.5	NA	NA
	3(b), 4(b), 5(b)	2 trains	C	SR 3.3.1.5	NA	NA

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

(b) With ~~RTBs closed and~~ Rod Control System capable of rod withdrawal or one or more rods not fully inserted

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
K. (continued)	K.2.1 Be in MODE 3.	12 hours
	AND	
	K.2.2 Be in MODE 5.	42 hours
L. One or more channel(s) inoperable.	L.1 Verify interlock is in required state for existing unit condition.	1 hour
	OR	
	L.2.1 Be in MODE 3.	7 hours
	AND	
	L.2.2 Be in MODE 4.	13 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	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~~ 2 Perform COT.	[92] days
SR 3.3.9.~~2~~ 3 Perform CHANNEL CALIBRATION.	[18] months

NOTE
Neutron detectors are excluded from CHANNEL CALIBRATION

SR 3.3.9.1 Perform CHANNEL CHECK. 12 hours

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BASES

BACKGROUND

Reactor Trip Switchgear (continued)

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 devices while the unit is at power. When any one train is taken out of service for testing, the other train is capable of providing unit monitoring and protection until the testing has been completed. The testing device is semiautomatic to minimize testing time.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

The RTS functions to maintain the SLs during all AOOs and mitigates the consequences of DBAs in all MODES in which the ~~RTBs are closed~~ 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 3 takes credit for most RTS trip Functions. RTS trip Functions not specifically credited in the accident analysis are qualitatively 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.

The LCO requires all instrumentation performing an RTS Function, listed in Table 3.3.1-1 in the accompanying LCO, to be OPERABLE. 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

(continued)

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

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 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 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 ~~the~~ shutdown rods or control rods are withdrawn or the ~~Control Rod Drive (CRD)~~ System is capable of withdrawing the shutdown rods or the control rods. In this condition, inadvertent control rod withdrawal is

one or more

Rod Control

(continued)

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

1. Manual Reactor Trip (continued)

Rod Control

possible. In MODE 3, 4, or 5, manual initiation of a reactor trip does not have to be OPERABLE if the ~~CRD~~ System is not capable of withdrawing the shutdown rods or control rods. If the rods cannot be withdrawn from the core, there is no need to be able to trip the reactor ~~because~~ all of the rods are inserted. 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.

and if all rods are fully inserted

or

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.

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

(continued)

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

4. Intermediate Range Neutron Flux (continued)

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 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.

In MODE 2 below the P-6 setpoint, the Source Range Neutron Flux Trip provides the core protection for reactivity accidents

5. Source Range Neutron Flux

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

(continued)

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

5. Source Range Neutron Flux (continued)

the Power Range Neutron Flux – Low ~~Setpoint and Intermediate Range Neutron Flux~~ trip Functions. 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 control systems. The source range trip is the only RTS automatic protection function required in MODES 3, 4, and 5. Therefore, the functional capability at the specified Trip Setpoint is assumed to be available.

when rods are capable of withdrawal or one or more rods are not fully inserted

~~The LCO requires two channels of Source Range Neutron Flux to be OPERABLE.~~ Two OPERABLE channels are sufficient to ensure no single random failure will disable this trip Function. ~~The LCO also requires one channel of the Source Range Neutron Flux to be OPERABLE in MODE 3, 4, or 5 with RTBs open. In this case, the source range Function is to provide control room indication and input to the Boron Dilution Protection System (BDPS).~~ The outputs of the Function to RTS logic are not required OPERABLE ~~when the RTBs are open~~.

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 Function provides protection for control rod withdrawal from subcritical, boron dilution and control rod ejection events. ~~The Function also provides visual neutron flux indication in the control room.~~

In MODE 2 when below the P-6 setpoint ~~during a reactor startup~~, the Source Range Neutron Flux trip must be OPERABLE. Above the P-6 setpoint, the Intermediate Range Neutron Flux trip and the Power Range Neutron Flux – Low ~~Setpoint~~ trip will provide core protection for reactivity accidents. Above the P-6 setpoint, the NIS source range detectors are de-energized ~~and inoperable~~.

all rods fully inserted and the Rod Control System not capable of rod withdrawal, and in MODE 6,

In MODE~~S~~ 3, 4, ~~and~~ 5 with ~~the reactor shut down, the Source Range Neutron Flux trip Function must also be OPERABLE. If the CRD System is capable of rod withdrawal, the Source Range Neutron Flux trip must be~~

(continued)

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

5. Source Range Neutron Flux (continued)

~~OPERABLE to provide core protection against a rod withdrawal accident. If the CRD System is not capable of rod withdrawal, the source range detectors are not required to trip the reactor. However, their monitoring function must be OPERABLE~~ to monitor core neutron levels and provide indication of reactivity changes that may occur as a result of events like a boron dilution. ~~These inputs are provided to the BDPS.~~ The requirements for the NIS source range detectors ~~in MODE 6 are addressed in LCO 3.9.3, "Nuclear Instrumentation."~~

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.

