

VIRGINIA ELECTRIC AND POWER COMPANY

RICHMOND, VIRGINIA 23261

August 27, 2001

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Serial No.: 01- 383
CM/RAB R0
Docket Nos.: 50-338
50-339
License Nos.: NPF-4
NPF-7

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION UNITS 1 AND 2
PROPOSED IMPROVED TECHNICAL SPECIFICATIONS
REQUEST FOR ADDITIONAL INFORMATION – SPECIFICATION 3.3.1

This letter transmits responses to the NRC's request for additional information regarding ITS Specification 3.3.1 of the North Anna Power Station Units 1 and 2 proposed Improved Technical Specifications (ITS). The North Anna ITS license amendment request was submitted to the NRC in a December 11, 2000 letter (Serial No. 00-606). The NRC requested additional information on ITS Specification 3.3.1 in a letter dated June 4, 2001 (TAC Nos. MB0799 and MB0800). This letter also transmits minor changes to this specification, which are a result of internal comments.

The attachment includes each NRC question, the response to each question, and the required revisions to the original ITS license amendment request, based on the response to each question. Following the responses to the NRC's questions is a summary of the changes that are not associated with the NRC's questions, and the affected ITS submittal pages.

If you have any further questions or require additional information, please contact us.

Very truly yours,



Leslie N. Hartz
Vice President - Nuclear Engineering

Attachment

Commitments made in this letter: None

Accl

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North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.3, Instrumentation
LCO 3.3.1, RTS Instrumentation

3.3.1-1ITS Table 3.3.1 – 1
STS Table 3.3.1 – 1
CTS Tables 3.3 – 1 and 4.3 – 1
DOC A.5

NRC RAI: Comment: RAI 3.3.1-Generic Comment #1

CTS: Table 3.3-1, Table 4.3-1

Additional justification is required for proposed changes. Revise the submittal to address comment that follows. Comparison of Current Technical Specifications (CTS) Table 3.3-1, "APPLICABLE MODES" column to Table 4.3-2 "MODES IN WHICH SURVEILLANCE REQUIRED" column for specified functions shows that mode of applicability requirements are not always the same in the two tables and that the differences are not always evaluated in a DOC (e.g., Turbine Trip). In the ITS, the presentation is a single column applicable modes requirements listed by function. Identify any reactor plant system (RPS) function for which a mode of applicability difference exists between the two tables. Provide a DOC to justify changes to CTS requirements that are not already discussed.

Response: The Company agrees with the Comment. A more restrictive DOC M.9 has been constructed to document the change for surveillance applicability of Unit 1's function 20 RCP Breaker Position Trip. DOC M.9 also addresses the surveillance applicability change of Unit 2's Function 18 Turbine Trip on Low Auto Stop Oil Pressure and Turbine Stop Valve Closure. A less restrictive DOC L.22 has been constructed to document the change in surveillance applicability of Unit 1's Function 18 Turbine Trip on Low Auto Stop Oil Pressure or Turbine Stop Valve Closure from MODES 1 and 2 in the CTS to MODE 1 above P-8 setpoint in the ITS.

A.1

TABLE 4.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

NORTH ANNA - UNIT 1

3/4 3-13

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Amendment No. 3, 81, 165, 221

ITS	FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED	Response Time Test	A.7
	13. Deleted						
14	14. Steam Generator Water Level - Low-Low	(A.1) 3.3.1.1	(A.1) 3.3.1.10	(A.1) 3.3.1.7	1, 2	3.3.1.16	
15	15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	(A.1) 3.3.1.1	(A.1) 3.3.1.10	(A.1) 3.3.1.7	1, 2	N/A	L.20
12	16. Undervoltage - Reactor Coolant Pump Busses	N.A.	(A.1) 3.3.1.10	N.A. 3.3.1.9	1	3.3.1.16	
13	17. Underfrequency - Reactor Coolant Pump Busses	N.A.	(A.1) 3.3.1.10	N.A.	1	3.3.1.16	RAI 3.3.1-1 R5
16	18. Turbine Trip						L.22
16a	A. Low Auto Stop Oil Pressure	N.A.	(M.7) 3.3.1.10	(A.25) 3.3.1.15	1, 2	N/A	
16b	B. Turbine Stop Valve Closure	N.A.	(M.7) 3.3.1.10	(A.25) 3.3.1.15	1, 2	N/A	L.20
17	19. Safety Injection Input from ESF	N.A.	N.A.	(A.14) & (A.23) 3.3.1.14	1, 2	N/A	M.9
11	20. Reactor Coolant Pump Breaker Position Trip	N.A.	N.A.	(A.11) 3.3.1.14	N/A	N/A	RAI 3.3.1-1 R5
19	21. A. Reactor Trip Breaker	N.A.	N.A.	(A.11) 3.3.1.4	1, 2, & *	N/A	
	B. Reactor Trip Bypass Breaker	N.A.	N.A.	(M.11) & (A.11) 3.3.1.4	1, 2, & *	N/A	
20	RTB Undervoltage and Shut Trip Mech	N/A	N/A	3.3.1.4		N/A	
21	22. Automatic Trip Logic	N.A.	N.A.	(A.11) & (A.23) 3.3.1.5	1, 2, & *	N/A	

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RAI
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ITS W.3.1
3.3.1-14
R5

A.1

TABLE 4.3-1 (CONTINUED)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

NORTH ANNA - UNIT 2

3/4 3-13
page 14 of 22

Amendment No. 450, 202

ITS	FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	A.11 COT TADOT	MODES IN WHICH SURVEILLANCE REQUIRED	Response Time TEST
	13. Deleted	—	—	—			
14	14. Steam Generator Water Level - Low-Low	(A.1) 3.3.1.1	(A.1) 3.3.1.10	(A.11) 3.3.1.7		1, 2	3.3.1.16
15	15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	(A.1) 3.3.1.1	(A.1) 3.3.1.10	(A.11) 3.3.1.7		1, 2	NA
12	16. Undervoltage - Reactor Coolant Pump Busses	N.A.	(A.1) 3.3.1.10	(A.11) 3.3.1.9		1	3.3.1.16
13	17. Underfrequency - Reactor Coolant Pump Busses	N.A.	(A.1) 3.3.1.10	(A.11) 3.3.1.9		1	3.3.1.16
16	18. Turbine Trip		(M.7) 3.3.1.10	(A.25) 3.3.1.15			
16a	A. Low Auto Stop Oil Pressure	N.A.	(N.A.) 3.3.1.10	(SATD) 3.3.1.15		N.A.	N/A
16b	B. Turbine Stop Valve Closure	N.A.	(N.A.) 3.3.1.10	(SATD) 3.3.1.15		N.A.	N/A
17	19. Safety Injection Input from ESF	N.A.	N.A.	(M.7) & (A.23) 3.3.1.14		1, 2	N/A
11	20. Reactor Coolant Pump Breaker Position Trip	N.A.	N.A.	(A.11) 3.3.1.14		1	N/A
19	21. A. Reactor Trip Breaker	N.A.	N.A.	(A.11) 3.3.1.4 (A.23) (A.11) (L.25)		1, 2, & *	N/A
	B. Reactor Trip Bypass Breaker	NA	NA	(M.11) & (A.18)		1, 2, & *	N/A
20	RTB undervoltage and shunt Trip Mech.	N/A	N/A	3.3.1.4 (M.11)		1, 2, & *	N/A
21	22. Automatic Trip Logic	N.A.	N.A.	(A.11) (M.11) 3.3.1.5 (A.23)		1, 2, & *	N/A

A.5

A.7

L.20

RAI 3.3.1-15

M.9

L.20

03-09-00

ITS 3.3.1

RAI 3.3.1-14 R5

RAI 3.3.1-13 R5

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DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

ability of the operator to monitor reactor power level is significantly degraded with the required Source Range channel inoperable, therefore the additional limitation is acceptable to ensure that safety has not been adversely affected. This change is designated as more restrictive because the additional restrictions have been placed on the CTS requirements.

RAI
3.3.1-
23
RS

- M.7 CTS Table 4.3-1 lists the surveillance requirements of CHANNEL CALIBRATION for the Turbine Trip Function 18.A Auto Stop Oil Pressure and Function 18.B Turbine Stop Valves Closure as Not Applicable (N/A). ITS Table 3.3.1-1 Function 16 Turbine lists the CHANNEL CALIBRATION surveillance requirement for the Auto Stop Oil Pressure and Turbine Stop Valve Closure as SR 3.3.1.10. This must be performed at a Frequency of 18 months. This SR is modified by a Note that requires the verification that time constants are adjusted to prescribed values. This changes the CTS by adding a CHANNEL CALIBRATION requirement for the Turbine Trip functions.

RAI
3.3.1-
24
RS

The purpose of ITS SR 3.3.1.10 is to ensure the channels are aligned to provide an accurate representation of the monitored function including any required time constants. This change is acceptable because the periodic verification of the Allowable Values is necessary to ensure the turbine will trip at the specified values. This change is designated as more restrictive because the current requirement for the Turbine Trip does not require periodic CHANNEL CALIBRATION verification.

- M.8 CTS Table 4.3-1 contains a Surveillance Requirement for the Intermediate Range channels. A CHANNEL CALIBRATION is required and modified by a footnote. Note 13 states, "The provisions of Specification 4.0.4 are not applicable for entry in MODE 2 or 1." ITS SR 3.3.1.11 for the Intermediate Ranges requires a CHANNEL CALIBRATION every 18 months. This changes the CTS by deleting a portion of the Note allowing the Specification 4.0.4 allowance.

RS

This change is acceptable because the Specification 4.0.4 exception is not necessary because the Surveillance Requirement may be performed and evaluated without affecting the OPERABILITY of the instruments. This change is designated as more restrictive because an allowance of the CTS has been deleted in the ITS requirements.

- M.9 Unit 1 CTS Table 4.3-1 Function 20, RCP Breaker Position Trip, lists N/A under the column labeled "MODES IN WHICH SURVEILLANCE REQUIRED." Function 20 requires a CHANNEL FUNCTIONAL TEST to be performed on an R (Refueling) frequency. Unit 2 CTS Table 4.3-1 Function 18, Turbine Trip on Low Auto Stop Oil Pressure and Turbine Stop Valve Closure, lists N/A under the "MODES IN WHICH SURVEILLANCE REQUIRED," column. Function 18 requires a CHANNEL FUNCTIONAL TEST to be performed for each portion of the function at a frequency of S/U ⁽¹⁾. S/U requires the surveillance to be performed prior to each reactor start up. Note ⁽¹⁾ states, "If not performed within the previous 31 days." The applicable MODES or other specified conditions for ITS Table 3.3.1-1 Function 11, RCP

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DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

Breaker Position Trip is MODE 1^(f), with SR 3.3.1.14 as a required Surveillance. Note ^(f) states, "Above the P-7 (Low Power Reactor Trips Block) interlock." The applicable MODES or other specified conditions for ITS Table 3.3.1-1 Function 16, Turbine Trip on Low Auto Stop Oil Pressure or Turbine Stop Valve Closure, is MODE 1^(g) with SR 3.3.1.15 as one of the required Surveillances. Note ^(g) states, "Above the P-8 (Power Range Neutron Flux) interlock." This changes the CTS by requiring the surveillance for the RCP Breaker Position Trip and the Turbine Trip Functions to be performed in the ITS when they are not required in the CTS.

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This change is acceptable because Surveillance Requirements are required for the RCP Breaker Position Trip and Turbine Trip Functions to ensure that they are capable of performing their required function. The satisfactory performance of these SRs ensures the safety functions OPERABILITY. This change is designated as more restrictive because the surveillance requirements are required in more applicable MODES or other specified conditions than the CTS requirements.

- M.10 CTS Table 4.3-1 Function 23.b Low Power Reactor Trip Block, P-7, states that a CHANNEL CALIBRATION and a CHANNEL FUNCTIONAL TEST are to be performed at a frequency of R (refueling). ITS Table 3.3.1-1 Function 18.b Low Reactor Power Trips Block, P-7, states that SR 3.3.1.5 ACTUATION LOGIC TEST (ALT) is to be performed at a Frequency of every 31 days on a STAGGERED TEST BASIS (STB). This changes the CTS by requiring an ALT to be performed every 31 days on a STB instead of a CHANNEL CALIBRATION and a CHANNEL FUNCTIONAL TEST being conducted every refueling.

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The purpose of ITS SR 3.3.1.5 is to test those functions that are determined by logic. This change is acceptable because the P-7 interlock is derived from the logic of 2 of 4 Power Range channels indicating $\geq 10\%$ RTP (P-10), or 1 of 2 turbine impulse channels indicating $\geq 10\%$ of turbine power (P-13). The CHANNEL CALIBRATION AND CHANNEL FUNCTIONAL TEST are not appropriate tests to be performed for the P-7 function because these are tests performed on functions that monitor parameters. This change is designated as more restrictive because the required Surveillance is performed more frequently than the Surveillances required by the CTS.

- M.11 CTS Table 3.3-1 Function 21A, RTBs, lists Actions 1 and 14 to be followed for an inoperable channel in MODES 1 and 2. Action 14 states, "With one of the diverse trip features (undervoltage or shunt trip device) inoperable, restore it to OPERABLE status within 48 hours or declare the RTB inoperable and apply Action 1." Additionally, the Action states, "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 Function 20, RTB Undervoltage and Shunt Trip Mechanism, requires these mechanisms to be OPERABLE for each RTB in MODES 1 and 2, and MODES 3(a), 4(a), and 5(a). Note (a) states, "With the Rod Control System capable of rod withdrawal or one or

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DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

Turbine Trip, (17) SI input from ESF, (11) Reactor Coolant Pump Breaker Position Trip, (19) Reactor Trip Breakers, (20) RTB Undervoltage and Shunt Trip Mechanisms, and (21) Automatic Trip Logic. This changes the CTS by deleting the Response Time Testing requirements for the listed functions.

The purpose of ITS SR 3.3.1.16 is to ensure that the required functions are response time tested and the required times are met. This change is acceptable because the deleted Surveillance Requirements are not necessary to verify that the RTS functions used to meet the LCO are consistent with the safety analysis. This is not a change in the testing requirements of the safety functions but a correction in the listed requirements. The appropriate RTS functions will continue to be tested in a manner and at a frequency necessary to give confidence that the assumptions in the safety analysis are protected and the required RTS functions can perform their assumed safety function. The deletion of the Response Time Testing for the listed RTS functions is acceptable because the testing requirements are the same requirements that were originally moved from the Technical Specifications to the Technical Requirements Manual. This change is designated as less restrictive because Surveillances which are required in the CTS will not be required in the ITS.

RAI
3.3.1-
37
RS

- L.21 *(Category 1 – Relaxation of LCO Requirements)* CTS 2.2 Limiting Safety System Setting states in Table 2.2-1 Note 3, “the channel’s maximum trip point shall not exceed its computed trip point by more than 2 percent of span.” This applies to the Overtemperature and Overpower ΔT trip setpoints for the Allowable Values as stated in Notes 1 and 2. ITS 3.3.1 in Table 3.3.1-1 states for the Overtemperature and Overpower ΔT that the functions Allowable Values are listed in Notes 1 and 2. The Overtemperature ΔT Allowable Value formula is modified by a Note that states, “The Overtemperature ΔT Function Allowable Value shall not exceed the following nominal trip setpoint by more than 2.3 % of ΔT span.” This changes the CTS requirement for Overtemperature ΔT by increasing the % of ΔT span from a value of 2.0 to 2.3.

The purpose of ITS 3.3.1 Allowable Value for the Overtemperature ΔT change from 2.0 to 2.3 is to establish a value that is consistent with the setpoint methodology. This change is acceptable because the LCO requirements continue to ensure that the process variables are maintained consistent with the safety analyses and licensing basis. The change to 2.3 % of ΔT span is consistent with the method used to calculate the other RTS and ESFAS Allowable Values. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

- L.22 *(Category 2 – Relaxation of Applicability)* Unit 1 CTS Table 4.3-1 Function 18, Turbine Trip on Low Auto Stop Oil Pressure or Turbine Stop Valve Closure states the related Surveillance is required as MODES 1 and 2. The Surveillance required is a CHANNEL FUNCTIONAL TEST with a listed frequency of S/U (1). S/U requires

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3.3.1-
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RS

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

the surveillance to be performed prior to each reactor start up. Note (1) states, "If not performed within the previous 31 days." The applicable MODES or other specified conditions for ITS Table 3.3.1-1 Function 16, Turbine Trip on Low Auto Stop Oil Pressure or Turbine Stop Valve Closure is 1(g) with SR 3.3.1.15 as one of the required Surveillances. Note (g) states, "Above the P-8 (Power Range Neutron Flux) interlock." This changes the CTS by changing the applicability of the Surveillance from MODES 1 and 2 to MODE 1 above the P-8 interlock.

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3.3.1-
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The purpose of the ITS Function 16 applicable MODE requirement is to ensure the function is OPERABLE. This change is acceptable because the requirements continue to ensure that the process variable is maintained in the MODES and other specified conditions. The Turbine Trip function is only assumed to trip the reactor above the P-8 interlock setpoint. This change is designated as less restrictive because the LCO for surveillance requirements are applicable in fewer operating conditions than in the CTS.

- L.23 *(Category 4 – Relaxation of Required Action)* CTS Table 3.3-1 Function 2 Power Range Neutron Flux (PRNF) and Function 3 PRNF High Positive and Negative Rate trips state that Action 2 is to be entered for an inoperable channel. Action 2, Part a states that an inoperable channel must be placed in the tripped condition within 72 hours. Action 2, Part b allows the testing of additional channel with one channel inoperable. Action 2, Part c states that THERMAL POWER is to be limited to $\leq 75\%$ Rated Thermal Power (RTP) and the PRNF trip setpoints are to be reduced to $\leq 85\%$ RTP within 78 hours. Action 2, Part d provides instructions for determining the QUADRANT POWER TILT RATIO (QPTR) with an inoperable PRNF channel. ITS Function 3 PRNF rate trips, high positive or high negative states that Condition E be entered for an inoperable channel. Condition E.1 states "Place channel in trip," within 72 hours, or Condition E.2 requires that the unit be placed "in MODE 3," within 78 hours. Condition E.2 is addressed by DOC M.2. A Note modifies the Required Actions of Condition E. This Note allows the testing of an additional channel with one channel inoperable. This changes the CTS by not requiring the performance of a QPTR and not requiring power and flux trip setpoints to be reduced for an inoperable PRNF rate trip channel.

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The purpose of CTS Action 2 Parts c and d is to ensure that for an inoperable PRNF channel adequate measures are provided to assure the power distribution factor of QPTR is adequately monitored or power and trip setpoints are required to be reduced. 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. CTS Action 2 Parts c and d are not

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.3, Instrumentation
LCO 3.3.1, RTS Instrumentation

3.3.1-2 ITS Table 3.3.1 – 1 Action P
STS Table 3.3.1 – 1 Action R
CTS Table 3.3 – 1 Action 1
DOC/JFD N/A

NRC RAI: Comment: RAI 3.3.1- Undocumented CTS Changes - Comment #1

CTS Table 3.3-1, Table Notation, Action 1 ITS Action P

Clarify the submittal to address comment that follows. CTS requirements to allow testing the reactor trip breaker and automatic trip logic with an inoperable channel bypassed is shown in the CTS markup as Note 2 to ITS Required Action P.1. There is a mismatch between the CTS markup and the proposed ITS.

Response: The Company agrees with the Comment. The last sentence of CTS Action 1 becomes Note 3 to ITS Required Action P and is addressed by DOC A.26 to describe the change. DOC A.26 discussion of Action 14 is deleted and replaced with DOC M.12 for RAI 3.3.1-18. The Unit 1 and Unit 2 CTS markups have been modified to reflect these changes. Additionally, the time allowed by Note 2 is reduced from 4 hours to 2 hours for maintenance on an inoperable RTB with an undervoltage or shunt trip mechanism.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>P. One RTB train inoperable.</p>	<p>-----NOTES-----</p> <ol style="list-style-type: none"> 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. 3. 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. <p>-----</p> <p>P.1 Restore train to OPERABLE status.</p> <p><u>OR</u></p> <p>P.2 Be in MODE 3.</p>	<p>1 hour</p> <p>7 hours</p>
<p>Q. One or more channels inoperable.</p>	<p>Q.1 Verify interlock is in required state for existing unit conditions.</p> <p><u>OR</u></p> <p>Q.2 Be in MODE 3.</p>	<p>1 hour</p> <p>7 hours</p>

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3.3.1-02
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RAI
3.3.1-02
R5

BASES

ACTIONS

0.1 and 0.2 (continued)

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 results in Action C entry while RTB(s) are inoperable.

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 channel is OPERABLE. Note 1 applies to RTB testing that is performed independently from the corresponding logic train testing. For simultaneous testing of logic and RTBs, the 4 hour test time limit of Condition 0 applies. 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. Note 3 applies to RTB testing that is performed concurrently with the corresponding logic train testing. For concurrent testing of the logic and RTB, the 4 hour test time limit of Condition 0 applies. The 4 hour time limit is justified in Reference 7.

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3.3.1-02
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Q.1 and Q.2

Condition 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 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

(continued)

C.T.S
Action
1 & 14

ACTIONS (continued)		
CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>Ⓟ Ⓟ One RTB train inoperable.</p>	<p>-----NOTES-----</p> <p>1. One train may be bypassed for up to 2 hours for surveillance testing, provided the other train is OPERABLE.</p> <p>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.</p>	
	<p>Ⓟ Ⓟ.1 Restore train to OPERABLE status.</p> <p>OR Ⓟ Ⓟ.2 Be in MODE 3.</p>	<p>1 hour</p> <p>7 hours</p>
<p>Ⓟ Ⓟ. One channel inoperable. <i>OR MORE</i></p>	<p>Ⓟ Ⓟ.1 Verify interlock is in required state for existing unit conditions.</p> <p>OR Ⓟ Ⓟ.2 Be in MODE 3.</p>	<p>1 hour</p> <p>7 hours</p>

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3.3.1-02
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TSTF
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TSTF
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(continued)

NEW

ITS 3.3.1, RTS INSTRUMENTATION

INSERT

P.	-----NOTES----- 3. 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. -----	
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BASES

ACTIONS

Q.1 and Q.2 (continued)

Q next 6 hours. The Completion Time of 24 hours (Required Action Q.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 Q.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 24 hours for surveillance testing, provided the other train is OPERABLE.

P Q.1 and Q.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.~~

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 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 Q.1 and Q.2

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

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TSTF_s
169
135

TSTF
135

RAI
B.3.1-02
R5

TSTF
135

(continued)

Rev 5

ITS 3.3.1, RTS INSTRUMENTATION

INSERT 1

results in Action C entry while RTB(s) are inoperable

INSERT 2

Note 1 applies to RTB testing that is performed independently from the corresponding logic train testing. For simultaneous testing of the logic and RTBs, the 4 hour test time limit of Condition O applies.

INSERT 3

Note 3 applies to RTB testing that is performed concurrently with the corresponding logic train testing. For concurrent testing of the logic and RTB, the 4 hour test time limit of Condition O applies. The 4 hour time limit is justified in Reference 7.

A.1

TABLE 3.3-1 (Continued)

TABLE NOTATION

RAI
3.3.1-09
RS

ITS

Note a

Note d

Note h

Note b

Note c

Note e

Note f

Note g

Action P

Action D

Action E

Note to Required Action D.2.2

Required Actions D.3 and E.2

Action F

Action G

- * With the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal. or one or more rods not fully inserted (L.1)
- ** Below the P-6 (Intermediate Range Neutron Flux) setpoint. (1)
- *** With the Reactor Trip Breaker open for surveillance testing in accordance with Specification Table 4.3-1 (item 21A). INSERT PROPOSED NOTE h (A.18)
- # The provisions of Specification 3.0.4 are not applicable. (A.12)
- ## High voltage to detector may be de-energized above the P-6 setpoint. (LA.2)
- ### Below the P-10 (Low Setpoint Power Range Neutron Flux Interlock) setpoint. (A.10)
- INSERT PROPOSED NOTE c (A.11)
- INSERT PROPOSED NOTE e (A.15)

INSERT PROPOSED NOTE g INSERT PROPOSED NOTE f ACTION STATEMENTS INSERT PROPOSED NOTE e (A.9) (A.22)

ACTION 1 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, be in HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.1 provided the other channel is OPERABLE. INSERT PROPOSED REQUIRED ACTION P.1 (L.13)

Note 1
Note 3

One channel may be bypassed for up to 4 hours for concurrent surveillance testing of the reactor trip breaker and automatic trip logic, provided the other channel is OPERABLE. (A.26) RAI 3.3.1-2 3.3.1-18 RS

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

a. The inoperable channel is placed in the tripped condition within 72 hours. | RAI 3.3.1-4 RS

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 12 hours for surveillance testing of the redundant channel(s) per Specification 4.3.1.1.1. (L.23)

c. Either, THERMAL POWER is restricted to $\leq 75\%$ of RATED THERMAL POWER and the Power Range Neutron Flux trip setpoint is reduced to $\leq 85\%$ of RATED THERMAL POWER within 78 hours; or, the QUADRANT POWER TILT RATIO is monitored at least once per 12 hours. INSERT PROPOSED NOTE to Required Action D.2.2 (L.2) (L.3)

d. The QUADRANT POWER TILT RATIO shall be determined to be within the limit when above 75 percent of RATED THERMAL POWER with one Power Range Channel inoperable by using the moveable incore detectors to confirm that the normalized symmetric power distribution, obtained from 2 sets of 4 symmetric thimble locations or a full-core flux map, is consistent with the indicated QUADRANT POWER TILT RATIO at least once per 12 hours. (LA.16) RAI 3.3.1-11 RS

INSERT PROPOSED REQUIRED ACTIONS D.3 and E.2 (M.2)

ACTION 3 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level: INSERT PROPOSED ACTION G (L.5)

A.11

ITS 3.3.1
03-09-00

ITS

TABLE 3.3-1 (Continued)

ACTION 9 - With the number of channels OPERABLE less than the Total Number of Channels OPERABLE requirement, STARTUP and POWER OPERATION may proceed provided the inoperable channel is placed in the tripped condition within 72 hours and the Minimum Channels OPERABLE requirement is met, or reduce power to less than the P-8 setpoint in the next 4 hours.

RAI 3.3.1-15
RS

L.26

Action N

Note

ACTION 10 - Deleted
Add proposed Note

ACTION 11 - With less than the Minimum Number of Channels OPERABLE, operation may continue provided the inoperable channel is placed in the tripped condition within 1 hour.

A.8

Action B

ACTION 12 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours.

ACTION 13 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within (1) hour or terminate testing of the Reactor Trip Breaker and open the Reactor Trip Bypass Breaker.

A.18

Action S

Note 2
Action P

ACTION 14 - With one of the diverse trip features (undervoltage or shunt trip device) inoperable, restore it to OPERABLE status within 48 hours or declare the breaker inoperable and apply Action D. 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.

RAI 3.3.1-14
RS

Insert Required Action S
M.11

2 hours

M.12

RAI 3.3.1-2
3.3.1-18
RS

Actions C and J

ACTION 15 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement restore the inoperable channel to OPERABLE status within 48 hours or open the reactor trip breakers within the next hour.

L.1

Insert Proposed Required Action C.2
Insert Proposed Required Action J.2

Action O

Note

ACTION 16 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours; however, one channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.1.1, provided the other channel is OPERABLE.

L.18

Actions Q and R

ACTION 17 - With less than the Minimum Channels OPERABLE, within 1 hour determine by observation of the associated permissive annunciator window(s) that the interlock(s) is in its required state for the existing plant conditions or apply Specification 3.0.3.

L.A.6

Insert Proposed Required Actions Q.2 and R.2

A.16

A.1

ITS 3.3.1

03-09-00

TABLE 3.3-1 (CONTINUED)

TABLE NOTATION

RAI 3.3.1-09 R5

ITS

Note a

Note d

Note h

Note b

Note c

Note e

Note f

Note g

Action P

Action D

Action E

Note to Required Action D.2.2

Required Action 3 D.3 and E.2

Action G

*	With the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal. <u>or one or more rods not fully inserted</u>	L.11
**	Below the P-6 (Intermediate Range Neutron Flux) setpoint.	1
***	With the Reactor Trip Breaker open for surveillance testing in accordance with Specification Table 4.3-1 (item 21A). <u>INSERT PROPOSED NOTE h</u>	A.18
#	The provisions of Specification 3.0.4 are not applicable.	A.12
##	High voltage to detector may be de-energized above the P-6 setpoint.	L.A.7
###	Below the P-10 (Low Setpoint Power Range Neutron Flux Interlock) setpoint.	A.10
	<u>INSERT PROPOSED NOTE c</u>	A.11
ACTION STATEMENTS		
	<u>INSERT PROPOSED NOTE f</u>	A.15
	<u>INSERT PROPOSED NOTE g</u>	A.9
ACTION 1 -	With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, be in HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.1 provided the other channel is OPERABLE. One channel may be bypassed for up to 4 hours for concurrent surveillance testing of the reactor trip breaker and automatic trip logic, provided the other channel is OPERABLE.	A.22
	<u>NOTE 1</u>	INSERT Proposed Required Action P.1
	<u>NOTE 3</u>	L.13
		A.26
ACTION 2 -	With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and POWER OPERATION may proceed provided the following conditions are satisfied:	
	a. The inoperable channel is placed in the tripped condition within 72 hours.	RAI 3.3.1-2 3.3.1-18 R5
	b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 12 hours for surveillance testing of the redundant channel(s) per Specification 4.3.1.1.1.	RAI 3.3.1-4 R5
	<u>NOTE e</u>	L.23
	c. Either, THERMAL POWER is restricted to $\leq 75\%$ of RATED THERMAL POWER and the Power Range Neutron Flux trip setpoint is reduced to $\leq 85\%$ of RATED THERMAL POWER within 78 hours; or, the QUADRANT POWER TILT RATIO is monitored at least once per 12 hours. <u>INSERT PROPOSED NOTE to Required Action D.2.2</u>	L.2
		L.13
	d. The QUADRANT POWER TILT RATIO shall be determined to be within the limit when above 75 percent of RATED THERMAL POWER with one Power Range Channel inoperable by using the movable incore detectors to confirm that the normalized symmetric power distribution, obtained from 2 sets of 4 symmetric thimble locations or a full-core flux map, is consistent with the indicated QUADRANT POWER TILT RATIO at least once per 12 hours. <u>INSERT PROPOSED REQUIRED ACTIONS D.3 and E.2</u>	L.A.16
		M.2
	<u>INSERT PROPOSED ACTION G</u>	L.15

ITS

TABLE 3.3-1 (CONTINUED)

Action L and M

Note to Action: b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels per Specification 4.3.1.1.

