

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

February 18, 2002

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

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

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)
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 recent telephone conversation with members of our staff. 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

A001

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Attachment

**Proposed Improved Technical Specifications
Responses to Requests for Additional Information
ITS 3.3.1, "RTS Instrumentation"**

**Virginia Electric and Power Company
(Dominion)**

North Anna Power Station Units 1 and 2

**NAPS Responses to NRC Requests for Additional Information
ITS Section 3.3, 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.

Additional response: TSTF-347 was revised to Revision 1 and has been incorporated. In addition to affecting ITS 3.3.1, the revised TSTF also resulted in changes to ITS 3.4.19, RCS Loops – Test Exceptions. SR 3.4.19.2 was revised and SR 3.4.19.3 was added. Additionally, a typographical error was corrected for the Bases of SR 3.4.19.2.

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 (≥ 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.

Additional Response: DOC L.28 first sentence of the second paragraph is modified to state "This change is acceptable because the Reactor Trip functions are required to be OPERABLE in the MODES assumed by the safety analysis for each function to provide its safety function. The UFSAR Section 7.2.1.3.2 states the following; "Interlock P-7 blocks a reactor trip at low power (below approximately 10% of full power) on a low reactor coolant flow or reactor coolant pump open breaker signal in more than one loop, reactor coolant pump undervoltage, reactor coolant pump underfrequency, pressurizer low pressure, or pressurizer high water level . . . The P-8 interlock blocks a reactor trip when the plant is below approximately 30% of full power, on a low reactor coolant flow in any one loop, a reactor coolant pump breaker open signal in any one loop, or turbine trip signal. Below the P-8 setpoint, the reactor will not trip with a turbine trip, or with one inactive loop.

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.

Additional Response: DOC LA.16 is modified to state "The wording of Action 2 part d describes the method of how the QPTR is performed and this type of information is not required. The requirement and the limits of QPTR are required by 10 CFR 50.36 and these are maintained in ITS SR 3.2.4.2."

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.

Additional Response: The NOTE in Condition N, Bases, and DOC L.26 are modified to change 4 hours to 12 hours (in the NOTE for Condition N) to allow bypassing an inoperable channel for surveillance testing of other channels.

DOC L.26 is also modified to state "The Note to ITS Condition N has been evaluated under the guidance of WCAPs 10271 and 14333 and was found to be an acceptable time for bypassing an inoperable channel for the required testing of additional channels. The NRC evaluated the incorporation of all other changes evaluated against WCAPs 10271 and 14333 to the North Anna Technical Specification via Amendments 221 (Unit 1) and 202 (Unit 2) and found them acceptable."

3.3.1-17 ITS
STS
CTS
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 an 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.

Additional Response: DOC A.25 is modified to state "The CTS requirement for a CFT is satisfied by a turbine trip below the setpoint of P – 8: This test produces lit annunciators in the main control room that signifies that the turbine trip occurs. This test corresponds to the ITS requirement of a Trip Actuation Device Operational Test (TADOT) without a setpoint verification which verifies that a turbine trip would occur. The ITS TADOT satisfies the technical requirements of the CTS CFT."

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.

Additional Response: The DOC justifies the addition of the TADOT for Unit 1 RCP undervoltage every 92 days. The CTS requirement for RCP undervoltage is N/A. DOC M.1 is modified by adding the following: "This same test is currently required by CTS and performed on Unit 2."

3.3.1-21 ITS
STS
CTS
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.

Additional Response: DOC M.4 is revised by adding two additional statements. The first sentence states that one Source Range continues to be OPERABLE and provides indications of reactor power level. The second sentence states that SDM calculation is required to be performed to ensure reactor reactivity is being properly controlled.

3.3.1-24 ITS
STS
CTS
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.

Additional Response: DOC M.7 is revised to state "The CHANNEL CALIBRATION is added to provide appropriate Technical Specification OPERABILITY requirements to ensure the function can perform its safety function." The DOC is also amended to state "The ITS Note ensures the time constants requirement is explicitly stated. The time constants for various functions are currently verified under CTS requirements. The addition of the ITS Note to the surveillance requirement is considered an administrative change."

3.3.1-25 ITS
STS
CTS
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.

Additional Response: DOC LA.1 is change to include the following discussion: "The descriptive information does not provide a limit that must be controlled by the requirements of 10 CFR 50.36."

3.3.1-26 ITS
STS
CTS
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.

Additional Response: DOC LA.4 is modified by stating: "The descriptive information to be moved is: CTS Note 8 ' . . 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).' CTS Note 10 'Automatic undervoltage trip.' CTS Note 11 ' . . shall independently verify the OPERABILITY of the undervoltage and shunt trip attachment of the Reactor Trip Breaker.' This information is contained in the Bases sections for SR 3.3.1.4 and SR 3.3.1.14." The justification of DOC LA.4 is also changed to include the following: "The descriptive information does not contain any required limits. The ITS retains the necessary surveillance requirements to ensure the safety functions' OPERABILITY that is required by 10 CFR 50.36." The descriptive information of CTS Notes 8 and 10 were incorporated in the Bases for ITS SR 3.3.1.14. The descriptive information of CTS Note 11 was incorporated in ITS SR 3.3.1.4 Bases.

3.3.1-27 ITS
STS
CTS
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.

Additional response: DOC LA.13 is modified with the following insert into the second paragraph: "The requirement of obtaining and evaluating the detector plateau curves does not provide any limit that requires control under 10 CFR 50.36 requirements. Therefore, the Bases of SR 3.3.1.11 provides an appropriate location for this requirement."

3.3.1-28 ITS
STS
CTS
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."

Additional Response: Adding the following modifies DOC L.1 second paragraph: "By fully inserting all control and shutdown rods and de-energizing the electrical power to the Control Rod Drive Mechanisms, the reactor is placed in a condition that achieves the same effect as opening the reactor trip breakers. Either action ensures the reactor is shutdown with adequate controls to maintain the reactor in a subcritical condition." This change will allow maintenance and testing of system components, when required.

3.3.1-29 ITS
STS
CTS
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.

Additional Response: DOC L.3 is modified in the second paragraph by adding the following: "The CTS requires the performance of a flux map anytime a Power Range channel become inoperable without exception. The ITS requires the performance of a flux map only when a Power Range channel has lost the capability to correctly input into the QPTR calculation. The ITS requirements continue to require all safety functions to be OPERABLE or be appropriately tested. The ITS allows the reliance on a Power Range channel that is fully OPERABLE for QPTR, where the CTS does not provide this allowance and always requires a flux map to be performed for a Power Range channel that could be OPERABLE for determining an accurate QPTR."

3.3.1-30 ITS
STS
CTS
DOC L.5

NRC RAI: Comment: Add discussion to DOC L.5 providing a comparison of actions required by CTS to the actions proposed in ITS Condition G.

Response: The Company agrees with the Comment. DOC L.5 has been modified to justify the proposed change.

Additional Response: DOC L.5 is modified by the addition of the following: "The reactivity of the reactor is determined by the performance of a Shutdown Margin calculation to ensure it is maintained in a subcritical condition. The ITS requires the actions of precluding positive reactivity additions and reducing power. These remedial actions are for safe operation." DOC L.5 is modified by the deletion of the following: "The Intermediate Range channels provide the necessary redundant protection feature to transition from the Source Range channels to the Power Range channels for a reactor start up."

3.3.1-31 ITS
STS
CTS
DOC L.6

NRC RAI:

Comment #1 - PRNF channels (low setpoint) do not require a quarterly CFT as discussed above.

Comment #2 - DOC L.6 states "This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability." Provide documentation to show the specific results from the evaluation for the surveillance test extensions, the 4-hour completion time allowance to perform Source Range Neutron Monitor COT, and the 12-hour completion time allowance to perform the Intermediate Range Neutron Monitor COT.

Comment #3 - Provide DOC discussion to justify the Intermediate Range Q (12) CTS test deletions.

Comment #4 - Provide DOC discussions to justify the SR 3.3.1.8 requirement to include verification that interlocks P-6 and P-10 are in their required states.

Response:

The Company agrees with Comment 1. DOC L.6 has been modified to delete the reference Low setpoint quarterly CFT testing.

In response to Comment 2, the following is provided. NUREG-1431 allows 4 hours for the source range and in the Bases for SR 3.3.1.8 states the following, ". . . allows a normal shutdown to be completed and the unit removed from the MODE of Applicability for this surveillance without a delay to perform the testing required by this surveillance." The change to the NUREG -1431 as documented in approved TSTF - 242 provides the justification for the change from 4 to 12 hours for the power and intermediate range channels as, "A review of plant work history (including performance and verification) revealed that COTs on the power range and intermediate range instrumentation require 1 to 2 hours per channel. This is consistent with the source range COT time allowance in SR 3.3.1.8, as 4 hours is given for a 2 channel system. However, the power range and intermediate range COTs consists of 6 channels and 4 hours isn't sufficient time to

perform these COTs in a quality manner. Therefore, the time to perform these COTs is extended to 12 hours (2 hours per channel) to be consistent with the source range time allowance of 4 hours for 2 channels.”

The Company agrees with Comment 3. DOC L.6 has been modified to state that DOC L.10 address the justification to delete the IRNF required testing.

The Company agrees with Comment 4. DOC A.29 has been added to address the SR 3.3.1.8 requirement to verify that interlocks P-6 and P-10 are in their required states.

In addition to the Comments listed above, the Company has removed the allowance of performing the required testing within 92 days of a reactor startup and returned to the CTS requirement of performing the surveillance within 31 days of a reactor startup. This should remove this change from the beyond scope classification.

Additional Response: DOC L.6 is changed to add the following discussion to the second paragraph: “These tests cannot be performed prior to the MODE of applicability because the reactor must be reducing power below the P-10 interlock in order to achieve this condition. This is not a predictable occurrence. The results of performing the surveillance requirement are normally found to be satisfactory. The time required to perform these SRs is approximately 2 hours per channel. Therefore, the Power and Intermediate Range channels take approximately 12 hours.” The DOC L.6 second paragraph next to the last sentence is also changed to the following: “These instruments will continue to be tested at a frequency to ensure each channel’s OPERABILITY requirements. The required testing ensures the channels proper operation and its safety functions are OPERABLE as required by their design requirements.”

3.3.1-33 ITS
STS
CTS
DOC L.11

NRC RAI: Comment: Provide a safety basis discussion for changing the SR to 92 days from 31 days.

Response: The Company withdraws the proposed change and deletes L.11. This changes SR 3.3.1.8 Frequency Note to read “31 days.”

Additional Response: Re-instate and modify (shown in bold) DOC L.11 and modify L.6 to change Frequency Note “Only required when not performed within previous 92 days.”

L.11 (Category 7 – Relaxation of Surveillance Frequency) CTS testing requirements listed in Table 4.3-1 require the Source, Intermediate, and Power Range channels to perform a **CHANNEL FUNCTIONAL TEST at S/U (1)**. Note (1) states, “If not performed within the previous 31 days.” ITS SRs for these ranges of instrumentation channels are listed as SR 3.3.1.7 and 3.3.1.8. The frequency of these SRs is 92 days. A Note in the Frequency column of SR 3.3.1.8 states, “Only required when not performed within previous 92 days.” This changes the CTS requirement by increasing the time from 31 to 92 days for the required testing.

This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. This change is acceptable because the frequency of the routine testing is 92 days. If the test has been performed within that period of time, the instrumentation channels are assumed to be OPERABLE. **The CTS frequency for the performance of the testing changed from 31 days to 92 days with the issuance of Technical Specification amendments #221 (Unit 1) and #202 (Unit 2). These TS amendments evaluated a change in the testing frequencies for the Source, Intermediate, and Power Range channels for the CHANNEL FUNCTIONAL TEST requirements and found that 92 days is an acceptable frequency to perform the required testing per WCAP - 10271.** This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

L.6 second paragraph is modified to read, "These instruments will continue to be tested at a frequency to ensure each channel's OPERABILITY requirements. The required testing ensures the channels proper operation and its safety functions are OPERABLE as required by their design requirements."

3.3.1-34 ITS
STS
CTS
DOC L.16

NRC RAI:

Comment #1 - DOC L.16 discusses changes to PRNF and OTΔT trip functions. The statements in the first paragraph are not organized such that it is well understood which CTS change is being evaluated. ITS SRs 3.3.1.3 and 3.3.1.6 are referenced. These surveillances include NOTES which are not discussed. Provide evaluation for CTS changes that result from adopting the SR NOTES.

Comment #2 - Show that no CTS changes result from adopting EFPD units.

Comment #3 - The second sentence in the second paragraph is unclear.

Comment #4 - Q⁽⁶⁾ CTS Channel Calibrations are changed in the ITS and these changes are not evaluated in DOC L.16.

Response:

The Company agrees with the Comments and DOC L.16 has been modified to address the changes.

Additional Response: DOC L.16 is modified to read: "This change is acceptable because the new Surveillance Frequency has been evaluated and has been shown to provide an acceptable level of equipment reliability." The following is added to the second paragraph, "The relationship of incore to excore measurement changes with the burnup in the reactor and depends upon what portion of the reactor produces the energy. The burnup of the fuel is not a function of calendar days but of total power produced by the reactor. A Frequency stated in EFPD is the appropriate unit for the

surveillance frequency." Engineering judgement has determined that EFPD, not days, is the appropriate unit of measurement."