6. Overtemperature ΔT

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:

- 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 – $f(\Delta I)$, the Trip Setpoint is varied to account for imbalances in the axial power distribution as detected by the

(continued)

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

e. Power Range Neutron Flux, P-10 (continued)

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.

f. Turbine Impulse Pressure, P-13

The Turbine Impulse Pressure, P-13 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 Pressure, P-13 interlock to be OPERABLE in MODE 1.

The Turbine Impulse 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

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 ~~CRD~~ 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. Two OPERABLE trains ensure no single random failure can disable the RTS trip capability.

(continued)

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

19. Reactor Trip Breakers (continued)

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 ~~RTBs or associated bypass breakers are closed, and the CRD~~ System is capable of rod withdrawal or one or more rods are not fully inserted.

Rod Control

20. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms

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 ~~CRD~~ System, or declared inoperable under Function 19 above. 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 ~~RTBs and associated bypass breakers are closed, and the CRD~~ System is capable of rod withdrawal or one or more rods are not fully inserted.

Rod Control

21. Automatic Trip Logic

The LCO requirement for the RTBs (Functions 19 and 20) and Automatic Trip Logic (Function 21) 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.

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.

(continued)

APPLICABLE SAFETY ANALYSES LCO, and APPLICABILITY

21. Automatic Trip Logic (continued)

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 ~~RTBs and associated bypass breakers are closed, and the CRD~~ System is capable of rod withdrawal or one or more rods are not fully inserted.

Rod Control

The RTS instrumentation satisfies Criterion 3 of the NRC Policy Statement.

ACTIONS

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.

In the event a channel's Trip Setpoint is found nonconservative with respect to the Allowable Value, 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.]

A.1

Condition A applies to all RTS protection Functions. Condition A addresses the situation where one or more required channels for one or more Functions are inoperable

or trains

(continued)

ACTIONS

A.1 (continued)

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.

~~B.1, B.2.1, and B.2.2~~

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. 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.

If the Manual Reactor Trip Function cannot be restored to OPERABLE status within the allowed 48 hour Completion Time, the unit must be brought to a MODE in which the requirement does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 additional hours (54 hours total time) ~~followed by opening the RTBs within 1 additional hour (55 hours total time)~~. The 6 additional hours to reach MODE 3 ~~and the 1 hour to open the RTBs are~~ is reasonable, based on operating experience, to reach MODE 3 ~~and open the RTBs~~ from full power operation in an orderly manner and without challenging unit systems. With ~~the RTBs open and the~~ unit in MODE 3, ~~this trip Function is no longer required to be OPERABLE.~~

ACTION C would apply 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

C.1 and C.2

Condition C applies to the following reactor trip Functions in MODE 3, 4, or 5 with the ~~RTBs closed and the CRD~~ System capable of rod withdrawal:

Rod Control

or one or more rods not fully inserted

(continued)

BASES

ACTIONS

C.1 and C.2 (continued)

- 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. If the affected Function(s) cannot be restored to OPERABLE status within the allowed 48 hour Completion Time, the unit must be placed in a MODE in which the requirement does not apply. To achieve this status, ~~the RTBs must be opened within the next hour~~ The additional hour provides sufficient time to accomplish the action in an orderly manner. With ~~the RTBs open~~ rods fully inserted and the Rod Control System incapable of rod withdrawal, these Functions are no longer required.

INSERT 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.

D.1.1, D.1.2, D.2.1, D.2.2, and D.3

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

The NIS power range detectors provide input to the ~~CRD~~ Rod Control System 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 6 hours allowed to place the inoperable channel in the tripped condition is justified in WCAP-10271-P-A (Ref. 7).

In addition to placing the inoperable channel in the tripped condition, THERMAL POWER must be reduced to ≤ 75% RTP within 12 hours. Reducing the power level prevents operation of the core with radial power distributions beyond the design

(continued)

ACTIONS

G.1 and G.2 (continued)

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.

~~H.1~~

~~Condition H applies to the Intermediate Range Neutron Flux trip when THERMAL POWER is below the P-6 setpoint and one or two channels are inoperable. Below the P-6 setpoint, the NIS source range performs the monitoring and protection functions. The inoperable NIS intermediate range channel(s) must be returned to OPERABLE status prior to increasing power above the P-6 setpoint. The NIS intermediate range 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.~~

~~H~~ ~~I.1~~

Condition ~~I~~ 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.