If the conditions are not satisfied in the time permitted, reduce power to less than the P-7 setpoint in 6 hours.

Action N

ACTION 9 - With the number of channels OPERABLE less than the Total Number of Channels OPERABLE requirement, STARTUP and POWER OPERATION may proceed provided the inoperable channel is placed in the tripped condition within 72 hours and the Minimum Channels OPERABLE Requirement is met, or reduce power to less than the P-8 setpoint in the next 4 hours.

RAI 3.3.1-15 RS

Note

ACTION 10 - Deleted

Add proposed Note

L.26

ACTION 11 -

With less than the Minimum Number of Channels OPERABLE, operation may continue provided the inoperable channel is placed in the tripped condition within 1 hour.

A.8

Action B

ACTION 12 -

With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours.

ACTION 13 -

With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within (1) hour or terminate testing of the Reactor Trip Breaker and open the Reactor Trip Bypass Breaker.

A.18

RAI 3.3.1-14 RS

Action S Note 2 Action P

ACTION 14 -

With one of the diverse trip features (undervoltage or shunt trip device) inoperable, restore it to OPERABLE status within 48 hours or declare the breaker inoperable and apply Action D. 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.

M.11

INSERT Required Action S.2

Actions C and J

ACTION 15 -

With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement restore the inoperable channel to OPERABLE status within 48 hours, or open the reactor trip breakers within the next hour.

L.11

INSERT PROPOSED Required Action C.2.1
INSERT PROPOSED Required Action J.2

Action O

ACTION 16 -

With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours, however one channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.1.1, provided the other channel is OPERABLE.

L.18

Note

Actions Q and R

ACTION 17 -

With less than the Minimum Channels OPERABLE, within 1 hour determine by observation of the associated permissive annunciator window(s) that the interlock(s) is in its required state for the existing plant conditions or apply Specification 3.0.3.

L.A.6

INSERT PROPOSED Required Actions Q.2 and R.2

A.16

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

requirement, but is provided for clarification. This change is designated as administrative because it does not result in technical changes to the CTS.

RAI
3.3.1-
17
RS

- A.26 CTS Table 3.3-1 Action 1 states with the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement the unit must be shutdown within a given time. Additionally, Action 1 states that one channel may be bypassed for up to 4 hours for concurrent surveillance testing of the RTB and automatic trip logic provided the other channel is OPERABLE. Action 1 applies to Function 21 Reactor Trip Breakers. ITS Table 3.3.1 -1 for function 19 requires Condition P to be entered for an inoperable train. Condition P requires with one RTB train inoperable, it must be restored to OPERABLE status or the unit must be shutdown. Three Notes modify Condition P. Note 3 states that 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 channel is OPERABLE. This changes the CTS by placing the allowance of concurrent surveillance testing into a Note in the ITS format.

RAI
3.3.1-
02
3.3.1-
18
RS

This change is acceptable because the allowance of the CTS is maintained in the ITS format. Four hours of concurrent surveillance testing of the RTB and automatic trip logic are allowed in the CTS requirements. The CTS allowance is justified by WCAP-14333 P-A. This change is designated as administrative because it does not result in a technical change to the CTS.

- A.27 CTS Table 3.3-1 Function 20 RCP Breaker Position provides for a reactor trip. The total number of channels is one per (RCP) breaker and for an inoperable channel Action 8 must to be entered and requires the inoperable channel to be placed into trip within 72 hours or the unit is required to be placed below P-7 interlock within 78 hours. ITS 3.3.1 for RCP Breaker Position specifies the required channels is one per RCP (breaker) and requires Condition M for an inoperable channel. The Condition provides for an inoperable channel that the channel must be placed in trip within 72 hours or power must be reduced below P-7 setpoint within 78 hours. This changes the CTS by stating the channel requirement for RCP breaker position as one per RCP.

RAI
3.3.1-
08
RS

The purpose of this change is to provide consistent requirements for the functions as assumed in the safety analyses assumptions. This change is acceptable because the required Reactor Trip function is specified to be OPERABLE in the applicable MODE with consistent required actions. The Condition is consistent with appropriate Required Action to place the unit out of the MODE of applicability within Completion Times consistent with other measures that shutdown the unit. This change is designated as administrative because it does not result in technical changes to the CTS.

- A.28 CTS Table 4.3-1 lists the surveillance requirements for the Power Range Neutron Flux CHANNEL CALIBRATION as M (3)(6). Note (3) states, "Compare incore to excore axial offset above 15 % RATED THERMAL POWER (RTP). Adjust channel

RAI
3.3.1-
32
RS

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.3, Instrumentation
LCO 3.3.1, RTS Instrumentation

3.3.1-3 ITS Table 3.3.1 – 1 Function 9
STS Table 3.3.1 – 1 Function 9
CTS Table 2.2 – 1 Function 11
DOC/JFD N/A

NRC RAI: Comment: RAI 3.3.1- Undocumented CTS Changes - Comment #2

CTS Table 2.2-1, Pressurizer Water Level – High

Clarify the submittal to address comment that follows. Pressurizer Water Level - High Allowable Value units (“of instrument span”) are deleted in the ITS table without justification.

Response: The Company agrees with the Comment. The CTS Table 2.2-1 for Function 11 Pressurizer Water Level – High Allowable Value description “of instrumentation span” has been moved and justified by DOC LA.14. This moves the phrase “of instrument span” from the specification to the ITS Bases.

Rev. 5

A.1

TABLE 2.2-1

ALLOWABLE VALUES

LA.11

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

ITS	FUNCTIONAL UNIT	TRIP SETPOINT	LA.11	ALLOWABLE VALUES
1	Manual Reactor Trip	Not Applicable		Not Applicable
2b	Power Range, Neutron Flux	Low Setpoint - $\leq 25\%$ of RATED THERMAL POWER		Low Setpoint - $\leq 26\%$ of RATED THERMAL POWER
2a		High Setpoint - $\leq 109\%^{**}$ of RATED THERMAL POWER		High Setpoint - $\leq 110\%^{***}$ of RATED THERMAL POWER
3a	Power Range, Neutron Flux, High Positive Rate	$\leq 5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds		$\leq 5.5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds
3b	Power Range, Neutron Flux, High Negative Rate	$\leq 5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds		$\leq 5.5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds
4	Intermediate Range, Neutron Flux	$\leq 35\%$ of RATED THERMAL POWER		$\leq 40\%$ of RATED THERMAL POWER
5	Source Range, Neutron Flux	$\leq 10^5$ counts per second		$\leq 1.3 \times 10^5$ counts per second
6	Overtemperature ΔT	See Note 1		See Note 3 Note 1
7	Overpower ΔT	See Note 2		See Note 3 Note 2
8a	Pressurizer Pressure - Low	≥ 1870 psig		≥ 1860 psig
8b	Pressurizer Pressure - High	≤ 2360 psig		≤ 2370 psig
9	Pressurizer Water Level - High	$\leq 92\%$ of instrument span		$\leq 93\%$ of instrument span
10	Loss of Flow	$\geq 90\%$ of design flow per loop*		$\geq 89\%$ of design flow per loop*

A.6

LA.11

RAI
3.3.1-3
RS

LA.14

LA.8

LA.8

A.6

ITS 3.3.1
07-30-97

* Design flow per loop is one-third of the minimum allowable Reactor Coolant System Total Flow Rate as specified in Table 3.2-1.

** The high trip setpoint for Power Range, Neutron Flux, shall be $\leq 103\%$ RATED THERMAL POWER for the period of operation until steam generator replacement.

*** The allowable value for the high trip setpoint for Power Range, Neutron Flux, is required to be $\leq 104\%$ RATED THERMAL POWER for the period of operation until steam generator replacement.

A.1

TABLE 2.2-1

ALLOWABLE VALUES

LA.11

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

NORTH ANNA - UNIT 2

ITS	FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
1	1. Manual Reactor Trip	Not Applicable	Not Applicable
2a	2. Power Range, Neutron Flux	Low Setpoint - $\leq 25\%$ of RATED THERMAL POWER	Low Setpoint - $\leq 26\%$ of RATED THERMAL POWER
2b		High Setpoint - $\leq 109\%$ of RATED THERMAL POWER	High Setpoint - $\leq 110\%$ of RATED THERMAL POWER
3a	3. Power Range, Neutron Flux, High Positive Rate	$\leq 5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds	$\leq 5.5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds
3b	4. Power Range, Neutron Flux, High Negative Rate	$\leq 5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds	$\leq 5.5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds
4	5. Intermediate Range, Neutron Flux	$\leq 35\%$ of RATED THERMAL POWER	$\leq 40\%$ of RATED THERMAL POWER
5	6. Source Range, Neutron Flux	$\leq 10^5$ counts per second	$\leq 1.3 \times 10^5$ counts per second
6	7. Overtemperature ΔT	See Note 1	See Note 3 Note 1
7	8. Overpower ΔT	See Note 2	See Note 3 Note 2
8a	9. Pressurizer Pressure - Low	≥ 1870 psig	≥ 1860 psig
8b	10. Pressurizer Pressure - High	≤ 2360 psig	≤ 2370 psig
9	11. Pressurizer Water Level - High	$\leq 92\%$ of instrument span	$\leq 93\%$ of instrument span
10	12. Loss of Flow	$\geq 90\%$ of design flow per loop*	$\geq 89\%$ of design flow per loop*

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2-6

Amendment No. 152, 181, 187

Rev 5

LA.11

LA.11

RAI 3.3.1-3 RS

LA.14

LA.8

* Design flow per loop is one-third of the minimum allowable Reactor Coolant System Total Flow Rate as specified in Table 3.2-1

LA.8

ITS 3.3.1 07-30-97

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

LA.14 (*Type 1 – Removing Details of System Design and System Description, Including Design Limits*) CTS Table 2.2-1 states the Allowable Value for Function 1 Pressurizer Water Level – High is “93 % of instrument span.” ITS Table 3.3.1-1 lists the Allowable Value for Function 9 Pressurizer Water Level – High is “93%.” This changes the CTS by moving a portion of the requirement “of instrument span,” from the specifications to the UFSAR.

RAI
3.3.1-
03
R5

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 retains the Allowable Value for the Pressurizer Water Level – High Function to be 93%. Also, this change is acceptable because the removed information will be adequately controlled in the UFSAR. The UFSAR is controlled under 10 CFR 50.59, which ensures changes are properly evaluated. 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.

LA.15 (*Type 1 – Removing Details of System Design and System Description, Including Design Limits*) CTS Table 3.3-1 for Reactor Trip System (RTS) instrumentation has three columns stating various requirements for each function. These columns are labeled, “TOTAL NO. OF CHANNELS,” “CHANNELS TO TRIP,” and “MINIMUM CHANNELS OPERABLE.” ITS Table 3.3.1-1 states the channel requirement for each RTS function as, “REQUIRED CHANNELS.” This changes the CTS by stating all of the channel requirements for each function as the required channels and moving the information of the number of channels to trip and the minimum channels needed to maintain the function OPERABLE to the UFSAR.

RAI
3.3.1-
03
R5

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 be entered if a required channel becomes inoperable. This change is acceptable because the removed information will be adequately controlled in the UFSAR. The UFSAR is controlled under 10 CFR 50.59 which ensures changes are properly evaluated. 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.

LA.16 (*Type 3 – Removing Procedural Details for Meeting TS Requirements and Related Reporting Problems*) CTS 3.3.1.1 Action 2.d in Table 3.3-1 states that the QUADRANT POWER TILT RATIO (QPTR) shall be determined to be within limit when reactor power is above 75 percent of RATED THERMAL POWER (RTP). The moveable incore detectors will be utilized to verify the QPTR when a Power Range

RAI
3.3.1-
11
R5

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.3, Instrumentation
LCO 3.3.1, RTS Instrumentation

3.3.1-4 ITS Actions D and E
STS Actions D and E
CTS Actions 2.c and 2.d
DOC/JFD N/A

NRC RAI: Comment: RAI 3.3.1- Undocumented CTS Changes - Comment #3

CTS Table 3.3-1, Actions 2.c and 2.d.

Clarify the submittal to address comment that follows. CTS markup shows Action 2 is translated into two ITS Conditions, D & E. Table 3.3-1 does not provide a DOC for CTS Action 2.c and 2.d changes that are not included in ITS Condition E.

Response: The Company agrees with the Comment. DOC L.23 has been added to the CTS markup.

A.1

ITS 3.3.1
03-09-00

TABLE 3.3-1 (Continued)
TABLE NOTATION

RAI
3.3.1-09
RS

ITS
Note a
Note d
Note h
Note b
Note c
Note e
Note f
Note g

- * With the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal. or one or more rods not fully inserted (L.1)
- ** Below the P-6 (Intermediate Range Neutron Flux) setpoint. (A.18)
- *** With the Reactor Trip Breaker open for surveillance testing in accordance with Specification Table 4.3-1 (item 21A). INSERT PROPOSED NOTE h (A.12)
- # The provisions of Specification 3.0.4 are not applicable. (A.2)
- ## High voltage to detector may be de-energized above the P-6 setpoint. (A.10)
- ### Below the P-10 (Low Setpoint Power Range Neutron Flux Interlock) setpoint. (A.11)
- INSERT PROPOSED NOTE e (A.15)
- INSERT PROPOSED NOTE g (A.22)

ACTION STATEMENTS

ACTION P

ACTION 1 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, be in HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.1 provided the other channel is OPERABLE. (L.13)

Note 1: One channel may be bypassed for up to 4 hours for concurrent surveillance testing of the reactor trip breaker and automatic trip logic, provided the other channel is OPERABLE. (A.26)

Note 3: (RAI 3.3.1-4, 3.3.1-18 RS)

Action D
Action E

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

- a. The inoperable channel is placed in the tripped condition within 72 hours.
- b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 12 hours for surveillance testing of the redundant channel(s) per Specification 4.3.1.1.1. (L.23)
- c. Either, THERMAL POWER is restricted to $\leq 75\%$ of RATED THERMAL POWER and the Power Range Neutron Flux trip setpoint is reduced to $\leq 85\%$ of RATED THERMAL POWER within 78 hours; or, the QUADRANT POWER TILT RATIO is monitored at least once per 12 hours. INSERT PROPOSED NOTE to Required Action D.2.2 (L.2)
- d. The QUADRANT POWER TILT RATIO shall be determined to be within the limit when above 75 percent of RATED THERMAL POWER with one Power Range Channel inoperable by using the moveable incore detectors to confirm that the normalized symmetric power distribution, obtained from 2 sets of 4 symmetric thimble locations or a full-core flux map, is consistent with the indicated QUADRANT POWER TILT RATIO at least once per 12 hours. (L.13)

INSERT PROPOSED REQUIRED ACTIONS D.3 AND E.2 (M.2)

Note: (RAI 3.3.1-4, 3.3.1-11 RS)

Note to Required Action D.2.2

Required Actions D.3 and E.2
Action F
Action G

ACTION 3 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level: INSERT PROPOSED ACTION G (L.5)

TABLE 3.3-1 (CONTINUED)

TABLE NOTATION

ITS

Note a

Note d

Note h

Note b

Note c

Note e

Note f

Note g

Action P

Action D

Action E

Note to

Required

Action D.2.2

Required

Actions D.3 and E.2

Action G

*	With the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal. or one or more rods not fully inserted	L.1
**	Below the P-6 (Intermediate Range Neutron Flux) setpoint.	1
***	With the Reactor Trip Breaker open for surveillance testing in accordance with Specification Table 4.3-1 (item 21A). INSERT PROPOSED NOTE H	A.18
#	The provisions of Specification 3.0.4 are not applicable.	A.12
##	High voltage to detector may be de-energized above the P-6 setpoint.	LA.7
###	Below the P-10 (Low Setpoint Power Range Neutron Flux Interlock) setpoint. INSERT PROPOSED NOTE C	A.10 A.11
ACTION STATEMENTS		
INSERT PROPOSED NOTE F INSERT PROPOSED NOTE G INSERT PROPOSED NOTE E		
ACTION 1 -	With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement be in HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.1 provided the other channel is OPERABLE.	A.15 A.9 A.22
Note 1	One channel may be bypassed for up to 4 hours for concurrent surveillance testing of the reactor trip breaker and automatic trip logic, provided the other channel is OPERABLE.	INSERT Proposed Required Action P.1 L.13 A.26
ACTION 2 -	With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and POWER OPERATION may proceed provided the following conditions are satisfied:	
a.	The inoperable channel is placed in the tripped condition within 72 hours.	
b.	The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 12 hours for surveillance testing of the redundant channel(s) per Specification 4.3.1.1.1.	RAI 3.3.1-2 3.3.1-18 RS
Note 3		RAI 3.3.1-4 RS
c.	Either, THERMAL POWER is restricted to $\leq 75\%$ of RATED THERMAL POWER and the Power Range Neutron Flux trip setpoint is reduced to $\leq 85\%$ of RATED THERMAL POWER within 78 hours; or, the QUADRANT POWER TILT RATIO is monitored at least once per 12 hours. INSERT PROPOSED NOTE TO REQUIRED ACTION D.2.2	L.2 L.13
d.	The QUADRANT POWER TILT RATIO shall be determined to be within the limit when above 75 percent of RATED THERMAL POWER with one Power Range Channel inoperable by using the movable incore detectors to confirm that the normalized symmetric power distribution, obtained from 2 sets of 4 symmetric thimble locations or a full-core flux map, is consistent with the indicated QUADRANT POWER TILT RATIO at least once per 12 hours. INSERT PROPOSED REQUIRED ACTIONS D.3 and E.2	LA.16 M.2
INSERT PROPOSED ACTION G		
L.15		

RAI 3.3.1-09 RS

RAI 3.3.1-2
3.3.1-18
RS

L.23

RAI 3.3.1-1 RS

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

the surveillance to be performed prior to each reactor start up. Note (1) states, "If not performed within the previous 31 days." The applicable MODES or other specified conditions for ITS Table 3.3.1-1 Function 16, Turbine Trip on Low Auto Stop Oil Pressure or Turbine Stop Valve Closure is 1(g) with SR 3.3.1.15 as one of the required Surveillances. Note (g) states, "Above the P-8 (Power Range Neutron Flux) interlock." This changes the CTS by changing the applicability of the Surveillance from MODES 1 and 2 to MODE 1 above the P-8 interlock.

RAI
3.3.1-
01
R5

The purpose of the ITS Function 16 applicable MODE requirement is to ensure the function is OPERABLE. This change is acceptable because the requirements continue to ensure that the process variable is maintained in the MODES and other specified conditions. The Turbine Trip function is only assumed to trip the reactor above the P-8 interlock setpoint. This change is designated as less restrictive because the LCO for surveillance requirements are applicable in fewer operating conditions than in the CTS.

- L.23 (Category 4 – Relaxation of Required Action) CTS Table 3.3-1 Function 2 Power Range Neutron Flux (PRNF) and Function 3 PRNF High Positive and Negative Rate trips state that Action 2 is to be entered for an inoperable channel. Action 2, Part a states that an inoperable channel must be placed in the tripped condition within 72 hours. Action 2, Part b allows the testing of additional channel with one channel inoperable. Action 2, Part c states that THERMAL POWER is to be limited to $\leq 75\%$ Rated Thermal Power (RTP) and the PRNF trip setpoints are to be reduced to $\leq 85\%$ RTP within 78 hours. Action 2, Part d provides instructions for determining the QUADRANT POWER TILT RATIO (QPTR) with an inoperable PRNF channel. ITS Function 3 PRNF rate trips, high positive or high negative states that Condition E be entered for an inoperable channel. Condition E.1 states "Place channel in trip," within 72 hours, or Condition E.2 requires that the unit be placed "in MODE 3," within 78 hours. Condition E.2 is addressed by DOC M.2. A Note modifies the Required Actions of Condition E. This Note allows the testing of an additional channel with one channel inoperable. This changes the CTS by not requiring the performance of a QPTR and not requiring power and flux trip setpoints to be reduced for an inoperable PRNF rate trip channel.

RAI
3.3.1-
04
R5

The purpose of CTS Action 2 Parts c and d is to ensure that for an inoperable PRNF channel adequate measures are provided to assure the power distribution factor of QPTR is adequately monitored or power and trip setpoints are required to be reduced. 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. CTS Action 2 Parts c and d are not

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

associated with the PRNF channel rate trips portions of the channels. The rate trips are independent circuits monitoring each power range indication and sensing a rapid change in reactor power in the region of the associated PRNF detector. These power range rate-of-change circuits do not provide an input to QPTR. ITS Condition D would be entered if the PRNF channel becomes inoperable and does not provide an input to QPTR 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.

RAI
3.3.1-
04
RS

- L.24 (*Category 7 – Relaxation Of Surveillance Frequency*) CTS Table 4.3-1 requires a CHANNEL FUNCTIONAL TEST for Function 6 Source Range Neutron Flux channels at a frequency of S/U⁽¹⁾. S/U requires the surveillance to be performed prior to each reactor start up. Note⁽¹⁾ states, "If not performed within the previous 31 days." This requirement is applicable in MODES 3*, 4*, and 5*. The * states, "With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal." ITS Function 5 Source Range Neutron Flux channels are required in MODES 3^(a), 4^(a), and 5^(a) to perform SR 3.3.1.7. Note^(a) states, "With Rod Control System capable of rod withdrawal or one or more rods not fully inserted." The change from Note * to Note^(a) is addressed by DOC L.1. The ITS SR requires a COT to be performed every 92 days. It is modified by a Note that states, "Not required to be performed for source range instrumentation prior to entering MODE 3 from MODE 2 until 4 hours after entering MODE 3." The change from 31 to 92 days is addressed by DOC L.11. This changes the CTS surveillance requirement by providing an allowance to perform the SR 4 hours after entering the applicable MODE.

RAI
3.3.1-
10
RS

The purpose of ITS SR 3.3.1.7 Note is to allow an appropriate period of time to perform the requirement after entering the applicable MODE. This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. On a reactor trip while operating in MODE 1 at 100% RTP, the unit goes from MODE 1 to MODE 3 in a few seconds. Neutron flux decreases below the P-6 setpoint, causing the Source Range channels to energize and requiring SR 3.3.1.7 to be satisfied. The four hours allowed by the Note provides a reasonable time to perform the testing. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

- L.25 (*Category 5 – Deletion of Surveillance Requirement*) CTS Surveillance Requirements in Table 4.3-1 for Function 21.B, reactor trip bypass breaker, require a CHANNEL FUNCTIONAL TEST to be performed at a refueling (R) Frequency. The Frequency is modified by a Note⁽¹⁰⁾ that states, "Automatic undervoltage trip." Note⁽¹⁰⁾ is addressed by DOC LA.4. ITS Table 3.3.1-1 Function 19, Reactor Trip Breakers^(h) requires the performance of SR 3.3.1.4. Note^(h) states, "Including any reactor trip bypass breakers that are racked in and closed for bypassing an RTB." SR 3.3.1.4 requires the monthly testing (TADOT) on a Staggered Test Basis for the trip and bypass breakers. A Note that states, "This Surveillance must be performed on the trip

RAI
3.3.1-
13
RS

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.3, Instrumentation
LCO 3.3.1, RTS Instrumentation

3.3.1-5 ITS Table 3.3.1 – 1 Functions 18.b and 18.e
STS Table 3.3.1 – 1 Functions 18.b and 18.f
CTS Table 3.3 – 1 Functions 23.b and 23.e
DOC/JFD N/A

NRC RAI: Comment: RAI 3.3.1- CTS Markup mismatch with ITS - Comment #1

ITS Table 3.3.1-1, Function 18.b (P-7) and Function 18.e (P-13)

Clarify the submittal to address comment(s) that follows.

For Function 18.b: Potential Beyond Scope Issue. The CTS markup shows that SR 3.3.1.11 and SR 3.3.1.13 apply to the P-7 interlock. The ITS shows only SR 3.3.1.5, which is a deviation from STS. Provide corrected DOC justification.

For Function 18.e: The CTS markup shows that SR 3.3.1.10 and SR 3.3.1.13 apply to the P-13 interlock. The ITS shows SR 3.3.1.10 and SR 3.3.1.13. Provide corrected DOC justification.

Response: For Function 18.b Comment, the Company agrees with the Comment. The testing of the P-7 interlock is a logic test per proposed TSTF-347. SR 3.3.1.5 should represent this requirement and SRs 3.3.1.11 and 3.3.1.13 should be eliminated. A more restrictive DOC M.10 and JFD 16 justify this on a plant specific basis to the ISTS Table 3.3.1-1 Function 18.b. This changes the CTS from the 18-month requirements for the CHANNEL CALIBRATION and the CHANNEL FUNCTIONAL TEST to the ACTUATION LOGIC TEST performed at the frequency of 31-day on a STAGGERED TEST BASIS.

For Function 18.e Comment, the Company agrees with the Comment. The CTS markup shows SR 3.3.1.11. This is a typo and should have shown SR 3.3.1.10. The CTS markup has been corrected.

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

CTS TABLE
3.3-1

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TRIP SETPOINT (a)
18 18.a 18.b	16. Turbine Trip a. Low Fluid Oil Pressure b. Turbine Stop Valve Closure	3 4	D N P N	SR 3.3.1.10 SR 3.3.1.15 SR 3.3.1.10 SR 3.3.1.15	≥ 40 psig ≥ 10% open	≥ (800) psig ≥ [11%] open
19	17. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	2 trains	B C	SR 3.3.1.14	NA	NA
23 23a P-6 23b P-7 23c P-8	18. Reactor Trip System Interlocks a. Intermediate Range Neutron Flux, P-6 b. Low Power Reactor Trips Block, P-7 c. Power Range Neutron Flux, P-8	2 1 4	P Q P R P R	SR 3.3.1.11 SR 3.3.1.13 SR 3.3.1.11 SR 3.3.1.13 SR 3.3.1.11 SR 3.3.1.13	≥ 3E-11 amp NA ≤ 31 RTP	≥ [(1E-10)] amp NA ≤ [48%] RTP
	d. Power Range Neutron Flux, P-9	1	T	SR 3.3.1.11 SR 3.3.1.13	≤ [52.2%] RTP	≤ [50%] RTP
23d P-10 23e P-13	d. Power Range Neutron Flux, P-10 e. Turbine Impulse Pressure, P-13	4 2	P Q P R	SR 3.3.1.11 SR 3.3.1.13 SR 3.3.1.11 SR 3.3.1.10 SR 3.3.1.13	≥ 7 RTP ≤ 12.2% RTP ≤ 12.2% turbine power	≥ [10%] RTP ≤ [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.

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

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

**JUSTIFICATION FOR DEVIATIONS
ITS 3.3.1, RTS INSTRUMENTATION**

13. References to RTS interlock P-9 are deleted. The North Anna design does not utilize this function, but uses the P-8 function to perform the same requirements. Function e. and f. have been re-lettered.
14. The Overttemperature ΔT and Overpower ΔT formulas of the ISTS Table 3.3.1-1 in Notes 1 and 2 have been modified to reflect the North Anna CTS requirements. These changes are acceptable because they reflect the CTS formulas in the ITS requirements for these functions. Values for the notes, such as τ_4 , τ_5 , τ_6 , and τ_7 that are not needed, are deleted.
15. ISTS SR 3.3.1.6 states that a calibration of excore channels is required to be performed to make the channels agree with the incore detector measurements. A CTS requirement to perform a CHANNEL CALIBRATION on a quarterly basis for the Power Range channels would have been translated into this ITS requirement. The quarterly CHANNEL CALIBRATION for the Power Range channels was required before it was deleted by a Technical Specification change #221 for Unit 1 and #202 for Unit 2 (TAC #s MA5448 and MA 5450) dated March 9, 2000. A letter dated December 16, 1999 proposed the deletion of the requirement. The safety evaluation for the TS change states, "The specific TS changes and the licensee's justification are listed in the licensee's submittal dated May 6, 1999, Attachment 1 (Pages 9 through 17) and Attachment 2, as supplemented June 22 and December 16, 1999. The staff has reviewed all these changes based on the generic evaluation provided earlier and finds them acceptable." ITS SR 3.3.1.6 requires a comparison of the results of the incore detector measurement and the excore channels. Note 1 to the SR states, "Adjust NIS channel if absolute difference is $\geq 3\%$." This change is acceptable because the results of the incore measurements to excore channels will cause the NIS channels for the f (ΔI) input to the OT ΔT function to be readjusted if the difference is 3% or more. Note 1 is added to prevent unnecessary recalibration when the difference between the NIS channels and incore measurements is small and less than 3% between the actual and indicated values.
16. The CHANNEL OPERATIONAL TEST (COT) and the CHANNEL CALIBRATION apply to the P-10 and P-13 inputs, not the P-7 logic function. Logic functions are tested under SR 3.3.1.5. This change is an administrative clarification to address the relationship between these interlocks. This change is consistent with proposed change TSTF-347.
17. ISTS Table 3.3.1-1 Function 2.A, Power Range Neutron Flux High, does not specify a monthly CHANNEL CALIBRATION to be performed. ITS SR 3.3.1.3 is added to the Power Range Neutron Flux High requirements. This requires a comparison of incore to excore indication of AFD every 31 EFPD. An adjustment of the NIS channels is required if absolute difference is $\geq 3\%$. The SR is not required to be performed until 24 hours after THERMAL POWER exceeds 15 % RTP. This change is acceptable because all PRNF channels provide inputs for determining QPTR that require accurate AFD indications.