**NAPS Responses to NRC Requests for Additional Information
ITS Section 3.3, 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.

Additional response: TSTF-347 was revised to Revision 1 and has been incorporated. In addition to affecting ITS 3.3.1, the revised TSTF also resulted in changes to ITS 3.4.19, RCS Loops – Test Exceptions. SR 3.4.19.2 was revised and SR 3.4.19.3 was added. Additionally, a typographical error was corrected for the Bases of SR 3.4.19.2.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.4 (continued)

This test must be conducted prior to the start of testing on the RTS or maintenance on a RTB. This checks the mechanical operation of the bypass breaker.

R5
R12

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

SR 3.3.1.5

SR 3.3.1.5 is the performance of an ACTUATION LOGIC TEST. The SSPS is tested every 31 days on a STAGGERED TEST BASIS, using the semiautomatic tester. The train being tested is placed in the bypass condition, thus preventing inadvertent actuation. Through the semiautomatic tester, all possible logic combinations, with and without applicable permissives, are tested for each protection function, including operation of the P-7 permissive which is a logic function only. The Frequency of every 31 days on a STAGGERED TEST BASIS is adequate. It is based on industry operating experience, considering instrument reliability and operating history data.

RA1
3.3.1-05
R12

SR 3.3.1.6

SR 3.3.1.6 is the performance of a TADOT and is performed every 92 days, as justified in Reference 7. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

RA1s
MB 1433
MB 1427
R8
3.3.1-39
R5
R5

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.19 RCS Loops-Test Exceptions

LCO 3.4.19 The requirements of LCO 3.4.4, "RCS Loops-MODES 1 and 2," may be suspended, with THERMAL POWER < P-7.

APPLICABILITY: MODES 1 and 2 during startup and PHYSICS TESTS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. THERMAL POWER \geq P-7.	A.1 Open reactor trip breakers.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.19.1 Verify THERMAL POWER is < P-7.	1 hour
SR 3.4.19.2 Perform a COT for each power range neutron flux-low channel, intermediate range neutron flux channel, P-10, and P-13.	Prior to initiation of startup and PHYSICS TESTS
SR 3.4.19.3 Perform an ACTUATION LOGIC TEST on P-7.	Prior to initiation of startup and PHYSICS TESTS

RAI
3.3.1-05
R12

RAI
3.3.1-05
R12

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.19 RCS Loops-Test Exceptions

BASES

BACKGROUND

The primary purpose of this test exception is to provide an exception to LCO 3.4.4, "RCS Loops-MODES 1 and 2," to permit reactor criticality under no forced flow conditions during certain PHYSICS TESTS (natural circulation demonstration, station blackout, and loss of offsite power) to be performed while at low THERMAL POWER levels. Section XI of 10 CFR 50, Appendix B (Ref. 1), requires that a test program be established to ensure that structures, systems, and components will perform satisfactorily in service. All functions necessary to ensure that the specified design conditions are not exceeded during normal operation and anticipated operational occurrences must be tested. This testing is an integral part of the design, construction, and operation of the power plant as specified in General Design Criteria 1, "Quality Standards and Records" (Ref. 2).

The key objectives of a test program are to provide assurance that the facility has been adequately designed to validate the analytical models used in the design and analysis, to verify the assumptions used to predict unit response, to provide assurance that installation of equipment at the unit has been accomplished in accordance with the design, and to verify that the operating and emergency procedures are adequate. Testing is performed prior to initial criticality, during startup, and following low power operations.

The tests will include verifying the ability to establish and maintain natural circulation following a unit trip, performing natural circulation cooldown on emergency power, and during the cooldown, showing that adequate boron mixing occurs and that pressure can be controlled using auxiliary spray and pressurizer heaters powered from the emergency power sources.

APPLICABLE
SAFETY ANALYSES

The tests described above require operating the unit without forced convection flow and as such are not bounded by any safety analyses. However, operating experience has demonstrated this exception to be safe under the present applicability.

(continued)

BASES

APPLICABLE
SAFETY ANALYSES
(continued)

As described in LCO 3.0.7, compliance with Test Exception LCOs is optional, and therefore no criteria of 10 CFR 50.36(c)(2)(ii) apply. Test Exception LCOs provide flexibility to perform certain operations by appropriately modifying requirements of other LCOs. A discussion of the criteria satisfied for the other LCOs is provided in their respective Bases.

LCO

This LCO provides an exemption to the requirements of LCO 3.4.4.

The LCO is provided to allow for the performance of PHYSICS TESTS in MODE 2 (after a refueling), where the core cooling requirements are significantly different than after the core has been operating. Without the LCO, unit operations would be held bound to the normal operating LCOs for reactor coolant loops and circulation (MODES 1 and 2), and the appropriate tests could not be performed.

In MODE 2, where core power level is considerably lower and the associated PHYSICS TESTS must be performed, operation is allowed under no flow conditions provided THERMAL POWER is \leq P-7 and the reactor trip setpoints of the OPERABLE power level channels are set \leq 25% RTP. This ensures, if some problem caused the unit to enter MODE 1 and start increasing unit power, the Reactor Trip System (RTS) would automatically shut it down before power became too high, and thereby prevent violation of fuel design limits.

The exemption is allowed even though there are no bounding safety analyses. However, these tests are performed under close supervision during the test program and provide valuable information on the unit's capability to cool down without offsite power available to the reactor coolant pumps.

APPLICABILITY

This LCO is applicable when performing low power PHYSICS TESTS without any forced convection flow. This testing is performed to establish that heat input from nuclear heat does not exceed the natural circulation heat removal capabilities. Therefore, no safety or fuel design limits will be violated as a result of the associated tests.

BASES

ACTIONS

A.1

When THERMAL POWER is \geq the P-7 interlock setpoint 10%, the only acceptable action is to ensure the reactor trip breakers (RTBs) are opened immediately in accordance with Required Action A.1 to prevent operation of the fuel beyond its design limits. Opening the RTBs will shut down the reactor and prevent operation of the fuel outside of its design limits.

SURVEILLANCE
REQUIREMENTS

SR 3.4.19.1

Verification that the power level is $<$ the P-7 interlock setpoint (10%) will ensure that the fuel design criteria are not violated during the performance of the PHYSICS TESTS. The Frequency of once per hour is adequate to ensure that the power level does not exceed the limit. Unit operations are conducted slowly during the performance of PHYSICS TESTS and monitoring the power level once per hour is sufficient to ensure that the power level does not exceed the limit.

SR 3.4.19.2

The power range and intermediate range neutron detectors, P-10, and P-13 interlock setpoint must be verified to be OPERABLE and adjusted to the proper value. The Low Power Reactor Trips Block, P-7 interlock, is actuated from either the Power Range Neutron Flux, P-10, or the Turbine Impulse Chamber Pressure, P-13 interlock. The P-7 interlock is a logic Function with train, not channel identity. A COT is performed prior to initiation of the PHYSICS TESTS. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL OPERATIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. This will ensure that the RTS is properly aligned to provide the required degree of core protection during the performance of the PHYSICS TESTS. The SR 3.3.1.8 frequency is sufficient for the power range and intermediate range neutron detectors to ensure that the instrumentation is OPERABLE before initiating PHYSICS TESTS.

RAI
3.3.1-05
R12

RAI
3.3.1-05
R12

RAI
3.3.1-05
R12

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.4.19.3

The Low Power Reactor Trips Block, P-7 interlock, must be verified to be OPERABLE in MODE 1 by LCO 3.3.1, "Reactor Trip System Instrumentation." The P-7 interlock is actuated from either the Power Range Neutron Flux, P-10, or the Turbine Impulse Chamber Pressure, P-13 interlock. The P-7 interlock is a logic Function. An ACTUATION LOGIC TEST is performed to verify OPERABILITY of the P-7 interlock prior to initiation of startup and PHYSICS TESTS. This will ensure that the RTS is properly functioning to provide the required degree of core protection during the performance of the PHYSICS TESTS.

RAI
3.3.1-05
R12

REFERENCES

1. 10 CFR 50, Appendix B, Section XI.
 2. UFSAR, Section 3.1.1.
-
-

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.19 RCS Loops—Test Exceptions

LCO 3.4.19 The requirements of LCO 3.4.4, "RCS Loops—MODES 1 and 2," may be suspended, with THERMAL POWER < P-7.

APPLICABILITY: MODES 1 and 2 during startup and PHYSICS TESTS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. THERMAL POWER ≥ P-7.	A.1 Open reactor trip breakers.	Immediately

Action

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.19.1 Verify THERMAL POWER is < P-7.	1 hour
SR 3.4.19.2 Perform a COT for each power range neutron flux—low and intermediate range neutron flux channel, and P-7.	Within 12 hours prior to initiation of startup and PHYSICS TESTS

4.10.4.1

4.10.4.2

channel,

P-10, and P-13

TSTF-108

RAI
3.3.1-05

R12

TSTF
347

NEW

SR 3.4.19.3 Perform an ACTUATION LOGIC TEST on P-7. Prior to initiation of startup and PHYSICS TESTS

BASES (continued)

ACTIONS

A.1

When THERMAL POWER is \geq the P-7 interlock setpoint 10%, the only acceptable action is to ensure the reactor trip breakers (RTBs) are opened immediately in accordance with Required Action A.1 to prevent operation of the fuel beyond its design limits. Opening the RTBs will shut down the reactor and prevent operation of the fuel outside of its design limits.

SURVEILLANCE REQUIREMENTS

SR 3.4.19.1

Verification that the power level is $<$ the P-7 interlock setpoint (10%) will ensure that the fuel design criteria are not violated during the performance of the PHYSICS TESTS. The Frequency of once per hour is adequate to ensure that the power level does not exceed the limit. Plant operations are conducted slowly during the performance of PHYSICS TESTS and monitoring the power level once per hour is sufficient to ensure that the power level does not exceed the limit.

Unit 4

SR 3.4.19.2

The power range and intermediate range neutron detectors and the P-7 interlock setpoint must be verified to be OPERABLE and adjusted to the proper value. A COT is performed within 12 hours prior to initiation of the PHYSICS TESTS. This will ensure that the RTS is properly aligned to provide the required degree of core protection during the performance of the PHYSICS TESTS. The time limit of 12 hours is sufficient to ensure that the instrumentation is OPERABLE shortly before initiating PHYSICS TESTS.

P-10, and P-13

Insert 1

Insert 2

Insert 4

Insert 3

TSTF-108 RAI 23.1-65
TSTF-205 R12
TSTF-108
TSTF 347

REFERENCES

1. 10 CFR 50, Appendix B, Section XI.

2. 10 CFR 50, Appendix A, GDC 1, 1988.

UFSAP, Section 3.1.1

3

INSERT 1

The Low Power Reactor Trips Block, P-7 interlock, is actuated from either the Power Range Neutron Flux, P-10, or the Turbine Impulse Chamber Pressure, P-13 interlock. The P-7 interlock is a logic Function with train, not channel identity.

RAI
3.3.1-05
R12

INSERT 2

A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL OPERATIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

RAI
3.3.1-05
R12

INSERT 3

The SR 3.3.1.8 Frequency is sufficient for the power range and intermediate range neutron detectors to ensure that the instrumentation is OPERABLE before initiating PHYSICS TESTS.

RAI
3.3.1-05
R12

INSERT 4

SR 3.4.19.3

The Low Power Reactor Trips Block, P-7 interlock, must be verified to be OPERABLE in MODE 1 by LCO 3.3.1, "Reactor Trip System Instrumentation." The P-7 interlock is actuated from either the Power Range Neutron Flux, P-10, or the Turbine Impulse Chamber Pressure, P-13 interlock. The P-7 interlock is a logic Function. An ACTUATION LOGIC TEST is performed to verify OPERABILITY of the P-7 interlock prior to initiation of startup and PHYSICS TESTS. This will ensure that the RTS is properly functioning to provide the required degree of core protection during the performance of the PHYSICS TESTS.

RAI
3.3.1-05
R12

(A.1)

07-30-97

SPECIAL TEST EXCEPTIONS

REACTOR COOLANT LOOPS

LIMITING CONDITION FOR OPERATION

ITS

3.4.19

3.10.4 The limitations of Specification 3.4.1.1 may be suspended during the performance of startup and PHYSICS TESTS provided:

(A.1)

- a. The THERMAL POWER does not exceed the P-7 Interlock Setpoint,
- b. The Reactor Trip Setpoints on the OPERABLE Intermediate Range Channels are set at less than or equal to 35% of RATED THERMAL POWER, and
- c. The Reactor Trip Setpoints on the OPERABLE Power Range Channels are set at less than or equal to 25% of RATED THERMAL POWER.

(A.4)

Appl.

ACTION A

APPLICABILITY: During operation below the P-7 Interlock Setpoint.

MODES 1 and 2 during startup and PHYSICS TESTS

(A.2)

ACTION:

With the THERMAL POWER greater than the P-7 Interlock Setpoint, immediately open the reactor trip breakers.