~~J~~ I

~~J~~.1

Condition ~~J~~ I applies to two inoperable Source Range Neutron Flux trip channels when in MODE 2, below the P-6 setpoint, and ~~performing a reactor startup, or~~ in MODE 3, 4, or 5 with the ~~RTBs closed and the CRD~~ Rod Control System capable of rod withdrawal. With the unit in this Condition, below P-6, the

or one or more rods not fully inserted

(continued)

TSTF-135, Rev. 3

BASES

ACTIONS I.1 (continued)

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. ~~and the unit enters Condition L.~~

J.1 and J.2

Condition J applies to one inoperable source range channel in MODE 3, 4, or 5 with the ~~RTBs closed and the CRD~~ System capable of rod withdrawal. 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. If the channel cannot be returned to an OPERABLE status, ~~1 additional hour is allowed to open the RTBs. Once the RTBs are open, the core is in a more stable condition and the unit enters Condition L.~~ The allowance of 48 hours to restore the channel to OPERABLE status, and the additional hour ~~to open the RTBs~~, are justified in Reference 7.

Rod Control

or one or more rods not fully inserted

Insert 1

L.1, L.2, and L.3

Condition L applies when the required number of OPERABLE Source Range Neutron Flux channels is not met in MODE 3, 4, or 5 with the RTBs open. With the unit in this Condition, the NIS source range performs the monitoring and protection functions. With less than the required number of source range channels OPERABLE, operations involving positive reactivity additions shall be suspended immediately. This will preclude any power escalation. In addition to suspension of positive reactivity additions, all valves that could add unborated water to the RCS must be closed within 1 hour as specified in LCO 3.9.2. The isolation of unborated water sources will preclude a boron dilution accident.

Also, the SDM must be verified within 1 hour and once every 12 hours thereafter as per SR 3.1.1.1, SDM verification. With no source range channels OPERABLE, core protection is severely reduced. Verifying the SDM within 1 hour allows

(continued)

ACTIONS

L.1, L.2, and L.3 (continued)

sufficient time to perform the calculations and determine that the SDM requirements are met. The SDM must also be verified once per 12 hours thereafter to ensure that the core reactivity has not changed. Required Action L.1 precludes any positive reactivity additions; therefore, core reactivity should not be increasing, and a 12 hour Frequency is adequate. The Completion Times of within 1 hour and once per 12 hours are based on operating experience in performing the Required Actions and the knowledge that unit conditions will change slowly.

K

K M.1 and M.2 K

Condition M applies to the following reactor trip Functions:

- Pressurizer Pressure – Low;
- Pressurizer Water Level – High;
- Reactor Coolant Flow – Low (Two Loops);
- RCP Breaker Position (Two Loops);
- Undervoltage RCPs; and
- Underfrequency RCPs.

With one channel inoperable, the inoperable channel must be placed in the tripped condition within 6 hours. Placing the channel in the tripped condition results in a partial trip condition requiring only one additional channel to initiate a reactor trip above the P-7 setpoint and below the P-8 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. The 6 hours allowed to place the channel in the tripped condition is justified in Reference 7. An additional 6 hours is allowed to reduce THERMAL POWER to below P-7 if the inoperable channel cannot be restored to OPERABLE status or placed in trip within the specified Completion Time.

Allowance of this time interval takes into consideration the redundant capability provided by the remaining redundant

(continued)

ACTIONS

K.1 and K.2 (continued)

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 K.

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 7.

L.1 and L.2

Condition L applies to the Reactor Coolant Flow–Low (Single Loop) reactor trip Function. With one channel inoperable, the inoperable channel must be placed in trip within 6 hours. If the channel cannot be restored to OPERABLE status or the channel placed in trip within the 6 hours, then THERMAL POWER must be reduced below the P-8 setpoint within the next 4 hours. This places the unit in a MODE where the LCO is no longer applicable. This trip Function does not have to be OPERABLE below the P-8 setpoint because other RTS trip Functions provide core protection below the P-8 setpoint. The 6 hours allowed to restore the channel to OPERABLE status or place in trip and the 4 additional hours allowed to reduce THERMAL POWER to below the P-8 setpoint are justified in Reference 7.

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 7.

M.1 and M.2

Condition M 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. If the channel cannot be restored to OPERABLE status within the 6 hours, then THERMAL POWER must be reduced below the P-8 setpoint within the next 4 hours.

(continued)

BASES

ACTIONS

M.1 and M.2 (continued)

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 6 hours allowed to restore the channel to OPERABLE status and the 4 additional hours allowed to reduce THERMAL POWER to below the P-8 setpoint are justified in Reference 7.
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 7.