RAI
3.3.1-39

RAI
3.3.1-05
R5

RAI
3.3.1-32
R5

A.1

TABLE 4.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

NORTH ANNA - UNIT 1

ITS	FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST <i>(A.11, COT, TADOT)</i>	MODES IN WHICH SURVEILLANCE REQUIRED <i>(A.15)</i>
18	23. Reactor Trip System Interlocks				
18a	A. Intermediate Range Neutron Flux, P-6	N.A.	<i>3.3.1.11, R10, A.11</i>	<i>3.3.1.13, R1, A.11</i>	2(7)
18b	B. Low Power Reactor Trips Block, P-7	N.A.	<i>3.3.1.11, R10, A.11</i>	<i>M.10, R1, 3.3.1.5</i>	1
18c	C. Power Range Neutron Flux, P-8	N.A.	<i>3.3.1.11, R10, A.11</i>	<i>3.3.1.13, R1, A.11</i>	1
18d	D. Power Range Neutron Flux, P-10	N.A.	<i>2.3.1.11, R10, A.11</i>	<i>3.3.1.13, R1, A.11</i>	1, 2
18e	E. Turbine Impulse Chamber Pressure, P-13	N.A.	<i>3.3.1.10, R1, A.11</i>	<i>3.3.1.13, R1, A.11</i>	1

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SR3.3.17
note

add proposed Note

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3.3.1-5
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L.26

RAI
3.3.1-15
R5

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03-09-00

A.1

TABLE 4.3-1 (CONTINUED)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

NORTH ANNA - UNIT 2

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ITS
18
18a
18b
18c
18d
18e

FUNCTIONAL UNIT

- 23. Reactor Trip System Interlocks
- A. Intermediate Range Neutron Flux, P-6
- B. Low Power Reactor Trips Block, P-7
- C. Power Range Neutron Flux, P-8
- D. Power Range Neutron Flux, P-10
- E. Turbine Impulse Chamber Pressure, P-13

CHANNEL CHECK

CHANNEL CALIBRATION

CHANNEL FUNCTIONAL TEST
A.11
COT
TADOT

MODES IN WHICH SURVEILLANCE REQUIRED

A.5

3.3.1.11
RAI A.1

3.3.1.13
RAI A.11

2, 7

~~R.10~~

~~M.10~~
R 3.3.1.5

1

3.3.1.11
RAI A.1

3.3.1.13
RAI A.11

1

3.3.1.11
RAI A.1

3.3.1.13
RAI A.11

1, 2

3.3.1.10
RAI A.1

3.3.1.13
RAI A.11

1

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3.3.1-5
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RAI
3.3.1-5
Rev 5

L.26

RAI
3.3.1-15
R5

SR 33.1.7
Note

add proposed Note

Amendment No. 202

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DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

Breaker Position Trip is MODE 1^(f), with SR 3.3.1.14 as a required Surveillance. Note ^(f) states, "Above the P-7 (Low Power Reactor Trips Block) interlock." The applicable MODES or other specified conditions for ITS Table 3.3.1-1 Function 16, Turbine Trip on Low Auto Stop Oil Pressure or Turbine Stop Valve Closure, is MODE 1^(g) with SR 3.3.1.15 as one of the required Surveillances. Note ^(g) states, "Above the P-8 (Power Range Neutron Flux) interlock." This changes the CTS by requiring the surveillance for the RCP Breaker Position Trip and the Turbine Trip Functions to be performed in the ITS when they are not required in the CTS.

RAI
3.3.1-
01
RS

This change is acceptable because Surveillance Requirements are required for the RCP Breaker Position Trip and Turbine Trip Functions to ensure that they are capable of performing their required function. The satisfactory performance of these SRs ensures the safety functions OPERABILITY. This change is designated as more restrictive because the surveillance requirements are required in more applicable MODES or other specified conditions than the CTS requirements.

- M.10 CTS Table 4.3-1 Function 23.b Low Power Reactor Trip Block, P-7, states that a CHANNEL CALIBRATION and a CHANNEL FUNCTIONAL TEST are to be performed at a frequency of R (refueling). ITS Table 3.3.1-1 Function 18.b Low Reactor Power Trips Block, P-7, states that SR 3.3.1.5 ACTUATION LOGIC TEST (ALT) is to be performed at a Frequency of every 31 days on a STAGGERED TEST BASIS (STB). This changes the CTS by requiring an ALT to be performed every 31 days on a STB instead of a CHANNEL CALIBRATION and a CHANNEL FUNCTIONAL TEST being conducted every refueling.

RAI
3.3.1-
05
RS

The purpose of ITS SR 3.3.1.5 is to test those functions that are determined by logic. This change is acceptable because the P-7 interlock is derived from the logic of 2 of 4 Power Range channels indicating $\geq 10\%$ RTP (P-10), or 1 of 2 turbine impulse channels indicating $\geq 10\%$ of turbine power (P-13). The CHANNEL CALIBRATION AND CHANNEL FUNCTIONAL TEST are not appropriate tests to be performed for the P-7 function because these are tests performed on functions that monitor parameters. This change is designated as more restrictive because the required Surveillance is performed more frequently than the Surveillances required by the CTS.

- M.11 CTS Table 3.3-1 Function 21A, RTBs, lists Actions 1 and 14 to be followed for an inoperable channel in MODES 1 and 2. Action 14 states, "With one of the diverse trip features (undervoltage or shunt trip device) inoperable, restore it to OPERABLE status within 48 hours or declare the RTB inoperable and apply Action 1." Additionally, the Action states, "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 Function 20, RTB Undervoltage and Shunt Trip Mechanism, requires these mechanisms to be OPERABLE for each RTB in MODES 1 and 2, and MODES 3(a), 4(a), and 5(a). Note (a) states, "With the Rod Control System capable of rod withdrawal or one or

RAI
3.3.1-
14
RS

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.3, Instrumentation
LCO 3.3.1, RTS Instrumentation

3.3.1-6 ITS Table 3.3.1 – 1 Function 11 SR 3.3.1.4
STS Table 3.3.1 – 1 Function 11 SR 3.3.1.14
CTS Table 4.3 – 1 Function 20 CFT “R”
DOC/JFD N/A

NRC RAI: Comment: RAI 3.3.1- CTS Markup mismatch with ITS - Comment #2

ITS Table 3.3.1-1, Function 11(RCP Breaker Position)

Clarify the submittal to address comment(s) that follows. For ITS Table 3.3.1-1, Function 11(RCP Breaker Position) requires a 31day Staggered Test Basis TADOT (SR 3.3.1.4) whereas the CTS Markup shows the “R” CHANNEL FUNCTIONAL TEST translated as ITS SR 3.3.1.14 (18-month, TADOT) which is not a deviation from the ISTS. (See JFD #5)

Response: The Company agrees with the Comment. This is a typo in the ISTS markup. This has been corrected to read SR 3.3.1.14.

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

CTSTABLE
3.3-1

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3.3.1-6
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FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TRIP SETPOINT (a)
11. Reactor Coolant Pump (RCP) Breaker Position	(f)	1 per RCP	M	SR 3.3.1.14	NA	NA
a. Single Loop	1(h)	1 per RCP	O	SR 3.3.1.14	NA	NA
b. Two Loops	1(i)	1 per RCP	M	SR 3.3.1.14	NA	NA
12. Undervoltage RCPs	1 (f) TSTF 135	1 per bus	L	SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.16	≥ (2870) V ≥ (4760) V	≥ (4830) V
13. Underfrequency RCPs	1 (f) TSTF 135	1 per bus	L	SR 3.3.1.9 (unit only) SR 3.3.1.10 SR 3.3.1.16	≥ (56) Hz ≥ (57.1) Hz	≥ (57.5) Hz
14. Steam Generator (SG) Water Level - Low Low	1, 2	3 per SG	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ (17) % ≥ (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	≥ (24) % ≥ (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.

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

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

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1
1
7
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7
11
7
11

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North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.3, Instrumentation
LCO 3.3.1, RTS Instrumentation

3.3.1-7 ITS
STS
CTS
Discussion of Change (DOC) A.5

NRC RAI:

Comment #1 - Add DOC A.5 discussion for items labeled in Table 4.3-1 as DOC A.5 changes.

Comment #2 - The changes cited and discussed in the paragraph above are consistent with the use of LA changes Type 1 - removing details of system design and system description, including design limits.

Comment #3 - The changes cited and discussed above in the third sentence are consistent with the use of LA changes Type 1 - removing details of system design and system description, including design limits.

Response: The Company agrees with Comment 1. DOC A.5 has been revised to include the change to the CTS Table 4.3 – 1, and the CTS markup have been revised to clarify the changes that are discussed by DOC A.5.

The Company agrees with Comments 2 and 3. The deletion of the “CHANNELS TO TRIP” or the “MINIMUM CHANNELS OPERABLE,” columns are now addressed by DOC LA.15. DOC A.5 has been modified by deleting the discussion of these columns.

A.1

TABLE 3.3-1
REACTOR TRIP SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	Required TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	Conditions ACTION
1. Manual Reactor Trip	2	1	2	1, 2 A.1 Proposed Note a 3, 4, and 5	B A.1 C L.1
2. Power Range, Neutron Flux	4	2	3	1, 2 1, 2	D A.12 M.2 E A.21
3a. Power Range, Neutron Flux High Positive Rate	4	2	3	1, 2	E M.2
3b. Power Range, Neutron Flux, High Negative Rate	4	2	3	1, 2 A.1 Proposed Note b 1, 2, L.27 Proposed Note c	F M.3 G L.4 L.5
4. Intermediate Range, Neutron Flux	2	1	2	Proposed Note d 2 Proposed Note a 3, 4, and 5	H M.4 I M.5 J L.18
5. Source Range, Neutron Flux	2	1	2	Proposed Note e 3, 4, and 5	K M.6
A. Startup	2	1	2		A.12 E A.17
B. Shutdown	2	1	2		
C. Shutdown	2	0	1		
6. Overtemperature ΔT	3	2	2		

or other Specified Conditions A.5

RAI 3.3.1-7 RS

RAI 3.3.1-9 RS

LA.15 RAI 3.3.1-7 RS

ITS 3.3.1 03-09-00

Required TOTAL NO. OF CHANNELS A.5

CHANNELS TO TRIP

MINIMUM CHANNELS OPERABLE

APPLICABLE MODES

Conditions ACTION

High A.1
Low A.21

LA.15

RAI 3.3.1-7 RS

ITS 3.3.1 03-09-00

A.1

TABLE 3.3-1 (Continued)
REACTOR TRIP SYSTEM INSTRUMENTATION

NORTH ANNA - UNIT 1

ITS

7

8a

8b

9

10

14

15

FUNCTIONAL UNIT

8. Overpower ΔT

9. Pressurizer Pressure - Low

10. Pressurizer Pressure - High

11. Pressurizer Water Level - High

12. Loss of Flow -
(Above P-7)

13. Deleted

14. Steam Generator Water
Level - Low-Low

15. Steam/Feedwater Flow
Mismatch and Low Steam
Generator Water Level

Required A.5
TOTAL NO
OF CHANNELS

CHANNELS
TO TRIP

MINIMUM
CHANNELS
OPERABLE

3

2

2

3

2

2

3

2

2

3/loop

2/loop in any
loop > P-8

2/loop in each
loop

2/loop in any
2 loops > P-7

3/loop

2/loop

2/loop

2/loop-level
and
2/loop-flow
mismatch

1/loop-level
coincident
with
1/loop-flow
mismatch in
same loop

1/loop level and
2/loop-flow
mismatch or
2/loop-level
and
1/loop-flow
mismatch

APPLICABLE
MODES

CONDITION
ACTION

1, 2

E

A.17

Proposed Note F
1, 2 L.28

1, 2

L

L.28

Proposed Note F
1, 2 L.28

E

A.17

1 L.28
Proposed Note F

L

L.28

L

L.28

1, 2

E

A.17

1, 2

E

A.17

A.12

L.A.15

RAI
33.1-7
R5

RAI
33.1-7
R5

RAI
33.1-7
OB
R5

ITS 3.3.1
US-09-00

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Row 5

A.1

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

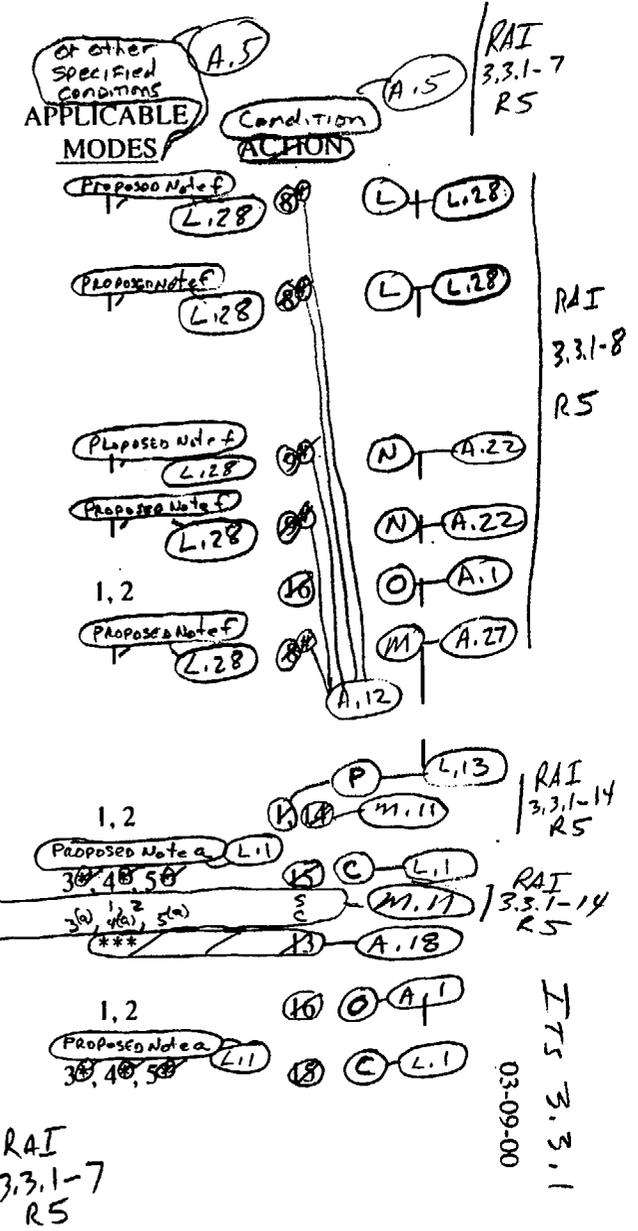
NORTH ANNA - UNIT 1

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Rev. 5

ITS	FUNCTIONAL UNIT	Required TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE
12	16. Undervoltage - Reactor Coolant Pump Busses	3 - 1/bus	2	2
13	17. Underfrequency - Reactor Coolant Pump Busses	3 - 1/bus	2	2
16	18. Turbine Trip			
16a	A. Low Auto Stop Oil Pressure	3	2	2
16b	B. Turbine Stop Valve Closure	4	4	3
17	19. Safety Injection Input from ESF	2	1	2
11	20. Reactor Coolant Pump Breaker Position Trip Above P-7	1/breaker RAI 3.3.1-8 RS	1 > P-8 2 > P-7	1/breaker
19	21. A. Reactor Trip Breakers	2	1	2
20	RTB Undervoltage and Short Trip Mech.	2	1	2
Note 4	B. Reactor Trip Bypass Breakers	2	1	1
21	22. Automatic Trip Logic	2	1	2
		2	1	2



NORTH ANNA - UNIT 1

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A.1

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

ITS	FUNCTIONAL UNIT
18	23. Reactor Trip System Interlocks
18a	A. Intermediate Range Neutron Flux, P-6
18b	B. Low Power Reactor Trips Block, P-7 P-10 Input or P-13 Input
18c	C. Power Range Neutron Flux, P-8
18d	D. Power Range Neutron Flux, P-10
18e	E. Turbine Impulse Chamber Pressure, P-13

Required TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE
2	1	2
4	2	3
2	1	2
4	2	3
4	2	3
2	1	2

Required A.5

1/train
A.20

A.15

or other specified conditions APPLICABLE MODES

A.5

Cond. Tim ACTION

Proposed/Noted A.11

V

Q

A.16

V

R

A.16

V

R

A.16

V

R

A.16

V

Q

A.16

V

R

A.16

A.12

RAI 3.3.1-7 R5

RAI 3.3.1-7 R5

ITS 3.3.1

A.1

TABLE 3.3-1
REACTOR TRIP SYSTEM INSTRUMENTATION

NORTH ANNA - UNIT 2

3/4-3-2

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Rev 5

ITS	FUNCTIONAL UNIT	Required TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	CONDITION ACTION	RAI 3.3.1-7 RS
1	1. Manual Reactor Trip	2	1	2	1, 2	(B) (A.1)	
		2	1	2	3, 4 and 5	(C) (L.1)	
2	2. Power Range, Neutron Flux <u>High</u>	4	2	3	1, 2	(A.12) (D) (M.2) (A.21)	
	<u>Low</u>	4	2	3	1, 2	(E) (A.12) (M.2)	
3a	3. Power Range, Neutron Flux High Positive Rate	4	2	3	1, 2	(E) (A.12) (M.2)	
3b	4. Power Range, Neutron Flux, High Negative Rate	4	2	3	1, 2	(E) (A.12) (M.2)	
4	5. Intermediate Range, Neutron Flux	2	1	2	1, 2	(L.27) (F) (G) (L.4) (M.3) (L.15)	RAI 3.3.1-9 RS
5	6. Source Range, Neutron Flux					(L.A.2)	
	A. Startup	2	1	2	1, 2	(H) (M.4)	
	B. Shutdown	2	1	2	1, 2	(I) (M.5)	
	C. Shutdown	2	1	2	1, 2	(J) (M.5)	
		2	0	1	3, 4 and 5	(K) (L.18)	
		2	0	1	3, 4 and 5	(L) (M.6)	
6	7. Overtemperature ΔT	3	2	2	1, 2	(E) (A.12) (A.17)	

A.5
Other Specified Conditions APPLICABLE MODES

A.5
CONDITION ACTION

RAI 3.3.1-7 RS

LA.15 | RAI 3.3.1-7 RS

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ITS 3.3.1

A.1

TABLE 3.3-1 (CONTINUED)
REACTOR TRIP SYSTEM INSTRUMENTATION

ITS	FUNCTIONAL UNIT	Required TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	CONDITION ACTION	RAI
7	8. Overpower ΔT	3	2	2	1, 2	7	E - A.17
8a	9. Pressurizer Pressure - Low	3	2	2	Proposed Note f 1, 2 L.28	8	L - L.28
8b	10. Pressurizer Pressure - High	3	2	2	1, 2	7	E - A.17
9	11. Pressurizer Water Level - High	3	2	2	Proposed Note f 1, 2 L.28	8	L - L.28
10	12. Loss of Flow - (Above P-7)	3/loop	2/loop in any loop > P-8	2/loop in each loop	1 L.28 Proposed Note f	8	L - L.28
	13. Deleted		2/loop in any 2 loops > P-7				RAI 3.3.1-08 RS
14	14. Steam Generator Water Level - Low-Low	3/loop	2/loop	2/loop	1, 2	7	E - A.17
15	15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	2/loop-level and 2/loop-flow mismatch	1/loop-level coincident with 1/loop-flow mismatch in same loop	1/loop level and 2/loop-flow mismatch or 2/loop-level and 1/loop-flow mismatch	1, 2	7	E - A.17

L.A.15 | RAI 3.3.1-7 RS

A.1

TABLE 3.3-1 (CONTINUED)
REACTOR TRIP SYSTEM INSTRUMENTATION

NORTH ANNA - UNIT 2

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ITS	FUNCTIONAL UNIT	Required TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE
12	16. Undervoltage-Reactor Coolant Pump Busses	3-1/bus	2	2
13	17. Underfrequency-Reactor Coolant Pump Busses	3-1/bus	2	2
16	18. Turbine Trip			
16a	A. Low Auto Stop Oil Pressure	3	2	2
16b	B. Turbine Stop Valve Closure	4	4	3
17	19. Safety Injection Input from ESF	2	1	2
11	20. Reactor Coolant Pump Breaker Position Trip Above P-7	1/breaker RCP	1 > P-8 2 > P-7	1/breaker
19	21. A. Reactor Trip Breakers	2	1	2
20	B. Reactor Trip Bypass Breakers	2	1	2
21	22. Automatic Trip logic	2	1	2

Required TOTAL NO. OF CHANNELS A.5

1/breaker RCP A.27

RAI 3.3.1-8 RS

M.11

A.18

RAI 3.3.1-14 RS

Other specified conditions APPLICABLE MODES

Proposed Note F L.28

Proposed Note F L.28

Proposed Note F L.28

Proposed Note D L.28

1, 2

Proposed Note F L.28

Condition ACTION

A.5

RAI 3.3.1-7 RS

L L.28

L L.28

N A.22

N A.22

O A.1

M A.27

A.12

RAI 3.3.1-8 RS

P L.13

M.11

RAI 3.3.1-14 RS

L.1

M.11

RAI 3.3.1-14 RS

A.18

A.18

1, 2

Proposed Note a L.1

RAI 3.3.1-7 RS

LA.15

RAI 3.3.1-7 RS

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FUNCTIONAL UNIT

18	23. Reactor Trip System Interlocks
18a	A. Intermediate Range Neutron Flux, P-6
18b	B. Low Power Reactor Trips Block, P-7
	P-10 Input
	or
	P-13 Input
18c	C. Power Range Neutron Flux, P-8
18d	D. Power Range Neutron Flux, P-10
18e	E. Turbine Impulse Chamber Pressure, P-13

TABLE 3.3-1 (CONTINUED)
REACTOR TRIP SYSTEM INSTRUMENTATION

TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE
2	1	2
4	2	3
2	1	2
4	2	3
4	2	3
2	1	2

or other specified conditions
APPLICABLE MODES

Condition ACTION

Proposed Note d
2
A.11

17

Q A.16

1/train
A.20

17

R A.16

17

R A.16

17

R A.16

17

Q A.16

17

R A.16

LA.15 | RAI 3.3.1-7 RS

A.12

RAI 3.3.1-7 RS

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

This change is acceptable because ITS SRs maintain the CTS requirements for testing of each RTS function. The change is one of format only and any technical change to the requirements for a RTS function is specifically addressed in an individual discussion of change. This change is designated as administrative because it does not result in technical changes to the CTS.

- A.5 CTS Table 3.3-1 provides the requirements for each RTS instrumentation function. The table lists "FUNCTIONAL UNIT", "TOTAL NUMBER OF CHANNELS," "CHANNELS TO TRIP," "MINIMUM CHANNELS OPERABLE," "APPLICABLE MODES," and "ACTIONS" columns. CTS Table 4.3-1 lists the surveillance requirements for each RTS function including a column labeled "MODES IN WHICH SURVEILLANCE REQUIRED," that specifies the applicability for each function. ITS Table 3.3.1-1 is constructed from the requirements of the CTS Tables with modifications. ITS Table 3.3.1-1 lists the columns as, "FUNCTION," "APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS," "REQUIRED CHANNELS," "CONDITIONS," "SURVEILLANCE REQUIREMENTS," and "ALLOWABLE VALUE." The elimination of "CHANNELS TO TRIP" and "MINIMUM CHANNELS OPERABLE" columns is addressed in DOC LA.15. This change modifies the CTS Tables by changing the names of columns and deleting the Table 4.3-1 column labeled "MODES IN WHICH SURVEILLANCE REQUIRED."

This change is acceptable because it maintains the technical requirements of the CTS with the conversion to the ITS requirements. The "REQUIRED CHANNELS" column incorporates the channel requirements of the instrumentation function provided by the CTS by the "TOTAL NUMBER OF CHANNELS" column in the ITS. The CTS "ACTIONS" become the ITS "CONDITIONS". The "APPLICABLE MODES" column of CTS is changed to the column labeled, "Applicable MODES or other specified conditions" of the ITS. The column in Table 4.3-1 labeled, "MODES IN WHICH SURVEILLANCE REQUIRED," is not required because it is redundant to CTS Table 3.3-1 "APPLICABLE MODE" column. A separate DOC addresses any technical change to Tables 3.3-1 and 4.3-1 requirements if there is a technical difference from the CTS to the ITS. This change is designated as administrative because it does not result in technical changes to the CTS requirements.

- A.6 CTS 2.2.1 in Table 2.2-1 lists various notes for the Allowable Values associated with the operation of the unit until steam generator replacement or 2-loop operation. The steam generators have been replaced and 2-loop operation has never been licensed. Therefore, these notes do not provide any technical requirements and are eliminated.

This change is acceptable because no CTS or ITS RTS function relies upon these notes to ensure proper operation or safety of the plant. With the deletion, no technical requirements of the CTS are changed. This change is designated as administrative because it does not result in technical changes to the CTS.

RAI
3.3.1-
07
R5

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

LA.14 (*Type 1 – Removing Details of System Design and System Description, Including Design Limits*) CTS Table 2.2-1 states the Allowable Value for Function 11 Pressurizer Water Level – High is “93 % of instrument span.” ITS Table 3.3.1-1 lists the Allowable Value for Function 9 Pressurizer Water Level – High is “93%.” This changes the CTS by moving a portion of the requirement “of instrument span,” from the specifications to the 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 retains the Allowable Value for the Pressurizer Water Level – High Function to be 93%. Also, this change is acceptable because the removed information will be adequately controlled in the UFSAR. The UFSAR is controlled under 10 CFR 50.59, which ensures changes are properly evaluated. 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.

RAI
3.3.1-
03
RS

LA.15 (*Type 1 – Removing Details of System Design and System Description, Including Design Limits*) CTS Table 3.3-1 for Reactor Trip System (RTS) instrumentation has three columns stating various requirements for each function. These columns are labeled, “TOTAL NO. OF CHANNELS,” “CHANNELS TO TRIP,” and “MINIMUM CHANNELS OPERABLE.” ITS Table 3.3.1-1 states the channel requirement for each RTS function as, “REQUIRED CHANNELS.” This changes the CTS by stating all of the channel requirements for each function as the required channels and moving the information of the number of channels to trip and the minimum channels needed to maintain the function OPERABLE to the 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 be entered if a required channel becomes inoperable. This change is acceptable because the removed information will be adequately controlled in the UFSAR. The UFSAR is controlled under 10 CFR 50.59 which ensures changes are properly evaluated. 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.

RAI
3.3.1-
07
RS

LA.16 (*Type 3 – Removing Procedural Details for Meeting TS Requirements and Related Reporting Problems*) CTS 3.3.1.1 Action 2.d in Table 3.3-1 states that the QUADRANT POWER TILT RATIO (QPTR) shall be determined to be within limit when reactor power is above 75 percent of RATED THERMAL POWER (RTP). The moveable incore detectors will be utilized to verify the QPTR when a Power Range

RAI
3.3.1-
11
RS

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.3, Instrumentation
LCO 3.3.1, RTS Instrumentation

3.3.1-8 ITS
STS
CTS
DOC A.9

NRC RAI:

Comment#1 - Proposed changes to CTS Applicabilities represent less restrictive changes to the plant licensing basis because the ITS requires that the functions be operable in Mode 1 above P-7 (10% RTP) whereas, CTS require the same functions to be operable in Mode 1 (> 5% RTP) or Modes 1 and 2 (\geq 5% RTP). These less restrictive changes are not evaluated in the DOCs.

Comment#2 - ITS function 11 (Reactor Coolant Pump Breaker Position) Applicability changes are not discussed in DOC A.9.

Comment#3 - ITS function 20 (RCP Breaker Position) is referenced in the DOC but changes not listed in the ITS references. Also, the CTS requires total channels to be 1/breaker whereas, the ITS requires 1/RCP. This change is not evaluated in a DOC.

Response: The Company agrees with Comment 1. DOC A.9 has been eliminated and DOC L.28 is added to address the change in applicability.

The Company agrees with Comment 2. ITS function 11 has been added to DOC L.28.

The Company agrees with Comment 3. CTS is changed to delete 1/breaker and add 1/RCP with DOC A.27 modified to include the change.