SURVEILLANCE REQUIREMENTS

range neutron flux channel
neutron flux - low

RAI
3.3.1-05
R12

3.4.19.1

4.10.4.1 The THERMAL POWER shall be determined to be less than P-7 Interlock Setpoint at least once per hour during startup and PHYSICS TESTS.

P-10, and P-13

RAI
3.3.1-05
R12
(M.1)

3.4.19.2

4.10.4.2 Each Intermediate, Power Range Channel, and P-7 Interlock shall be subjected to a CHANNEL FUNCTIONAL TEST within 12 hours prior to initiating startup or PHYSICS TESTS.

(L.1)

OPERATIONAL

(A.3)

3.4.19.3

> Insert proposed SR

RAI
3.3.1-05
R12
(M.2)

(A.1)

SPECIAL TEST EXCEPTIONS

REACTOR COOLANT LOOPS

LIMITING CONDITION FOR OPERATION

ITS

3.4.19

3.10.4 The limitations of Specification 3.4.1.1 may be suspended during the performance of startup and PHYSICS TESTS provided:

(A.1)

- a. The THERMAL POWER does not exceed the P-7 Interlock Setpoint,
- b. The reactor trip setpoints on the OPERABLE Intermediate Range Channels are set at less than or equal to 35% of RATED THERMAL POWER, and
- c. The reactor trip setpoints on the OPERABLE Power Range Channels are set at less than or equal to 25% of RATED THERMAL POWER.

(A.4)

APPLICABILITY: During operation below the P-7 Interlock Setpoint.

Appl.

ACTION: MODES 1 and 2 during startup and PHYSICS TESTS

(A.2)

With the THERMAL POWER greater than the P-7 Interlock Setpoint, immediately open the reactor trip breakers.

ACTION A

range neutron flux channel

RAI
3.3.1-05
R12

SURVEILLANCE REQUIREMENTS

neutron flux - low

P 3.4.19.1

4.10.4.1 The THERMAL POWER shall be determined to be less than P-7 Interlock Setpoint at least once per hour during startup and PHYSICS TESTS.

(M.1) | RAI
3.3.1-05
R12

P-10, and P-13

SR 3.4.19.2

4.10.4.2 Each Intermediate, Power Range Channel, and P-7 Interlock shall be subjected to a CHANNEL FUNCTIONAL TEST within 12 hours prior to initiating startup or PHYSICS TESTS.

(L.1)

OPERATIONAL

(A.3)

SR 3.4.19.3

Insert proposed SR

(M.2) | RAI
3.3.1-05
R12

POWER does not exceed the P-7 Interlock Setpoint and the Reactor Trip Setpoints on the OPERABLE Intermediate and Power Range Channels are set $\leq 35\%$ and $\leq 25\%$ of RATED THERMAL POWER, respectively. ITS 3.4.19 states that the requirement of LCO 3.4.4, "RCS Loops - MODES 1 and 2," may be suspended with THERMAL POWER $< P-7$. This changes the CTS by eliminating the requirement that the Reactor Trip Setpoints on the OPERABLE Intermediate and Power Range Channels are set $\leq 35\%$ and $\leq 25\%$ of RATED THERMAL POWER, respectively.

This change is acceptable because the Reactor Trip Setpoints on the OPERABLE Intermediate and Power Range Channels are contained in LCO 3.3.1, RTS Instrumentation. Repeating that requirement in this LCO is unnecessary. This change is designated administrative as it eliminates a repeated requirement from the CTS, resulting in no technical change to the Technical Specifications.

MORE RESTRICTIVE CHANGES

M.1 CTS surveillance requirement 4.10.4.2 does not require that the P-10 (Power Range Neutron Flux) and P-13 (Turbine Impulse Chamber Pressure) interlocks be tested. ITS SR 3.4.19.2 requires that these interlocks be subjected to a COT prior to initiating startup and PHYSICS TESTS. This changes the CTS by adding additional surveillance requirements.

This change is acceptable because the inputs to the Low Power Reactor Trips Block, P-7 interlock, will be tested to ensure that the instrumentation is OPERABLE and properly aligned to provide the required degree of protection during PHYSICS TESTS. This change is designated more restrictive because the CTS does not currently require the performance of this surveillance.

M.2 CTS surveillance requirement 4.10.4.2 currently requires that the P-7 interlock be subjected to a CHANNEL FUNCTIONAL TEST prior to initiating startup or PHYSICS TESTS. ITS SR 3.4.19.3 requires that the Low Power Reactor Trips Block, P-7 interlock, be subjected to an ACTUATION LOGIC TEST prior to initiating startup or PHYSICS TESTS. This changes the CTS by adding an additional surveillance requirement.

This change is acceptable because the ACTUATION LOGIC TEST for P-7 will ensure that the interlock is properly functioning to provide the required degree of core protection during startup and PHYSICS TESTS. This change is designated more restrictive because the CTS does not currently require this surveillance.

RAI
3.3.1-05
R12

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

- L.1 (Category 7 - Relaxation Of Surveillance Frequency) CTS 4.10.4.2 requires that tests be performed on each Intermediate and Power Range channel and P-7 Interlock within 12 hours prior to initiating startup or PHYSICS TESTS. ITS SR 3.4.19.2 requires that the testing be performed prior to initiation of startup and PHYSICS TESTS. This changes the CTS by eliminating the time period prior to initiation of startup and PHYSICS TESTS within which the testing must be performed.

The purpose of CTS 3.10.4 and ITS 3.4.19 is to allow the performance of natural circulation testing on the reactor. This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. The performance of the normally scheduled CHANNEL OPERATIONAL TEST is sufficient to ensure the equipment is OPERABLE. LCO 3.3.1 requires a CHANNEL OPERATIONAL TEST on the Intermediate and Power Range channels every 92 days (SR 3.3.1.7 and SR 3.3.1.8) and on the P-7 Interlock every 18 months (SR 3.3.1.18). These Frequencies have been determined to be sufficient for verification that the equipment is working properly. The initiation of startup and PHYSICS TESTS does not affect the ability of the equipment to perform its function, does not affect the trip setpoints or the RTS trip capability and does not invalidate the previous surveillances. Therefore, requiring this testing to be performed at a fixed time before the initiation of startup and PHYSICS TESTS has no benefit. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

NAPS Responses to NRC Requests for Additional Information
ITS Section 3.3, 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.

Additional Response: DOC L.28 first sentence of the second paragraph is modified to state "This change is acceptable because the Reactor Trip functions are required to be OPERABLE in the MODES assumed by the safety analysis for each function to provide its safety function. The UFSAR Section 7.2.1.3.2 states the following; "Interlock P-7 blocks a reactor trip at low power (below approximately 10% of full power) on a low reactor coolant flow or reactor coolant pump open breaker signal in more than one loop, reactor coolant pump undervoltage, reactor coolant pump underfrequency, pressurizer low pressure, or pressurizer high water level . . . The P-8 interlock blocks a reactor trip when the plant is below approximately 30% of full power, on a low reactor coolant flow in any one loop, a reactor coolant pump breaker open signal in any one loop, or turbine trip signal. Below the P-8 setpoint, the reactor will not trip with a turbine trip, or with one inactive loop."

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

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.

RAI
3.3.1-09
RS

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 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

RAI
3.3.1-08
RS

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

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 Reactor Trip functions are required to be OPERABLE in the MODES assumed by the safety analysis for each function to provide its safety function. The UFSAR Section 7.2.1.3.2 states the following; "Interlock P-7 blocks a reactor trip at low power (below approximately 10% of full power) on a low reactor coolant flow or reactor coolant pump open breaker signal in more than one loop, reactor coolant pump undervoltage, reactor coolant pump underfrequency, pressurizer low pressure, or pressurizer high water level . . . The P-8 interlock blocks a reactor trip when the plant is below approximately 30% of full power, on a low reactor coolant flow in any one loop, a reactor coolant pump breaker open signal in any one loop, or turbine trip signal. Below the P-8 setpoint, the reactor will not trip with a turbine trip, or with one inactive loop. 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.

RAI
33.1-08
R12

RAI
33.1-08
RS

**NAPS Responses to NRC Requests for Additional Information
ITS Section 3.3, Instrumentation**

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.

Additional Response: DOC LA.16 is modified to state "The wording of Action 2 part d describes the method of how the QPTR is performed and this type of information is not required. The requirement and the limits of QPTR are required by 10 CFR 50.36 and these are maintained in ITS SR 3.2.4.2."

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

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
R5

- 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 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.

RAI
3.3.1-11
R5

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 wording of Action 2 part d describes the method of how the QPTR is performed and this type of information is not required. The requirement and the limits of QPTR are required by 10 CFR 50.36 and these are maintained in ITS SR 3.2.4.2. This change is acceptable because these types of procedural details will be 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
R12

- LA.17 (Type 3 – Removing Procedural Details for Meeting TS Requirements and Related Reporting Problems) CTS Table 2.2-1 Functional Unit 7 states the requirement for the Overtemperature (OT) ΔT as Note 1. The Allowable Value for the function is

RAIs
MB 2073
MB 2075
3.3.1-39
R5

**NAPS Responses to NRC Requests for Additional Information
ITS Section 3.3, Instrumentation**

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.

Additional Response: The NOTE in Condition N, Bases, and DOC L.26 are modified to change 4 hours to 12 hours (in the NOTE for Condition N) to allow bypassing an inoperable channel for surveillance testing of other channels.

DOC L.26 is also modified to state "The Note to ITS Condition N has been evaluated under the guidance of WCAPs 10271 and 14333 and was found to be an acceptable time for bypassing an inoperable channel for the required testing of additional channels. The NRC evaluated the incorporation of all other changes evaluated against WCAPs 10271 and 14333 to the North Anna Technical Specification via Amendments 221 (Unit 1) and 202 (Unit 2) and found them acceptable."

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>M. One Reactor Coolant Pump Breaker Position channel inoperable.</p>	<p>-----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. -----</p> <p>M.1 Restore channel to OPERABLE status.</p> <p><u>OR</u></p> <p>M.2 Reduce THERMAL POWER to < P-7.</p>	<p>72 hours</p> <p>78 hours</p>
<p>N. One Turbine Trip channel inoperable.</p>	<p>-----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. -----</p> <p>N.1 Place channel in trip.</p> <p><u>OR</u></p> <p>N.2 Reduce THERMAL POWER to < P-8.</p>	<p>72 hours</p> <p>76 hours</p>
<p>O. One train inoperable.</p>	<p>-----NOTE----- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. -----</p> <p>0.1 Restore train to OPERABLE status.</p> <p><u>OR</u></p> <p>0.2 Be in MODE 3.</p>	<p>24 hours</p> <p>30 hours</p>

RAI
3.3.1-15
R12

BASES

ACTIONS
(continued)

N.1 and N.2

Condition N applies to Turbine Trip on Low Auto Stop Oil Pressure or on Turbine Stop Valve Closure. With one channel inoperable, the inoperable channel must be placed in the trip condition within 72 hours. If placed in the tripped condition, this results in a partial trip condition requiring only one additional channel to initiate a reactor trip. If the channel cannot be restored to OPERABLE status or placed in the trip condition, then power must be reduced below the P-8 setpoint within the next 4 hours. The 72 hours allowed to place the inoperable channel in the tripped condition and the 4 hours allowed for reducing power are justified in Reference 7.

The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 12 hours while performing routine surveillance testing of the other channels. The 12 hour time limit is justified in Reference 7.

RAI
3.3.1-15
RI2

O.1 and O.2

Condition O applies to the SI Input from ESFAS reactor trip and the RTS Automatic Trip Logic in MODES 1 and 2. These actions address the train orientation of the RTS for these Functions. With one train inoperable, 24 hours are allowed to restore the train to OPERABLE status (Required Action O.1) or the unit must be placed in MODE 3 within the next 6 hours. The Completion Time of 24 hours (Required Action O.1) is reasonable considering that in this Condition, the remaining OPERABLE train is adequate to perform the safety function and given the low probability of an event during this interval. The Completion Time of 6 hours (Required Action O.2) is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems.

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

P.1 and P.2

Condition P applies to the RTBs in MODES 1 and 2. These actions address the train orientation of the RTS for the RTBs. With one train inoperable, 1 hour is allowed to

(continued)

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p><i>NEW</i></p> <p><i>(N) (P)</i> One Turbine Trip channel inoperable.</p>	<p>-----NOTE----- The inoperable channel may be bypassed for up to <i>(4)</i> hours for surveillance testing of other channels.</p> <p>-----</p> <p><i>(1) (2)</i> 1 Place channel in trip.</p> <p>OR</p> <p><i>(1) (2)</i> 2 Reduce THERMAL POWER to < <i>(P-9)</i>. <i>(P-8)</i></p>	<p><i>(12)</i></p> <p><i>(72) (8) hours (3)</i></p> <p><i>(76) (10) hours (3)</i></p> <p><i>(13)</i></p>
<p><i>Action 9</i></p> <p><i>(0) (1)</i> One train inoperable.</p>	<p>-----NOTE----- One train may be bypassed for up to <i>(40)</i> hours for surveillance testing provided the other train is OPERABLE.</p> <p>-----</p> <p><i>(1) (2)</i> 1 Restore train to OPERABLE status.</p> <p>OR</p> <p><i>(1) (2)</i> 2 Be in MODE 3.</p>	<p><i>(7)</i></p> <p><i>(24) (8) hours (3)</i></p> <p><i>(30) (12) hours (3)</i></p>

RAI
3.3.1-15
R12

R5

TSTF
169
135

(continued)

Rev. T2

BASES

ACTIONS

0.1 and 0.2 (continued)

This places the unit in a MODE where the LCO is no longer applicable. This Function does not have to be OPERABLE below the P-8 setpoint because other RTS Functions provide core protection below the P-8 setpoint. The 7 hours allowed to restore the channel to OPERABLE status and the 7 additional hours allowed to reduce THERMAL POWER to below the P-8 setpoint are justified in Reference 7. The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 12 hours while performing routine surveillance testing of the other channels. The 4 hour time limit is justified in Reference 7.