N.1 and N.2

Condition N applies to Turbine Trip on 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 6 hours. If placed in the tripped condition, this results in a partial trip condition requiring only one additional channel to initiate a reactor trip. If the channel cannot be restored to OPERABLE status or placed in the trip condition, then power must be reduced below the P-9 setpoint within the next 4 hours. The 6 hours allowed to place the inoperable channel in the tripped condition and the 4 hours allowed for reducing power are justified in Reference 7.

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 7.

O.1 and O.2

Condition O 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, 6 hours are allowed to restore the train to OPERABLE status (Required Action O.1) or the unit must be placed in MODE 3 within the

(continued)

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BASES

ACTIONS

O.1 and O.2 (continued)

next 6 hours. The Completion Time of 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 Completion Time of 6 hours (Required Action O.2) is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems.

The Required Actions have been modified by a Note that allows bypassing one train up to [4] hours for surveillance testing, provided the other train is OPERABLE.

P.1 and P.2

Condition P 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 or the unit must be placed in MODE 3 within the next 6 hours. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems. The 1 hour and 6 hour Completion Times are equal to the time allowed by LCO 3.0.3 for shutdown actions in the event of a complete loss of RTS Function. Placing the unit in MODE 3 ~~removes the requirement for this particular Function.~~ results in ACTION C entry while RTB(s) are inoperable.

The Required Actions have been modified by two Notes. Note 1 allows one channel to be bypassed for up to 2 hours for surveillance testing, provided the other channel is OPERABLE. Note 2 allows one RTB to be bypassed for up to 2 hours for maintenance on undervoltage or shunt trip mechanisms if the other RTB train is OPERABLE. The 2 hour time limit is justified in Reference 7.

Q.1 and Q.2

Condition Q applies to the P-6 and P-10 interlocks. With one channel or more 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

(continued)

ACTIONS

Q.1 and Q.2 (continued)

within 1 hour or the unit must be placed in MODE 3 within the next 6 hours. 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. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems. The 1 hour and 6 hour Completion Times are equal to the time allowed by LCO 3.0.3 for shutdown actions in the event of a complete loss of RTS Function.

R.1 and R.2

Condition R applies to the P-7, P-8, P-9, and P-13 interlocks. With one channel or more 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 or the unit must be placed in MODE 2 within the next 6 hours. 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. 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.

S.1, ~~U.2.1,~~ and S.2 ~~2~~

Condition S 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 the unit must be placed in a MODE where the requirement does not apply. This is accomplished by placing the unit in MODE 3 within the next 6 hours (54 hours total time). ~~followed by opening the RTBs in 1 additional hour (55 hours total time).~~ 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.

(continued)

TSTF-135, Rev. 3

BASES

ACTIONS

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

ACTION C would apply to any inoperable RTB trip mechanism

With the RTBs open and the unit in MODE 3, this trip Function is no longer required to be OPERABLE. 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 B.

The Completion Time of 48 hours for Required Action D.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.

E.1

With two RTS trains inoperable, no automatic capability is available to shut down the reactor, and immediate plant shutdown in accordance with LCO 3.0.3 is required.

SURVEILLANCE REQUIREMENTS

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.]

(continued)

ACTIONS

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

requires the bistables to energize to perform their required action. The failure of up to two channels will not prevent the operation of this Function. However, placing a failed channel in the tripped condition could result in a premature switchover to the sump, prior to the injection of the minimum volume from the RWST. Placing the inoperable channel in bypass results in a two-out-of-three logic configuration, which satisfies the requirement to allow another failure without disabling actuation of the switchover when required. Restoring the channel to OPERABLE status or placing the inoperable channel in the bypass condition within 6 hours is sufficient to ensure that the Function remains OPERABLE, and minimizes the time that the Function may be in a partial trip condition (assuming the inoperable channel has failed high). The 6 hour Completion Time is justified in Reference 8. If the channel cannot be returned to OPERABLE status or placed in the bypass condition within 6 hours, the unit must be brought to MODE 3 within the following 6 hours and MODE 5 within the next 30 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 5, the unit does not have any analyzed transients or conditions that require the explicit use of the protection functions noted above.

The Required Actions are modified by a Note that allows 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 8.

L.1, L.2.1 and L.2.2

Condition L applies to the P-11 and P-12 [and P-14] interlocks.