A.1

TABLE 3.3-1 (Continued)
 REACTOR TRIP SYSTEM INSTRUMENTATION

NORTH ANNA - UNIT 1

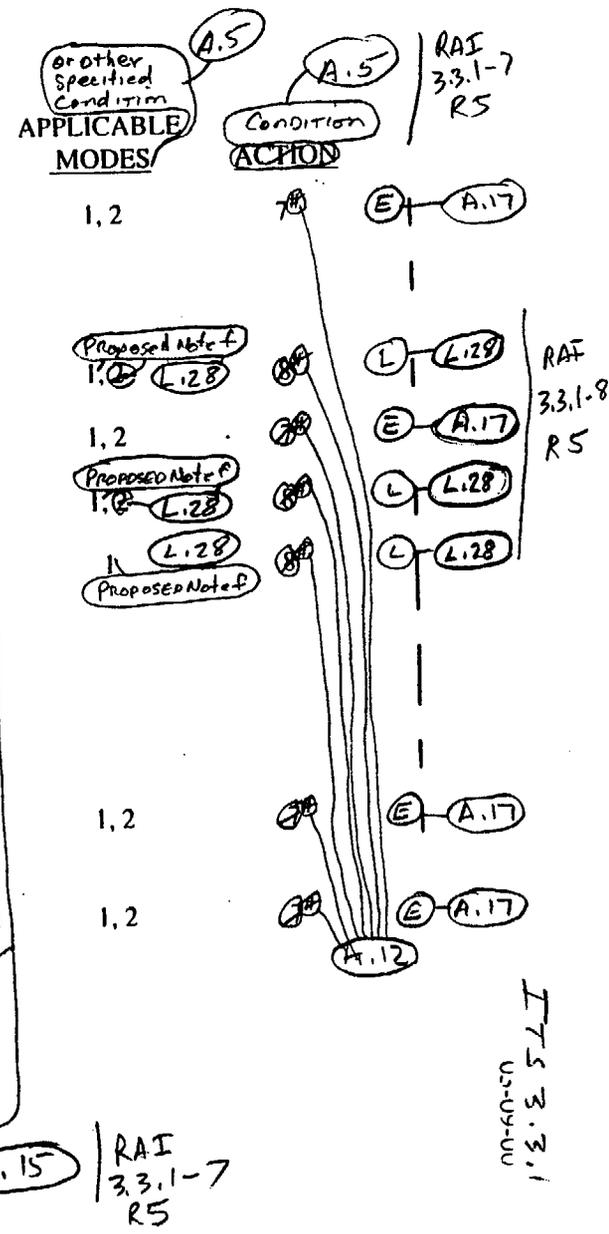
ITS

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FUNCTIONAL UNIT	Required TOTAL NO. OF CHANNELS	MINIMUM CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE
7 8. Overpower ΔT	3	2	2
8a 9. Pressurizer Pressure - Low	3	2	2
8b 10. Pressurizer Pressure - High	3	2	2
9 11. Pressurizer Water Level - High	3	2	2
10 12. Loss of Flow - (Above P-7)	3/loop	2/loop in any loop > P-8 2/loop in any 2 loops > P-7	2/loop in each loop
13. Deleted			
14 14. Steam Generator Water Level - Low-Low	3/loop	2/loop	2/loop
15 15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	2/loop-level and 2/loop-flow mismatch	1/loop-level coincident with 1/loop-flow mismatch in same loop	1/loop level and 2/loop-flow mismatch or 2/loop-level and 1/loop-flow mismatch



A.1

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

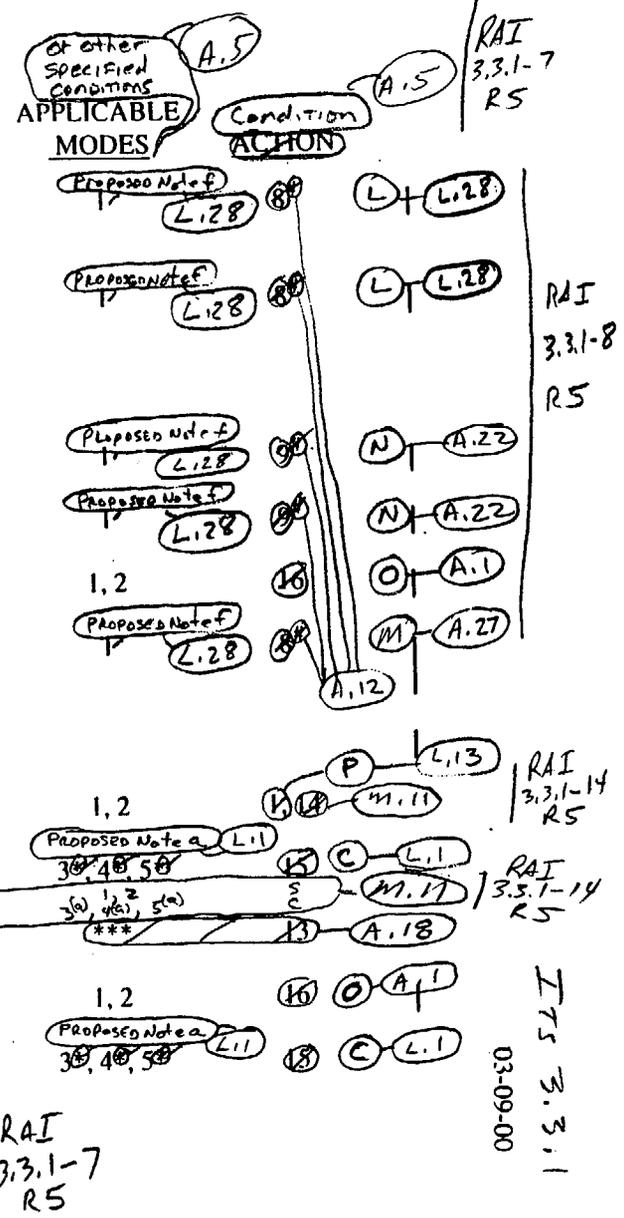
NORTH ANNA - UNIT 1

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ITS	FUNCTIONAL UNIT	Required TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE
12	16. Undervoltage - Reactor Coolant Pump Busses	3 - 1/bus	2	2
13	17. Underfrequency - Reactor Coolant Pump Busses	3 - 1/bus	2	2
16	18. Turbine Trip			
16a	A. Low Auto Stop Oil Pressure	3	2	2
16b	B. Turbine Stop Valve Closure	4	4	3
17	19. Safety Injection Input from ESF	2	1	2
11	20. Reactor Coolant Pump Breaker Position Trip Above P-7	1/breaker RCP A.27	1 > P-8 2 > P-7	1/breaker
19	21. A. Reactor Trip Breakers	2	1	2
20	B. Reactor Trip Bypass Breakers	2 RTB Undervoltage and Shunt Trip Mech. 1/RTB M.11 A.18	1 1 1	2 1 1
21	22. Automatic Trip Logic	2 2	1 1	2 2



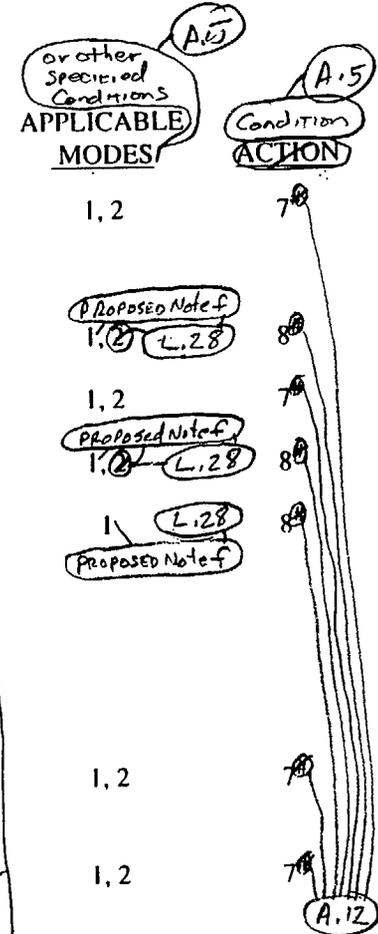
FUNCTIONAL UNIT

ITS	FUNCTIONAL UNIT
7	8. Overpower ΔT
8a	9. Pressurizer Pressure - Low
8b	10. Pressurizer Pressure - High
9	11. Pressurizer Water Level - High
10	12. Loss of Flow - (Above P-7)
	13. Deleted
14	14. Steam Generator Water Level - Low-Low
15	15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level

A.1

TABLE 3.3-1 (CONTINUED)
REACTOR TRIP SYSTEM INSTRUMENTATION

Required TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE
3	2	2
3	2	2
3	2	2
3	2	2
3/loop	2/loop in any loop > P-8	2/loop in each loop
	2/loop in any 2 loops > P-7	
3/loop	2/loop	2/loop
2/loop-level and 2/loop-flow mismatch	1/loop-level coincident with 1/loop-flow mismatch in same loop	1/loop level and 2/loop-flow mismatch or 2/loop-level and 1/loop-flow mismatch



or other Specified Conditions APPLICABLE MODES

Condition ACTION

RAI 3.3.1-7 R5

RAI 3.3.1-8 R5

LA.15 RAI 3.3.1-7 R5

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

- A.7 CTS Surveillance Requirement 4.3.1.1.2 states, in part, that the RTS Response Time of each trip function shall be demonstrated to be within its limit at least on per 18 months. The requirement specifies that each test shall include at least one logic train such that both logic trains are tested at least once per 36 months. A column added to CTS Table 4.3-1 addresses each function, and which the RESPONSE TIME testing requirement is applicable. The RESPONSE TIMES requirements reflect the channel requirements contained in the Technical Requirements Manual (TRM) Section 6.2. This does not modify the CTS requirements, but provides clarification. ITS SR 3.3.1.16 requires the verification of RTS RESPONSE TIMES be with limits every 18 months on a STAGGERED TEST BASIS.

This change is acceptable because the requirements for RESPONSE TIMES testing for the RTS channels remain unchanged. ITS definition for STAGGERED TEST BASIS and its application in this requirement do not change the current testing frequency requirements. This change is designated as administrative because it does not result in technical changes to the CTS.

- A.8 CTS Table 3.3-1 for the RTS Functions does not list Action 11 to be entered for an inoperable channel. ITS 3.3.1 does not convert the Action to an ITS Condition for any of the required RTS Functions. This changes the CTS by eliminating Action 11.

This change is acceptable because no CTS or ITS RTS function relies upon the compensatory measures of Action 11 to ensure proper operation or safety of the plant. With the deletion, no technical requirements of the CTS are changed. This change is designated as administrative because it does not result in technical changes to the CTS.

- A.9 Not used.

- A.10 CTS Surveillance Requirements (SRs) for the Intermediate Range channels in Table 4.3-1 list a CHANNEL CHECK at a frequency of Q⁽¹²⁾ for the MODES 3*, 4*, and 5* applicability. The SRs listed for the Intermediate Range channels with the applicability in MODES 1 and 2 require the performance of a CHANNEL CHECK at a frequency of each shift (S), a CHANNEL CALIBRATION at a refueling frequency (R^(6,13)), and a CHANNEL FUNCTIONAL TEST at the frequency of each startup (S/U⁽¹⁾) and quarterly (Q⁽¹²⁾). CTS Table 3.3-1 requires the Intermediate Range channels to be OPERABLE in MODES 1^{###} and 2. The ^{###} represent "Below the P-10 (Low Setpoint Power Range Neutron Flux Interlock) setpoint" for the applicability. CTS Action 3 must be entered for an inoperable channel. The applicability for Intermediate Range channels is set above the P-6 setpoint in Action 3 Part a. This states, "Below the P-6 setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 setpoint." ITS 3.3.1 Function 4 Intermediate Range Neutron Flux channels lists the applicability as MODES 1^(b) and 2^(c) and Conditions F and G must be entered for inoperable channel(s). Note ^(b) states, "Below the P-10 (Power Range Neutron Flux) interlocks," and Note ^(c) requires,

RAI
3.3.1-
08
RS

RAI
3.3.1-
09
RS

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

requirement, but is provided for clarification. This change is designated as administrative because it does not result in technical changes to the CTS.

RAI
3.3.1-
17
RS

- A.26 CTS Table 3.3-1 Action 1 states with the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement the unit must be shutdown within a given time. Additionally, Action 1 states that one channel may be bypassed for up to 4 hours for concurrent surveillance testing of the RTB and automatic trip logic provided the other channel is OPERABLE. Action 1 applies to Function 21 Reactor Trip Breakers. ITS Table 3.3.1 -1 for function 19 requires Condition P to be entered for an inoperable train. Condition P requires with one RTB train inoperable, it must be restored to OPERABLE status or the unit must be shutdown. Three Notes modify Condition P. Note 3 states that 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 channel is OPERABLE. This changes the CTS by placing the allowance of concurrent surveillance testing into a Note in the ITS format.

RAI
3.3.1-
02
3.3.1-
18
RS

This change is acceptable because the allowance of the CTS is maintained in the ITS format. Four hours of concurrent surveillance testing of the RTB and automatic trip logic are allowed in the CTS requirements. The CTS allowance is justified by WCAP-14333 P-A. This change is designated as administrative because it does not result in a technical change to the CTS.

- A.27 CTS Table 3.3-1 Function 20 RCP Breaker Position provides for a reactor trip. The total number of channels is one per (RCP) breaker and for an inoperable channel Action 8 must to be entered and requires the inoperable channel to be placed into trip within 72 hours or the unit is required to be placed below P-7 interlock within 78 hours. ITS 3.3.1 for RCP Breaker Position specifies the required channels is one per RCP (breaker) and requires Condition M for an inoperable channel. The Condition provides for an inoperable channel that the channel must be placed in trip within 72 hours or power must be reduced below P-7 setpoint within 78 hours. This changes the CTS by stating the channel requirement for RCP breaker position as one per RCP.

RAI
3.3.1-
08
RS

The purpose of this change is to provide consistent requirements for the functions as assumed in the safety analyses assumptions. This change is acceptable because the required Reactor Trip function is specified to be OPERABLE in the applicable MODE with consistent required actions. The Condition is consistent with appropriate Required Action to place the unit out of the MODE of applicability within Completion Times consistent with other measures that shutdown the unit. This change is designated as administrative because it does not result in technical changes to the CTS.

- A.28 CTS Table 4.3-1 lists the surveillance requirements for the Power Range Neutron Flux CHANNEL CALIBRATION as M (3)(6). Note (3) states, "Compare incore to excore axial offset above 15 % RATED THERMAL POWER (RTP). Adjust channel

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channel was tested with an inoperable channel in trip, an unnecessary reactor trip signal could be generated. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

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- L.27 *(Category 2 – Relaxation of Applicability)* CTS Tables 3.3-1 and 4.3-1 list the MODES of applicability for the Intermediate Range function 5 as MODE 1 below the P-10 setpoint and MODE 2. Action 3 must be entered for an inoperable channel. Action 3-part b states “Above the P-6 setpoint, but below the P-10 setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-10 setpoint.” ITS Table 3.3.1-1 Function 4 Intermediate Range lists the Applicable MODES or other specified conditions as MODES 1^(b) and 2^(c). Note ^(b) states, “Below the P-10 (Power Range Neutron Flux) interlocks,” and Note ^(c) requires, “Above the P-6 (Intermediate Range Neutron Flux) interlocks.” Conditions F and G must be entered for an inoperable channel(s). Required Actions F.2 and G.2 limit THERMAL POWER for the unit to < P-6 setpoint. This changes the CTS by decreasing the applicability from MODE 2 to MODE 2 above the P-6 setpoint.

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The purpose of ITS applicability is to ensure the Intermediate Range trip function is OPERABLE at the power levels assumed in the safety analysis. This change is acceptable because the requirements continue to ensure that the process variables are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. This change in applicability coordinates the requirements for the Intermediate Range function to the assumptions of the safety analysis for the required channels. Above the P-10 setpoint, the Power Range channels provide reactor protection with the capability of tripping the reactor, and below the P-6 setpoint, the Source Range channels provide the necessary reactor protection. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the CTS.

- L.28 *(Category 2 – Relaxation of Applicability)* CTS Table 3.3-1 Functions 9.) Pressurizer Pressure – Low, 11.) Pressurizer Water Level – High, 12.) Loss of Flow, 16.) Undervoltage – RCP Buses, 17.) Underfrequency – RCP Buses, 18.) Turbine Trip, and 20.) RCP Breaker Position are required to be OPERABLE. Functions 9 and 11 have applicable MODES of 1 and 2, and Functions 12, 16, 17, 18, and 20 have an applicability of MODE 1. Action 8 must be entered for an inoperable channel on Functions 9, 11, 12, 16, 17, and 20. Action 8 requires the inoperable channel to be placed into trip within 72 hours or the unit is required to be placed below P-7 interlock within 78 hours. Action 9 requires an inoperable channel for function 18, Turbine Trip, to be placed into trip within 72 hours or the unit is required to be placed below P-8 interlock within 76 hours. ITS Table 3.3.1-1 Functions 8.a) Pressurizer Pressure-Low, 9.) Pressurizer Water Level – High, 10.) Reactor Coolant Flow – Low, 11.) RCP Breaker Position, 12.) Undervoltage RCPs, and 13.) Underfrequency RCPs require the functions to be OPERABLE in MODE 1 above the P – 7 setpoint. ITS Note ^(f) states, “Above the P-7 (Low Power Reactor Trips Block) setpoint.” The Turbine Trip, Function 16 is required to be OPERABLE in MODE 1 above P-8

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setpoint. ITS Note^(g) states, "Above the P-8 (Power Range Neutron Flux) interlock." Condition L is required to be entered for an inoperable channel for functions 8.a, 9, 10, 12, and 13. Condition L states for one channel inoperable, "Place channel in trip," within 72 hours, or "Reduce THERMAL POWER to < P-7," in 78 hours. Function 11 RCP Breaker Position requires Condition M to be entered for an inoperable channel. Condition M states, "Place channel in trip," within 72 hours, or "Reduce THERMAL POWER to < P-7," in 78 hours. Condition N is required to be entered if one Turbine Trip channel becomes inoperable. Condition N states, "Place channel in trip," within 72 hours, or "Reduce THERMAL POWER < P-8," within 76 hours. This changes the CTS by stating the applicability for these functions so that they are compatible with their Required Actions.

This change is acceptable because the requirements continue to ensure that the process variables are maintained in the MODES and other specified conditions assumed in the safety analyses. This change coordinates the various functions' applicability with the Required Actions associated with each function for an inoperable channel. The Applicable MODES or other specified conditions for these functions are aligned to the OPERABILITY assumptions of the safety analysis. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the CTS.

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ITS Section 3.3, Instrumentation
LCO 3.3.1, RTS Instrumentation

3.3.1-9 ITS
STS
CTS
DOC A.10

NRC RAI:

Comment #1 - CTS ### becomes ITS Note (b), however these changes are not evaluated in DOC A.10 to show the changes are administrative.

Comment #2 - DOC 10 states: "This changes the CTS by deleting the CHANNEL CHECK SR Q (12) for MODES 3*, 4*, and 5*, and modifies the applicability of the CTS from MODE 2 to MODE 2(c) in the ITS." Proposed CTS changes to MODE 2(c) in the ITS from MODE 2 results in a less restrictive change discuss that is not evaluated.

Comment 3 - DOC A.10 states: "...because the SR 3.3.1.8 in MODES 1(b) and 2(c) will ensure the Intermediate Range channels are OPERABLE. This change is designated as administrative because it does not result in technical changes to the CTS." This statement for changes to the CTS SR in MODES 3*, 4*, and 5* appears to use ITS applicability requirements as justification. Provide a safety basis justification for this proposed administrative change.

Response:

The Company agrees with Comment 1. This change is addressed by DOC A.10.

The Company agrees with Comment 2. Less restrictive change DOC L.27 is proposed to justify the applicability change from MODE 2 to MODE 2 above P-6 setpoint.

The Company agrees with Comment 3. DOC A.10 is modified to address the safety basis justification of the change.

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A.1

TABLE 3.3-1
REACTOR TRIP SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	Required TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES & Conditions ACTION
1. Manual Reactor Trip	2	1	2	1, 2 (A.1) PROPOSED Note a 3, 4, and 5
2. Power Range, Neutron Flux	4	2	3	1, 2 (High) (A.1) (A.21) 1, 2 (Low) (A.12) (M.2) (E) (A.21) (A.12) (M.2)
3a. Power Range, Neutron Flux High Positive Rate	4	2	3	1, 2 (A.12) (M.2) (E)
3b. Power Range, Neutron Flux High Negative Rate	4	2	3	1, 2 (A.10) (PROPOSED Note b) 1, 2 (L.27) (PROPOSED Note c) (F) (M.3) (L.4) (G) (L.5)
4. Intermediate Range, Neutron Flux	2	1	2	(PROPOSED Note d) (LA.2) 2 (A.1)
5. Source Range, Neutron Flux	2	1	2	(PROPOSED Note a) (A.1) 3, 4, and 5
A. Startup	2	1	2	(PROPOSED Note c) (A.15) 3, 4, and 5
B. Shutdown	2	1	2	(A.12) (M.4) (I) (M.5) (J) (L.18)
C. Shutdown	2	0	1	(E) (A.17)
6. Overtemperature ΔT	3	2	2	1, 2 (LA.15) RAI 3.3.1-7 RS

RAI 3.3.1-7 RS

RAI 3.3.1-9 RS

RAI 3.3.1-7 RS

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TABLE 3.3-1
REACTOR TRIP SYSTEM INSTRUMENTATION

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ITS	FUNCTIONAL UNIT	Required TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	CONDITION ACTION
1	1. Manual Reactor Trip	2	1	2	1, 2	(B) (A.1)
2	2. Power Range, Neutron Flux	4	1	2	1, 2	(C) (L.1)
3a	3. Power Range, Neutron Flux High Positive Rate	4	2	3	1, 2	(D) (A.12), (M.2)
3b	4. Power Range, Neutron Flux, High Negative Rate	4	2	3	1, 2	(E) (A.12), (M.2)
4	5. Intermediate Range, Neutron Flux	2	1	2	1, 2	(F), (G) (L.4), (M.3), (L.15)
5	6. Source Range, Neutron Flux	2	1	2	1, 2	(H) (M.4)
	A. Startup	2	1	2	1, 2	(I) (M.5)
	B. Shutdown	2	1	2	1, 2	(J) (M.5)
	C. Shutdown	2	0	1	1, 2	(K) (L.18)
6	7. Overtemperature ΔT	3	2	2	1, 2	(L) (M.6)
						(E) (A.17)

A.5

Other Specified Conditions APPLICABLE MODES

CONDITION ACTION

RAI 3.3.1-7 RS

Proposed Note a 3, 4 and 5

Proposed Note b 1, 2

Proposed Note c 1, 2

Proposed Note d 2, 4

Proposed Note e 3, 4 and 5

LA.15

RAI 3.3.1-7 RS

RAI 3.3.1-9 RS

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- A.7 CTS Surveillance Requirement 4.3.1.1.2 states, in part, that the RTS Response Time of each trip function shall be demonstrated to be within its limit at least on per 18 months. The requirement specifies that each test shall include at least one logic train such that both logic trains are tested at least once per 36 months. A column added to CTS Table 4.3-1 addresses each function, and which the RESPONSE TIME testing requirement is applicable. The RESPONSE TIMES requirements reflect the channel requirements contained in the Technical Requirements Manual (TRM) Section 6.2. This does not modify the CTS requirements, but provides clarification. ITS SR 3.3.1.16 requires the verification of RTS RESPONSE TIMES be with limits every 18 months on a STAGGERED TEST BASIS.

This change is acceptable because the requirements for RESPONSE TIMES testing for the RTS channels remain unchanged. ITS definition for STAGGERED TEST BASIS and its application in this requirement do not change the current testing frequency requirements. This change is designated as administrative because it does not result in technical changes to the CTS.

- A.8 CTS Table 3.3-1 for the RTS Functions does not list Action 11 to be entered for an inoperable channel. ITS 3.3.1 does not convert the Action to an ITS Condition for any of the required RTS Functions. This changes the CTS by eliminating Action 11.

This change is acceptable because no CTS or ITS RTS function relies upon the compensatory measures of Action 11 to ensure proper operation or safety of the plant. With the deletion, no technical requirements of the CTS are changed. This change is designated as administrative because it does not result in technical changes to the CTS.

- A.9 Not used.

- A.10 CTS Surveillance Requirements (SRs) for the Intermediate Range channels in Table 4.3-1 list a CHANNEL CHECK at a frequency of Q⁽¹²⁾ for the MODES 3*, 4*, and 5* applicability. The SRs listed for the Intermediate Range channels with the applicability in MODES 1 and 2 require the performance of a CHANNEL CHECK at a frequency of each shift (S), a CHANNEL CALIBRATION at a refueling frequency (R^(6,13)), and a CHANNEL FUNCTIONAL TEST at the frequency of each startup (S/U⁽¹⁾) and quarterly (Q⁽¹²⁾). CTS Table 3.3-1 requires the Intermediate Range channels to be OPERABLE in MODES 1^{###} and 2. The ^{###} represent "Below the P-10 (Low Setpoint Power Range Neutron Flux Interlock) setpoint" for the applicability. CTS Action 3 must be entered for an inoperable channel. The applicability for Intermediate Range channels is set above the P-6 setpoint in Action 3 Part a. This states, "Below the P-6 setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 setpoint." ITS 3.3.1 Function 4 Intermediate Range Neutron Flux channels lists the applicability as MODES 1^(b) and 2^(c) and Conditions F and G must be entered for inoperable channel(s). Note ^(b) states, "Below the P-10 (Power Range Neutron Flux) interlocks," and Note ^(c) requires,

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“Above the P-6 (Intermediate Range Neutron Flux) interlocks.” The surveillance requirements for these channels are SRs 3.3.1.1, 3.3.1.8, and 3.3.1.11. The change of the CTS applicability from MODE 2 to MODE 2^(c) in DOC L.27. The change in applicability from ### to Note ^(b) maintains the technical requirement from the CTS to the ITS. This changes the CTS by deleting the Q ⁽¹²⁾ CHANNEL FUNCTIONAL TEST for MODES 3*, 4*, and 5*.

The change in applicability is acceptable because the Intermediate Range is only assumed in the safety analyses to be OPERABLE one decade above the overlap with the Source Ranges channels (P-6 setpoint) up to the overlap with the Power Range channels (P-10 setpoint). This is reflected in the CTS Action for the inoperability of a channel when it requires the unit to remain below P-6 until the inoperable channel is returned to OPERABLE status. The performance of the Surveillance Requirements ensure the Intermediate Range channels are maintained OPERABLE for the specified MODES. The deletion of the CHANNEL FUNCTIONAL TEST for MODES 3*, 4*, and 5* is acceptable because the Intermediate Range channels are not required to be OPERABLE in these MODES. ITS SR 3.3.1.8 must be met when the Intermediate Range channels are required to be OPERABLE. The applicability requirement in the CTS is maintained in the ITS by requiring the function’s OPERABILITY below the P-10 setpoint. This change is designated as administrative because it does not result in technical changes to the CTS in the applicability or surveillance requirements.

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- A.11 The CHANNEL FUNCTIONAL TEST (CFT) requirements in CTS Table 4.3-1 have been changed in ITS Table 3.3.1-1 to the CHANNEL OPERATIONAL TEST (COT), TRIP ACTUATION DEVICE OPERATIONAL TEST (TADOT), or ACTUATION LOGIC TEST (ALT). The individual RTS functions will require a COT or TADOT to be performed with the exception of the trip actuation logic, which requires the ALT. Trip actuation devices (bistable or digital) such as manual switches or RCP breakers require a TADOT to be performed. The analog channels such as Pressurizer Pressure require a COT to be performed. Each SR Frequency is replaced with an ITS SR number that corresponds to the required testing at the current frequency. The technical requirements and frequency of testing for each function will remain unchanged in the ITS requirements, unless noted and addressed by a separate discussion of change.

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R5

The change is acceptable because the COT, ALT, and TADOT maintain the technical requirements of the CFT and more accurately describe the required testing for each RTS function. The CTS CFT is divided in two parts, one for the analog channels and the other the bistable channels. The COT requirements provide for the parameter monitoring channels and are consistent with the analog requirements. The COT requires the injection of simulated or actual signal into the channel as close as practicable to the sensor to verify OPERABILITY of all devices associated with the channel. This includes adjustments, as necessary, of required alarms, interlocks, and trip setpoints within their necessary range and accuracy. The TADOT is defined in a similar manner for the trip actuation device. The TADOT requirements provide for a

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channel was tested with an inoperable channel in trip, an unnecessary reactor trip signal could be generated. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

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RS

- L.27 (*Category 2 – Relaxation of Applicability*) CTS Tables 3.3-1 and 4.3-1 list the MODES of applicability for the Intermediate Range function 5 as MODE 1 below the P-10 setpoint and MODE 2. Action 3 must be entered for an inoperable channel. Action 3-part b states “Above the P-6 setpoint, but below the P-10 setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-10 setpoint.” ITS Table 3.3.1-1 Function 4 Intermediate Range lists the Applicable MODES or other specified conditions as MODES 1^(b) and 2^(c). Note ^(b) states, “Below the P-10 (Power Range Neutron Flux) interlocks,” and Note ^(c) requires, “Above the P-6 (Intermediate Range Neutron Flux) interlocks.” Conditions F and G must be entered for an inoperable channel(s). Required Actions F.2 and G.2 limit THERMAL POWER for the unit to < P-6 setpoint. This changes the CTS by decreasing the applicability from MODE 2 to MODE 2 above the P-6 setpoint.

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The purpose of ITS applicability is to ensure the Intermediate Range trip function is OPERABLE at the power levels assumed in the safety analysis. This change is acceptable because the requirements continue to ensure that the process variables are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. This change in applicability coordinates the requirements for the Intermediate Range function to the assumptions of the safety analysis for the required channels. Above the P-10 setpoint, the Power Range channels provide reactor protection with the capability of tripping the reactor, and below the P-6 setpoint, the Source Range channels provide the necessary reactor protection. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the CTS.

- L.28 (*Category 2 – Relaxation of Applicability*) CTS Table 3.3-1 Functions 9.) Pressurizer Pressure – Low, 11.) Pressurizer Water Level – High, 12.) Loss of Flow, 16.) Undervoltage – RCP Buses, 17.) Underfrequency – RCP Buses, 18.) Turbine Trip, and 20.) RCP Breaker Position are required to be OPERABLE. Functions 9 and 11 have applicable MODES of 1 and 2, and Functions 12, 16, 17, 18, and 20 have an applicability of MODE 1. Action 8 must be entered for an inoperable channel on Functions 9, 11, 12, 16, 17, and 20. Action 8 requires the inoperable channel to be placed into trip within 72 hours or the unit is required to be placed below P-7 interlock within 78 hours. Action 9 requires an inoperable channel for function 18, Turbine Trip, to be placed into trip within 72 hours or the unit is required to be placed below P-8 interlock within 76 hours. ITS Table 3.3.1-1 Functions 8.a) Pressurizer Pressure-Low, 9.) Pressurizer Water Level – High, 10.) Reactor Coolant Flow – Low, 11.) RCP Breaker Position, 12.) Undervoltage RCPs, and 13.) Underfrequency RCPs require the functions to be OPERABLE in MODE 1 above the P – 7 setpoint. ITS Note ^(f) states, “Above the P-7 (Low Power Reactor Trips Block) setpoint.” The Turbine Trip, Function 16 is required to be OPERABLE in MODE 1 above P-8

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3.3.1-10 ITS
STS
CTS
DOC A.11

NRC RAI:

Comment #1 - DOC A.11 states: "The change is acceptable because the COT, ALT, and TADOT maintain the technical requirements of the CHANNEL FUNCTIONAL TEST and more accurately describe the required testing for each RTS function." For each CTS function provide a safety basis justification which shows the requirements are equivalent and therefore the changes from CTS CHANNEL FUNCTIONAL TEST requirements to the proposed ITS CHANNEL OPERATIONAL TEST, TRIP ACTUATING DEVICE OPERATIONAL TEST or ACTUATION LOGIC TEST are administrative.

Comment #2 - ISTS Note to SR 3.3.1.7 which provides an allowance delay performing the COT for SRNM is adopted in ITS without justification.

Response:

The Company agrees with Comment 1. DOC A.11 is changed to address the safety basis justification of the change.

The Company agrees with Comment 2. The CTS is changed by adding a less restrictive DOC L.24 for the allowance.