0.1 and 0.2
Condition 1 applies to Turbine Trip on Low Oil Pressure or on Turbine Stop Valve Closure. With one channel inoperable, the inoperable channel must be placed in the trip condition within 7 hours. If placed in the tripped condition, this results in a partial trip condition requiring only one additional channel to initiate a reactor trip. If the channel cannot be restored to OPERABLE status or placed in the trip condition, then power must be reduced below the P-8 setpoint within the next 4 hours. The 7 hours allowed to place the inoperable channel in the tripped condition and the 4 hours allowed for reducing power are justified in Reference 7.

The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 12 hours while performing routine surveillance testing of the other channels. The 4 hour time limit is justified in Reference 7.

0.1 and 0.2
Condition 0 applies to the SI Input from ESFAS reactor trip and the RTS Automatic Trip Logic in MODES 1 and 2. These actions address the train orientation of the RTS for these Functions. With one train inoperable, 6 hours are allowed to restore the train to OPERABLE status (Required Action 0.1) or the unit must be placed in MODE 3 within the

RAI
3.31-15
R12

TSTFS
169+
135

(continued)

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

OPERABILITY. This change is designated as less restrictive because Surveillances which are required in the CTS will not be required in the ITS.

RAI
3.3.1-13
R5

- 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 12 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 12 hours for surveillance testing of other channels.

RAI
3.3.1-15
R5

RAI
3.3.1-15
R12

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 channel was tested with an inoperable channel in trip, an unnecessary reactor trip signal could be generated. The Note to ITS Condition N has been evaluated under the guidance of WCAPs 10271 and 14333 and was found to be an acceptable time for bypassing an inoperable channel for the required testing of additional channels. The NRC evaluated the incorporation of all other changes evaluated against WCAPs 10271 and 14333 to the North Anna Technical Specification via Amendments 221 (Unit 1) and 202 (Unit 2) and found them acceptable. 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
3.3.1-15
R12

- 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.

RAI
3.3.1-09
R5

**NAPS Responses to NRC Requests for Additional Information
ITS Section 3.3, Instrumentation**

3.3.1-17 ITS
STS
CTS
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.

Additional Response: DOC A.25 is modified to state "The CTS requirement for a CFT is satisfied by a turbine trip below the setpoint of P – 8. This test produces lit annunciators in the main control room that signifies that the turbine trip occurs. This test corresponds to the ITS requirement of a Trip Actuation Device Operational Test (TADOT) without a setpoint verification which verifies that a turbine trip would occur. The ITS TADOT satisfies the technical requirements of the CTS CFT."

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

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.

RAI
3.3.1-16
R5

A.24 Not used.

MA 2073
MB 2075
R7

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.

RAI
3.3.1-17
R5

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. The CTS requirement for a CFT is satisfied by a turbine trip below the setpoint of P - 8. This test produces lit annunciators in the main control room that signifies that the turbine trip would occur. This test corresponds to the ITS requirement of a Trip Actuation Device Operational Test (TADOT) without a setpoint verification which verifies that a turbine trip would occur. The ITS TADOT satisfies the technical requirements of the CTS CFT. Therefore, the addition of the ITS Note stating that no verification of setpoint is required is not a change in the 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
R12

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

RAI
3.3.1-02
3.3.1.16
R5

**NAPS Responses to NRC Requests for Additional Information
ITS Section 3.3, Instrumentation**

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.

Additional Response: The DOC justifies the addition of the TADOT for Unit 1 RCP undervoltage every 92 days. The CTS requirement for RCP undervoltage is N/A. DOC M.1 is modified by adding the following: "This same test is currently required by CTS and performed on Unit 2."

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

if absolute difference is $\geq 3\%$." Note 2 states, "Not required to be performed until 72 hours after THERMAL POWER is $\geq 15\%$ RTP." The addition of Note 2 is addressed by DOC L.9. The change from monthly to every 31 EFPD is addressed by DOC L.16. This changes the CTS by applying the requirement of a monthly comparison of axial offset of the NIS channel to both the PRNF and OTAT functions.

MBM33
MBM27
RB, R15
RAI
3.3.1-37
RS, R15

The purpose of CTS monthly CHANNEL CALIBRATION for the PRNF channels is to ensure the indicated ΔI signal from the Power Range channels for the OTAT channels are within 3% of the actual ΔI . This change is acceptable because the technical requirements of the CTS are translated into the appropriate ITS requirements. The monthly calibration of the PRNF channels is to ensure the PRNF properly reflect AFD indications and OTAT channels receive appropriate adjustments to change their setpoints for changing plant conditions of ΔI . This change is designated as administrative because it does not result in technical changes to the CTS.

RAI
3.3.1-32
RS

- A.29 CTS Table 4.3-1 lists for the Power Range Low Setpoint and Intermediate Range channels a quarterly test to be performed (Q⁽¹²⁾). Note⁽¹²⁾ states, "Quarterly Surveillance in MODE 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." ITS SR 3.3.1.8 for the Source, Intermediate, and Power Range Neutron Flux Low Setpoint channels require a CHANNEL OPERATIONAL TEST (COT) to be performed every 92 days. A Note modifies the SR that states, "This Surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions." The movement of the phrase, "by observation of the permissive annunciator window," is addressed by DOC LA.6. The deletion of quarterly surveillance in MODES 3*, 4*, and 5* is addressed by DOC L.10. This changes the CTS by reformatting the requirement to the ITS SR 3.3.1.8 Note.

RAI
3.3.1-31
RS

The purpose of ITS SR 3.3.1.8 Note is to ensure the interlocks P-6 and P-10 are in the proper state for the indicated power level from the appropriate NIS channels. This change is acceptable because the technical requirements of the CTS are maintained in ITS format. The CTS and ITS require the verification of P-6 and P-10 interlocks are in the required state for existing plant conditions. This change is designated as administrative because it does not result in technical changes to the CTS.

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

RAI
3.3.1-19
RS

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

undervoltage requires ITS SR 3.3.1.6 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 3.3.1.6 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. This same test is currently required by CTS and performed on Unit 2. 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 1.

←
RAI
MB 1433
MB 1427
R8
3.3.1-39
R5
←

RAI
3.3.1-19
R12

RAI
3.3.1-19
R5

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 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

RAI
3.3.1-20
R5

**NAPS Responses to NRC Requests for Additional Information
ITS Section 3.3, Instrumentation**

3.3.1-21 ITS
STS
CTS
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.

Additional Response: DOC M.4 is revised by adding two additional statements. The first sentence states that one Source Range continues to be OPERABLE and provides indications of reactor power level. The second sentence states that SDM calculation is required to be performed to ensure reactor reactivity is being properly controlled.

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

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 OPERABLE. One Source Range channel continues to be OPERABLE and provides indications of change in the reactor power level. Additionally, a Shutdown Margin (SDM) calculation is required to be performed to ensure the reactor reactivity is being properly controlled. This change is more restrictive because plant operations are more limited by the ITS requirements than the CTS.

RAI
3.3.1-21
R12

**NAPS Responses to NRC Requests for Additional Information
ITS Section 3.3, Instrumentation**

3.3.1-24 ITS
STS
CTS
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.

Additional Response: DOC M.7 is revised to state "The CHANNEL CALIBRATION is added to provide appropriate Technical Specification OPERABILITY requirements to ensure the function can perform its safety function." The DOC is also amended to state "The ITS Note ensures the time constants requirement is explicitly stated. The time constants for various functions are currently verified under CTS requirements. The addition of the ITS Note to the surveillance requirement is considered an administrative change."

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

designated as more restrictive because the additional restrictions have been placed on the CTS requirements.

RAI
3.3.1-23
R5

- 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
R5

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. The CHANNEL CALIBRATION is added to provide appropriate Technical Specification OPERABILITY requirements to ensure the function can perform its safety function. The ITS Note ensures the time constants requirement is explicitly stated. The time constants for various functions are currently verified under CTS requirements. The addition of the ITS Note to the surveillance requirement is considered an administrative change. This change is designated as more restrictive because the current requirement for the Turbine Trip does not require periodic CHANNEL CALIBRATION verification.

RAI
3.3.1-24
R12

- 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. A Note modifies the SR. The Note states, "Neutron detectors are excluded from CHANNEL CALIBRATION." This changes the CTS by deleting a portion of the Note allowing the Specification 4.0.4 allowance.

R5
R12

R5

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, and because a new requirement has been added to the SR.

MB1433
MB1427
RB, R15
RAI
3.3.1-31
R5, R15

**NAPS Responses to NRC Requests for Additional Information
ITS Section 3.3, Instrumentation**

3.3.1-25 ITS
STS
CTS
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.

Additional Response: DOC LA.1 is change to include the following discussion: "The descriptive information does not provide a limit that must be controlled by the requirements of 10 CFR 50.36."

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

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.

RAI
3.3.1-02
3.3.1-18
RS

- M.13 CTS Table 4.3-1 Surveillance Requirements do not require a test on the OTΔT 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 3.3.1.9 must be performed. ITS SR 3.3.1.9 states, "Compare results of the excore channels to incore detector measurements." This SR must be performed every 92 EFPD. Two Notes modify the requirement. Note 1 states, "Adjust NIS channel if absolute difference $\geq 3\%$." Note two states, "Not required to be performed until 72 hours after THERMAL POWER is $\geq 50\%$." This changes the CTS by requiring an additional Surveillance Requirement for the OTΔT Function.

MB1433
MB1427
RB, RE, R16
RAZ
3.3.1-39
RS, R15, R16

The purpose of ITS SR 3.3.1.9 is to ensure accurate inputs to $f(\Delta I)$ from NIS channels for the OTΔT Function. This change is acceptable because the OTΔT 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 OTΔT Function. . Seventy two hours needed to obtain stable plant conditions, determine new top and bottom moveable incore detector settings (required after refueling to obtain accurate incore data), obtain the flux map data, analyze the first flux map, and perform the Surveillance using the map results. Analysis of the first flux map after refueling takes additional time to verify flux map design inputs, to perform checks such as verification of core loading, and to adjust for the deep rod insertion during the map. 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.

RAI
3.3.1-25
RS

The removal of these details for performing surveillance requirements from the Technical Specifications is acceptable because this type of information is not

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The descriptive information does not provide a limit that must be controlled by the requirements of 10 CFR 50.36. 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.

RAI
3.3.1-25
R12

RAI
3.3.1-25
RS

- 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. 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

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3.3.1-26 ITS
STS
CTS
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.

Additional Response: DOC LA.4 is modified by stating: "The descriptive information to be moved is: CTS Note 8 ' . . 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).' CTS Note 10 'Automatic undervoltage trip.' CTS Note 11 ' . . shall independently verify the OPERABILITY of the undervoltage and shunt trip attachment of the Reactor Trip Breaker.' This information is contained in the Bases sections for SR 3.3.1.4 and SR 3.3.1.14." The justification of DOC LA.4 is also changed to include the following: "The descriptive information does not contain any required limits. The ITS retains the necessary surveillance requirements to ensure the safety functions' OPERABILITY that is required by 10 CFR 50.36." The descriptive information of CTS Notes 8 and 10 were incorporated in the Bases for ITS SR 3.3.1.14. The descriptive information of CTS Note 11 was incorporated in ITS SR 3.3.1.4 Bases.

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ITS 3.3.1, RTS INSTRUMENTATION

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. The descriptive information to be moved is: CTS Note 8 “. . . 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).” CTS Note 10 “Automatic undervoltage trip.” CTS Note 11 “. . . shall independently verify the OPERABILITY of the undervoltage and shunt trip attachment of the Reactor Trip Breaker.” This information is contained in the Bases sections for SR 3.3.1.4 and SR 3.3.1.14. ITS retains the necessary SRs for the RTB and bypass RTB to be OPERABLE. This changes the CTS by moving the descriptive information 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 descriptive information does not contain any required limits. The ITS retains the necessary surveillance requirements to ensure the safety functions’ OPERABILITY that is required by 10 CFR 50.36. 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.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

RAI
3.3.1-26
RS

RAI
3.3.1-26
R12

**NAPS Responses to NRC Requests for Additional Information
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3.3.1-27 ITS
STS
CTS
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.