With one or more channel(s) 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

(continued)

TSTF-135, Rev. 3

BASES (continued)

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 is also ~~part of the OPERABILITY of the Reactor Trip System~~. The flux doubling algorithm, the alarms, and signals to the various valves ~~all must be OPERABLE~~ for each train in the system to be considered OPERABLE. Therefore, with both SRMs inoperable for supporting the BDPS, both trains are inoperable

required

(i.e.,) for one SRM

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 found to be small and results in a delay of actuation rather than a total loss of function. This determination of

(continued)

TSTF-135, Rev. 3

BASES

ACTIONS

B.1, B.2.1, B.2.2.1, and B.2.2.2 (continued)

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.

SURVEILLANCE REQUIREMENTS

The BDPS trains are subject to a COT and a CHANNEL CALIBRATION.

INSERT SR 3.3.9.1

SR 3.3.9.~~1~~2

SR 3.3.9.~~1~~2 requires the performance of a COT every [92] days, to ensure that each train of the BDPS and associated trip setpoints are fully operational. 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. The Frequency of [92] days is consistent with the requirements for source range channels in WCAP-10271-P-A (Ref. 2).

SR 3.3.9.~~2~~3

except the neutron detector of the SRM circuit

SR 3.3.9.~~2~~3 is the performance of a CHANNEL CALIBRATION every [18] months. 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. 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 is based on operating experience and consistency with the typical industry refueling cycle.

(continued)

Integrated Industry / NRC Priority List
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(Includes all Active Travelers that are not Approved, Withdrawn, or Rejected with Rejection Accepted; items with NRC are highlighted in bold)

Based on NRC/TSTF Meeting of September 24, 1998 and correspondence through October 14, 1998

High Priority

Hot Reg. Issue	TSTF Number	Subject	Status	Initial Target Date
YES	(TSTF-XXX)	Ice Condenser Issues	WOG lead focus group and send email brief to TSTF and NRC	11/2/98
YES	(TSTF-XXX)	Battery TS Section /IEEE input	CEOG lead focus group to further develop section and include Ed Tomlinson and John Coyle in discussions.	
	TSTF-8, Rev. 3	Revise the SR 3.0.1 Bases to allow credit for unplanned events to meet any Surveillance	Under TSTF Consideration	
	TSTF-16, Rev. 1	Add Action to LCO 3.8.9 to require entry into LCO 3.0.3	NRC Rejects: TSTF Considering	

		when there is a loss of function		
	TSTF-36, Rev. 3	Addition of LCO 3.0.3 N/A to shutdown electrical power specifications	NRC Rejects: TSTF Considering	
	TSTF-51, Rev. 0	**Revise containment requirements during handling irradiated fuel and core alterations**	**NRC Action Pending**	
	TSTF-58, Rev. 0	**Incorporate CE NPSD-995 recommendations into the ECCS specification**	**NRC Action Pending**	
	TSTF-59, Rev. 0	**Incorporate CE NPSD-994 recommendations into the SITs specification**	**NRC Action Pending**	
	TSTF-107, Rev. 0	Separate control rods that are untrippable versus inoperable	NRC Requests Changes: TSTF Will Revise	
	TSTF-111, Rev. 2	Revise Bases for SRs 3.3.1.16 and 3.3.2.10 to eliminate pressure sensor response time testing	Under TSTF Consideration	
	TSTF-113, Rev. 4	**Eliminate Shutdown to MODE 4 for inoperable PORVs**	**NRC Action Pending**	
	TSTF-135, Rev. 2	3.3 - RPS and ESFAS Instrumentation	TSTF Action to Modify as Rev 3 **completed 10/14/98 (see**	10/8/98

			below)	
	TSTF-155 Rev 3	**3.3 - RPS and ESFAS Instrumentation**	**NRC Action Pending**	
	TSTF-197, Rev. 1	Require containment closure when shutdown cooling requirements are not met.	Under TSTF Consideration	
	TSTF-198, Rev. 0	Specification 3.8.6 - Unlimited use of battery charging current in lieu of specific gravity	NRC Requests Changes: TSTF Will Revise	
	TSTF-199, Rev. 0	3.8.4 - Delete maintenance Surveillances	NRC Requests Changes: TSTF Will Revise	
	TSTF-200, Rev. 0	Unlimited use of battery modified performance discharge test	NRC Requests Changes: TSTF Will Revise	
	TSTF-201, Rev. 0	Omit battery "conditional evaluations" from SR 3.8.6.2	NRC Requests Changes: TSTF Will Revise	
	TSTF-202, Rev. 0	Revise battery Surveillance weekly Frequencies	NRC Requests Changes: TSTF Will Revise	
	TSTF-203, Rev. 0	Add Bases for 3.8.6 Actions Note	NRC Requests Changes: TSTF Will Revise	
	TSTF-204, Rev. 0	Revise DC Sources - Shutdown and Inverters - Shutdown to Address Specific Subsystem Requirements	Reviewer Recommends Rejection	