ITS

(A.1)

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TABLE 4.3-1 (Continued)

NOTATION

Note
SR 3.3.1.8
SR 3.3.1.15
Note
SR 3.3.1.2
Note
SR 3.3.1.3

Note
SR 3.3.1.14

Frequency
SR 3.3.1.4
SR 3.3.1.5

Note
SR 3.3.1.11

TADOT

TADOT

SR 3.3.1.8
Note
SR 3.3.1.8

SR 3.3.1.7
Note

- * - With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal. (A.5)
- *** - Below the P-10 (Low Setpoint Power Range Neutron Flux Interlock) setpoint (A.5)
- (1) - If not performed in previous 31 days. (A.5, RA 3.3.1-33, RS, A.25)
- (2) - Heat balance only, above 15% of RATED THERMAL POWER. (L.15)
- (3) - Compare incore to excore axial offset above 15% of RATED THERMAL POWER. Adjust channel if absolute difference \geq 3 percent. (L.9)
- (4) - Manual ESF functional input check every 18 months. (A.14)
- (5) - Each train or logic channel shall be tested at least every ⁽³¹⁾ 62 days on a STAGGERED TEST BASIS. (A.23)
- (6) - Neutron detectors may be excluded from CHANNEL CALIBRATION.
- (7) - Below the P-6 (Intermediate Range Neutron Flux Interlock) setpoint (A.5)
- (8) - The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the undervoltage and shunt trip circuits for the Manual Reactor Trip Function. The test shall also verify the OPERABILITY of the Bypass Breaker trip circuit(s). (A.11, LA.4)
- (9) - Local manual shunt trip the reactor trip bypass breaker immediately after placing the bypass breaker into service, but prior to commencing reactor trip system testing or reactor trip breaker maintenance. (LA.12)
- (10) - Automatic undervoltage trip (LA.4)
- (11) - The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the undervoltage and shunt trip attachments of the Reactor Trip Breakers. (A.11, LA.4)
- (12) - Quarterly Surveillance in Modes 3*, 4* and 5* shall also include verification that Permissives P-6 and P-10 are in their required state for existing plant conditions by observation of the permissive annunciator window. (RA 3.3.1-31, RS, L.10, A.29, LA.6)
- (13) - Detector plateau curves shall be obtained and evaluated. The provisions of Specification 4.0.4 are not applicable for entry into Mode 2 or 1. (LA.13, M.8)

INSERT proposed Note

(L.24) | RA 3.3.1-10, RS

A.1

TABLE 4.3-1 (CONTINUED)

ITS

NOTATION

Note SR 3.3.1.8
SR 3.3.1.15
Note SR 3.3.1.2

Note SR 3.3.1.3

Note SR 3.3.1.14

FREQUENCY SR 3.3.1.4
SR 3.3.1.5

NOTE SR 3.3.1.11

TADOT

TADOT

SR 3.3.1.8
Note SR 3.3.1.8

SR 3.3.1.7
Note

- * - With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal.
- *** - Below the P-10 (Low Setpoint Power Range Neutron Flux Interlock) setpoint.
- (1) - If not performed in previous 31 days.
- (2) - Heat balance only, above 15% of RATED THERMAL POWER. Adjust channel if absolute difference \geq 2 percent. *INSERT PROPOSED NOTE*
- (3) - Compare incore to excore axial offset above 15% of RATED THERMAL POWER. Recalibrate if absolute difference \geq 3 percent. *INSERT PROPOSED NOTE*
- (4) - Manual ESF functional input check every 18 months.
- (5) - Each train or logic channel shall be tested at least every ³¹ 31 days on a STAGGERED TEST BASIS.
- (6) - Neutron detectors may be excluded from CHANNEL CALIBRATION.
- (7) - Below the P-6 (Intermediate Range Neutron Flux Interlock) setpoint.
- (8) - The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the undervoltage and shunt trip circuits for the Manual Reactor Trip Function. The test shall also verify the OPERABILITY of the Bypass Breaker trip circuit(s).
- (9) - Local manual shunt trip the reactor trip bypass breaker immediately after placing the bypass breaker into service, but prior to commencing reactor trip system testing or reactor trip breaker maintenance.
- (10) - Automatic undervoltage trip.
- (11) - The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the undervoltage and shunt trip attachments of the Reactor Trip Breakers.
- (12) - Quarterly Surveillance in Modes 3*, 4* and 5* shall also include verification that Permissives P-6 and P-10 are in their required state for existing plant conditions by observation of the permissive annunciator window.
- (13) - Detector plateau curves shall be obtained and evaluated. The provisions of Specification 4.0.4 are not applicable for entry into Mode 2 or 1.
- > INSERT PROPOSED NOTE

A.5

A.5

RAI 3.3.1-33
R5 A.25

L.7

L.115

L.19

A.14

A.23

A.5

A.11

LA.4

LA.12

LA.4

A.11

LA.4

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R5

L.10

A.29

LA.6

LA.13

M.8

L.24

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R5

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“Above the P-6 (Intermediate Range Neutron Flux) interlocks.” The surveillance requirements for these channels are SRs 3.3.1.1, 3.3.1.8, and 3.3.1.11. The change of the CTS applicability from MODE 2 to MODE 2^(c) in DOC L.27. The change in applicability from ^{###} to Note ^(b) maintains the technical requirement from the CTS to the ITS. This changes the CTS by deleting the Q ⁽¹²⁾ CHANNEL FUNCTIONAL TEST for MODES 3*, 4*, and 5*.

The change in applicability is acceptable because the Intermediate Range is only assumed in the safety analyses to be OPERABLE one decade above the overlap with the Source Ranges channels (P-6 setpoint) up to the overlap with the Power Range channels (P-10 setpoint). This is reflected in the CTS Action for the inoperability of a channel when it requires the unit to remain below P-6 until the inoperable channel is returned to OPERABLE status. The performance of the Surveillance Requirements ensure the Intermediate Range channels are maintained OPERABLE for the specified MODES. The deletion of the CHANNEL FUNCTIONAL TEST for MODES 3*, 4*, and 5* is acceptable because the Intermediate Range channels are not required to be OPERABLE in these MODES. ITS SR 3.3.1.8 must be met when the Intermediate Range channels are required to be OPERABLE. The applicability requirement in the CTS is maintained in the ITS by requiring the function's OPERABILITY below the P-10 setpoint. This change is designated as administrative because it does not result in technical changes to the CTS in the applicability or surveillance requirements.

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RS

- A.11 The CHANNEL FUNCTIONAL TEST (CFT) requirements in CTS Table 4.3-1 have been changed in ITS Table 3.3.1-1 to the CHANNEL OPERATIONAL TEST (COT), TRIP ACTUATION DEVICE OPERATIONAL TEST (TADOT), or ACTUATION LOGIC TEST (ALT). The individual RTS functions will require a COT or TADOT to be performed with the exception of the trip actuation logic, which requires the ALT. Trip actuation devices (bistable or digital) such as manual switches or RCP breakers require a TADOT to be performed. The analog channels such as Pressurizer Pressure require a COT to be performed. Each SR Frequency is replaced with an ITS SR number that corresponds to the required testing at the current frequency. The technical requirements and frequency of testing for each function will remain unchanged in the ITS requirements, unless noted and addressed by a separate discussion of change.

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RS

The change is acceptable because the COT, ALT, and TADOT maintain the technical requirements of the CFT and more accurately describe the required testing for each RTS function. The CTS CFT is divided in two parts, one for the analog channels and the other the bistable channels. The COT requirements provide for the parameter monitoring channels and are consistent with the analog requirements. The COT requires the injection of simulated or actual signal into the channel as close as practicable to the sensor to verify OPERABILITY of all devices associated with the channel. This includes adjustments, as necessary, of required alarms, interlocks, and trip setpoints within their necessary range and accuracy. The TADOT is defined in a similar manner for the trip actuation device. The TADOT requirements provide for a

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ITS 3.3.1, RTS INSTRUMENTATION

digital or bistable channel testing requirements of the CTS CFT requirements. The ALT verifies the OPERABILITY of the logic circuits and its required outputs. This type of testing is required in the CTS requirements by the monthly CFT for the Automatic Trip Logic. This change is designated as administrative because it does not result in technical changes to the CTS surveillance requirements.

RAI
3.3.1-
10
RS

- A.12 CTS 3.3.1.1 Actions denoted with a # in Table 3.3-1 state that the provisions of Specification 3.0.4 are not applicable. ITS LCO or Surveillance requirements do not require an allowance stated in each Specification, but provides the allowance by the definition specified in ITS Section 3.0. This change modifies the CTS by eliminating the reference to the provisions of Specification 3.0.4 within specifications or surveillance requirements.

This change is acceptable because ITS LCO 3.0.4 states when an LCO is not met, entry into the applicable MODE shall not be made except when the associated Actions permit continued operation for an unlimited period of time. Therefore, eliminating the reference to CTS Specification 3.0.4 is appropriate in the ITS Actions because the allowance is addressed in the ITS LCO 3.0.4 definition. This change is designated as administrative because it does not result in technical changes to the CTS.

- A.13 Not used.

- A.14 CTS surveillance requirement in Table 4.3-1 for the SI input from ESF is stated as M⁽⁴⁾. Note⁽⁴⁾ states the following "Manual ESF functional input check every 18 months." The monthly requirement is therefore only required to check the input from ESF on an 18 monthly frequency. ITS 3.3.1 for function 17, SI input from ESF, requires SR 3.3.1.14 to be performed. This requirement performs a TADOT every 18 months. A Note modifies the requirement that specifies that verification of setpoint is not required. This change maintains the technical requirements of the CTS in ITS format.

This change is acceptable because the current requirement is only performed every 18 months to verify the SI input. No setpoint verification is required with the input from ESF and therefore, the Note modifying the SR does not change the technical intent from the CTS requirement. This change is designated as administrative because it does not result in technical changes to the CTS.

- A.15 CTS 3.3.1.1 requirements for Functional Unit 6.C, Source Range Neutron Flux Shutdown, are stated in CTS Table 3.3-1. This requires Action 5 to be entered for an inoperable required Source Range channel. This requirement is applicable in MODES 3, 4, and 5 with the RTBs open. Action 5 states that with the number of OPERABLE channels one less than the required by the minimum channels OPERABLE, the SHUTDOWN MARGIN is verified for compliance, in accordance with CTS Specifications 3.1.1.1 or 3.1.1.2, and performed within 1 hour and every 12

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RS

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RS

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associated with the PRNF channel rate trips portions of the channels. The rate trips are independent circuits monitoring each power range indication and sensing a rapid change in reactor power in the region of the associated PRNF detector. These power range rate-of-change circuits do not provide an input to QPTR. ITS Condition D would be entered if the PRNF channel becomes inoperable and does not provide an input to QPTR 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.

RAI
3.3.1-
04
RS

- L.24 *(Category 7 – Relaxation Of Surveillance Frequency)* CTS Table 4.3–1 requires a CHANNEL FUNCTIONAL TEST for Function 6 Source Range Neutron Flux channels at a frequency of S/U ⁽¹⁾. S/U requires the surveillance to be performed prior to each reactor start up. Note ⁽¹⁾ states, “If not performed within the previous 31 days.” This requirement is applicable in MODES 3*, 4*, and 5*. The * states, “With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal.” ITS Function 5 Source Range Neutron Flux channels are required in MODES 3 ^(a), 4 ^(a), and 5 ^(a) to perform SR 3.3.1.7. Note ^(a) states, “With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.” The change from Note * to Note ^(a) is addressed by DOC L.1. The ITS SR requires a COT to be performed every 92 days. It is modified by a Note that states, “Not required to be performed for source range instrumentation prior to entering MODE 3 from MODE 2 until 4 hours after entering MODE 3.” The change from 31 to 92 days is addressed by DOC L.11. This changes the CTS surveillance requirement by providing an allowance to perform the SR 4 hours after entering the applicable MODE.

RAI
3.3.1-
10
RS

The purpose of ITS SR 3.3.1.7 Note is to allow an appropriate period of time to perform the requirement after entering the applicable MODE. This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. On a reactor trip while operating in MODE 1 at 100% RTP, the unit goes from MODE 1 to MODE 3 in a few seconds. Neutron flux decreases below the P-6 setpoint, causing the Source Range channels to energize and requiring SR 3.3.1.7 to be satisfied. The four hours allowed by the Note provides a reasonable time to perform the testing. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

- L.25 *(Category 5 – Deletion of Surveillance Requirement)* CTS Surveillance Requirements in Table 4.3-1 for Function 21.B, reactor trip bypass breaker, require a CHANNEL FUNCTIONAL TEST to be performed at a refueling (R) Frequency. The Frequency is modified by a Note ⁽¹⁰⁾ that states, “Automatic undervoltage trip.” Note ⁽¹⁰⁾ is addressed by DOC LA.4. ITS Table 3.3.1–1 Function 19, Reactor Trip Breakers ^(h) requires the performance of SR 3.3.1.4. Note ^(h) states, “Including any reactor trip bypass breakers that are racked in and closed for bypassing an RTB.” SR 3.3.1.4 requires the monthly testing (TADOT) on a Staggered Test Basis for the trip and bypass breakers. A Note that states, “This Surveillance must be performed on the trip

RAI
3.3.1-
13
RS

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.3, Instrumentation
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3.3.1-11 ITS
STS
CTS
DOC A.13

NRC RAI:

Comment: DOC A.13 discusses changes that remove SR details because, as stated in DOC A.13, the change eliminates details of how the SR is determined. Changes of this type elsewhere in the ITS DOCs are LA Type 3 changes. Reconcile the non-administrative content of the proposed administrative changes.

Response: The Company agrees with the Comment. DOC A.13 has been deleted and DOC LA.16 has been constructed.

A.1

TABLE 3.3-1 (Continued)

TABLE NOTATION

RAI 3.3.1-09 RS

ITS

Note a

Note d

Note h

Note b

Note c

Note e

Note f

Note g

Action P

Action D

Action E

Note to Required Action D.2.2

Required Action D.3 and E.2

Action F

Action G

- * With the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal. or one or more rods not fully inserted (L.1)
- ** Below the P-6 (Intermediate Range Neutron Flux) setpoint. (1)
- *** With the Reactor Trip Breaker open for surveillance testing in accordance with Specification Table 4.3-1 (item 21A). INSERT PROPOSED NOTE h (A.18)
- # The provisions of Specification 3.0.4 are not applicable. (A.12)
- ## High voltage to detector may be de-energized above the P-6 setpoint. (L.A.2)
- ### Below the P-10 (Low Setpoint Power Range Neutron Flux Interlock) setpoint. (A.10)
- INSERT PROPOSED NOTE c (A.1)
- INSERT PROPOSED NOTE e (A.15)
- INSERT PROPOSED NOTE g (A.9)
- INSERT PROPOSED NOTE f (A.22)

ACTION STATEMENTS

ACTION 1 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, be in HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.1 provided the other channel is OPERABLE. INSERT PROPOSED Required Action P.1 (L.13)

Note 1: One channel may be bypassed for up to 4 hours for concurrent surveillance testing of the reactor trip breaker and automatic trip logic, provided the other channel is OPERABLE. (A.26) RAI 3.3.1-2 3.3.1-18 RS

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

- a. The inoperable channel is placed in the tripped condition within 72 hours.
- b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 12 hours for surveillance testing of the redundant channel(s) per Specification 4.3.1.1.1. (Note) (L.23) RAI 3.3.1-4 RS
- c. Either, THERMAL POWER is restricted to $\leq 75\%$ of RATED THERMAL POWER and the Power Range Neutron Flux trip setpoint is reduced to $\leq 85\%$ of RATED THERMAL POWER within 78 hours; or, the QUADRANT POWER TILT RATIO is monitored at least once per 12 hours. INSERT PROPOSED Note to Required Action D.2.2 (L.2) (L.3)
- d. The QUADRANT POWER TILT RATIO shall be determined to be within the limit when above 75 percent of RATED THERMAL POWER with one Power Range Channel inoperable by using the moveable incore detectors to confirm that the normalized symmetric power distribution, obtained from 2 sets of 4 symmetric thimble locations or a full-core flux map, is consistent with the indicated QUADRANT POWER TILT RATIO at least once per 12 hours. INSERT PROPOSED Required Actions D.3 and E.2 (L.A.16) RAI 3.3.1-11 RS

ACTION 3 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level: INSERT PROPOSED ACTION G (L.5)

A.1

ITS 3.3.1

03-09-00

TABLE 3.3-1 (CONTINUED)

TABLE NOTATION

RAI 3.3.1-09 R5

ITS

Note a

Note d

Note h

Note b
Note c
Note e
Note f
Note g

Action P

Action D
Action E

Note to Required Action D.2.2

Required Action D.3 and E.2

Action G

*	With the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal. <i>or one or more rods not fully inserted</i>	L.11
**	Below the P-6 (Intermediate Range Neutron Flux) setpoint.	1
***	With the Reactor Trip Breaker open for surveillance testing in accordance with Specification Table 4.3-1 (item 21A). <i>INSERT PROPOSED NOTE h</i>	A.18
#	The provisions of Specification 3.0.4 are not applicable.	A.12
##	High voltage to detector may be de-energized above the P-6 setpoint.	L.A.7 A.10
###	Below the P-10 (Low Setpoint Power Range Neutron Flux Interlock) setpoint. <i>INSERT PROPOSED NOTE C</i>	A.1 A.15
ACTION STATEMENTS		
<i>INSERT PROPOSED NOTE f</i>		
<i>INSERT PROPOSED NOTE g</i>		
ACTION 1 -	With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, be in HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.1 provided the other channel is OPERABLE. <i>One channel may be bypassed for up to 4 hours for concurrent surveillance testing of the reactor trip breaker and automatic trip logic, provided the other channel is OPERABLE.</i>	A.22 L.13 A.26
ACTION 2 -	With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and POWER OPERATION may proceed provided the following conditions are satisfied:	
	a. The inoperable channel is placed in the tripped condition within 72 hours.	
	b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 12 hours for surveillance testing of the redundant channel(s) per Specification 4.3.1.1.1. <i>Note</i>	RAI 3.3.1-2 3.3.1-18 R5 RAI 4 3.3.1-4 R5
	c. Either, THERMAL POWER is restricted to $\leq 75\%$ of RATED THERMAL POWER and the Power Range Neutron Flux trip setpoint is reduced to $\leq 85\%$ of RATED THERMAL POWER within 78 hours; or, the QUADRANT POWER TILT RATIO is monitored at least once per 12 hours. <i>INSERT PROPOSED NOTE TO REQUIRED ACTION D.2.2</i>	L.2 L.3
	d. The QUADRANT POWER TILT RATIO shall be determined to be within the limit when above 75 percent of RATED THERMAL POWER with one Power Range Channel inoperable by using the movable incore detectors to confirm that the normalized symmetric power distribution, obtained from 2 sets of 4 symmetric thimble locations or a full-core flux map, is consistent with the indicated QUADRANT POWER TILT RATIO at least once per 12 hours. <i>INSERT PROPOSED REQUIRED ACTIONS D.3 and E.2</i>	L.A.16 M.2
	<i>INSERT PROPOSED ACTION G</i>	L.5

NORTH ANNA - UNIT 2

3/4 3-5

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digital or bistable channel testing requirements of the CTS CFT requirements. The ALT verifies the OPERABILITY of the logic circuits and its required outputs. This type of testing is required in the CTS requirements by the monthly CFT for the Automatic Trip Logic. This change is designated as administrative because it does not result in technical changes to the CTS surveillance requirements.

RAI
3.3.1-
10
RS

- A.12 CTS 3.3.1.1 Actions denoted with a # in Table 3.3-1 state that the provisions of Specification 3.0.4 are not applicable. ITS LCO or Surveillance requirements do not require an allowance stated in each Specification, but provides the allowance by the definition specified in ITS Section 3.0. This change modifies the CTS by eliminating the reference to the provisions of Specification 3.0.4 within specifications or surveillance requirements.

This change is acceptable because ITS LCO 3.0.4 states when an LCO is not met, entry into the applicable MODE shall not be made except when the associated Actions permit continued operation for an unlimited period of time. Therefore, eliminating the reference to CTS Specification 3.0.4 is appropriate in the ITS Actions because the allowance is addressed in the ITS LCO 3.0.4 definition. This change is designated as administrative because it does not result in technical changes to the CTS.

- A.13 Not used.

RAI
3.3.1-
11
RS

- A.14 CTS surveillance requirement in Table 4.3-1 for the SI input from ESF is stated as M⁽⁴⁾. Note ⁽⁴⁾ states the following "Manual ESF functional input check every 18 months." The monthly requirement is therefore only required to check the input from ESF on an 18 monthly frequency. ITS 3.3.1 for function 17, SI input from ESF, requires SR 3.3.1.14 to be performed. This requirement performs a TADOT every 18 months. A Note modifies the requirement that specifies that verification of setpoint is not required. This change maintains the technical requirements of the CTS in ITS format.

This change is acceptable because the current requirement is only performed every 18 months to verify the SI input. No setpoint verification is required with the input from ESF and therefore, the Note modifying the SR does not change the technical intent from the CTS requirement. This change is designated as administrative because it does not result in technical changes to the CTS.

- A.15 CTS 3.3.1.1 requirements for Functional Unit 6.C, Source Range Neutron Flux Shutdown, are stated in CTS Table 3.3-1. This requires Action 5 to be entered for an inoperable required Source Range channel. This requirement is applicable in MODES 3, 4, and 5 with the RTBs open. Action 5 states that with the number of OPERABLE channels one less than the required by the minimum channels OPERABLE, the SHUTDOWN MARGIN is verified for compliance, in accordance with CTS Specifications 3.1.1.1 or 3.1.1.2, and performed within 1 hour and every 12

RAI
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RS

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LA.14 (*Type 1 – Removing Details of System Design and System Description, Including Design Limits*) CTS Table 2.2-1 states the Allowable Value for Function 11 Pressurizer Water Level – High is “93 % of instrument span.” ITS Table 3.3.1-1 lists the Allowable Value for Function 9 Pressurizer Water Level – High is “93%.” This changes the CTS by moving a portion of the requirement “of instrument span,” from the specifications to the 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 retains the Allowable Value for the Pressurizer Water Level – High Function to be 93%. Also, this change is acceptable because the removed information will be adequately controlled in the UFSAR. The UFSAR is controlled under 10 CFR 50.59, which ensures changes are properly evaluated. 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.

RAI
3.3.1-
03
RS

LA.15 (*Type 1 – Removing Details of System Design and System Description, Including Design Limits*) CTS Table 3.3-1 for Reactor Trip System (RTS) instrumentation has three columns stating various requirements for each function. These columns are labeled, “TOTAL NO. OF CHANNELS,” “CHANNELS TO TRIP,” and “MINIMUM CHANNELS OPERABLE.” ITS Table 3.3.1-1 states the channel requirement for each RTS function as, “REQUIRED CHANNELS.” This changes the CTS by stating all of the channel requirements for each function as the required channels and moving the information of the number of channels to trip and the minimum channels needed to maintain the function OPERABLE to the 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 be entered if a required channel becomes inoperable. This change is acceptable because the removed information will be adequately controlled in the UFSAR. The UFSAR is controlled under 10 CFR 50.59 which ensures changes are properly evaluated. 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.

RAI
3.3.1-
03
RS

LA.16 (*Type 3 – Removing Procedural Details for Meeting TS Requirements and Related Reporting Problems*) CTS 3.3.1.1 Action 2.d in Table 3.3-1 states that the QUADRANT POWER TILT RATIO (QPTR) shall be determined to be within limit when reactor power is above 75 percent of RATED THERMAL POWER (RTP). The moveable incore detectors will be utilized to verify the QPTR when a Power Range

RAI
3.3.1-
11
RS

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Channel is inoperable. In this condition, the normalized symmetric power distribution is determined by either utilizing 2 sets of 4 symmetric thimble locations or a full core flux map. Every 12 hours, the results of the flux map must be compared with the indicated QPTR for consistency. The indicated QPTR is provided by the three Power Range Channels that remain OPERABLE. ITS 3.3.1 Action D.2.2 requires the performance of ITS SR 3.2.4.2, which verifies the QPTR is within its limit. This changes the CTS by moving the details of determining QPTR from the specification to the ITS Bases for SR 3.2.4.2.

The removal of these details for performing surveillance 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 requirement to perform the QPTR verification by requiring ITS SR 3.2.4.2. 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.

RAI
3.3.1-
11
RS

LESS RESTRICTIVE CHANGES

- L.1 *(Category 4 – Relaxation of Required Action)* CTS Table 3.3-1 requires for various functions that Action 15 be entered for an inoperable channel in MODES 3*, 4*, and 5*. Note * states, "With the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal." Action 15 states that an inoperable channel shall be returned to OPERABLE status within 48 hours or open the Reactor Trip Breakers (RTBs) within the next hour. ITS Table 3.3.1-1 for these functions requires ITS Action C to be entered. Action C states with one channel or train inoperable, restore the function to OPERABLE status in 48 hours or initiate action to fully insert all rods. The Rod Control System must be placed in a condition incapable of rod withdrawal within the next hour. The applicable MODES or other specified conditions for MODES 3, 4, and 5 are modified by Note ^(a). Note ^(a) states, "With Rod Control System capable of rod withdrawal or one or more rods not fully inserted." This changes the CTS by not requiring the RTBs to be opened but allowing an alternative action to disable the Rod Control System.

RAI
3.3.1-
28
RS

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

North Anna Improved Technical Specifications (ITS) Review Comments
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3.3.1-12 ITS
STS
CTS
DOCA.15

NRC RAI: Comment: Provide a correct citation of Note ^(e).

Response: The Company agrees with the Comment and has modified DOC A.15 to correctly state the Note.

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digital or bistable channel testing requirements of the CTS CFT requirements. The ALT verifies the OPERABILITY of the logic circuits and its required outputs. This type of testing is required in the CTS requirements by the monthly CFT for the Automatic Trip Logic. This change is designated as administrative because it does not result in technical changes to the CTS surveillance requirements.

RAI
3.3.1-
10
RS

- A.12 CTS 3.3.1.1 Actions denoted with a # in Table 3.3-1 state that the provisions of Specification 3.0.4 are not applicable. ITS LCO or Surveillance requirements do not require an allowance stated in each Specification, but provides the allowance by the definition specified in ITS Section 3.0. This change modifies the CTS by eliminating the reference to the provisions of Specification 3.0.4 within specifications or surveillance requirements.

This change is acceptable because ITS LCO 3.0.4 states when an LCO is not met, entry into the applicable MODE shall not be made except when the associated Actions permit continued operation for an unlimited period of time. Therefore, eliminating the reference to CTS Specification 3.0.4 is appropriate in the ITS Actions because the allowance is addressed in the ITS LCO 3.0.4 definition. This change is designated as administrative because it does not result in technical changes to the CTS.

- A.13 Not used.

- A.14 CTS surveillance requirement in Table 4.3-1 for the SI input from ESF is stated as M⁽⁴⁾. Note ⁽⁴⁾ states the following "Manual ESF functional input check every 18 months." The monthly requirement is therefore only required to check the input from ESF on an 18 monthly frequency. ITS 3.3.1 for function 17, SI input from ESF, requires SR 3.3.1.14 to be performed. This requirement performs a TADOT every 18 months. A Note modifies the requirement that specifies that verification of setpoint is not required. This change maintains the technical requirements of the CTS in ITS format.

This change is acceptable because the current requirement is only performed every 18 months to verify the SI input. No setpoint verification is required with the input from ESF and therefore, the Note modifying the SR does not change the technical intent from the CTS requirement. This change is designated as administrative because it does not result in technical changes to the CTS.

- A.15 CTS 3.3.1.1 requirements for Functional Unit 6.C, Source Range Neutron Flux Shutdown, are stated in CTS Table 3.3-1. This requires Action 5 to be entered for an inoperable required Source Range channel. This requirement is applicable in MODES 3, 4, and 5 with the RTBs open. Action 5 states that with the number of OPERABLE channels one less than the required by the minimum channels OPERABLE, the SHUTDOWN MARGIN is verified for compliance, in accordance with CTS Specifications 3.1.1.1 or 3.1.1.2, and performed within 1 hour and every 12

RAI
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RS

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12
RS

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hours thereafter. The total number of Source Range channels is listed as two, and the minimum channels OPERABLE is listed as one. ITS 3.3.1 requirement for the Source Range Neutron Flux, Function 5, is stated in ITS Table 3.3.1-1, and lists the number of required channels as one. The Table lists the applicability or other specified conditions as MODES 3(e), 4(e), and 5(e) with the RTBs open, and Condition K must be entered for a required inoperable Source Range channel. Note (e) states, "With the Rod Control System incapable of rod withdrawal. In this condition, source range Function does not provide reactor trip but does provide indication." This change maintains the CTS technical requirements for the Source Range requirement for a shutdown condition with the RTBs open.

RAI
3.3.1-
12
RS

This change is acceptable because the CTS requirements are maintained with the conversion to the ITS format. The ITS number of required Source Range channels is one, which is the same as the CTS requirement of, "one less than the required by the minimum channels OPERABLE requirement." This change is designated as administrative because it does not result in technical changes to the CTS.

- A.16 CTS functions for the RTS Interlocks in Table 3.3.-1 require Action 17 to be entered for an inoperable channel. Action 17 states with less than the Minimum Channels OPERABLE, within one hour verify that the interlocks are in the required state for plant conditions, or apply Specification 3.0.3. ITS function 18, the RTS interlocks list Conditions Q and R to be entered for an inoperable channel. Required Action Q.2 requires the unit to be placed in MODE 3 within 7 hours. Required Action R.2 requires the unit to be placed in MODE 2 within 7 hours. This changes the CTS from the LCO 3.0.3 statement to specific required actions to be performed.

This change is acceptable because the ITS Required Actions place the unit in a condition within the time allowed by CTS LCO 3.0.3 for each of the functional interlocks. Function P-6 and P-10 are required to be OPERABLE in MODE 2 therefore the required action places the unit into MODE 3 within 7 hours. Functions P-7, P-8, and P-13 are required to be OPERABLE in MODE 1, therefore the required action requires the unit to be placed in MODE 2 with 7 hours. This change is designated as administrative because it does not result in technical changes to the CTS.

- A.17 CTS Action 7 is required to be performed when the Overtemperature, Overpower, Pressurizer Pressure – High, Steam Generator (SG) Water Level – Low Low, and Steam/Feed Flow Mismatch and Low SG Water Level functions have a required channel become inoperable. Each of the functions is required to be OPERABLE in MODES 1 and 2. Action 7 states that the inoperable channel must be placed in trip within 72 hours, and if this is not satisfied, the unit must be placed in HOT STANDBY in 6 hours, HOT SHUTDOWN within the next 6 hours and COLD SHUTDOWN in the following 30 hours. ITS 3.3.1 for the Overtemperature, Overpower, Pressurizer Pressure – High, Steam Generator (SG) Water Level – Low Low, and SG Water Level Low coincident with Steam Flow /Feed Flow Mismatch

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3.3.1-13 ITS
STS
CTS
DOC A.18

NRC RAI: Comment: DOC A.18 states, "If this cannot be accomplished, Required Action P.2 must be completed. This requires the plant to be placed in MODE 3 within 7 hours." There is an apparent mismatch with the CTS Markup of CTS Action 13. No discussion of change is provided for adding ITS Action P.2. Additionally, DOC A.18 concludes there are no technical changes that result from combining reactor trip bypass breakers into ITS RTBs TS requirements, however, the staff notes that the RTBs and RTB bypass breakers have different Refueling surveillance requirements.

Response: The Company agrees with the Comment. DOC A.18 has been modified to justify the inclusion of the Bypass RTBs into the same action as the RTBs and address the inclusion of ITS Action P.2 as an Administrative change. A less restrictive change DOC L.25 has been added to address the CTS SR deletion of the CHANNEL FUNCTIONAL TEST performed on a refueling basis.