Additional response: DOC LA.13 is modified with the following insert into the second paragraph: "The requirement of obtaining and evaluating the detector plateau curves does not provide any limit that requires control under 10 CFR 50.36 requirements. Therefore, the Bases of SR 3.3.1.11 provides an appropriate location for this requirement."

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

LA.11 (*Type 3 – Removing Procedural Details for Meeting TS Requirements and Related Reporting Problems*) The CTS lists in Tables 2.2-1 and 3.3-1 Allowable Values and Trip Setpoints. ITS 3.3.1 does not specify the Trip Setpoints. This changes the CTS by moving the Trip Setpoint from the Specifications to the Technical Requirements Manual (TRM).

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 Allowable Values to ensure the functions are maintained within design limits assumed by the safety analyses. Also, this change is acceptable because these types of procedural details will be adequately controlled in TRM. Any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

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

RAI
3.3.1-27
RS

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

Intermediate Range that SR 3.3.1.11 is required. This changes the CTS by moving the requirement for performing detector plateau curves from the Specification to the ITS Bases.

MB143)
MB1479
RAZ
3.3.1.11
R15

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 requirement of obtaining and evaluating the detector plateau curves does not provide any limit that requires control under 10 CFR 50.36 requirements. Therefore, the Bases of SR 3.3.1.11 provides an appropriate location for this requirement. 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.

RAZ
3.3.1-27
R12

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.

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

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3.3.1-28 ITS
STS
CTS
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."

Additional Response: Adding the following modifies DOC L.1 second paragraph: "By fully inserting all control and shutdown rods and de-energizing the electrical power to the Control Rod Drive Mechanisms, the reactor is placed in a condition that achieves the same effect as opening the reactor trip breakers. Either action ensures the reactor is shutdown with adequate controls to maintain the reactor in a subcritical condition." This change will allow maintenance and testing of system components, when required.

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ITS 3.3.1, RTS INSTRUMENTATION

calculated with the application of Note 3 to Note 1. A portion of Note 1 states that the gains set for the equation are selected based on measured instrument response obtained during plant startup testing. ITS Table 3.3.1-1 Function 6 requires the OTAT Allowable Value to be calculated via the formula stated in ITS Note 1. Note 1 in the ITS combines the CTS Notes 1 and 3 with modifications. ITS Note 1 does not contain the requirement "with gains to be selected based on measured instrument response during plant startup tests . . ." This changes the CTS by moving the information of the gain selection from the specification to the Technical Requirements Manual (TRM).

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 for calculating OTAT Allowable Value in the specification. Also, this change is acceptable because these types of procedural details will be adequately controlled in the TRM. Any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

RATs
MB2073
MB2075
RB
3.3.1-39
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.

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 actuation of the remaining OPERABLE

RAT
3.3.1-28
RS

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

channel will be able to generate the safety function. This change alters the Applicability by the change in Required Actions. By fully inserting all control and shutdown rods and de-energizing the electrical power to the Control Rod Drive Mechanisms, the reactor is placed in a condition that achieves the same effect as opening the reactor trip breakers. Either action ensures the reactor is shutdown with adequate controls to maintain the reactor in a subcritical condition. 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
3.3.1-28
R12

RAI
3.3.1-28
RS

- 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

RAI
3.3.1-29
RS

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3.3.1-29 ITS
STS
CTS
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.

Additional Response: DOC L.3 is modified in the second paragraph by adding the following: "The CTS requires the performance of a flux map anytime a Power Range channel become inoperable without exception. The ITS requires the performance of a flux map only when a Power Range channel has lost the capability to correctly input into the QPTR calculation. The ITS requirements continue to require all safety functions to be OPERABLE or be appropriately tested. The ITS allows the reliance on a Power Range channel that is fully OPERABLE for QPTR, where the CTS does not provide this allowance and always requires a flux map to be performed for a Power Range channel that could be OPERABLE for determining an accurate QPTR."

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ITS 3.3.1, RTS INSTRUMENTATION

channel will be able to generate the safety function. This change alters the Applicability by the change in Required Actions. By fully inserting all control and shutdown rods and de-energizing the electrical power to the Control Rod Drive Mechanisms, the reactor is placed in a condition that achieves the same effect as opening the reactor trip breakers. Either action ensures the reactor is shutdown with adequate controls to maintain the reactor in a subcritical condition. 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
3.3.1-28
R12

RAI
3.3.1-28
RS

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

RAI
3.3.1-29
RS

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

QPTR calculation. This modifies the CTS by allowing the Power Range to be considered OPERABLE, for the purposes of QPTR calculation, if the channel continues to provide a valid signal to determine the power distribution. This changes the CTS by allowing an action that is not contained in the CTS.

RAI
3.3.1-29
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 DBA occurring during the repair period. The allowance provided by Required Action D.2.2 Note, "Only required to be performed when the Power Range Neutron Flux input to QPTR is inoperable," assumes Power Range function for determining QPTR remains OPERABLE. The Power Range function for determining QPTR is assumed inoperable in all cases in the CTS. The CTS requires the performance of a flux map anytime a Power Range channel become inoperable without exception. The ITS requires the performance of a flux map only when a Power Range channel has lost the capability to correctly input into the QPTR calculation. The ITS requirements continue to require all safety functions to be OPERABLE or be appropriately tested. The ITS allows the reliance on a Power Range channel that is fully OPERABLE for QPTR, where the CTS does not provide this allowance and always requires a flux map to be performed for a Power Range channel that could be OPERABLE for determining an accurate QPTR. The Power Range channel may continue to provide the required signal for QPTR calculations on a loss of indication from the channel. If the portion of the Power Range channel input to QPTR is not OPERABLE, a flux map using the incore system must be performed. 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
3.3.1-29
R12

- L.4 (Category 4 – Relaxation of Required Action) CTS 3.3.1.1 Functional Unit 5, Neutron Flux Intermediate Range channels, in Table 3.3-1 states the Applicability for the instruments as Modes 1^{###} and 2. The ^{###} requires the channels to be OPERABLE, "Below the P-10 (Power Range Neutron Flux) setpoint." If a channel becomes inoperable, Action 3 must be entered. CTS Action 3.b states with an inoperable Intermediate Range channel above P-6 but below P-10 restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-10 setpoint. CTS Action 3.c allows continued operation with an inoperable Intermediate Range channel if THERMAL POWER is greater than P-10. ITS 3.3.1 Function 4 Intermediate Range Neutron Flux in Table 3.3.1-1 lists the Applicable Modes or other specified conditions as MODE 1^(b) and 2^(c). The superscript letters for the MODES denote the specified conditions. The Intermediate Range channels are required to be OPERABLE whenever reactor power is between MODE 2^(c) (Intermediate Range Neutron Flux interlock, P-6) and MODE 1^(b) (the Power Range Neutron Flux

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3.3.1-30 ITS
STS
CTS
DOC L.5

NRC RAI: Comment: Add discussion to DOC L.5 providing a comparison of actions required by CTS to the actions proposed in ITS Condition G.

Response: The Company agrees with the Comment. DOC L.5 has been modified to justify the proposed change.

Additional Response: DOC L.5 is modified by the addition of the following: "The reactivity of the reactor is determined by the performance of a Shutdown Margin calculation to ensure it is maintained in a subcritical condition. The ITS requires the actions of precluding positive reactivity additions and reducing power. These remedial actions are for safe operation." DOC L.5 is modified by the deletion of the following: "The Intermediate Range channels provide the necessary redundant protection feature to transition from the Source Range channels to the Power Range channels for a reactor start up."

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ITS 3.3.1, RTS INSTRUMENTATION

interlock, P-10). If an Intermediate Range channel becomes inoperable when reactor power is between P-6 and P-10, either ITS Required Actions F.1 or F.2 must be met. Required Action F.1 states that THERMAL POWER must be reduced to < P-6 within 24 hours. Required Action F.2 requires that THERMAL POWER be increased to > P-10 within 24 hours. This changes the CTS by allowing the reactor power to be increased to > P-10 (approximately 10% RTP) with an inoperable Intermediate Range channel with reactor power above the P-6 setpoint. This also changes the MODES of Applicability from MODE 1^{###} and 2 to specific values of the Power Range and Intermediate Range interlocks (P-10 and P-6).

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. Above P-10, the Power Range channels provide the required protection, and below P-6, the Source Range channels provide the necessary protection function. Two hours is a reasonable period of time to allow for a slow and controlled power adjustment, with the OPERABLE Intermediate Range channel continuing to provide the required protection. 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.5 (Category 4 – Relaxation of Required Action) CTS Table 3.3-1 Functional Unit 5 Neutron Flux Intermediate Range channels states if a channel becomes inoperable Action 3 must be entered. CTS Action 3.a states that when below P-6 restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 setpoint. CTS Action 3.b states with an inoperable Intermediate Range channel above P-6 but below P-10 restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above P-10. No allowance is provided for two inoperable channels, therefore LCO 3.0.3 must be entered in this condition. ITS Table 3.3.1-1 Function 4 Intermediate Range Neutron Flux states that Action G must be entered for two inoperable channels. ITS Action G states, "Two Intermediate Range channels inoperable," Required Actions G.1 and G.2 must be completed. Required Action G.1 states, "Suspend operations involving positive reactivity additions." Required Action G.2 states, "Reduce THERMAL POWER < P-6," within 2 hours. A Note modifies the Required Actions that states "Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM." This changes the CTS by allowing Required Actions with two Intermediate Range channels inoperable that are not currently allowed.

RAT
3.3.1-30
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

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ITS 3.3.1, RTS INSTRUMENTATION

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 proposed Action precludes a power level increase and allows a reasonable period of time for a slow and controlled power adjustment with no Intermediate Range channels OPERABLE status. The reactivity of the reactor is determined by the performance of a Shutdown Margin calculation to ensure it is maintained in a subcritical condition. The ITS requires the actions of precluding positive reactivity additions and reducing power. These remedial actions are for safe operation. 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
3.3.1-30
R5

RAI
3.3.1-30
R12

L.6 (Category 7 – Relaxation Of Surveillance Frequency) CTS Table 4.3-1 lists for the Power Range Low Setpoint and Intermediate Range channels, the surveillance requirements for a CHANNEL FUNCTIONAL TEST (CFT). The Frequency of the CFT for these functions is S/U ⁽¹⁾. S/U requires the surveillance must be performed prior to a reactor startup. Note ⁽¹⁾ states, "If not performed in previous 31 days." The Source and Intermediate Ranges additionally require a quarterly test to be performed (Q ⁽¹²⁾). Note ⁽¹²⁾ states, "Quarterly Surveillance in MODE 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." The movement of the phrase, "by observation of the permissive annunciator window," is addressed by DOC LA.6. The deletion of quarterly surveillance in MODES 3*, 4*, and 5* is addressed by DOC L.10. The movement of the verification of Permissives P-6 and P-10 is addressed by DOC A.29. ITS SR 3.3.1.8 for the Source, Intermediate, and Power Range Neutron Flux Low Setpoint channels require a CHANNEL OPERATIONAL TEST (COT) to be performed every 92 days. Additionally, a COT must be performed for these instrument channels prior to reactor startup if not performed within the previous 92 days. The COT must be performed for the Source Range within 4 hours after reducing power below the P-6 setpoint and the Power Range Low Setpoint and Intermediate Range channels must perform the COT within 12 hours after power is reduced below the P-10 setpoint. This changes the CTS by allowing 4 hours for the Source Range and 12 hours for the Power and Intermediate Ranges to perform the required test after entry into the applicable MODES or other specified conditions.

RAI
3.3.1-31
R5

RAI
3.3.1
-31,33
R12

The purpose of ITS SR Frequency allowances is to provide a reasonable period of time that the SR may be performed on the required instrumentation channels upon entering the MODE of applicability. These tests cannot be performed prior to the MODE of applicability because the reactor must be reducing power below the P-10 interlock in order to achieve this condition. This is not a predictable occurrence. The results of performing the surveillance requirement are normally found to be

RAI
3.3.1-31
R12

**NAPS Responses to NRC Requests for Additional Information
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3.3.1-31 ITS
STS
CTS
DOC L.6

NRC RAI:

Comment #1 - PRNF channels (low setpoint) do not require a quarterly CFT as discussed above.

Comment #2 - DOC L.6 states "This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability." Provide documentation to show the specific results from the evaluation for the surveillance test extensions, the 4-hour completion time allowance to perform Source Range Neutron Monitor COT, and the 12-hour completion time allowance to perform the Intermediate Range Neutron Monitor COT.

Comment #3 - Provide DOC discussion to justify the Intermediate Range Q (12) CTS test deletions.

Comment #4 - Provide DOC discussions to justify the SR 3.3.1.8 requirement to include verification that interlocks P-6 and P-10 are in their required states.

Response:

The Company agrees with Comment 1. DOC L.6 has been modified to delete the reference Low setpoint quarterly CFT testing.