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TSTF-205, Rev. 1	Revision of Channel Calibration, Channel Functional Test, and Related Definitions	TSTF Modify and submit Rev 2	11/2/98
TSTF-212, Rev. 1	Incorporate approved topical BAW-10167, Supplement 3 in SR 3.3.3.1 and SR 3.3.4.1	Under TSTF Consideration	
TSTF-215, Rev 0	**Modify LCO 3.3.6 and LCO 3.3.7 Applicability**	**NRC Action Pending**	
TSTF-217, Rev. 0	**Provide applicable Required Action when more than one instrumentation channel is inoperable**	**Reviewer Recommends Rejection/NRC reevaluating**	**11/2/98**
TSTF-218, Rev. 0	**Change 3.3.1 Applicability for Nuclear Overpower High Setpoint and RCS High Pressure functions**	**NRC Action Pending**	
TSTF-226, Rev. 1	**Fuel loading with control rods withdrawn or removed from defueled core cells**	**NRC Action Pending/Will send to Tech Branch**	**When can discuss with Bryan Ford**
TSTF-234, Rev. 1	**Add Action for More Than One DRPI Inoperable**	**NRC Action Pending/Reactor Systems Discuss with Denny Buschbaum**	**10/15/98**
TSTF-235, Rev. 1	MSSV Changes	NRC Requests Changes: Denny Buschbaum discuss with Reactor Systems	10/15/98
TSTF-241, Rev. 1	**Allow time for stabilization after reducing power due to QPTR out of limit**	**Reviewer Recommends Rejection/NRC**	**10/5/98**

		Reconsidering/ Contact Denny Buschbaum	
TSTF-242, Rev. 0	**Increase the time to perform a COT on Power Range and Intermediate Range Instruments**	**NRC Action Pending**	
TSTF-245, Rev. 1	**AFW train operable when in service**	**NRC to reconsider**	**9/25/98**
TSTF-246. Rev. 0	**RTS Instrumentation, 3.3.1 Condition F Completion Time**	**NRC Action Pending**	
TSTF-255, Rev. 0	Change title of "Spent Fuel Assembly Storage" to "Fuel Assembly Storage"	NRC Requests Changes: TSTF /NRC to agree on new words and resubmit as Rev 1	11/2/98
TSTF-258, Rev. 0	Changes to Section 5.0, Administrative Controls	NRC Requests Changes: TSTF Considering/Denny Buschbaum talk to NRC 10/15/98 and resubmit	11/2/98
TSTF-260, Rev. 0	**Eliminate monthly position verification for automatic valves**	**Reviewer Recommends Rejection/NRC reconsidering**	**11/2/98**
TSTF-262, Rev. 0	**3.4.6, 3.4.7, and 3.4.8: Allow DHR/RHR/SDC pumps to be aligned for LPI**	**NRC Action Pending**	
TSTF-263, Rev. 0	**Correct usage of "required" components and base ACTIONS on inoperable required**	**NRC Action Pending**	

	equipment		
TSTF-265, Rev. 0	**Clarify 3.4 "non-operating loop" SRs**	**NRC Action Pending**	
TSTF-266, Rev. 1	**Eliminate the Remote Shutdown System table of Instrumentation and Controls**	**NRC Action Pending/Send to Tech Branch 9/25/98**	
TSTF-273, Rev. 0	**SFDP Clarifications**	**Reviewer Recommends Rejection/NRC Reevaluating**	**11/2/98**
TSTF-276, Rev. 1	Revise DG full load rejection test(Change to Medium on 9/24/98)	Reviewer Recommends Rejection	
TSTF-282, Rev. 0	**Extend the time allowed to perform the BOC precision RCS flow rate measurement**	**NRC Action Pending**	
TSTF-283, Rev. 0	Eliminate Section 3.8 Mode restriction Notes	NRC Recommend Reject on 9/24/98-TSTF get back with NRC	11/16/98
TSTF-284, Rev. 0	**Add "Met vs. Perform" to Specification 1.4, Frequency**	**NRC Action Pending**	
TSTF-286, Rev. 0	**Define "Operations Involving Positive Reactivity Additions"**	**NRC Approval Pending**	
TSTF-287, Rev. 1	Ventilation System Envelope Allowed Outage Time	NRC Requests Changes: TSTF Considering NRC discuss further with Ford/may need focus group	10/9/98

TSB-002	Corrects NUREG-1431 psig symbol	Transmittal letter to NEI dated 7/25/97	
TSB-016	Incorporate additional restrictions into the Westinghouse STS relating to low temperature over pressure protection	Transmittal letter to NEI dated 5/26/98	