A.1

TABLE 4.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

NORTH ANNA - UNIT 1

ITS	FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED	Response Time Test	A.7
	13. Deleted						
14	14. Steam Generator Water Level - Low-Low	3.3.1.1 (A.1)	3.3.1.10 (A.1)	3.3.1.7 (A.1)	1, 2	3.3.1.16	
15	15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	3.3.1.1 (A.1)	3.3.1.10 (A.1)	3.3.1.7 (A.1)	1, 2	N/A	L.20
12	16. Undervoltage - Reactor Coolant Pump Busses	N.A.	3.3.1.10 (A.1)	3.3.1.9 (M.1)	1	3.3.1.16	
13	17. Underfrequency - Reactor Coolant Pump Busses	N.A.	3.3.1.10 (A.1)	N.A.	1	3.3.1.16	RAI 3.3.1-1 R5
16	18. Turbine Trip						L.22
16a	A. Low Auto Stop Oil Pressure	N.A.	3.3.1.10 (M.7)	3.3.1.15 (A.25)	1, 2	N/A	
16b	B. Turbine Stop Valve Closure	N.A.	3.3.1.10 (M.7)	3.3.1.15 (A.25)	1, 2	N/A	L.20
17	19. Safety Injection Input from ESF	N.A.	N.A.	3.3.1.14 (A.14) & (A.23)	1, 2	N/A	M.9
11	20. Reactor Coolant Pump Breaker Position Trip	N.A.	N.A.	3.3.1.14 (A.11)	N.A.	N/A	RAI 3.3.1-1 R5
19	21. A. Reactor Trip Breaker	N.A.	N.A.	3.3.1.4 (A.11) & (A.23)	1, 2, & *	N/A	
	B. Reactor Trip Bypass Breaker	N.A.	N.A.	3.3.1.4 (M.11) & (A.11)	1, 2, & *	N/A	
20	RTB undervoltage and Shut Trip Mech	N/A	N/A	3.3.1.4 (M.11)	1, 2, & *	N/A	
21	22. Automatic Trip Logic	N.A.	N.A.	3.3.1.5 (A.11) & (A.23)	1, 2, & *	N/A	

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A.1

TABLE 4.3-1 (CONTINUED)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

NORTH ANNA - UNIT 2

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page 14 of 22

Amendment No. 159, 202

Rev. 5

ITS	FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	A.11 COT TADOT	MODES IN WHICH SURVEILLANCE REQUIRED	Response Time TEST
	13. Deleted	—	—	—	—	—	—
14	14. Steam Generator Water Level - Low-Low	(8) A.1 3.3.1.1	(R) A.1 3.3.1.10	(A.11) 3.3.1.7		1, 2	3.3.1.16
15	15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	(8) A.1 3.3.1.1	(R) A.1 3.3.1.10	(A.11) 3.3.1.7		1, 2	NA
12	16. Undervoltage - Reactor Coolant Pump Busses	N.A.	(R) A.1 3.3.1.10	(A.11) 3.3.1.9		1	3.3.1.16
13	17. Underfrequency - Reactor Coolant Pump Busses	N.A.	(R) A.1 3.3.1.10	(A.11) 3.3.1.9		1	3.3.1.16
16	18. Turbine Trip		(M.7) 3.3.1.10	(A.25) 3.3.1.15			
16a	A. Low Auto Stop Oil Pressure	N.A.	NA 3.3.1.10	(SAT) 3.3.1.15		N.A.	N/A
16b	B. Turbine Stop Valve Closure	N.A.	NA (M.7) 3.3.1.10	(SAT) A.25 3.3.1.15		N.A.	N/A
17	19. Safety Injection Input from ESF	N.A.	N.A.	(M.7) & (8) A.23 A.14 3.3.1.14		1, 2	N/A
11	20. Reactor Coolant Pump Breaker Position Trip	N.A.	N.A.	(A.11) 3.3.1.14		1	N/A
19	21. A. Reactor Trip Breaker	N.A.	N.A.	(A.11) 3.3.1.4 (M.7) (A.23) (A.11)		1, 2, & *	N/A
	B. Reactor Trip Bypass Breaker	NA	NA	M(5) (9) & (11) A.18		1, 2, & *	N/A
20	RTB undervoltage and Shunt Trip Mech.	N/A	N/A	3.3.1.4 (M.11)		1, 2, & *	N/A
21	22. Automatic Trip Logic	N.A.	N.A.	(A.11) (M.7) (A.23) 3.3.1.5		1, 2, & *	N/A

A.5

A.7

L.20

RAI 3.3.1-1 R5

M.9

L.20

ITS 3.3.1

03-09-00

RAI 3.3.1-14 R5

RAI 3.3.1-13 R5

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requires each function to be OPERABLE in MODES 1 and 2 and requires Condition E to be entered for an inoperable channel. Condition E states with one inoperable channel, place the channel in trip within 72 hours or be in MODE 3 within 78 hours. This changes the CTS by elimination the requirement to place the unit in HOT SHUTDOWN or COLD SHUTDOWN.

The purpose of this change is appropriately direct the unit to a MODE of operation in which the functions are no longer required by the safety analysis to perform their safety function. This change is acceptable because the Condition's Required Actions direct the unit to be placed in an operating mode which the safety functions are no longer assumed by the safety analyses to provide protection. Each function is only required to be OPERABLE in MODES 1 and 2, therefore, upon entry into HOT STANDBY (MODE 3) each function is no longer required to be OPERABLE. Therefore, eliminating the requirement for the unit to be placed in HOT SHUTDOWN or COLD SHUTDOWN is not required or justified since each function is not required to perform its safety function in MODES 4 or 5. This change is designated as administrative because it does not result in technical changes to the CTS.

- A.18 CTS 3.3.1.1 Functional Unit 21B, Reactor Trip Bypass Breakers, states two channels are required to be OPERABLE in the applicable MODES, as indicated by a Note *** and Action 13 is required to be entered, if a channel is inoperable. Note *** states, "With the Reactor Trip Breaker open for surveillance testing in accordance with Specification Table 4.3-1 (item 21A)." CTS Action 13 states that with an inoperable bypass breaker, the breaker must be restored to OPERABLE status within one hour, or the testing of the RTB must be terminated and the bypass breaker opened. CTS Action 1 for the RTB requirements (item 21 A) for an inoperable channel states, "With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirements be in HOT STANDBY within 6 hours." ITS Function 19 states two trains for the Reactor Trip Breakers ^(h) are required to be OPERABLE in MODES 1 and 2. Note ^(h) states, "Includes any reactor trip bypass breakers that are racked in and closed for bypassing an RTB." Condition P is required to be entered for an inoperable RTB train. ITS Required Action P.1 states, "Restore train to OPERABLE status," within one hour. The change to CTS Action 1, with the addition of ITS Required Action P.1, is addressed by DOC L.13. Required Action P.2 states, "OR Be in MODE 3," within 7 hours. This changes the CTS by including the requirement for the bypass breakers into the function for the RTB train and maintains the allowed outage time for an inoperable breaker.

RAI
3.3.1-
13
RS

This change is acceptable because including the bypass breaker into the ITS requirement for the RTBs does not change the technical requirements for the bypass breaker. In the CTS and ITS requirements if the bypass breaker becomes inoperable, that breaker must be restored to OPERABLE status within one hour if it is relied upon as a substitute for the RTB. If the bypass breaker cannot be returned to OPERABLE the testing or maintenance of the RTB must be immediately suspended and the bypass

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

breaker must be placed in the open position. In this condition with the RTB inoperable, the unit is required to be in MODE 3 in the next 6 hours. This CTS time allowance is maintained in the ITS. The RTB bypass breaker, in the ITS, is tested prior to replacing the RTB, therefore, it is unlikely, that the RTB bypass will become inoperable while being substituted for the RTB. This change is designated as administrative because it does not result in technical changes to the CTS.

RAI
3.3.1-
13
RS

A.19 Not used.

A.20 The requirements in CTS Table 3.3-1 for the Reactor Trip System interlocks list the designated functions as P-7, P-10, and P-13. These interlocks are required to be OPERABLE from the surveillance requirement 4.3.1.1.2, associated with CTS ITS 3.3.1.1. The P-10 and P-13 interlocks are required to provide a signal at a specific indicated power level, from either the neutron detectors (P-10-Power Range Neutron Flux channels), or power indication of the main turbine (P-13-turbine impluse chamber pressure). The P-10 and P-13 function are required to actuate at a specific setpoint with a tolerance up to the allowable value. The P-7 interlock is derived from P-10 and P-13 functions and is a logic function only. ITS 3.3.1, Table 3.3.1-1, list the Reactor Trip System Interlocks as Function 18, and the P-7 function is Function 18d. Function 18d and 18e represent the P-10 and P-13 interlocks. P-10 and P-13 functions are required to actuate and provide its specific interlocks at a specific setpoint with an allowance up to an allowed value. The P-7 Function is not a channel related interlock, but functions on a train related basis. The channel requirements for P-7 are stated as, "1 per train." Because the P-7 interlock is a logic function, there is no setpoint or allowable value limit associated with the function.

RAI
3.3.1-
M
RS

This change is acceptable because all technical requirements of the CTS are reflected in the ITS requirements. The requirements of ITS 3.3.1 Function 18 b for P-7 has not been modified the CTS requirements, except only in format. This change is designated as administrative because it does not result in technical changes to the CTS.

A.21 CTS requirements for the Power Range Instrumentation channels are listed in Table 3.3-1. This states four total channels are required in MODES 1 and 2 and Action 2[#] must be entered for an inoperable channel. The Limiting Safety System Settings listed in CTS Table 2.2-1 specifies for the Power Range Neutron Flux two trip setpoints and allowable values. These are divided into Low and High values. The P-10 interlock in CTS Table 3.3-1 describes the requirements for enabling the Power Range Neutron Flux Low setpoint trip below the specified values. The ITS in Table 3.3.1-1 states the Power Range Neutron Flux channels, functions 2a and 2b, are to be OPERABLE in two states, High and Low Neutron Flux, with four channels required to be OPERABLE. The functions are applicable in MODES 1 and 2 for the High and MODES 1^(b) and 2 for the Low. For the Power Range Low function Action E is required to be entered. Action E requires the channel to be placed in trip within 72 hours or be in MODE 3 within the next 6 hours. Note ^(b) states, "Below the P-10

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

associated with the PRNF channel rate trips portions of the channels. The rate trips are independent circuits monitoring each power range indication and sensing a rapid change in reactor power in the region of the associated PRNF detector. These power range rate-of-change circuits do not provide an input to QPTR. ITS Condition D would be entered if the PRNF channel becomes inoperable and does not provide an input to QPTR 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.

RAI
3.3.1-
04
RS

- L.24 (Category 7 – Relaxation Of Surveillance Frequency) CTS Table 4.3-1 requires a CHANNEL FUNCTIONAL TEST for Function 6 Source Range Neutron Flux channels at a frequency of S/U ⁽¹⁾. S/U requires the surveillance to be performed prior to each reactor start up. Note ⁽¹⁾ states, "If not performed within the previous 31 days." This requirement is applicable in MODES 3*, 4*, and 5*. The * states, "With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal." ITS Function 5 Source Range Neutron Flux channels are required in MODES 3 ^(a), 4 ^(a), and 5 ^(a) to perform SR 3.3.1.7. Note ^(a) states, "With Rod Control System capable of rod withdrawal or one or more rods not fully inserted." The change from Note * to Note ^(a) is addressed by DOC L.1. The ITS SR requires a COT to be performed every 92 days. It is modified by a Note that states, "Not required to be performed for source range instrumentation prior to entering MODE 3 from MODE 2 until 4 hours after entering MODE 3." The change from 31 to 92 days is addressed by DOC L.11. This changes the CTS surveillance requirement by providing an allowance to perform the SR 4 hours after entering the applicable MODE.

RAI
3.3.1-
10
RS

The purpose of ITS SR 3.3.1.7 Note is to allow an appropriate period of time to perform the requirement after entering the applicable MODE. This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. On a reactor trip while operating in MODE 1 at 100% RTP, the unit goes from MODE 1 to MODE 3 in a few seconds. Neutron flux decreases below the P-6 setpoint, causing the Source Range channels to energize and requiring SR 3.3.1.7 to be satisfied. The four hours allowed by the Note provides a reasonable time to perform the testing. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

- L.25 (Category 5 – Deletion of Surveillance Requirement) CTS Surveillance Requirements in Table 4.3-1 for Function 21.B, reactor trip bypass breaker, require a CHANNEL FUNCTIONAL TEST to be performed at a refueling (R) Frequency. The Frequency is modified by a Note ⁽¹⁰⁾ that states, "Automatic undervoltage trip." Note ⁽¹⁰⁾ is addressed by DOC LA.4. ITS Table 3.3.1-1 Function 19, Reactor Trip Breakers ^(h) requires the performance of SR 3.3.1.4. Note ^(h) states, "Including any reactor trip bypass breakers that are racked in and closed for bypassing an RTB." SR 3.3.1.4 requires the monthly testing (TADOT) on a Staggered Test Basis for the trip and bypass breakers. A Note that states, "This Surveillance must be performed on the trip

RAI
3.3.1-
13
RS

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

bypass breaker immediately after placing the bypass breaker in service” modifies SR3.3.1.4. This changes the CTS by deleting the surveillance requirement performed on a refueling basis for the RTB bypass breaker.

The purpose of ITS SR 3.3.1.4 is to ensure that both the RTB and bypass RTB are functionally tested and the testing verifies that each breaker can perform its required function. This change is acceptable because the deleted Surveillance Requirement is not necessary to verify that the RTB bypass breaker used to meet the LCO can perform its required function. Thus, the RTB bypass breakers continue to be tested in a manner and at a frequency necessary to give confidence that the equipment can perform its assumed safety function. The RTB bypass breaker is only required to be OPERABLE when associated testing or maintenance on the RTB is performed. The performance of ITS SR 3.3.1.4 on the RTB bypass breaker ensures its OPERABILITY. This change is designated as less restrictive because Surveillances which are required in the CTS will not be required in the ITS.

- L.26 *(Category 4 – Relaxation of Required Action)* CTS Table 3.3-1 Functions 18.a (Low Auto Stop Oil Pressure) and 18.b (Turbine Stop Valve Closure) requires the functions to be OPERABLE in MODE 1 and Action 9 to be entered for an inoperable channel. Action 9 requires an inoperable channel be placed in trip within 72 hours or reduce power to less than P-8 setpoint within the next 4 hours. ITS Table 3.3.1-1 Function 16 Turbine Trip with Low Auto Stop Oil Pressure (16a) and Turbine Stop Valve Closure (16b) lists the applicable MODES as MODE 1^(g). Note ^(g) states, “Above the P-8 (Power Range Neutron Flux) interlock.” The Table lists Condition N to be entered for an inoperable channel. Condition N states, “One Turbine Trip channel inoperable, Place channel in trip,” within 72 hours, or “Reduce THERMAL POWER < P-8,” within 76 hours. A Note modifies Condition N that states, “The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels.” This changes the CTS by adding an allowance that an inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels.

The purpose of the Note in ITS Condition N is to allow a reasonable period of time to conduct required surveillance testing on the remaining channels of the turbine trip function. 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. The addition of the Note provides the necessary time to perform required testing when there is an inoperable channel. An inoperable channel must be placed in a trip condition. The allowance of the Note provides an exception to this requirement. The inoperable channel may be removed from the tripped condition and bypassed to test the other channels. If an additional

RAI
3.3.1-
13
RS

RAI
3.3.1-
15
RS

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.3, Instrumentation
LCO 3.3.1, RTS Instrumentation

3.3.1-14 ITS
STS
CTS
DOC A.19

NRC RAI: Comment: The requirements for the undervoltage and shunt trip mechanism to be OPERABLE for each RTB in MODES 3(a), 4(a), and 5(a) and ITS Condition C are new requirements. Provide the appropriate discussion of change justification for CTS changes that result from adding ITS Table 3.3.1-1, Function 20 (RTB Undervoltage and Shunt Trip Mechanism) requirements.

Response: The Company agrees with the Comment. DOC A.19 has been deleted and a more restrictive change DOC M.11 describing the new requirements has been added.

A.11

ITS 3.3.1
03-09-00

ITS

TABLE 3.3-1 (Continued)

Action N

Note

Action B

Action S
Note 2
Action P

Actions C and J

Action O

Actions Q and R

ACTION 9 - With the number of channels OPERABLE less than the Total Number of Channels OPERABLE requirement, STARTUP and POWER OPERATION may proceed provided the inoperable channel is placed in the tripped condition within 72 hours and the Minimum Channels OPERABLE requirement is met. or reduce power to less than the P-8 setpoint in the next 4 hours.

RAI 3.3.1-15
RS
L.26

> Add proposed Note
ACTION 10 - Deleted

ACTION 11 - With less than the Minimum Number of Channels OPERABLE, operation may continue provided the inoperable channel is placed in the tripped condition within 1 hour.

A.8

ACTION 12 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours.

ACTION 13 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within (1) hour or terminate testing of the Reactor Trip Breaker and open the Reactor Trip Bypass Breaker.

A.18

ACTION 14 - With one of the diverse trip features (undervoltage or shunt trip device) inoperable, restore it to OPERABLE status within 48 hours or declare the breaker inoperable and apply Action I. 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.

RAI 3.3.1-14
RS
M.11
Insert Required Action S
M.12
RAI 3.3.1-2
3.3.1-18
RS

ACTION 15 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement restore the inoperable channel to OPERABLE status within 48 hours or open the reactor trip breakers within the next hour.

L.1

ACTION 16 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours; however, one channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.1.1, provided the other channel is OPERABLE.

L.18

ACTION 17 - With less than the Minimum Channels OPERABLE, within 1 hour determine by observation of the associated permissive annunciator window(s) that the interlock(s) is in its required state for the existing plant conditions or apply Specification 3.0.3.

L.A.6

Insert Proposed Required Actions Q.2 and R.2
A.16

ITS

TABLE 3.3-1 (CONTINUED)

Action L and M

Note to Action b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels per Specification 4.3.1.1.

If the conditions are not satisfied in the time permitted, reduce power to less than the P-7 setpoint in 6 hours.

Action N

ACTION 9 - With the number of channels OPERABLE less than the Total Number of Channels OPERABLE requirement, STARTUP and POWER OPERATION may proceed provided the inoperable channel is placed in the tripped condition within 72 hours and the Minimum Channels OPERABLE Requirement is met, or reduce power to less than the P-8 setpoint in the next 4 hours.

RAI 3.3.1-15 RS

L.26

Note

ACTION 10 - Deleted

ACTION 11 - With less than the Minimum Number of Channels OPERABLE, operation may continue provided the inoperable channel is placed in the tripped condition within 1 hour.

A.8

Action B

ACTION 12 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours.

ACTION 13 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within (1) hour or terminate testing of the Reactor Trip Breaker and open the Reactor Trip Bypass Breaker

A.18

RAI 3.3.1-14 RS

Action S Note 2 Action P

ACTION 14 - With one of the diverse trip features (undervoltage or shunt trip device) inoperable, restore it to OPERABLE status within 48 hours or declare the breaker inoperable and apply Action D. 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.

M.11

INSERT Required Action S.2

M.12

RAI 3.3.1-7 3.3.1-12 3.3.1-15 RS

Actions C and J

ACTION 15 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement restore the inoperable channel to OPERABLE status within 48 hours or open the reactor trip breakers within the next hour.

L.11

INSERT PROPOSED Required Action C.2.1 INSERT PROPOSED Required Action J.2

Action O

ACTION 16 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours, however one channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.1.1, provided the other channel is OPERABLE.

L.18

Note

Actions Q and R

ACTION 17 - With less than the Minimum Channels OPERABLE, within 1 hour determine by observation of the associated permissive annunciator window(s) that the interlock(s) is in its required state for the existing plant conditions or apply Specification 3.0.3.

LA.6

INSERT PROPOSED Required Actions Q.2 and R.2

A.16

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breaker must be placed in the open position. In this condition with the RTB inoperable, the unit is required to be in MODE 3 in the next 6 hours. This CTS time allowance is maintained in the ITS. The RTB bypass breaker, in the ITS, is tested prior to replacing the RTB, therefore, it is unlikely, that the RTB bypass will become inoperable while being substituted for the RTB. This change is designated as administrative because it does not result in technical changes to the CTS.

RAJ
3.3.1-
13
RS

A.19 Not used.

A.20 The requirements in CTS Table 3.3-1 for the Reactor Trip System interlocks list the designated functions as P-7, P-10, and P-13. These interlocks are required to be OPERABLE from the surveillance requirement 4.3.1.1.2, associated with CTS ITS 3.3.1.1. The P-10 and P-13 interlocks are required to provide a signal at a specific indicated power level, from either the neutron detectors (P-10-Power Range Neutron Flux channels), or power indication of the main turbine (P-13-turbine impulse chamber pressure). The P-10 and P-13 function are required to actuate at a specific setpoint with a tolerance up to the allowable value. The P-7 interlock is derived from P-10 and P-13 functions and is a logic function only. ITS 3.3.1, Table 3.3.1-1, list the Reactor Trip System Interlocks as Function 18, and the P-7 function is Function 18d. Function 18d and 18e represent the P-10 and P-13 interlocks. P-10 and P-13 functions are required to actuate and provide its specific interlocks at a specific setpoint with an allowance up to an allowed value. The P-7 Function is not a channel related interlock, but functions on a train related basis. The channel requirements for P-7 are stated as, "1 per train." Because the P-7 interlock is a logic function, there is no setpoint or allowable value limit associated with the function.

RAJ
3.3.1-
M
RS

This change is acceptable because all technical requirements of the CTS are reflected in the ITS requirements. The requirements of ITS 3.3.1 Function 18 b for P-7 has not been modified the CTS requirements, except only in format. This change is designated as administrative because it does not result in technical changes to the CTS.

A.21 CTS requirements for the Power Range Instrumentation channels are listed in Table 3.3-1. This states four total channels are required in MODES 1 and 2 and Action 2[#] must be entered for an inoperable channel. The Limiting Safety System Settings listed in CTS Table 2.2-1 specifies for the Power Range Neutron Flux two trip setpoints and allowable values. These are divided into Low and High values. The P-10 interlock in CTS Table 3.3-1 describes the requirements for enabling the Power Range Neutron Flux Low setpoint trip below the specified values. The ITS in Table 3.3.1-1 states the Power Range Neutron Flux channels, functions 2a and 2b, are to be OPERABLE in two states, High and Low Neutron Flux, with four channels required to be OPERABLE. The functions are applicable in MODES 1 and 2 for the High and MODES 1^(b) and 2 for the Low. For the Power Range Low function Action E is required to be entered. Action E requires the channel to be placed in trip within 72 hours or be in MODE 3 within the next 6 hours. Note ^(b) states, "Below the P-10

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Breaker Position Trip is MODE 1^(f), with SR 3.3.1.14 as a required Surveillance. Note ^(f) states, "Above the P-7 (Low Power Reactor Trips Block) interlock." The applicable MODES or other specified conditions for ITS Table 3.3.1-1 Function 16, Turbine Trip on Low Auto Stop Oil Pressure or Turbine Stop Valve Closure, is MODE 1^(g) with SR 3.3.1.15 as one of the required Surveillances. Note ^(g) states, "Above the P-8 (Power Range Neutron Flux) interlock." This changes the CTS by requiring the surveillance for the RCP Breaker Position Trip and the Turbine Trip Functions to be performed in the ITS when they are not required in the CTS.

RAI
3.3.1-
01
RS

This change is acceptable because Surveillance Requirements are required for the RCP Breaker Position Trip and Turbine Trip Functions to ensure that they are capable of performing their required function. The satisfactory performance of these SRs ensures the safety functions OPERABILITY. This change is designated as more restrictive because the surveillance requirements are required in more applicable MODES or other specified conditions than the CTS requirements.

- M.10 CTS Table 4.3-1 Function 23.b Low Power Reactor Trip Block, P-7, states that a CHANNEL CALIBRATION and a CHANNEL FUNCTIONAL TEST are to be performed at a frequency of R (refueling). ITS Table 3.3.1-1 Function 18.b Low Reactor Power Trips Block, P-7, states that SR 3.3.1.5 ACTUATION LOGIC TEST (ALT) is to be performed at a Frequency of every 31 days on a STAGGERED TEST BASIS (STB). This changes the CTS by requiring an ALT to be performed every 31 days on a STB instead of a CHANNEL CALIBRATION and a CHANNEL FUNCTIONAL TEST being conducted every refueling.

RAI
3.3.1-
05
RS

The purpose of ITS SR 3.3.1.5 is to test those functions that are determined by logic. This change is acceptable because the P-7 interlock is derived from the logic of 2 of 4 Power Range channels indicating $\geq 10\%$ RTP (P-10), or 1 of 2 turbine impulse channels indicating $\geq 10\%$ of turbine power (P-13). The CHANNEL CALIBRATION AND CHANNEL FUNCTIONAL TEST are not appropriate tests to be performed for the P-7 function because these are tests performed on functions that monitor parameters. This change is designated as more restrictive because the required Surveillance is performed more frequently than the Surveillances required by the CTS.

- M.11 CTS Table 3.3-1 Function 21A, RTBs, lists Actions 1 and 14 to be followed for an inoperable channel in MODES 1 and 2. Action 14 states, "With one of the diverse trip features (undervoltage or shunt trip device) inoperable, restore it to OPERABLE status within 48 hours or declare the RTB inoperable and apply Action 1." Additionally, the Action states, "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 Function 20, RTB Undervoltage and Shunt Trip Mechanism, requires these mechanisms to be OPERABLE for each RTB in MODES 1 and 2, and MODES 3(a), 4(a), and 5(a). Note (a) states, "With the Rod Control System capable of rod withdrawal or one or

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more rods not fully inserted.” If either function becomes inoperable Conditions S (MODES 1 and 2) or Condition C (MODES 3(a), 4(a), and 5(a)) must be entered. Required Actions for Condition C direct that the inoperable trip mechanism be restored to OPERABLE status within 48 hours or insert all rods and place the Rod Control System in a condition where rods cannot be withdrawn. This is required within one hour. This changes the CTS by requiring the diverse trip functions to be OPERABLE in MODES 3(a), 4(a), and 5(a), and adding of ITS Condition C requirements.

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The purpose of the additional ITS requirements in applicability and Condition C is to provide appropriate requirements for the RTB when the Rod Control System is capable of rod withdrawal. This change is acceptable because the RTB must be capable of tripping the rods any time the rods are withdrawn or capable of being withdrawn. This requirement ensures the Reactor Trip System can provide its safety function. This change is designated as more restrictive because additional requirements are provided in the ITS.

- M.12 CTS Table 3.3-1 Function 21A Reactor Trip Breakers lists Action 1 to be entered for an inoperable channel in MODES 1 and 2. CTS Action 14 is applicable for the RTBs for the diverse trip function and it states, “With one of the diverse trip features (undervoltage or shunt trip device) inoperable, restore it to OPERABLE status within 48 hours or declare the breaker inoperable and apply Action 1. 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 Table 3.3.1-1 Function 19 RTB requires 2 trains to be OPERABLE in MODES 1 and 2 and Condition P to be entered if one RTB train is inoperable. Condition P states that with one train inoperable, it must be restored to OPERABLE status in one hour or be in MODE 3 within 7 hours. Three Notes modify the Condition. 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.” This changes the CTS requirements for the RTBs by limiting to 2 hours any maintenance on the undervoltage or shunt trip mechanism before declaring the RTB train inoperable.

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3.3.1-
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R5

The purpose of the ITS Condition P Note is to allow a reasonable amount of time to conduct repairs on an inoperable undervoltage or shunt trip mechanism without declaring the RTB train inoperable. This change is acceptable because the RTB on the other train and the bypass RTB on this train both remain capable of tripping the reactor. Two hours is a reasonable period of time to allow the bypass RTB to substitute for the inoperable RTB. This change is more restrictive because the CTS does not limit the time for performing maintenance, whereas the ITS limits the time to 2 hours.

- M.13 CTS Table 4.3-1 Surveillance Requirements do not require a quarterly test on the OTΔT Functions to ensure an accurate input for the f (ΔI) from the required Power Range channels. ITS Table 3.3.1-1 Function 6 states SR 3.3.1.6 must be performed.

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3.3.1-15 ITS
STS
CTS
DOC A.22

NRC RAI: Comment: The proposed ITS include a 4 hour channel bypass allowance Note to Action N.1; however, this change is not evaluated in the discussion of changes.

Response: The Company agrees with the Comment. A less restrictive DOC L.26 has been added to document the proposed allowance.

(A.11)

ITS 3.3.1
03-09-00

ITS

TABLE 3.3-1 (Continued)

Action N

Note

Action B

Action S

Note 2
Action P

Actions C and J

Action O

Actions Q and R

ACTION 9 - With the number of channels OPERABLE less than the Total Number of Channels OPERABLE requirement, STARTUP and POWER OPERATION may proceed provided the inoperable channel is placed in the tripped condition within 72 hours and the Minimum Channels OPERABLE requirement is met, or reduce power to less than the P-8 setpoint in the next 4 hours.

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L.26

→ Add proposed Note

ACTION 10 - Deleted

ACTION 11 - With less than the Minimum Number of Channels OPERABLE, operation may continue provided the inoperable channel is placed in the tripped condition within 1 hour.

A.8

ACTION 12 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours.

ACTION 13 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within (1) hour or terminate testing of the Reactor Trip Breaker and open the Reactor Trip Bypass Breaker.

A.18

ACTION 14 - With one of the diverse trip features (undervoltage or shunt trip device) inoperable, restore it to OPERABLE status within 48 hours or declare the breaker inoperable and apply Action D. 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.

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RS

Insert Required Actions

M.11

2 hours

M.12

RAIs 3.3.1-2
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RS

ACTION 15 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement restore the inoperable channel to OPERABLE status within 48 hours or open the reactor trip breakers within the next hour.

L.1

Insert Proposed Required Action C.2
Insert Proposed Required Action J.2

ACTION 16 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours; however, one channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.1.1, provided the other channel is OPERABLE.

L.18

Note

ACTION 17 - With less than the Minimum Channels OPERABLE, within 1 hour determine by observation of the associated permissive annunciator window(s) that the interlock(s) is in its required state for the existing plant conditions or apply Specification 3.0.3.

LA.6

Insert Proposed Required Actions Q.2 and R.2

A.16

ITS

TABLE 3.3-1(CONTINUED)

Action L and M

Note to Action b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels per Specification 4.3.1.1.

If the conditions are not satisfied in the time permitted, reduce power to less than the P-7 setpoint in 6 hours.

Action N

ACTION 9 - With the number of channels OPERABLE less than the Total Number of Channels OPERABLE requirement, STARTUP and POWER OPERATION may proceed provided the inoperable channel is placed in the tripped condition within 72 hours and the Minimum Channels OPERABLE Requirement is met, or reduce power to less than the P-8 setpoint in the next 4 hours.

RAI 3.3.1-15 RS

Note

ACTION 10 - Deleted

ACTION 11 - With less than the Minimum Number of Channels OPERABLE, operation may continue provided the inoperable channel is placed in the tripped condition within 1 hour.

A.8

Action B

ACTION 12 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours.

ACTION 13 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within (1) hour or terminate testing of the Reactor Trip Breaker and open the Reactor Trip Bypass Breaker

A.18

RAI 3.3.1-14 RS

Action S Note 2 Action P

ACTION 14 - With one of the diverse trip features (undervoltage or shunt trip device) inoperable, restore it to OPERABLE status within 48 hours or declare the breaker inoperable and apply Action I. 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.

INSERT Required Action S.2

M.11

M.12

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Actions C and J

ACTION 15 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement restore the inoperable channel to OPERABLE status within 48 hours or open the reactor trip breakers within the next hour.