In response to Comment 2, the following is provided. NUREG-1431 allows 4 hours for the source range and in the Bases for SR 3.3.1.8 states the following, ". . . allows a normal shutdown to be completed and the unit removed from the MODE of Applicability for this surveillance without a delay to perform the testing required by this surveillance." The change to the NUREG -1431 as documented in approved TSTF - 242 provides the justification for the change from 4 to 12 hours for the power and intermediate range channels as, "A review of plant work history (including performance and verification) revealed that COTs on the power range and intermediate range instrumentation require 1 to 2 hours per channel. This is consistent with the source range COT time allowance in SR 3.3.1.8, as 4 hours is given for a 2 channel system. However, the power range and intermediate range COTs consists of 6 channels and 4 hours isn't sufficient time to perform these COTs in a quality manner. Therefore, the time to perform these COTs is extended to 12 hours (2 hours per channel) to be consistent with the source range time allowance of 4 hours for 2 channels."

The Company agrees with Comment 3. DOC L.6 has been modified to state that DOC L.10 address the justification to delete the IRNF required testing.

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3.3.1-31 (continued)

The Company agrees with Comment 4. DOC A.29 has been added to address the SR 3.3.1.8 requirement to verify that interlocks P-6 and P-10 are in their required states.

In addition to the Comments listed above, the Company has removed the allowance of performing the required testing within 92 days of a reactor startup and returned to the CTS requirement of performing the surveillance within 31 days of a reactor startup. This should remove this change from the beyond scope classification.

Additional Response: DOC L.6 is changed to add the following discussion to the second paragraph: "These tests cannot be performed prior to the MODE of applicability because the reactor must be reducing power below the P-10 interlock in order to achieve this condition. This is not a predictable occurrence. The results of performing the surveillance requirement are normally found to be satisfactory. The time required to perform these SRs is approximately 2 hours per channel. Therefore, the Power and Intermediate Range channels take approximately 12 hours." The DOC L.6 second paragraph next to the last sentence is also changed to the following: "These instruments will continue to be tested at a frequency to ensure each channel's OPERABILITY requirements. The required testing ensures the channels proper operation and its safety functions are OPERABLE as required by their design requirements."

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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 proposed Action precludes a power level increase and allows a reasonable period of time for a slow and controlled power adjustment with no Intermediate Range channels OPERABLE status. The reactivity of the reactor is determined by the performance of a Shutdown Margin calculation to ensure it is maintained in a subcritical condition. The ITS requires the actions of precluding positive reactivity additions and reducing power. These remedial actions are for safe operation. 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
3.3.1-30
R5

RAZ
3.3.1-30
R12

L.6 (Category 7 – Relaxation Of Surveillance Frequency) CTS Table 4.3-1 lists for the Power Range Low Setpoint and Intermediate Range channels, the surveillance requirements for a CHANNEL FUNCTIONAL TEST (CFT). The Frequency of the CFT for these functions is S/U⁽¹⁾. S/U requires the surveillance must be performed prior to a reactor startup. Note⁽¹⁾ states, "If not performed in previous 31 days." The Source and Intermediate Ranges additionally require a quarterly test to be performed (Q⁽¹²⁾). Note⁽¹²⁾ states, "Quarterly Surveillance in MODE 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." The movement of the phrase, "by observation of the permissive annunciator window," is addressed by DOC LA.6. The deletion of quarterly surveillance in MODES 3*, 4*, and 5* is addressed by DOC L.10. The movement of the verification of Permissives P-6 and P-10 is addressed by DOC A.29. ITS SR 3.3.1.8 for the Source, Intermediate, and Power Range Neutron Flux Low Setpoint channels require a CHANNEL OPERATIONAL TEST (COT) to be performed every 92 days. Additionally, a COT must be performed for these instrument channels prior to reactor startup if not performed within the previous 92 days. The COT must be performed for the Source Range within 4 hours after reducing power below the P-6 setpoint and the Power Range Low Setpoint and Intermediate Range channels must perform the COT within 12 hours after power is reduced below the P-10 setpoint. This changes the CTS by allowing 4 hours for the Source Range and 12 hours for the Power and Intermediate Ranges to perform the required test after entry into the applicable MODES or other specified conditions.

RAI
3.3.1-31
R5

RAI
3.3.1
-31,33
R12

The purpose of ITS SR Frequency allowances is to provide a reasonable period of time that the SR may be performed on the required instrumentation channels upon entering the MODE of applicability. These tests cannot be performed prior to the MODE of applicability because the reactor must be reducing power below the P-10 interlock in order to achieve this condition. This is not a predictable occurrence. The results of performing the surveillance requirement are normally found to be

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3.3.1-31
R12

DISCUSSION OF CHANGES
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satisfactory. The time required to perform these SRs is approximately 2 hours per channel. Therefore, the Power and Intermediate Range channels take approximately 12 hours. This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. The Power Range Low Setpoint, Intermediate and Source Ranges through operating experience have shown to be reliable and usually satisfy the surveillance requirements. These instruments will continue to be tested at a frequency to ensure each channel's OPERABILITY requirements. The required testing ensures the channels proper operation and its safety functions are OPERABLE as required by their design requirements. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

RAI
3.3.1-31
R12

RAI
3.3.1-31
R5

- L.7 *(Category 6 – Relaxation of Surveillance Requirement Acceptance Criteria)* Unit 2 CTS surveillance requirements for the Power Range Neutron Flux High Setpoint are listed in Table 4.3-1: This requires the D⁽²⁾ CHANNEL CALIBRATION test to be performed on the instrumentation channels. Note (2) states, "Heat balance only, above 15 % of RATED THERMAL POWER. Adjust channel if absolute difference > 2 percent." ITS SR 3.3.1.2 is required for the Power Range Neutron Flux High Setpoint every 24 hours. The SR is modified by Note 2 that states, "Adjust NIS channel if difference is greater than (-) 2%." This changes the CTS only requiring an adjustment of the Power Range channel if indicated power of the NIS channel is more than 2 % lower than the calculated power of the calorimetric.

This change is acceptable because it has been determined that the relaxed Surveillance Requirement acceptance criteria are not necessary for verification that the equipment used to meet the LCO can perform its required functions. Operating experience has shown that adjustments of NIS channels down can create non-conservative trip setpoints for the Power Range channels. The elimination of the requirement to adjust the Power Range channels when they are above the calorimetric power is conservative. The decalibration of the Power Range channels usually occurs with adjustments at low power levels. The elimination of this portion of the requirement will preclude the decalibration of the channels. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

- L.8 *(Category 1 – Relaxation of LCO Requirements)* CTS requirements for RTS interlocks (P-6, P-8, P-10, and P-13) provide specific numbers for the Allowable Values. The Allowable Values for the P-7 function come from the requirements of P-10 and P-13. ITS requirements for these functions are provided with appropriate \geq or \leq symbols to specifically state the limits for each RTS interlock value. This changes the CTS by allowing the values of the RTS interlocks to be set to a limit not currently allowed.

This change is acceptable because the LCO requirements continue to ensure that the process variables are maintained consistent with the safety analyses and licensing

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3.3.1-33 ITS
STS
CTS
DOC L.11

NRC RAI: Comment: Provide a safety basis discussion for changing the SR to 92 days from 31 days.

Response: The Company withdraws the proposed change and deletes L.11. This changes SR 3.3.1.8 Frequency Note to read "31 days."

Additional Response: Re-instate and modify (shown in bold) DOC L.11 and modify L.6 to change Frequency Note "Only required when not performed within previous 92 days."

L.11 (Category 7 – Relaxation of Surveillance Frequency) CTS testing requirements listed in Table 4.3-1 require the Source, Intermediate, and Power Range channels to perform a **CHANNEL FUNCTIONAL TEST at S/U (1)**. Note (1) states, "If not performed within the previous 31 days." ITS SRs for these ranges of instrumentation channels are listed as SR 3.3.1.7 and 3.3.1.8. The frequency of these SRs is 92 days. A Note in the Frequency column of SR 3.3.1.8 states, "Only required when not performed within previous 92 days." This changes the CTS requirement by increasing the time from 31 to 92 days for the required testing.

This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. This change is acceptable because the frequency of the routine testing is 92 days. If the test has been performed within that period of time, the instrumentation channels are assumed to be OPERABLE. **The CTS frequency for the performance of the testing changed from 31 days to 92 days with the issuance of Technical Specification amendments #221 (Unit 1) and #202 (Unit 2). These TS amendments evaluated a change in the testing frequencies for the Source, Intermediate, and Power Range channels for the CHANNEL FUNCTIONAL TEST requirements and found that 92 days is an acceptable frequency to perform the required testing per WCAP - 10271.** This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

L.6 second paragraph is modified to read, "These instruments will continue to be tested at a frequency to ensure each channel's OPERABILITY requirements. The required testing ensures the channels proper operation and its safety functions are OPERABLE as required by their design requirements."

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.7 -----NOTE----- Not required to be performed for source range instrumentation prior to entering MODE 3 from MODE 2 until 4 hours after entry into MODE 3. ----- Perform COT.</p>	<p>92 days</p>
<p>SR 3.3.1.8 -----NOTE----- This Surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions. ----- Perform COT.</p>	<p>-----NOTE----- Only required when not performed within previous 92 days ----- Prior to reactor startup <u>AND</u> Four hours after reducing power below P-6 for source range instrumentation <u>AND</u> Twelve hours after reducing power below P-10 for power and intermediate range instrumentation <u>AND</u> Once per 92 days thereafter</p>

RAI
3.3.1-31
3.3.1-33
R5
R12

R12

R5

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.8 (continued)

relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The Frequency is modified by a Note that allows this surveillance to be satisfied if it has been performed within 92 days of the Frequencies prior to reactor startup and four hours after reducing power below P-10 and P-6. The Frequency of "prior to startup" ensures this surveillance is performed prior to critical operations and applies to the source, intermediate and power range low instrument channels. The Frequency of "12 hours after reducing power below P-10" (applicable to intermediate and power range low channels) and "4 hours after reducing power below P-6" (applicable to source range channels) allows a normal shutdown to be completed and the unit removed from the MODE of Applicability for this surveillance without a delay to perform the testing required by this surveillance. The Frequency of every 92 days thereafter applies if the unit remains in the MODE of Applicability after the initial performances of prior to reactor startup and twelve and four hours after reducing power below P-10 or P-6, respectively. The MODE of Applicability for this surveillance is < P-10 for the power range low and intermediate range channels and < P-6 for the source range channels. Once the unit is in MODE 3, this surveillance is no longer required. If power is to be maintained < P-10 for more than 12 hours or < P-6 for more than 4 hours, then the testing required by this surveillance must be performed prior to the expiration of the time limit.

RAI
3.3.1-31
3.3.1-33
R5
R12

Twelve hours and four hours are reasonable times to complete the required testing or place the unit in a MODE where this surveillance is no longer required. This test ensures that the NIS source, intermediate, and power range low channels are OPERABLE prior to taking the reactor critical and after reducing power into the applicable MODE (< P-10 or < P-6) for periods > 12 and 4 hours, respectively. Verification of the surveillance is accomplished by observing the permissive annunciator windows on the Main Control board.

R5

SR 3.3.1.9

SR 3.3.1.9 is a comparison of the excore channels to the incore channels based on analysis of a range of core flux distributions. If the measurements do not agree, the excore channels are not declared inoperable but must be adjusted
(continued)

RAI:
MB 1433
MB 1427
R8
3.3.1-39
R5

CTS

SURVEILLANCE REQUIREMENTS (continued)

Channel
Functional
TEST

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.8</p> <p>-----NOTE----- This Surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions. -----</p> <p>Perform COT.</p>	<p>-----NOTE----- Only required when not performed within previous 92 days</p> <p>Prior to reactor startup</p> <p>AND Twelve hours after reducing power below P-10 for power and intermediate range instrumentation</p> <p>AND Four hours after reducing power below P-6 for source range instrumentation</p> <p>AND Once per every 92 days thereafter</p>

RAI
3.3.1-31
3.3.1-33
R5
⑦
R12

②/R12
TSTF
242

②/R5

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.1.8

SR 3.3.1.8 is the performance of a COT as described in SR 3.3.1.7, except it is modified by a Note that this test shall include verification that the P-6 and P-10 interlocks are in their required state for the existing unit condition. The Frequency is modified by a Note that allows this surveillance to be satisfied if it has been performed within 92 days of the Frequencies prior to reactor startup and four hours after reducing power below P-10 and P-6. The Frequency of "prior to startup" ensures this surveillance is performed prior to critical operations and applies to the source, intermediate and power range low instrument channels. The Frequency of "4 hours after reducing power below P-10" (applicable to intermediate and power range low channels) and "4 hours after reducing power below P-6" (applicable to source range channels) allows a normal shutdown to be completed and the unit removed from the MODE of Applicability for this surveillance without a delay to perform the testing required by this surveillance. The Frequency of every 92 days thereafter applies if the plant remains in the MODE of Applicability after the initial performances of prior to reactor startup and four hours after reducing power below P-10 or P-6. The MODE of Applicability for this surveillance is < P-10 for the power range low and intermediate range channels and < P-6 for the source range channels. Once the unit is in MODE 3, this surveillance is no longer required. If power is to be maintained < P-10 or < P-6 for more than 4 hours, then the testing required by this surveillance must be performed prior to the expiration of the 4 hour limit. Four hours are a reasonable time to complete the required testing or place the unit in a MODE where this surveillance is no longer required. This test ensures that the NIS source, intermediate, and power range low channels are OPERABLE prior to taking the reactor critical and after reducing power into the applicable MODE (< P-10 or < P-6) for periods > 4 hours.