Integrated Industry / NRC Priority List
10/14/98

Medium Priority

TSTF Number	Subject	Status	Target Date
TSTF-37, Rev. 2	Diesel Generator Surveillance Changes Based on Generic Letter 94-01 and the Maintenance Rule	Under TSTF Consideration	
TSTF-39, Rev. 1	Allow CFTs to be performed by sequential, overlapping or total channel steps	Under TSTF Consideration	
TSTF-41, Rev. 0	Correct BWOG LCO 3.0.7 to refer to Special Exception LCOs	NRC Rejects: TSTF Considering	
TSTF-52, Rev. 1	Implement 10 CFR 50, Appendix J, Option B	Under TSTF Consideration	
TSTF-68, Rev. 1	**Containment Personnel Airlock Doors Open During Fuel Movement**	**NRC Action Pending**	
TSTF-92, Rev. 1	**Revise the Containment Purge and Exhaust SR to exempt valves that are locked, sealed or secured**	**NRC Action Pending**	
TSTF-105, Rev. 1	Remove the details of performing an RCS flow measurement	NRC Rejects: TSTF Considering	
TSTF-120, Rev. 1	Simplify Fuel Oil Sampling	Under TSTF Consideration	
TSTF-138, Rev. 0	Addition of Action for Inoperable Steam Generator	NRC Rejects: TSTF Considering	
TSTF-141, Rev. 1	Delete the Mode 2 Applicability for Reactivity Balance	Under TSTF Consideration	

TSTF-147, Rev. 0	Clarify that RPS and ESFAS Matrix Logic Testing Does Not Affect Operability	NRC Rejects: TSTF Considering	
TSTF-155, Rev. 1	3.5.1 Core Flood Tanks- Deletion of Condition D and Modification of Condition C	Under TSTF Consideration	
TSTF-157, Rev. 1	Omit duplicate EFW alignment SR	Under TSTF Consideration	
TSTF-159, Rev. 1	LCO 3.1.6 Applicability Modification	Under TSTF Consideration	
TSTF-160, Rev. 1	**LCO 3.2.5, "Power Peaking Factors" Applicability Change to MODE 1 with THERMAL POWER > 20% RTP**	**NRC Action Pending**	
TSTF-164, Rev. 1	AFD Notes Rearranged	Under TSTF Consideration	
TSTF-190, Rev. 1	**Remove reference to inadvertently bypassing a redundant channel**	**NRC Action Pending**	
TSTF-196, Rev. 0	Revise isolation devices to include ASME/ANSI equivalent methods	NRC Rejects: TSTF Considering	
TSTF-207, Rev. 1	Completion Time for Restoration of MSIV Leakage Rate	Under TSTF Consideration	

TSTF-213, Rev. 0	**Eliminate extraneous verbiage from the definition of CONTROL RODS**	**NRC Action Pending**	
TSTF-227, Rev. 1	**Revision to EOC-RPT pump actions**	**NRC Action Pending**	
TSTF-228, Rev. 1	**Revise RHR applicability**	**NRC Action Pending**	
TSTF-229, Rev. 0	Revise SR 3.2.2.2 for consistency with SR 3.1.4.4	NRC Requests Changes: TSTF Considering	
TSTF-232, Rev. 0	**Refuel Equipment Interlocks Applicability Change**	**NRC Action Pending**	
TSTF-236, Rev. 0	Seal Injection Flow 72 Hour Completion Time	NRC Rejects: TSTF Considering	
TSTF-237, Rev. 1	**Relaxation of Reactor Coolant Pump Flywheel Examinations**	**NRC Action Pending**	
TSTF-238, Rev. 0	Correct control bank insertion limits action for applicable mode	Reviewer Recommends Rejection	
TSTF-239, Rev. 0	Correct shutdown bank insertion limits applicability	Reviewer Recommends Rejection	
TSTF-240, Rev. 0	Eliminate unnecessary Actions to restore compliance with the LCO	NRC Requests Changes: TSTF Considering	
TSTF-248, Rev. 0	**Revise Shutdown Margin definition for stuck rod exception**	**NRC Action Pending**	