L.11

INSERT PROPOSED Required Action C.21 INSERT PROPOSED Required Action J.2

Action O

ACTION 16 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours, however one channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.1.1, provided the other channel is OPERABLE.

L.18

Actions Q and R

ACTION 17 - With less than the Minimum Channels OPERABLE, within 1 hour determine by observation of the associated permissive annunciator window(s) that the interlock(s) is in its required state for the existing plant conditions or apply Specification 3.0.3.

L.A.6

INSERT PROPOSED Required Actions Q.2 and R.2 A.16

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bypass breaker immediately after placing the bypass breaker in service” modifies SR3.3.1.4. This changes the CTS by deleting the surveillance requirement performed on a refueling basis for the RTB bypass breaker.

The purpose of ITS SR 3.3.1.4 is to ensure that both the RTB and bypass RTB are functionally tested and the testing verifies that each breaker can perform its required function. This change is acceptable because the deleted Surveillance Requirement is not necessary to verify that the RTB bypass breaker used to meet the LCO can perform its required function. Thus, the RTB bypass breakers continue to be tested in a manner and at a frequency necessary to give confidence that the equipment can perform its assumed safety function. The RTB bypass breaker is only required to be OPERABLE when associated testing or maintenance on the RTB is performed. The performance of ITS SR 3.3.1.4 on the RTB bypass breaker ensures its OPERABILITY. This change is designated as less restrictive because Surveillances which are required in the CTS will not be required in the ITS.

- L.26 (Category 4 – Relaxation of Required Action) CTS Table 3.3-1 Functions 18.a (Low Auto Stop Oil Pressure) and 18.b (Turbine Stop Valve Closure) requires the functions to be OPERABLE in MODE 1 and Action 9 to be entered for an inoperable channel. Action 9 requires an inoperable channel be placed in trip within 72 hours or reduce power to less than P-8 setpoint within the next 4 hours. ITS Table 3.3.1-1 Function 16 Turbine Trip with Low Auto Stop Oil Pressure (16a) and Turbine Stop Valve Closure (16b) lists the applicable MODES as MODE 1^(g). Note ^(g) states, “Above the P-8 (Power Range Neutron Flux) interlock.” The Table lists Condition N to be entered for an inoperable channel. Condition N states, “One Turbine Trip channel inoperable, Place channel in trip,” within 72 hours, or “Reduce THERMAL POWER < P-8,” within 76 hours. A Note modifies Condition N that states, “The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels.” This changes the CTS by adding an allowance that an inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels.

The purpose of the Note in ITS Condition N is to allow a reasonable period of time to conduct required surveillance testing on the remaining channels of the turbine trip function. 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. The addition of the Note provides the necessary time to perform required testing when there is an inoperable channel. An inoperable channel must be placed in a trip condition. The allowance of the Note provides an exception to this requirement. The inoperable channel may be removed from the tripped condition and bypassed to test the other channels. If an additional

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R5

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channel was tested with an inoperable channel in trip, an unnecessary reactor trip signal could be generated. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

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RS

- L.27 (*Category 2 – Relaxation of Applicability*) CTS Tables 3.3-1 and 4.3-1 list the MODES of applicability for the Intermediate Range function 5 as MODE 1 below the P-10 setpoint and MODE 2. Action 3 must be entered for an inoperable channel. Action 3-part b states “Above the P-6 setpoint, but below the P-10 setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-10 setpoint.” ITS Table 3.3.1-1 Function 4 Intermediate Range lists the Applicable MODES or other specified conditions as MODES 1^(b) and 2^(c). Note ^(b) states, “Below the P-10 (Power Range Neutron Flux) interlocks,” and Note ^(c) requires, “Above the P-6 (Intermediate Range Neutron Flux) interlocks.” Conditions F and G must be entered for an inoperable channel(s). Required Actions F.2 and G.2 limit THERMAL POWER for the unit to < P-6 setpoint. This changes the CTS by decreasing the applicability from MODE 2 to MODE 2 above the P-6 setpoint.

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The purpose of ITS applicability is to ensure the Intermediate Range trip function is OPERABLE at the power levels assumed in the safety analysis. This change is acceptable because the requirements continue to ensure that the process variables are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. This change in applicability coordinates the requirements for the Intermediate Range function to the assumptions of the safety analysis for the required channels. Above the P-10 setpoint, the Power Range channels provide reactor protection with the capability of tripping the reactor, and below the P-6 setpoint, the Source Range channels provide the necessary reactor protection. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the CTS.

- L.28 (*Category 2 – Relaxation of Applicability*) CTS Table 3.3-1 Functions 9.) Pressurizer Pressure – Low, 11.) Pressurizer Water Level – High, 12.) Loss of Flow, 16.) Undervoltage – RCP Buses, 17.) Underfrequency – RCP Buses, 18.) Turbine Trip, and 20.) RCP Breaker Position are required to be OPERABLE. Functions 9 and 11 have applicable MODES of 1 and 2, and Functions 12, 16, 17, 18, and 20 have an applicability of MODE 1. Action 8 must be entered for an inoperable channel on Functions 9, 11, 12, 16, 17, and 20. Action 8 requires the inoperable channel to be placed into trip within 72 hours or the unit is required to be placed below P-7 interlock within 78 hours. Action 9 requires an inoperable channel for function 18, Turbine Trip, to be placed into trip within 72 hours or the unit is required to be placed below P-8 interlock within 76 hours. ITS Table 3.3.1-1 Functions 8.a) Pressurizer Pressure-Low, 9.) Pressurizer Water Level – High, 10.) Reactor Coolant Flow – Low, 11.) RCP Breaker Position, 12.) Undervoltage RCPs, and 13.) Underfrequency RCPs require the functions to be OPERABLE in MODE 1 above the P – 7 setpoint. ITS Note ^(f) states, “Above the P-7 (Low Power Reactor Trips Block) setpoint.” The Turbine Trip, Function 16 is required to be OPERABLE in MODE 1 above P-8

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DOC A.23

NRC RAI: Comment: CTS Functional Unit 19 surveillance frequency "M as modified by Note (5) is deleted from the proposed ITS requirements. Provide a L-DOC for this change to current TS.

Response: The Company disagrees with the Comment. DOC A.23 maintains the CTS requirements in the ITS format with no change in the testing requirements. DOC A.23 is modified to clarify the administrative nature of the change. CTS requires testing on each train of RTBs every 62 days on a STB (i.e., one train every 31 days). This is the same frequency as the ITS requires 31 days on a STB.

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(Power Range Neutron Flux) setpoint. This change maintains the technical requirements of the CTS as they are translated to the ITS format.

This change is acceptable because all technical requirements of the CTS are maintained by the conversion to the ITS. The ITS presentation of the CTS requirements only modifies the format and does not add or delete any technical requirements. The Power Range functions continue to require four channels to be OPERABLE in MODES 1 and 2, with the trip setpoints for High and Low Neutron Flux values required above and below the P-10 interlock. This change is designated as administrative because it does not result in technical changes to the CTS.

- A.22 CTS Table 3.3-1 Functions 18.a (Low Auto Stop Oil Pressure) and 18.b (Turbine Stop Valve Closure) requires the functions to be OPERABLE in MODE 1 and Action 9 to be entered for an inoperable channel. Action 9 requires an inoperable channel be placed in trip within 72 hours or reduce power to less than P-8 setpoint within the next 4 hours. ITS Table 3.3.1-1 Function 16 Turbine Trip with Low Auto Stop Oil Pressure (16a) and Turbine Stop Valve Closure (16b) lists the applicable MODES as MODE 1(g). Note (g) states, "Above the P-8 (Power Range Neutron Flux) interlock." The Table lists Condition N to be entered for an inoperable channel. Condition N states, "One Turbine Trip channel inoperable place the channel in trip," within 72 hours, or "Reduces power < P-8," within 76 hours. A Note modifies Condition N that states, "The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels." The addition of this Note is addressed by DOC L.26. This changes the format of the CTS while maintaining the technical requirements.

This change is acceptable because the technical requirements of the CTS for the required trips from the Turbine Trips are maintained in the ITS. Any technical changes are address in other discussion of changes in this section. This change is designated as administrative because it does not result in technical changes to the CTS.

- A.23 CTS 3.3.1.1 for Functional Units 19, 21, and 22 lists the test requirements for the Safety Injection (SI) input to Engineered Safety Features (ESF), Reactor Trip Breakers (RTBs), and Automatic Trip Logic. Each of these functions must be tested monthly. This Frequency is modified by Note (5), which states, "Each train or logic channel shall be tested at least every 62 days on a STAGGERED TEST BASIS (STB)." ITS notation for STB utilizes a definition that states the frequency as 31 days on a STB for the RTBs, Function 19, and the Automatic Trip Logic, Function 21. This change maintains the required testing frequency for each required safety function.

This change is acceptable because the testing of the functions will continued to be required at the same frequency. The CTS definition for STB requires all trains or channels to be tested within the allowed time stated by the Frequency. ITS definition for STB states that the Frequency listed is the time for one train or channel to be

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tested. Under the CTS Frequency for the listed functions, two trains must complete the required testing in 62 days. The ITS Frequency requirement for each of these functions requires a train to be tested every 31 days with both trains completed in 62 days. Therefore, the testing requirements in the CTS and ITS require the same frequency for each function. This change is designated as administrative because it does not result in technical changes to the CTS.

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- A.24 The calculation for the Overtemperature (OT) ΔT , Functional Unit 7 in CTS Table 2.2-1 Note 1, states that the gains set for the equation are selected based on measured instrument response obtained during plant startup testing. These values for various portions of the formula have been incorporated for the OT ΔT function. This portion of Note 1 is no longer needed and not included in the ITS 3.3.1 Function 6 for the OT ΔT formula.

This change is acceptable because the setting of the gains in the OT ΔT formula were accomplished during initial startup testing and, as such, the statement is for information only. The formula gains have not been adjusted without engineering evaluation and NRC approval since the initial calculation for the OT ΔT function. This change is designated as administrative because it does not result in technical changes to the CTS.

- A.25 CTS Table 4.3-1 Function 18, Turbine Trip, specifies a CHANNEL FUNCTIONAL TEST with a frequency of S/U ⁽¹⁾. The S/U stands for prior to a reactor startup and Note ⁽¹⁾ specifies "If not performed within the previous 31 days." Action 9 must be entered for an inoperable channel. Action 9 states, "With the number of channels OPERABLE less than the Total Number of Channels OPERABLE requirement, STARTUP and POWER OPERATION may proceed provided the inoperable channel is placed in the tripped condition within 72 hours and the Minimum Channels OPERABLE Requirement is met or reduce power to less than the P-8 setpoint in the next 4 hours." ITS Table 3.3.1-1 Function 16 Turbine Trip requires SR 3.3.1.15, a TADOT, to be performed. The Frequency for the SR states, "prior to exceeding the P-8 interlock whenever the unit has been in MODE 3, if not performed within the previous 31 days." A Note to the SR states, "Verification of setpoint is not required." This changes the CTS surveillance requirement frequency from startup, if not performed in the previous 31 days to prior, to exceed P-8 setpoint whenever the unit has been in MODE 3, if not performed in the previous 31 days and specifically states that verification of the setpoint is not required.

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RS

This change is acceptable because the frequency of the required test continues to be performed in the same time period as required by the CTS. The ITS Frequency is set to be consistent with the MODE of applicability for the Turbine Trip function. The intent of the CHANNEL FUNCTIONAL TEST in the CTS is to ensure that the turbine trip signal would generate a reactor trip signal. Therefore, the addition of the ITS Note stating that no verification of setpoint is required is not a change in the

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DOC A.25

NRC RAI:

Comment #1 - DOC A.25 states the required TADOT (SR 3.3.1.15) frequency is "prior to exceeding the P-8 interlock whenever the unit has been in MODE 3...." Provide a discussion of change for this CTS change.

Comment #2 - The NOTE to SR 3.3.1.15 modifies the TADOT to not include verification of the setpoint. Provide a evaluation of CTS changes that result from adopting the ITS requirement.

Response:

The Company agrees with the Comments. DOC A.25 has been modified to document the proposed changes.

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tested. Under the CTS Frequency for the listed functions, two trains must complete the required testing in 62 days. The ITS Frequency requirement for each of these functions requires a train to be tested every 31 days with both trains completed in 62 days. Therefore, the testing requirements in the CTS and ITS require the same frequency for each function. This change is designated as administrative because it does not result in technical changes to the CTS.

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RS

- A.24 The calculation for the Overtemperature (OT) ΔT , Functional Unit 7 in CTS Table 2.2-1 Note 1, states that the gains set for the equation are selected based on measured instrument response obtained during plant startup testing. These values for various portions of the formula have been incorporated for the OT ΔT function. This portion of Note 1 is no longer needed and not included in the ITS 3.3.1 Function 6 for the OT ΔT formula.

This change is acceptable because the setting of the gains in the OT ΔT formula were accomplished during initial startup testing and, as such, the statement is for information only. The formula gains have not been adjusted without engineering evaluation and NRC approval since the initial calculation for the OT ΔT function. This change is designated as administrative because it does not result in technical changes to the CTS.

- A.25 CTS Table 4.3-1 Function 18, Turbine Trip, specifies a CHANNEL FUNCTIONAL TEST with a frequency of S/U ⁽¹⁾. The S/U stands for prior to a reactor startup and Note ⁽¹⁾ specifies "If not performed within the previous 31 days." Action 9 must be entered for an inoperable channel. Action 9 states, "With the number of channels OPERABLE less than the Total Number of Channels OPERABLE requirement, STARTUP and POWER OPERATION may proceed provided the inoperable channel is placed in the tripped condition within 72 hours and the Minimum Channels OPERABLE Requirement is met or reduce power to less than the P-8 setpoint in the next 4 hours." ITS Table 3.3.1-1 Function 16 Turbine Trip requires SR 3.3.1.15, a TADOT, to be performed. The Frequency for the SR states, "prior to exceeding the P-8 interlock whenever the unit has been in MODE 3, if not performed within the previous 31 days." A Note to the SR states, "Verification of setpoint is not required." This changes the CTS surveillance requirement frequency from startup, if not performed in the previous 31 days to prior, to exceed P-8 setpoint whenever the unit has been in MODE 3, if not performed in the previous 31 days and specifically states that verification of the setpoint is not required.

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3.3.1
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RS

This change is acceptable because the frequency of the required test continues to be performed in the same time period as required by the CTS. The ITS Frequency is set to be consistent with the MODE of applicability for the Turbine Trip function. The intent of the CHANNEL FUNCTIONAL TEST in the CTS is to ensure that the turbine trip signal would generate a reactor trip signal. Therefore, the addition of the ITS Note stating that no verification of setpoint is required is not a change in the

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requirement, but is provided for clarification. This change is designated as administrative because it does not result in technical changes to the CTS.

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RS

- A.26 CTS Table 3.3-1 Action 1 states with the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement the unit must be shutdown within a given time. Additionally, Action 1 states that one channel may be bypassed for up to 4 hours for concurrent surveillance testing of the RTB and automatic trip logic provided the other channel is OPERABLE. Action 1 applies to Function 21 Reactor Trip Breakers. ITS Table 3.3.1 -1 for function 19 requires Condition P to be entered for an inoperable train. Condition P requires with one RTB train inoperable, it must be restored to OPERABLE status or the unit must be shutdown. Three Notes modify Condition P. Note 3 states that 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 channel is OPERABLE. This changes the CTS by placing the allowance of concurrent surveillance testing into a Note in the ITS format.

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This change is acceptable because the allowance of the CTS is maintained in the ITS format. Four hours of concurrent surveillance testing of the RTB and automatic trip logic are allowed in the CTS requirements. The CTS allowance is justified by WCAP-14333 P-A. This change is designated as administrative because it does not result in a technical change to the CTS.

- A.27 CTS Table 3.3-1 Function 20 RCP Breaker Position provides for a reactor trip. The total number of channels is one per (RCP) breaker and for an inoperable channel Action 8 must to be entered and requires the inoperable channel to be placed into trip within 72 hours or the unit is required to be placed below P-7 interlock within 78 hours. ITS 3.3.1 for RCP Breaker Position specifies the required channels is one per RCP (breaker) and requires Condition M for an inoperable channel. The Condition provides for an inoperable channel that the channel must be placed in trip within 72 hours or power must be reduced below P-7 setpoint within 78 hours. This changes the CTS by stating the channel requirement for RCP breaker position as one per RCP.

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The purpose of this change is to provide consistent requirements for the functions as assumed in the safety analyses assumptions. This change is acceptable because the required Reactor Trip function is specified to be OPERABLE in the applicable MODE with consistent required actions. The Condition is consistent with appropriate Required Action to place the unit out of the MODE of applicability within Completion Times consistent with other measures that shutdown the unit. This change is designated as administrative because it does not result in technical changes to the CTS.

- A.28 CTS Table 4.3-1 lists the surveillance requirements for the Power Range Neutron Flux CHANNEL CALIBRATION as M (3)(6). Note (3) states, "Compare incore to excore axial offset above 15 % RATED THERMAL POWER (RTP). Adjust channel

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DOC A.26

NRC RAI: Comment: DOC A.26, referring to CTS requirements states "Action 14 additionally states 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." This requirement is deleted in the ITS. Provide an appropriate discussion of change justification.

Response: The Company agrees with the Comment. The discussion in DOC A.26 has been deleted and DOC M.12 added to document the proposed change. See RAI 3.3.1-02.

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requirement, but is provided for clarification. This change is designated as administrative because it does not result in technical changes to the CTS.

RAI
3.3.1-
17
RS

- A.26 CTS Table 3.3-1 Action 1 states with the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement the unit must be shutdown within a given time. Additionally, Action 1 states that one channel may be bypassed for up to 4 hours for concurrent surveillance testing of the RTB and automatic trip logic provided the other channel is OPERABLE. Action 1 applies to Function 21 Reactor Trip Breakers. ITS Table 3.3.1 -1 for function 19 requires Condition P to be entered for an inoperable train. Condition P requires with one RTB train inoperable, it must be restored to OPERABLE status or the unit must be shutdown. Three Notes modify Condition P. Note 3 states that 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 channel is OPERABLE. This changes the CTS by placing the allowance of concurrent surveillance testing into a Note in the ITS format.

RAI
3.3.1-
02
3.3.1-
18
RS

This change is acceptable because the allowance of the CTS is maintained in the ITS format. Four hours of concurrent surveillance testing of the RTB and automatic trip logic are allowed in the CTS requirements. The CTS allowance is justified by WCAP-14333 P-A. This change is designated as administrative because it does not result in a technical change to the CTS.

- A.27 CTS Table 3.3-1 Function 20 RCP Breaker Position provides for a reactor trip. The total number of channels is one per (RCP) breaker and for an inoperable channel Action 8 must be entered and requires the inoperable channel to be placed into trip within 72 hours or the unit is required to be placed below P-7 interlock within 78 hours. ITS 3.3.1 for RCP Breaker Position specifies the required channels is one per RCP (breaker) and requires Condition M for an inoperable channel. The Condition provides for an inoperable channel that the channel must be placed in trip within 72 hours or power must be reduced below P-7 setpoint within 78 hours. This changes the CTS by stating the channel requirement for RCP breaker position as one per RCP.

RAI
3.3.1-
08
RS

The purpose of this change is to provide consistent requirements for the functions as assumed in the safety analyses assumptions. This change is acceptable because the required Reactor Trip function is specified to be OPERABLE in the applicable MODE with consistent required actions. The Condition is consistent with appropriate Required Action to place the unit out of the MODE of applicability within Completion Times consistent with other measures that shutdown the unit. This change is designated as administrative because it does not result in technical changes to the CTS.

- A.28 CTS Table 4.3-1 lists the surveillance requirements for the Power Range Neutron Flux CHANNEL CALIBRATION as M (3)(6). Note (3) states, "Compare incore to excore axial offset above 15 % RATED THERMAL POWER (RTP). Adjust channel

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3.3.1-
32
RS

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more rods not fully inserted." If either function becomes inoperable Conditions S (MODES 1 and 2) or Condition C (MODES 3(a), 4(a), and 5(a)) must be entered. Required Actions for Condition C direct that the inoperable trip mechanism be restored to OPERABLE status within 48 hours or insert all rods and place the Rod Control System in a condition where rods cannot be withdrawn. This is required within one hour. This changes the CTS by requiring the diverse trip functions to be OPERABLE in MODES 3(a), 4(a), and 5(a), and adding of ITS Condition C requirements.

RAI
3.3.1-
14
R5

The purpose of the additional ITS requirements in applicability and Condition C is to provide appropriate requirements for the RTB when the Rod Control System is capable of rod withdrawal. This change is acceptable because the RTB must be capable of tripping the rods any time the rods are withdrawn or capable of being withdrawn. This requirement ensures the Reactor Trip System can provide its safety function. This change is designated as more restrictive because additional requirements are provided in the ITS.

- M.12 CTS Table 3.3-1 Function 21A Reactor Trip Breakers lists Action 1 to be entered for an inoperable channel in MODES 1 and 2. CTS Action 14 is applicable for the RTBs for the diverse trip function and it states, "With one of the diverse trip features (undervoltage or shunt trip device) inoperable, restore it to OPERABLE status within 48 hours or declare the breaker inoperable and apply Action 1. 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 Table 3.3.1-1 Function 19 RTB requires 2 trains to be OPERABLE in MODES 1 and 2 and Condition P to be entered if one RTB train is inoperable. Condition P states that with one train inoperable, it must be restored to OPERABLE status in one hour or be in MODE 3 within 7 hours. Three Notes modify the Condition. 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." This changes the CTS requirements for the RTBs by limiting to 2 hours any maintenance on the undervoltage or shunt trip mechanism before declaring the RTB train inoperable.

RAI
3.3.1-
02
3.3.1-
18
R5

The purpose of the ITS Condition P Note is to allow a reasonable amount of time to conduct repairs on an inoperable undervoltage or shunt trip mechanism without declaring the RTB train inoperable. This change is acceptable because the RTB on the other train and the bypass RTB on this train both remain capable of tripping the reactor. Two hours is a reasonable period of time to allow the bypass RTB to substitute for the inoperable RTB. This change is more restrictive because the CTS does not limit the time for performing maintenance, whereas the ITS limits the time to 2 hours.

- M.13 CTS Table 4.3-1 Surveillance Requirements do not require a quarterly test on the OTAT Functions to ensure an accurate input for the $f(\Delta I)$ from the required Power Range channels. ITS Table 3.3.1-1 Function 6 states SR 3.3.1.6 must be performed.

RAI
3.3.1-
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R5

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3.3.1-19 ITS
STS
CTS
DOC M.1

NRC RAI:

Comment #1 - Provide an evaluation for adding the Note to SR 3.3.1.9.

Comment #2 - DOC M.1 states, "Testing of the Unit 2 undervoltage function is currently required every 92 days and will continue to be required in the ITS Surveillance Requirements." The basis for revising testing requirements for Unit 1 equipment requires more than a comparison to Unit 2 TS.

Response:

The Company agrees with the Comments. DOC M.1 has been modified to document the proposed changes.

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MORE RESTRICTIVE CHANGES

- M.1 Unit 1 CTS Table 4.3-1 Function 16 RCP Undervoltage does not contain a Surveillance Requirement for a CHANNEL FUNCTIONAL TEST to be performed. Unit 2 CTS Table 4.3-1 Function 16 requires a CHANNEL FUNCTIONAL TEST to be performed at a Q (Quarterly) Frequency. ITS Table 3.3.1-1 Function 12 RCP undervoltage requires ITS SR 3.3.1.9 to be performed for both units undervoltage functions. A Note that states, "Verification of setpoint is not required," modifies the SR. This changes the Unit 1 CTS Surveillance Requirements for RCP undervoltage by specifying a TADOT be performed every 92 days and adds a Note to the SR.

The purpose of the ITS SR 3.3.1.9 is to ensure that an undervoltage to the RCP bus will generate a reactor trip signal and the frequency is adequate to detect failures of the circuits. This change is acceptable because the RCP undervoltage provides a reactor trip function and has the capability of being tested with the unit in MODE 1 with a minimum of risk. Testing of the Unit 2 RCP Undervoltage function will continue to be tested every 92 days and will continue to be required in the ITS requirements. The inclusion of the Note is acceptable because the functions are tested to ensure they are capable of performing the intended function. The verification of setpoint would require testing that is only required when the function is not required to be OPERABLE. This is done in conjunction with the CHANNEL CALIBRATION performed every 18 months. This change is designated as more restrictive because the ITS requirements specify a SR to be performed that the CTS does not require for Unit one.

- M.2 CTS 3.3.1.1 Action 2 requires an inoperable Power Range channel to be placed in trip within 72 hours, for either the neutron flux levels or positive and negative rate trips functions being inoperable. If this cannot be accomplished, the unit is required to enter LCO 3.0.3 and one hour is allowed to initiate action and 6 additional hours for the unit to be placed in HOT STANDBY. CTS LCO 3.0.3 provides the requirements when a LCO is not met and within one hour Action shall be initiated to place the unit in a MODE in which the Specification does not apply. ITS LCO 3.0.3 is required to be entered if more than one Power Range channel becomes inoperable for either of the required functions of flux level or rate trips. ITS 3.3.1 Required Actions D for an inoperable Power Range Neutron Flux channel requires the inoperable channel to be placed into trip within 72 hours with additional compensatory measures, or place the unit in MODE 3 within the next 6 hours. ITS 3.3.1 Required Action E for an inoperable Power Range channel for positive or negative rate trips, requires the inoperable channel to be placed into trip within 72 hour or the unit is required to be in MODE 3 within the next 6 hours. This changes the CTS requirements by decreasing the time allowed to be in MODE 3 from 7 hours in the CTS to 6 hours for the ITS.

This change is acceptable because the CTS requirements are modified to provide the necessary Required Actions and appropriate Completion Times. The Completion Time of six hours to reach MODE 3 from 100% RTP, in a safe manner without

RAI
3.3.1-
19
RS

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3.3.1-20 ITS
STS
CTS
DOC M.3

NRC RAI: The requirement to allow only ~~two~~ 24 hours to restore the instrument to OPERABLE status or decrease below P-6 is reasonable because a protection function has been significantly degraded and 24 hours is a reasonable period of time to allow for a slow and controlled power adjustment. **Comment:** Typo in the paragraph above.

Response: The Company agrees with the Comment. The typo in DOC M.3 of "2 hours" has been corrected to "24 hours."

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challenging plant systems, is consistent with other CTS and ITS requirements. This change is designated as more restrictive because the Completion Time for the unit to be placed in MODE 3 has been decreased by one hour.

- M.3 CTS 3.3.1.1 Action 3.b requires for an inoperable Intermediate Range channel, when power is below P-10 and above the Intermediate Range interlock P-6, that the channel be restored to OPERABLE status prior to increasing power above the P-10 limit. ITS Required Actions F.1 and F.2 only allow operation between P-6 and P-10 power levels for a maximum time of 24 hours. After that, power level is required to either be increased above P-10 or decreased below P-6. The allowance for increasing power above P-10 is addressed by DOC L.4.. Limiting the time with an inoperable Intermediate Range channel to 24 hours changes the CTS requirements, which currently allows operation for an indefinite period of time.

RAI
3.3.1-
20
RS

This change is acceptable because a time limit is placed on the length of time the plant may operate with an inoperable Intermediate Range channel when at a power level at which the Intermediate Range channel is credited in the safety analysis. The requirement to allow twenty-four hours to restore the instrument to OPERABLE status or decrease below P-6 is reasonable because a protection function has been significantly degraded and 24 hours is a reasonable period of time to allow for a slow and controlled power adjustment. This change is more restrictive because it restricts the time the plant may operate with an inoperable Intermediate Range channel.

- M.4 CTS 3.3.1.1 Functional Unit 6 for the Source Range Neutron Flux requires Action 4 to be entered if the number of channels OPERABLE is one less than the minimum number when THERMAL POWER is below P-6 in MODE 2 operation. This Action limits the THERMAL POWER to the P-6 setpoint value until the inoperable channel is restored to OPERABLE status. ITS Function 5 Source Range Neutron Flux requires Condition H to be entered for an inoperable channel. Required Action H states with one inoperable channel all operation involving reactivity changes must be immediately suspended. The requirement is modified by a Note that states, "Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM." This changes the CTS requirements for an inoperable Source Range channel by limiting operation involving positive reactivity changes.

RAI
3.3.1-
21
RS

This change is acceptable because in this condition the number of Source Range channels, which are the only channels providing indication and protection, has been reduced by 50 % and additional restrictions are appropriate. Above the P-6 level, the Intermediate and Power Range channels provide indication and protection, but below P-6, only the Source Range channels are available. The Source Range channels provide the operator with capability to monitor power level and automatic operation of the protection system. The reactivity changes must be evaluated to ensure reactor reactivity is maintained in a known and controlled condition. Limited positive reactivity additions, temperature decreases or boron dilutions, are reasonable restraints to place on unit operations when only one Source Range channel is

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DOC M.4

NRC RAI: CTS 3.3.1.1 Functional Unit 6 for the Source Range Neutron Flux requires Action 2 4 to be entered if the number of channels OPERABLE is one less than the minimum number when THERMAL POWER is below P-6 in MODE 2 operation.

Comment #1- Typo in the paragraph above.

Comment #2 - DOC M.4 states, "ITS Function 5 Source Range Neutron Flux requires in Required Action H if one of the two required Source Range channels become inoperable a suspension of all operation involving reactivity changes. The requirement is modified by a Note that states, "Limited plant cool down or boron dilution is allowed provided the change is accounted for in the calculated SDM." Currently, the DOC M.4 discussion of the safety basis for the change gives little technical basis upon which to conclude addition of the requirement will not adversely impact safety.

Response: The Company agrees with the Comments. DOC M.4 has been modified to incorporate the proposed changes.

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challenging plant systems, is consistent with other CTS and ITS requirements. This change is designated as more restrictive because the Completion Time for the unit to be placed in MODE 3 has been decreased by one hour.

- M.3 CTS 3.3.1.1 Action 3.b requires for an inoperable Intermediate Range channel, when power is below P-10 and above the Intermediate Range interlock P-6, that the channel be restored to OPERABLE status prior to increasing power above the P-10 limit. ITS Required Actions F.1 and F.2 only allow operation between P-6 and P-10 power levels for a maximum time of 24 hours. After that, power level is required to either be increased above P-10 or decreased below P-6. The allowance for increasing power above P-10 is addressed by DOC L.4.. Limiting the time with an inoperable Intermediate Range channel to 24 hours changes the CTS requirements, which currently allows operation for an indefinite period of time.