TSTF 205
 INSERT 1
 10
 RAI 3.3.1-31
 3.3.1-33
 R5 R12
 TSTF 242
 2
 Unit
 twelve and
 respectively
 for more than 12 hours
 time
 are
 twelve hours and
 12 and
 respectively
 INSERT 2
 5
 R5
 TSTF 205
 INSERT 5
 R5

SR 3.3.1.6

SR 3.3.1.6 is the performance of a TADOT and is performed every 92 days, as justified in Reference 7.

move to
SR 3.3.1.6

RAI MB1433 MB1427 R8, R15

(continued)

(A.11)

TABLE 4.3-1 (Continued)

NOTATION

- * - 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. 92 days for ITS SR 3.3.1.8 (L.11) R12 (A.25)
- (2) - Heat balance only, above 15% of RATED THERMAL POWER. INSERT PROPOSED NOTE (L.15)
- (3) - Compare incore to excore axial offset above 15% of RATED THERMAL POWER. Adjust channel if absolute difference ≥ 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 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. (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

NORTH ANNA - UNIT 1

3/4 3-14

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(L.24) | RAI
3.3.1-10
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RS, R15
3.3.1-39
RS, R15

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ITS

Note
SR 3.3.1.8
SR 3.3.1.15
Note
SR 3.3.1.2
Notes 1 & 2
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

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
Notes 1 & 2
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. (L.11) | RAF 3.3.1-33 R5 (A.25)
- (2) - Heat balance only, above 15% of RATED THERMAL POWER. Adjust channel ID absolute difference ~~52 percent~~ (L.7) (L.15) (L.19)
- (3) - Compare incore to excore axial offset above 15% of RATED THERMAL POWER. Recalibrate if absolute difference ≥ 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 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.~~ (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) | RAF 3.3.1-10 R5 | RAF MIB1433 MIB1427 RB, R15

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ITS 3.3.1, RTS INSTRUMENTATION

for existing plant conditions by observation of the permissive annunciator window.” ITS SR 3.3.1.8 for the Source, Intermediate and Power Range Neutron Flux channels requires a COT be performed every 92 days. In addition, ITS SR 3.3.1.8 allows the COT to be performed within 12 hours after reducing power below P-10 for the Power and Intermediate ranges of instrumentation. The COT must be performed for the Source Range channels within 4 hours after reducing power below P-6. This changes the CTS by allowing Source Range channels to perform a COT within 4 hours after power is reduced below the P-6 and Intermediate and Power Ranges within 12 hours after power is reduced below P-10 setpoint.

This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. With the unit shutting down, the performance of the SRs prior to entering the applicable MODE would create a distraction for the operators from performing their primary function of operating the unit safely. The 4 hours for the Source Range and 12 hours for the Intermediate and Power Range channels are appropriate because of these instruments generally pass the required surveillance requirements. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

- L.11 (Category 7 – Relaxation of Surveillance Frequency) CTS testing requirements listed in Table 4.3-1 require the Source, Intermediate, and Power Range channels to perform a CHANNEL FUNCTIONAL TEST at S/U (1). Note (1) states, “If not performed within the previous 31 days.” ITS SRs for these ranges of instrumentation channels are listed as SR 3.3.1.7 and 3.3.1.8. The frequency of these SRs is 92 days. A Note in the Frequency column of SR 3.3.1.8 states, “Only required when not performed within previous 92 days.” This changes the CTS requirement by increasing the time from 31 to 92 days for the required testing.

This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. This change is acceptable because the frequency of the routine testing is 92 days. If the test has been performed within that period of time, the instrumentation channels are assumed to be OPERABLE. The CTS frequency for the performance of the testing changed from 31 days to 92 days with the issuance of Technical Specification amendments #221 (Unit 1) and #202 (Unit 2). These TS amendments evaluated a change in the testing frequencies for the Source, Intermediate, and Power Range channels for the CHANNEL FUNCTIONAL TEST requirements and found that 92 days is an acceptable frequency to perform the required testing per WCAP - 10271. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

- L.12 Not used.

RAI
3.3.1-32

RS

R12

RAI
3.3.1-33
RS

DISCUSSION OF CHANGES
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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 proposed Action precludes a power level increase and allows a reasonable period of time for a slow and controlled power adjustment with no Intermediate Range channels OPERABLE status. The reactivity of the reactor is determined by the performance of a Shutdown Margin calculation to ensure it is maintained in a subcritical condition. The ITS requires the actions of precluding positive reactivity additions and reducing power. These remedial actions are for safe operation. 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
3.3.1-30
R5

RAI
3.3.1-30
R12

L.6 (Category 7 – Relaxation Of Surveillance Frequency) CTS Table 4.3-1 lists for the Power Range Low Setpoint and Intermediate Range channels, the surveillance requirements for a CHANNEL FUNCTIONAL TEST (CFT). The Frequency of the CFT for these functions is S/U ⁽¹⁾. S/U requires the surveillance must be performed prior to a reactor startup. Note ⁽¹⁾ states, "If not performed in previous 31 days." The Source and Intermediate Ranges additionally require a quarterly test to be performed (Q ⁽¹²⁾). Note ⁽¹²⁾ states, "Quarterly Surveillance in MODE 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." The movement of the phrase, "by observation of the permissive annunciator window," is addressed by DOC LA.6. The deletion of quarterly surveillance in MODES 3*, 4*, and 5* is addressed by DOC L.10. The movement of the verification of Permissives P-6 and P-10 is addressed by DOC A.29. ITS SR 3.3.1.8 for the Source, Intermediate, and Power Range Neutron Flux Low Setpoint channels require a CHANNEL OPERATIONAL TEST (COT) to be performed every 92 days. Additionally, a COT must be performed for these instrument channels prior to reactor startup if not performed within the previous 92 days. The COT must be performed for the Source Range within 4 hours after reducing power below the P-6 setpoint and the Power Range Low Setpoint and Intermediate Range channels must perform the COT within 12 hours after power is reduced below the P-10 setpoint. This changes the CTS by allowing 4 hours for the Source Range and 12 hours for the Power and Intermediate Ranges to perform the required test after entry into the applicable MODES or other specified conditions.

RAI
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RAI
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R12

The purpose of ITS SR Frequency allowances is to provide a reasonable period of time that the SR may be performed on the required instrumentation channels upon entering the MODE of applicability. These tests cannot be performed prior to the MODE of applicability because the reactor must be reducing power below the P-10 interlock in order to achieve this condition. This is not a predictable occurrence. The results of performing the surveillance requirement are normally found to be

RAI
3.3.1-31
R12

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

satisfactory. The time required to perform these SRs is approximately 2 hours per channel. Therefore, the Power and Intermediate Range channels take approximately 12 hours. This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. The Power Range Low Setpoint, Intermediate and Source Ranges through operating experience have shown to be reliable and usually satisfy the surveillance requirements. These instruments will continue to be tested at a frequency to ensure each channel's OPERABILITY requirements. The required testing ensures the channels proper operation and its safety functions are OPERABLE as required by their design requirements. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

RAI
3.3.1-31
R12

RAI
3.3.1-31
R5

- L.7 *(Category 6 – Relaxation of Surveillance Requirement Acceptance Criteria)* Unit 2 CTS surveillance requirements for the Power Range Neutron Flux High Setpoint are listed in Table 4.3-1: This requires the D⁽²⁾ CHANNEL CALIBRATION test to be performed on the instrumentation channels. Note (2) states, "Heat balance only, above 15 % of RATED THERMAL POWER. Adjust channel if absolute difference > 2 percent." ITS SR 3.3.1.2 is required for the Power Range Neutron Flux High Setpoint every 24 hours. The SR is modified by Note 2 that states, "Adjust NIS channel if difference is greater than (-) 2%." This changes the CTS only requiring an adjustment of the Power Range channel if indicated power of the NIS channel is more than 2 % lower than the calculated power of the calorimetric.

This change is acceptable because it has been determined that the relaxed Surveillance Requirement acceptance criteria are not necessary for verification that the equipment used to meet the LCO can perform its required functions. Operating experience has shown that adjustments of NIS channels down can create non-conservative trip setpoints for the Power Range channels. The elimination of the requirement to adjust the Power Range channels when they are above the calorimetric power is conservative. The decalibration of the Power Range channels usually occurs with adjustments at low power levels. The elimination of this portion of the requirement will preclude the decalibration of the channels. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

- L.8 *(Category 1 – Relaxation of LCO Requirements)* CTS requirements for RTS interlocks (P-6, P-8, P-10, and P-13) provide specific numbers for the Allowable Values. The Allowable Values for the P-7 function come from the requirements of P-10 and P-13. ITS requirements for these functions are provided with appropriate \geq or \leq symbols to specifically state the limits for each RTS interlock value. This changes the CTS by allowing the values of the RTS interlocks to be set to a limit not currently allowed.

This change is acceptable because the LCO requirements continue to ensure that the process variables are maintained consistent with the safety analyses and licensing

**NAPS Responses to NRC Requests for Additional Information
ITS Section 3.3, Instrumentation**

3.3.1-34 ITS
STS
CTS
DOC L.16

NRC RAI:

Comment #1 - DOC L.16 discusses changes to PRNF and OTΔT trip functions. The statements in the first paragraph are not organized such that it is well understood which CTS change is being evaluated. ITS SRs 3.3.1.3 and 3.3.1.6 are referenced. These surveillances include NOTES which are not discussed. Provide evaluation for CTS changes that result from adopting the SR NOTES.

Comment #2 - Show that no CTS changes result from adopting EFPD units.

Comment #3 - The second sentence in the second paragraph is unclear.

Comment #4 - Q⁽⁶⁾ CTS Channel Calibrations are changed in the ITS and these changes are not evaluated in DOC L.16.

Response:

The Company agrees with the Comments and DOC L.16 has been modified to address the changes.

Additional Response: DOC L.16 is modified to read: "This change is acceptable because the new Surveillance Frequency has been evaluated and has been shown to provide an acceptable level of equipment reliability." The following is added to the second paragraph, "The relationship of incore to excore measurement changes with the burnup in the reactor and depends upon what portion of the reactor produces the energy. The burnup of the fuel is not a function of calendar days but of total power produced by the reactor. A Frequency stated in EFPD is the appropriate unit for the surveillance frequency." Engineering judgement has determined that EFPD, not days, is the appropriate unit of measurement."

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

not assumed by the safety analyses, but is an operational consideration. The P-13 interlock actuates to provide an input signal to the P-7 interlock. With power level increasing above 10 % RTP, the P-7 interlock initiates a permissive signal to the Reactor Trip System. This allows the functions to generate a trip signal for the specified conditions. This function is assumed to function by the safety analyses. P-6, P-8, and P-13 interlock functions for the directions indicated above, are not assumed to provide safety system protection signals in the safety analyses. 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.15 (*Category 7 – Relaxation of Surveillance Frequency*) CTS surveillance requirements for the Power Range Neutron Flux CHANNEL CALIBRATION are listed in Table 4.3-1 as D⁽²⁾. This requires the four Power Range channels to be compared to the heat balance of the RCS (calorimetric) on a daily basis. Note⁽²⁾ state that the heat balance is required to be performed above 15 % RTP. ITS SR 3.3.1.2 for the Power Range Neutron Flux must be performed every 24 hours. The requirement is modified by Note 2, which states, "Not required to be performed until 12 hours after THERMAL POWER is \geq 15 % RTP." This changes the CTS by allowing 12 hours to perform a CHANNEL CALIBRATION after THERMAL POWER of the Power Range channels exceeds 15 % RTP for the initial surveillance testing.

This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. The allowance of 12 hours after exceeding 15 % RTP is a reasonable period of time during a plant start up. The transient nature of returning the plant to full power and performing the required testing requires the plant to be in a steady state condition. The operator monitors power level indications on a continuous basis and CHANNEL CHECKS must be performed on the Power Range channels on a 12-hour basis. The performance of the CHANNEL CHECK is sufficient compensatory measures to ensure the OPERABILITY for the Power Range channel instrumentation until the CHANNEL CALIBRATION is performed. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

- L.16 (*Category 7 – Relaxation of Surveillance Frequency*) CTS Table 4.3-1 lists a CHANNEL CALIBRATION requirement for the Power Range channels as M⁽³⁾. This requires CHANNEL CALIBRATION to be performed every 31 days. ITS SR 3.3.1.3 requires a comparison of the incore measurements to the excore indication every 31 effective full power days (EFPD). Other changes associated with this requirement are addressed in DOC L.9 and A.28. This changes the CTS by allowing CHANNEL CALIBRATION to be performed on an EFPD basis instead of calendar days.