TSTF-252, Rev. 0	Provide generic SG tube surveillance reporting requirements	NEI/Industry Action Pending/may need focus group	
TSTF-261, Rev. 0	**3.4.5 and 3.4.6 - Omit LCO reference to "at least" per Writer's Guide**	**NRC Action Pending**	
TSTF-264, Rev. 0	**3.3.9 and 3.3.10 - Delete flux monitors specific overlap requirement SRs**	**NRC Action Pending**	
TSTF-274, Rev. 1	Move the acceptance criteria for the battery charger performance test to the Bases	Reviewer Recommends Rejection	
TSTF-275, Rev. 1	Clarify requirement for EDG start signal on RPV Level - Low, Low, Low during RPV cavity flood-up	Reviewer Recommends Rejection	
TSTF-281, Rev. 1	MSIV AOT to 72 hours	Reviewer Recommends Rejection	
TSTF-284, Rev. 0	Add "Met vs. Perform" to Specification 1.4, Frequency	Under TSTF Consideration	
TSTF-285, Rev. 2	**Charging Pump Swap LTOP Allowance**	**NRC Action Pending**	
TSTF-288, Rev. 1	**PORV SR Notes Added**	**NRC Action Pending**	
TSTF-290 Rev. 0	**Revisions to hot channel factor specifications**	**NRC Action Pending**	
TSB-007	Establish consistent TS format by providing a limit for SR 3.2.1.1 stated as a reference to the COLR	Transmittal letter to NEI dated 7125/97	

TSB-012	Make TS 3.4.6, CONDITION C, language consistent with Bases and other related TS	Transmittal letter to NEI dated 9/23/97	
TSB-015	Allow a 7 day AOT for the turbine-driven AFW pump if the inoperability occurs in Mode 3 following a refueling outage and the plant has not entered Mode 2 following that outage: reduce the action statement to 6 hours since the plant is already in Mode 3	Transmittal letter to NEI dated 9/29/97	

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Low Priority

TSTF-48, Rev. 0	Eliminate repeated information from LCO 3.0.7 Bases	NRC Rejects: TSTF Considering	
TSTF-71, Rev. 2	Add example of SFDP to the 3.0.6 Bases	Under TSTF Consideration	
TSTF-131, Rev. 0	Remove Note (C) from CEOG Digital Table 3.3.1-1	NRC Rejects: TSTF Considering	
TSTF-231, Rev. 0	**Reword Bases for Turbine Stop Valve (TSV) Closure function of RPS Instrumentation LCO**	**NRC Action Pending**	
TSTF-244, Rev. 1	**Correct invalid SR for Containment Isolation Valve Position**	**NRC Action Pending**	
TSTF-249, Rev. 0	**Physics Tests Exceptions reactivity effects correction.**	**NRC Action Pending**	
TSTF-250, Rev. 0	Delete specific FSAR section references	Reviewer Recommends Rejection	
TSTF-251, Rev. 0	**Delete TS 5.6.9, Tendon Surveillance Report**	**NRC Action Pending**	
TSTF-254, Rev. 0	Delete accumulated water checks for DG fuel oil.	Reviewer Recommends Rejection	
TSTF-267, Rev. 1	**Add a Section 1.4 example of Frequency based on plant conditions**	**NRC Action Pending**	
TSTF-270, Rev. 2	**Add "Only Required to be Performed" Example to 1.4**	**NRC Action Pending**	

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TSTF-271, Rev. 0	**LTOP Vent Path SR Frequency**	**NRC Action Pending**	
TSTF-272, Rev. 1	**Refueling Boron Concentration Clarification**	**NRC Action Pending**	
TSTF-277, Rev. 0	Revise accumulator boron concentration verification SR	Reviewer Recommends Rejection	
TSTF-280, Rev. 1	**Exempt SRs on LTOP equipment not used to satisfy the LCO**	**NRC Action Pending**	
TSB-003	Revise NUREG-1434 TS 3.1.3 and 53.1.3 Required Actions A.1 and C.1 references to conform to BWR/6 plants that converted to the ISTS	Transmittal letter to NEI dated 8/12/97	

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Travelers Needed to Support Near-Term License Amendments

Byron/Braidwood

TSTF-36 R2
TSTF-135 R3
TSTF-204
TSTF-205
TSTF-241
TSTF-258
TSTF-263
TSTF-266
TSTF-270
TSTF-282
TSTF-283
TSTF-288
TSTF-290

Oconee

TSTF-211
TSTF-212
TSTF-215
TSTF-217
TSTF-218
TSTF-255
TSTF-260
TSTF-262
TSTF-263

Four Loop Group

TSTF-037, Rev. 1
TSTF-052, Rev. 1
TSTF-107, Rev. 1
TSTF-111. Rev. 1
TSTF-113, Rev. 4
TSTF-116, Rev. 2
TSTF-135, Rev. 1
TSTF-199
TSTF-200
TSTF-201
TSTF-202
TSTF-205
TSTF-234
TSTF-235
TSTF-237
TSTF-241
TSTF-242
TSTF-246
TSTF-258
TSTF-267
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TSTF-272
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TSTF-282
TSTF-285
TSTF-287
TSTF-288