RAI
3.3.1-
20
RS

This change is acceptable because a time limit is placed on the length of time the plant may operate with an inoperable Intermediate Range channel when at a power level at which the Intermediate Range channel is credited in the safety analysis. The requirement to allow twenty-four hours to restore the instrument to OPERABLE status or decrease below P-6 is reasonable because a protection function has been significantly degraded and 24 hours is a reasonable period of time to allow for a slow and controlled power adjustment. This change is more restrictive because it restricts the time the plant may operate with an inoperable Intermediate Range channel.

- M.4 CTS 3.3.1.1 Functional Unit 6 for the Source Range Neutron Flux requires Action 4 to be entered if the number of channels OPERABLE is one less than the minimum number when THERMAL POWER is below P-6 in MODE 2 operation. This Action limits the THERMAL POWER to the P-6 setpoint value until the inoperable channel is restored to OPERABLE status. ITS Function 5 Source Range Neutron Flux requires Condition H to be entered for an inoperable channel. Required Action H states with one inoperable channel all operation involving reactivity changes must be immediately suspended. The requirement is modified by a Note that states, "Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM." This changes the CTS requirements for an inoperable Source Range channel by limiting operation involving positive reactivity changes.

RAI
3.3.1-
21
RS

This change is acceptable because in this condition the number of Source Range channels, which are the only channels providing indication and protection, has been reduced by 50 % and additional restrictions are appropriate. Above the P-6 level, the Intermediate and Power Range channels provide indication and protection, but below P-6, only the Source Range channels are available. The Source Range channels provide the operator with capability to monitor power level and automatic operation of the protection system. The reactivity changes must be evaluated to ensure reactor reactivity is maintained in a known and controlled condition. Limited positive reactivity additions, temperature decreases or boron dilutions, are reasonable restraints to place on unit operations when only one Source Range channel is

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OPERABLE. This change is more restrictive because plant operations are more limited by the ITS requirements than the CTS.

RAI
3.3.1-
21
RS

- M.5 CTS requirements for the Source Range instrumentation channels, Functional Unit 6, in Table 3.3-1 state for MODE 2## and MODES 3*, 4*, and 5* that Actions 15 and 4, respectively, are required to be entered for one channel inoperable. The CTS requirements do not address the possibility of two channels inoperable. If two Source Range channels did become inoperable in either applicable condition, LCO 3.0.3 must be entered. This would allow at least one hour before commencing a MODE change. ITS 3.3.1 Function 5, Source Range Neutron Flux, provides an additional Action I. This requires that if two Source Range channels become inoperable, the RTBs will be opened immediately. This changes the CTS by requiring the RTBs to be opened immediately if both Source Range channels become inoperable during start up or with the Rod Control System capable of withdrawing the shutdown and control rod banks.

RAI
3.3.1-
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RS

This change is acceptable because with the reactor in a condition of being capable of going critical or in a start up condition with no Source Range channels OPERABLE. In this condition, the operator has no indication of power level and no automatic safety function is capable of shutting down the plant. Therefore, the plant must be placed into a safer condition. This is accomplished by opening the RTBs and inserting all rods. This change is designated as more restrictive because the actions added are not required by the CTS.

- M.6 CTS Table 3.3-1 Function 6 Source Range Neutron Flux requires two channels to be OPERABLE in MODES 3, 4, and 5 and, with the RTBs closed and the Rod Control System capable of rod withdrawal. If the required Source Range channel is inoperable, CTS Action 5 must be entered. Action 5 states, with the number of channels OPERABLE one less than the number required, SDM shall be verified within 1 hour and at least once per 12 hours thereafter. ITS 3.3.1 Function 5 Source Range states that 1 channel is required for MODES 3^(e), 4^(e), and 5^(e) and Condition K applies when the channel is inoperable. The notation ^(e) states, "With the Rod Control System incapable of rod withdrawal. In this condition, source range Function does not provide reactor trip but does provide indication." Condition K requires that, with the required Source Range Neutron Flux channel inoperable, all operations involving positive reactivity must be immediately suspended and SR 3.1.1.1 (SDM calculation) must be performed within an hour and every 12 hours thereafter. A Note modifies Condition K and it states, "Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM." This changes the CTS by placing an additional restriction on operations when the Source Range channel is inoperable.

RAI
3.3.1-
23
RS

The purpose of ITS Condition K Note is to restrict plant cooldown or boron dilution unless the reactivity changes have been accounted for in the calculation of SDM. This change is acceptable because the associated reactivity changes must be determined to ensure reactor reactivity is maintained in a known and controlled condition. The

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NRC RAI: CTS requirements for the Source Range instrumentation channels, Functional Unit 6, in Table 3.3-1 state for MODE 2## and MODES 3*, 4*, and 5* that Actions 15 and 5 4, respectively, are required to be entered for one channel inoperable.

Comment: Typo in the paragraph above.

Response: The Company agrees with the Comment. The typo in the stated "Action 5" has been corrected to "Action 4."

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OPERABLE. This change is more restrictive because plant operations are more limited by the ITS requirements than the CTS.

RAI
3.3.1-
21
RS

- M.5 CTS requirements for the Source Range instrumentation channels, Functional Unit 6, in Table 3.3-1 state for MODE 2## and MODES 3*, 4*, and 5* that Actions 15 and 4, respectively, are required to be entered for one channel inoperable. The CTS requirements do not address the possibility of two channels inoperable. If two Source Range channels did become inoperable in either applicable condition, LCO 3.0.3 must be entered. This would allow at least one hour before commencing a MODE change. ITS 3.3.1 Function 5, Source Range Neutron Flux, provides an additional Action I. This requires that if two Source Range channels become inoperable, the RTBs will be opened immediately. This changes the CTS by requiring the RTBs to be opened immediately if both Source Range channels become inoperable during start up or with the Rod Control System capable of withdrawing the shutdown and control rod banks.

RAI
3.3.1-
22
RS

This change is acceptable because with the reactor in a condition of being capable of going critical or in a start up condition with no Source Range channels OPERABLE. In this condition, the operator has no indication of power level and no automatic safety function is capable of shutting down the plant. Therefore, the plant must be placed into a safer condition. This is accomplished by opening the RTBs and inserting all rods. This change is designated as more restrictive because the actions added are not required by the CTS.

- M.6 CTS Table 3.3-1 Function 6 Source Range Neutron Flux requires two channels to be OPERABLE in MODES 3, 4, and 5 and, with the RTBs closed and the Rod Control System capable of rod withdrawal. If the required Source Range channel is inoperable, CTS Action 5 must be entered. Action 5 states, with the number of channels OPERABLE one less than the number required, SDM shall be verified within 1 hour and at least once per 12 hours thereafter. ITS 3.3.1 Function 5 Source Range states that 1 channel is required for MODES 3^(e), 4^(e), and 5^(e) and Condition K applies when the channel is inoperable. The notation ^(e) states, "With the Rod Control System incapable of rod withdrawal. In this condition, source range Function does not provide reactor trip but does provide indication." Condition K requires that, with the required Source Range Neutron Flux channel inoperable, all operations involving positive reactivity must be immediately suspended and SR 3.1.1.1 (SDM calculation) must be performed within an hour and every 12 hours thereafter. A Note modifies Condition K and it states, "Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM." This changes the CTS by placing an additional restriction on operations when the Source Range channel is inoperable.

RAI
3.3.1-
23
RS

The purpose of ITS Condition K Note is to restrict plant cooldown or boron dilution unless the reactivity changes have been accounted for in the calculation of SDM. This change is acceptable because the associated reactivity changes must be determined to ensure reactor reactivity is maintained in a known and controlled condition. The

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DOC M.6

NRC RAI: Comment: DOC M.6 requires additional safety basis discussion to establish a technical basis upon which to conclude addition of the requirement will not adversely impact safety.

Response: The Company agrees with the Comment. DOC M.6 has been modified to justify the proposed change.

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OPERABLE. This change is more restrictive because plant operations are more limited by the ITS requirements than the CTS.

RAI
3.3.1-
21
RS

- M.5 CTS requirements for the Source Range instrumentation channels, Functional Unit 6, in Table 3.3-1 state for MODE 2## and MODES 3*, 4*, and 5* that Actions 15 and 4, respectively, are required to be entered for one channel inoperable. The CTS requirements do not address the possibility of two channels inoperable. If two Source Range channels did become inoperable in either applicable condition, LCO 3.0.3 must be entered. This would allow at least one hour before commencing a MODE change. ITS 3.3.1 Function 5, Source Range Neutron Flux, provides an additional Action I. This requires that if two Source Range channels become inoperable, the RTBs will be opened immediately. This changes the CTS by requiring the RTBs to be opened immediately if both Source Range channels become inoperable during start up or with the Rod Control System capable of withdrawing the shutdown and control rod banks.

RAI
3.3.1-
22
RS

This change is acceptable because with the reactor in a condition of being capable of going critical or in a start up condition with no Source Range channels OPERABLE. In this condition, the operator has no indication of power level and no automatic safety function is capable of shutting down the plant. Therefore, the plant must be placed into a safer condition. This is accomplished by opening the RTBs and inserting all rods. This change is designated as more restrictive because the actions added are not required by the CTS.

- M.6 CTS Table 3.3-1 Function 6 Source Range Neutron Flux requires two channels to be OPERABLE in MODES 3, 4, and 5 and, with the RTBs closed and the Rod Control System capable of rod withdrawal. If the required Source Range channel is inoperable, CTS Action 5 must be entered. Action 5 states, with the number of channels OPERABLE one less than the number required, SDM shall be verified within 1 hour and at least once per 12 hours thereafter. ITS 3.3.1 Function 5 Source Range states that 1 channel is required for MODES 3^(e), 4^(e), and 5^(e) and Condition K applies when the channel is inoperable. The notation ^(e) states, "With the Rod Control System incapable of rod withdrawal. In this condition, source range Function does not provide reactor trip but does provide indication." Condition K requires that, with the required Source Range Neutron Flux channel inoperable, all operations involving positive reactivity must be immediately suspended and SR 3.1.1.1 (SDM calculation) must be performed within an hour and every 12 hours thereafter. A Note modifies Condition K and it states, "Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM." This changes the CTS by placing an additional restriction on operations when the Source Range channel is inoperable.

RAI
3.3.1-
23
RS

The purpose of ITS Condition K Note is to restrict plant cooldown or boron dilution unless the reactivity changes have been accounted for in the calculation of SDM. This change is acceptable because the associated reactivity changes must be determined to ensure reactor reactivity is maintained in a known and controlled condition. The

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ability of the operator to monitor reactor power level is significantly degraded with the required Source Range channel inoperable, therefore the additional limitation is acceptable to ensure that safety has not been adversely affected. This change is designated as more restrictive because the additional restrictions have been placed on the CTS requirements.

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3.3.1-
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RS

- M.7 CTS Table 4.3-1 lists the surveillance requirements of CHANNEL CALIBRATION for the Turbine Trip Function 18.A Auto Stop Oil Pressure and Function 18.B Turbine Stop Valves Closure as Not Applicable (N/A). ITS Table 3.3.1-1 Function 16 Turbine lists the CHANNEL CALIBRATION surveillance requirement for the Auto Stop Oil Pressure and Turbine Stop Valve Closure as SR 3.3.1.10. This must be performed at a Frequency of 18 months. This SR is modified by a Note that requires the verification that time constants are adjusted to prescribed values. This changes the CTS by adding a CHANNEL CALIBRATION requirement for the Turbine Trip functions.

RAI
3.3.1-
24
RS

The purpose of ITS SR 3.3.1.10 is to ensure the channels are aligned to provide an accurate representation of the monitored function including any required time constants. This change is acceptable because the periodic verification of the Allowable Values is necessary to ensure the turbine will trip at the specified values. This change is designated as more restrictive because the current requirement for the Turbine Trip does not require periodic CHANNEL CALIBRATION verification.

- M.8 CTS Table 4.3-1 contains a Surveillance Requirement for the Intermediate Range channels. A CHANNEL CALIBRATION is required and modified by a footnote. Note 13 states, "The provisions of Specification 4.0.4 are not applicable for entry in MODE 2 or 1." ITS SR 3.3.1.11 for the Intermediate Ranges requires a CHANNEL CALIBRATION every 18 months. This changes the CTS by deleting a portion of the Note allowing the Specification 4.0.4 allowance.

RS

This change is acceptable because the Specification 4.0.4 exception is not necessary because the Surveillance Requirement may be performed and evaluated without affecting the OPERABILITY of the instruments. This change is designated as more restrictive because an allowance of the CTS has been deleted in the ITS requirements.

- M.9 Unit 1 CTS Table 4.3-1 Function 20, RCP Breaker Position Trip, lists N/A under the column labeled "MODES IN WHICH SURVEILLANCE REQUIRED." Function 20 requires a CHANNEL FUNCTIONAL TEST to be performed on an R (Refueling) frequency. Unit 2 CTS Table 4.3-1 Function 18, Turbine Trip on Low Auto Stop Oil Pressure and Turbine Stop Valve Closure, lists N/A under the "MODES IN WHICH SURVEILLANCE REQUIRED," column. Function 18 requires a CHANNEL FUNCTIONAL TEST to be performed for each portion of the function at a frequency of S/U ⁽¹⁾. S/U requires the surveillance to be performed prior to each reactor start up. Note ⁽¹⁾ states, "If not performed within the previous 31 days." The applicable MODES or other specified conditions for ITS Table 3.3.1-1 Function 11, RCP

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DOC M.7

NRC RAI: Comment: The NOTE to SR 3.3.1.10 includes a requirement to verify time constants are adjusted as part of the CHANNEL CALIBRATION requirement. This addition to CTS is not evaluated in the DOCs.

Response: The Company agrees with the Comment. DOC M.7 has been modified to justify the proposed change.

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ability of the operator to monitor reactor power level is significantly degraded with the required Source Range channel inoperable, therefore the additional limitation is acceptable to ensure that safety has not been adversely affected. This change is designated as more restrictive because the additional restrictions have been placed on the CTS requirements.

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- M.7 CTS Table 4.3-1 lists the surveillance requirements of CHANNEL CALIBRATION for the Turbine Trip Function 18.A Auto Stop Oil Pressure and Function 18.B Turbine Stop Valves Closure as Not Applicable (N/A). ITS Table 3.3.1-1 Function 16 Turbine lists the CHANNEL CALIBRATION surveillance requirement for the Auto Stop Oil Pressure and Turbine Stop Valve Closure as SR 3.3.1.10. This must be performed at a Frequency of 18 months. This SR is modified by a Note that requires the verification that time constants are adjusted to prescribed values. This changes the CTS by adding a CHANNEL CALIBRATION requirement for the Turbine Trip functions.

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The purpose of ITS SR 3.3.1.10 is to ensure the channels are aligned to provide an accurate representation of the monitored function including any required time constants. This change is acceptable because the periodic verification of the Allowable Values is necessary to ensure the turbine will trip at the specified values. This change is designated as more restrictive because the current requirement for the Turbine Trip does not require periodic CHANNEL CALIBRATION verification.

- M.8 CTS Table 4.3-1 contains a Surveillance Requirement for the Intermediate Range channels. A CHANNEL CALIBRATION is required and modified by a footnote. Note 13 states, "The provisions of Specification 4.0.4 are not applicable for entry in MODE 2 or 1." ITS SR 3.3.1.11 for the Intermediate Ranges requires a CHANNEL CALIBRATION every 18 months. This changes the CTS by deleting a portion of the Note allowing the Specification 4.0.4 allowance.

RS

This change is acceptable because the Specification 4.0.4 exception is not necessary because the Surveillance Requirement may be performed and evaluated without affecting the OPERABILITY of the instruments. This change is designated as more restrictive because an allowance of the CTS has been deleted in the ITS requirements.

- M.9 Unit 1 CTS Table 4.3-1 Function 20, RCP Breaker Position Trip, lists N/A under the column labeled "MODES IN WHICH SURVEILLANCE REQUIRED." Function 20 requires a CHANNEL FUNCTIONAL TEST to be performed on an R (Refueling) frequency. Unit 2 CTS Table 4.3-1 Function 18, Turbine Trip on Low Auto Stop Oil Pressure and Turbine Stop Valve Closure, lists N/A under the "MODES IN WHICH SURVEILLANCE REQUIRED," column. Function 18 requires a CHANNEL FUNCTIONAL TEST to be performed for each portion of the function at a frequency of S/U ⁽¹⁾. S/U requires the surveillance to be performed prior to each reactor start up. Note ⁽¹⁾ states, "If not performed within the previous 31 days." The applicable MODES or other specified conditions for ITS Table 3.3.1-1 Function 11, RCP

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DOC LA.1

NRC RAI:

Comment 1 - Discuss the CTS changes that result from adding the NOTE to SR 3.3.1.16 that excludes neutron detectors from RESPONSE TIME testing.

Comment 2 - The changes cited and discussed in the paragraph also include Type 3, LA changes (removal of details of system design and system description from CTS, including design limits) because procedural details for meeting TS are moved to the Bases. Provide discussion for Type 3 changes.

Response:

The Company disagrees with Comment 1. DOC A.1 adequately justifies the proposed change. CTS page 3/4 3-1 for both Unit 1 and Unit 2 in SR 4.3.1.1.2 state, "Neutron detectors are exempt from response time testing."

The Company agrees with Comment 2. DOC LA.1 has been modified to justify the proposed change.

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ITS SR 3.3.1.6 states, "Compare results of the excore channels to the incore detector measurements." This SR must be performed every 92 effective full power days (EFPD). Two Notes modify the requirement. Note 1 states, "Adjust NIS channel if absolute difference is $\geq 3\%$." Note 2 states, "Not required to be performed until 24 hours after THERMAL POWER is $\geq 50\%$." This changes the CTS by requiring an additional Surveillance Requirement for the OTAT Function.

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The purpose of ITS SR 3.3.1.6 is to ensure accurate inputs of $f(\Delta I)$ from NIS channels for the OTAT Function. This change is acceptable because the OTAT Functions receive inputs for the $f(\Delta I)$ portion of the equation from the Power Range channels. This SR requires an accurate comparison and possible adjustment of the Power Range channels to the incore measurements so that the $f(\Delta I)$ can be determined for the OTAT Function. The change is classified as more restrictive because an additional Surveillance Requirement is added to the current requirements.

REMOVED DETAIL CHANGES

LA.1 (*Type 3 – Removing Procedural Details for Meeting TS Requirements and Related Reporting Problems*) CTS Surveillance Requirement 4.3.1.1.2 requires the RTS trip functions to be response time tested. This requirement includes the following, "Response of the neutron flux signal portion of the channel time shall be measured from the detector output or input of the first electronic component in the channel." ITS SR 3.3.1.16 requires RESPONSE TIME testing of the RTS functions. This changes the CTS by moving the descriptive wording from the Specifications to the ITS Bases.

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The removal of these details for performing surveillance 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 requirement to perform RESPONSE TIME TESTING. 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.

LA.2 (*Type 1 – Removing Details of System Design and System Description, Including Design Limits*) CTS 3.3.1.1 requires two Source Range channels be OPERABLE in MODE 2^{##}. The note^{##} states that the high voltage to detector may be de-energized above P-6. ITS requirement for the Source Range channel state that two channels must be OPERABLE in MODE 2^(d). Note^(d) specifies, "Below the P-6 (Intermediate Range Neutron Flux) interlock" and maintains the intent of the CTS requirement.

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DOC LA.4

NRC RAI: Comment: LA.4 applies to CTS Note (10). Note (10) is not moved to the Bases for SR 3.3.1.2 as stated. Provide a citation, giving the location for Note (10) in ITS Bases.

Response: The Company agrees with the Comment. DOC LA.4 has been modified to identify that ITS SR 3.3.1.14 Bases contain the relocated information.

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This changes the CTS by moving the allowance that the high voltage detector may be de-energized above P-6 from the Specifications 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 requirements for the Source Range channels to be OPERABLE as assumed by the safety analyses. 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.

- LA.3 *(Type 2 – Removing Descriptions of System Operation)* Reactor Trip System Interlocks or “P” functions are required to be OPERABLE in CTS Table 3.3-1. These functions are designated as P-6, P-7, P-8, P-10, and P-13. Descriptive information is contained in the Condition, Function, and Setpoint columns for the interlocks. ITS 3.3.1 does not include this information in the Specifications. This changes the CTS by moving the information from the Specifications to the ITS Bases.

The removal of these details, which are related to system operation, 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 to maintain the P functions OPERABLE as assumed in the safety analyses. 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 operation is being removed from the Technical Specifications.

- LA.4 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 4.3-1 contains surveillance requirements with Notes which provide information on the undervoltage and shunt trip circuits testing of the Reactor Trip Breakers (RTBs) and for the RTB bypass breakers in testing the automatic undervoltage trip during CHANNEL FUNCTIONAL TEST. ITS SR 3.3.1.4 for the RTBs and bypass RTBs does not contain this information. ITS retains the necessary SRs for the RTB and bypass RTB to be OPERABLE. The information is contained in the Bases for SR 3.3.1.14. This changes the CTS by moving the descriptive information from the Specifications to the ITS Bases.

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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 necessary SR to maintain the RTB and bypass RTBs OPERABLE. 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.

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- LA.5 *(Type 5 – Removal of Cycle-Specific Parameter Limits from the Technical Specifications to the Core Operating Limits Report)* CTS Table 2.2-1 for the Limiting Safety System Settings states the formulas for Overtemperature and Overpower ΔT functions. ITS 3.3.1 in Table 3.3.1 – 1 lists the formulas for the Overtemperature and Overpower ΔT functions with a reference in each that the specific variables are contained in the Core Operating Limits Report (COLR). This changes the CTS by relocating specific parameters for the Overtemperature and Overpower ΔT functions from the Technical Specifications to the COLR.

The removal of these cycle-specific parameter limits from the Technical Specifications and their relocation into the COLR is acceptable because these limits are developed or utilized under NRC-approved methodologies. The NRC documented in Generic Letter 88-16, Removal of Cycle-Specific Parameter Limits From the Technical Specifications, that 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 requirements and Surveillances that verify that the cycle-specific parameter limits are being met. The functional requirements of the Overtemperature and Overpower are retained in the Technical Specifications to ensure core protection. Also, this change is acceptable because the removed information will be adequately controlled in the COLR under the requirements provided in ITS 5.6.5, Core Operating Limits Report. ITS 5.6.5 ensures that the applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems limits, and nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met. This change is designated as a less restrictive removal of detail change because information relating to cycle-specific parameter limits is being removed from the Technical Specifications.

- LA.6 *(Type 3 – Removing Procedural Details for Meeting TS Requirements and Related Reporting Problems)* CTS 3.3.1.1 Surveillance Requirement in Table 4.3-1 for the Intermediate Range channels requires a CHANNEL CHECK on a refueling basis, and shown by the designation of R⁽¹²⁾. Note 12 states, in part, “verification that the Permissives P-6 and P-10 are in their required state for existing plant conditions by

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DOC LA.13

NRC RAI: Comment #1- There is an apparent mismatch with CTS markup pages. A.13 is not applicable to Quarterly SR for Intermediate Range Neutron Flux Monitors, whereas R(13) CTS CHANNEL CALIBRATION testing requirements are applicable and these changes are not evaluated in LA.13.

Response: The Company agrees with Comment 1. DOC LA.13 has been modified to address the Source and Intermediate range testing requirements associated with the refueling tests.

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LA.12 (*Type 3 – Removing Procedural Details for Meeting TS Requirements and Related Reporting Problems*) CTS surveillance requirement listed in Table 4.3-1 for the reactor bypass breaker states a Frequency of "M (9)." This requires the monthly testing of the bypass breaker in conjunction the RTS testing. Note 9 states, "Local manual shunt trip the reactor trip bypass breaker immediately after placing the bypass breaker into service, but prior to commencing reactor trip system testing or reactor trip breaker maintenance." ITS 3.3.1.4 is required to be performed on the RTB bypass breaker every 31 days on a STAGGERED TEST BASIS. This test would be required when the associated train of RTS is tested or that train RTB requires maintenance. This changes the CTS by moving the note from the Specifications to the ITS Bases.

The removal of these details for performing actions 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 to test the RTB bypass whenever the breaker is required to be OPERABLE. 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.

LA.13 (*Type 3 – Removing Procedural Details for Meeting TS Requirements and Related Reporting Problems*) CTS Table 4.3-1 states in Note 13 to the Intermediate Range Surveillance Requirements that the detector plateau curves shall be obtained and evaluated on an R (refueling) Frequency. ITS Table 3.3.1-1 states Function 4 Intermediate Range that SR 3.3.1.11 is required. The SR required Frequency is 18 months. This changes the CTS by moving the requirement for performing detector plateau curves from the Specification to the ITS Bases.

The removal of these details for performing actions 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 surveillance requirement to maintain the Intermediate Range channels OPERABLE. 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.

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DOC L.1

NRC RAI: Comment: Provide discussion of change justification for Applicability changes to CTS Note *, "one or more rods not inserted".

Response: The Company agrees with the Comment. DOC L.1 has been modified to address the "one or more rods not fully inserted."

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Channel is inoperable. In this condition, the normalized symmetric power distribution is determined by either utilizing 2 sets of 4 symmetric thimble locations or a full core flux map. Every 12 hours, the results of the flux map must be compared with the indicated QPTR for consistency. The indicated QPTR is provided by the three Power Range Channels that remain OPERABLE. ITS 3.3.1 Action D.2.2 requires the performance of ITS SR 3.2.4.2, which verifies the QPTR is within its limit. This changes the CTS by moving the details of determining QPTR from the specification to the ITS Bases for SR 3.2.4.2.

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The removal of these details for performing surveillance 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 requirement to perform the QPTR verification by requiring ITS SR 3.2.4.2. 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

- L.1 *(Category 4 – Relaxation of Required Action)* CTS Table 3.3-1 requires for various functions that Action 15 be entered for an inoperable channel in MODES 3*, 4*, and 5*. Note * states, "With the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal." Action 15 states that an inoperable channel shall be returned to OPERABLE status within 48 hours or open the Reactor Trip Breakers (RTBs) within the next hour. ITS Table 3.3.1-1 for these functions requires ITS Action C to be entered. Action C states with one channel or train inoperable, restore the function to OPERABLE status in 48 hours or initiate action to fully insert all rods. The Rod Control System must be placed in a condition incapable of rod withdrawal within the next hour. The applicable MODES or other specified conditions for MODES 3, 4, and 5 are modified by Note ^(a). Note ^(a) states, "With Rod Control System capable of rod withdrawal or one or more rods not fully inserted." This changes the CTS by not requiring the RTBs to be opened but allowing an alternative action to disable the Rod Control System.

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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

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DBA occurring during the repair period. The actuation of the remaining OPERABLE channel will be able to generate the safety function. This change alters the Applicability by the change in Required Actions. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

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- L.2 *(Category 4 – Relaxation of Required Action)* CTS 3.3.1.1 requires for an inoperable Power Range channel that Action 2 be entered. This Action requires the inoperable channel to be placed in trip within 72 hours, and both the THERMAL POWER $\leq 75\%$ and the Power Range Neutron Flux trip setpoint $\leq 85\%$ within the next 4 hours. The Action also provides an alternate option to reducing power and decreasing the trip setpoints. The option requires the channel to be placed in trip within 72 hours and the performance of a QPTR measurement every 12 hours. ITS 3.3.1 Condition D.1 requires for one Power Range Neutron Flux - High channel inoperable, the channel will be placed in trip within 72 hours and the THERMAL POWER will be reduced to $\leq 75\%$ within the next 6 hours. An alternative to this requirement is to place the channel in trip and perform a QPTR every 12 hours. This changes the CTS requirements by eliminating the requirement to reduce the Power Range Neutron Flux trip setpoint to $\leq 85\%$ within 78 hours.

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. The resetting of the power range high flux trip setpoints to $< 85\%$ RTP would increase the potential for an inadvertent reactor trip and does not provide significant additional assurance of safety. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

- L.3 *(Category 4 – Relaxation of Required Action)* CTS 3.3.1.1 Action 2 provides an option to reduce power and decrease the trip setpoints when a Power Range channel is inoperable. The option requires the channel to be placed in trip within 72 hours or a QPTR measurement is performed every twelve hours. ITS 3.3.1 Required Action D.2 maintains the requirement for placing the channel in trip and performing the QPTR measurement. A Note is added to Required Action D.2.2 that allows the Power Range channel to be considered OPERABLE, for the purpose of calculating the QPTR, if the portion of the channel continues to provide the necessary input for the QPTR calculation. This modifies the CTS by allowing the Power Range to be considered OPERABLE, for the purposes of QPTR calculation, if the channel

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DOC L.3

NRC RAI: Comment: DOC L.3 states, "If the portion of the Power Range channel input to QPTR is not OPERABLE, a flux map using the incore system must be performed." Add discussion about changes that result from addition of the D.2.2 allowance "Only required to be performed...." to ITS.

Response: The Company agrees with the Comment. DOC L.3 has been modified to address the added discussion.

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DBA occurring during the repair period. The actuation of the remaining OPERABLE channel will be able to generate the safety function. This change alters the Applicability by the change in Required Actions. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

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- L.2 *(Category 4 – Relaxation of Required Action)* CTS 3.3.1.1 requires for an inoperable Power Range channel that Action 2 be entered. This Action requires the inoperable channel to be placed in trip within 72 hours, and both the THERMAL POWER $\leq 75\%$ and the Power Range Neutron Flux trip setpoint $\leq 85\%$ within the next 4 hours. The Action also provides an alternate option to reducing power and decreasing the trip setpoints. The option requires the channel to be placed in trip within 72 hours and the performance of a QPTR measurement every 12 hours. ITS 3.3.1 Condition D.1 requires for one Power Range Neutron Flux - High channel inoperable, the channel will be placed in trip within 72 hours and the THERMAL POWER will be reduced to $\leq 75\%$ within the next 6 hours. An alternative to this requirement is to place the channel in trip and perform a QPTR every 12 hours. This changes the CTS requirements by eliminating the requirement to reduce the Power Range Neutron Flux trip setpoint to $\leq 85\%$ within 78 hours.

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. The resetting of the power range high flux trip setpoints to $< 85\%$ RTP would increase the potential for an inadvertent reactor trip and does not provide significant additional assurance of safety. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

- L.3 *(Category 4 – Relaxation of Required Action)* CTS 3.3.1.1 Action 2 provides an option to reduce power and decrease the trip setpoints when a Power Range channel is inoperable. The option requires the channel to be placed in trip within 72 hours or a QPTR measurement is performed every twelve hours. ITS 3.3.1 Required Action D.2 maintains the requirement for placing the channel in trip and performing the QPTR measurement. A Note is added to Required Action D.2.2 that allows the Power Range channel to be considered OPERABLE, for the purpose of calculating the QPTR, if the portion of the channel continues to provide the necessary input for the QPTR calculation. This modifies the CTS by allowing the Power Range to be considered OPERABLE, for the purposes of QPTR calculation, if the channel

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