The purpose of the ITS SR Frequency expressed in EFPD is to relate the requirement to a meaningful time frame. This change is acceptable because the new Surveillance

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3.3.1-34
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DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

Frequency has been evaluated and has been shown to provide an acceptable level of equipment reliability. The allowance for performing the comparison of the NIS channels indications to the incore indications are a function of burn up and not calendar days. The relationship of incore to excore measurement changes with the burnup in the reactor and depends upon what portion of the reactor produces the energy. The burnup of the fuel is not a function of calendar days but of total power produced by the reactor. A Frequency stated in EFPD is the appropriate unit for the surveillance frequency. Engineering judgement has determined that EFPD, not days, is the appropriate unit of measurement. This change is designated as less restrictive because Surveillances may be performed less frequently under the ITS than under the CTS.

RAI
3.3.1-34
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RAI
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R5

- L.17 (*Category 6 – Relaxation Of Surveillance Requirement Acceptance Criteria*) The CTS requires a CHANNEL FUNCTIONAL TEST for the Source Range Neutron Flux channels on a quarterly basis. Normally, if the reactor has been operating in MODE 1 for greater than 92 days, the surveillance should be performed prior to entering the MODE of Applicability on a reactor shutdown. The MODES of Applicability for these channels are listed as 2, 3, 4, and 5. To not perform the required surveillance prior to entry into the MODE of Applicability requires an exception to Surveillance Requirement 4.0.4. The CTS requirements do not contain the required exception. ITS SR 3.3.1.7 for the Source Range Neutron Flux channel requires a COT be performed every 92 days. This surveillance requirement is modified by a Note, which states, "Not required to be performed for source range instrumentation prior to entering MODE 3 from MODE 2 until 4 hours after entry into MODE 3." The applicable MODES for this requirement are listed as 2^(d), 3^(a), 4^(a), and 5^(a). Note ^(d) states, "Below the P-6 (Intermediate Range Neutron Flux) interlocks. Note ^(a) states, "With Rod Control System capable of rod withdrawal or one or more rods not fully inserted." This changes the CTS by allowing 4 hours, after entering MODE 3 from MODE 2, to perform the COT on the Source Range channels.

This change is acceptable because it has been determined that the relaxed Surveillance Requirement acceptance criteria are not necessary for verification that the equipment used to meet the LCO can perform its required functions. The allowance of 4 hours is reasonable period of time to delay the performance of the required testing during the transient condition of a plant shut down. During this period of time, the operator attention should not be distracted. Operating experience has shown that the Source Range channels usually satisfy these testing requirements and the channels remain OPERABLE as the reactor shut down is completed. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

- L.18 (*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

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Attachment

**Proposed Improved Technical Specifications
Changes Not Associated with Requests for Additional Information
ITS 3.3.1, "RTS Instrumentation"**

**Virginia Electric and Power Company
(Dominion)**

North Anna Power Station Units 1 and 2

Changes to ITS Submittal Not Associated With RAIs
ITS Section 3.3, Instrumentation

3. The Bases section for Allowable Values and RTS Setpoints in the first paragraph makes minor wording corrections. In the original submittal, the first sentence in the first paragraph stated, "The trip setpoints used in the bistables are summarized analytical limits stated in Reference 6. The fourth sentence stated, " The methodology used to evaluate...is provided in..."

Additional Response: The Bases section for Allowable Values and RTS Setpoints has been modified to provide the correct references for this section. The References listing was also modified by deleting a Technical Report reference.

5. Bases section for Applicable Safety Analysis (ASA), LCO, and Applicability in the fourth paragraph adds a discussion of four-channel instrumentation configuration.

Additional Response: The restored paragraph (in Revision 5) that addresses the four-channel logic (Bases page 3.3 – 7) changed the word "are" to "may be." The word "are" is restored and "may be" was deleted.

11. Bases section for Action L in the first and third paragraphs adds a discussion of a plant specific risk assessment.

Additional Response: The plant-specific risk assessment has been deleted from Condition L and added to Condition M. Also, eliminated references to single and two loop requirements that were not applicable.

12. Bases section for SR 3.3.1.4 in the second paragraph makes minor wording changes.

Additional Response: The second paragraph starting with the fifth sentence is re-structured to state the following: "The test of the bypass breaker is a local shunt trip actuation. A Note has been added to indicate that this test must be performed on the bypass breaker. The local manual shunt trip test of the RTB bypass breaker shall be conducted immediately after placing the bypass breaker into service. This test must be completed prior to the start of testing on the RTS or maintenance on a RTB."

15. Bases section for SR 3.3.1.12 in the second paragraph changes the "rate lag compensation" to "dynamic compensation." This is required because the SR verifies OT Δ T and OP Δ T functions. One function has a "rate lead" compensation correction, while the other has a "rate lag" compensation correction. "Dynamic compensation" provides an accurate description for these compensation factors.

Additional Response: The word "dynamic" is retained and modifying sentence is

added to state "The OTΔT function is lead/lag compensated and the OPΔT function is rate/lag compensated."

16. Bases section for SR 3.3.1.14 in the first paragraph makes minor wording changes.

Additional Response: The Bases section for SR 3.3.1.14 is revised. The word "circuits" is deleted and the word "mechanism" is restored.

17. Bases section for SR 3.3.1.16 third paragraph states, "... with the resulting measured response time compared to the appropriate UFSAR response time." This is incorrect and should state, "... TRM response time."

Additional Response: The Bases section for SR 3.3.1.16 is clarified. The affected sentence in the third paragraph is changed to read "... with the resulting measured response time compared to the appropriate UFSAR response time as listed in the TRM."

19. Reference section for number 6 states that technical report EE-0101 is the RTS/ESFAS Setpoint Methodology Study. This should state that "Technical Reports EE-0101 and EE-0116."

Additional Response: The Bases section for Allowable Values and RTS Setpoints has been modified to provide the correct references for this section. The References listing was also modified by deleting a Technical Report reference.

20. Various Bases sections NUREG -1431 markup corrections.

Additional Response: No change occurred to the Bases section referenced by this change. The NUREG markup pages were modified to agree with the typed Bases pages.

21. A correction to DOC LA.6.

Additional Response: Note 13 in the first paragraph is changed to Note 12. This was a typo.

22. A correction to DOC M.8.

Additional Response: DOC M.8 originally read "CTS Table 4.3-1 contains the Surveillance Requirements for the Intermediate Range and Source Range channels. A CHANNEL FUNCTIONAL TEST is required with a footnote. ITS SR 3.3.1.8 for the Intermediate and Source Ranges requires a CHANNEL OPERATIONAL TEST every 92 days." This is changed to read "CTS Table 4.3-1 contains a Surveillance Requirement for the Intermediate Range channels. A CHANNEL CALIBRATION is

required and modified by a footnote. ITS SR 3.3.1.11 for the Intermediate Ranges requires a CHANNEL CALIBRATION every 18 months.”

**Additional Change
LCO 3.3.1**

23. DOC A.27 first paragraph states “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 is changed to read, “The Condition provides for an inoperable channel that the channel must be **returned to OPERABLE status** within 72 hours or power must be reduced below P-7 setpoint within 78 hours.” This change is to accurately reflect the ITS requirement. (The bold type indicates the affected words.)

Changes to ITS Submittal Not Associated With RAIs
ITS Section 3.3, Instrumentation

3. The Bases section for Allowable Values and RTS Setpoints in the first paragraph makes minor wording corrections. In the original submittal, the first sentence in the first paragraph stated, "The trip setpoints used in the bistables are summarized analytical limits stated in Reference 6. The fourth sentence stated, " The methodology used to evaluate...is provided in..."

Additional Response: The Bases section for Allowable Values and RTS Setpoints has been modified to provide the correct references for this section. The References listing was also modified by deleting a Technical Report reference.

BASES

BACKGROUND

Signal Process Control and Protection System (continued)

reactor is at power may be accomplished without causing trip. Provisions to allow removing logic channels from service during maintenance are unnecessary because of the logic system's designed reliability.

Allowable Values and RTS Setpoints

The trip setpoints used in the bistables are based on the analytical limits cited in Reference 3. The selection of these trip setpoints is such that adequate protection is provided when all sensor and processing time delays are taken into account. To allow for calibration tolerances, instrumentation uncertainties, instrument drift, and severe environment errors for those RTS channels that must function in harsh environments as defined by 10 CFR 50.49 (Ref. 5), the Allowable Values specified in Table 3.3.1-1 in the accompanying LCO are conservative with respect to the analytical limits. The methodology used to calculate the trip setpoints and Allowable Values, including their explicit uncertainties, is cited in the "RTS/ESFAS Setpoint Methodology Study" (Ref. 6) which incorporates all of the known uncertainties applicable to each channel. The magnitudes of these uncertainties are factored into the determination of each trip setpoint and corresponding Allowable Value. The trip setpoint entered into the bistable is more conservative than that specified by the Allowable Value (LSSS) to account for measurement errors detectable by the COT. The Allowable Value serves as the Technical Specification OPERABILITY limit for the purpose of the COT. One example of such a change in measurement error is drift during the surveillance interval. If the measured setpoint does not exceed the Allowable Value, the bistable is considered OPERABLE.

R5
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R5

The trip setpoint is the value at which the bistable is set and is the expected value to be achieved during calibration. The trip setpoint value ensures the LSSS and the safety analysis limits are met for surveillance interval selected when a channel is adjusted based on stated channel uncertainties. Any bistable is considered to be properly adjusted when the "as left" setpoint value is within the band for CHANNEL CALIBRATION uncertainty allowance (i.e., \pm rack calibration + comparator setting uncertainties). The trip

(continued)

BASES

SURVEILLANCE
REQUIREMENTSSR 3.3.1.16 (continued)

resulting measured response time compared to the appropriate UFSAR response time as listed in the TRM. Alternately, the response time test can be performed with the time constants set to their nominal value, provided the required response time is analytically calculated assuming the time constants are set at their nominal values. The response time may be measured by a series of overlapping tests such that the entire response time is measured.

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As appropriate, each channel's response must be verified every 18 months on a STAGGERED TEST BASIS. Testing of the final actuation devices is included in the testing. Response times cannot be determined during unit operation because equipment operation is required to measure response times.

Experience has shown that these components usually pass this surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.3.1.16 is modified by a Note stating that neutron detectors are excluded from RTS RESPONSE TIME testing. This Note is necessary because of the difficulty in generating an appropriate detector input signal. Response of neutron flux signal portion of the channel time shall be measured from the detector or input of the first electronic component in the channel. Excluding the detectors is acceptable because the principles of detector operation ensure a virtually instantaneous response.

REFERENCES

1. UFSAR, Chapter 7.
2. UFSAR, Chapter 6.
3. UFSAR, Chapter 15.
4. IEEE-279-1971.
5. 10 CFR 50.49.
6. RTS/ESFAS Setpoint Methodology Study (Technical Report EE-0116).
7. WCAP-10271-P-A, Supplement 1, Rev. 1, June 1990 and WCAP-14333-P-A, Rev. 1, October 1998.

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BASES

BACKGROUND

Signal Process Control and Protection System (continued)

prevent the protection function actuation. These requirements are described in IEEE-279-1971 (Ref. 4). The actual number of channels required for each unit parameter is specified in Reference 1.

| R5

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

Trip Setpoints and Allowable Values and RTS Setpoints

The Trip Setpoints are the nominal values at which the bistables are set. Any bistable is considered to be properly adjusted when the "as left" value is within the band for CHANNEL CALIBRATION accuracy (i.e., \pm rack calibration / comparator setting accuracy).

TSTF
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The Trip Setpoints used in the bistables are based on the analytical limits stated in Reference 4. The selection of these Trip Setpoints is such that adequate protection is provided when all sensor and processing time delays are taken into account. To allow for calibration tolerances, instrumentation uncertainties, instrument drift, and severe environment errors for those RTS channels that must function in harsh environments as defined by 10 CFR 50.49 (Ref. 5), the Trip Setpoints and Allowable Values specified in Table 3.3.1.1 in the accompanying ICD are conservatively adjusted with respect to the analytical limits. A detailed description of the methodology used to calculate the Trip Setpoints, including their explicit uncertainties, is provided in the "RTS/ESFAS Setpoint Methodology Study" (Ref. 6). The actual nominal Trip Setpoint entered into the bistable is more conservative than that specified by the Allowable Value to account for changes in random measurement errors detectable by a COT. One example of such a change in measurement error is drift during the surveillance interval. If the measured setpoint does not exceed the Allowable Value, the bistable is considered OPERABLE.

③ | R5
② | R12

and Allowable Values

Cited

④ | R5

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TSTF
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(continued)

BASES

REFERENCES
(continued)

- 5. 10 CFR 50.49.
 - 6. RTS/ESFAS Setpoint Methodology Study. (Technical Report ES-0116) (2) 1
 - 7. WCAP-10271-P-A, Supplement ⁽¹⁾ 2, Rev. 1, June 1990. (and WCAP-14333-P-A REV. 1, October 1998)
 - 8. Technical Requirements Manual, Section 15, Response Times. (2)
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Changes to ITS Submittal Not Associated With RAIs
ITS Section 3.3, Instrumentation

5. Bases section for Applicable Safety Analysis (ASA), LCO, and Applicability in the fourth paragraph adds a discussion of four-channel instrumentation configuration.

Additional Response: The restored paragraph (in Revision 5) that addresses the four-channel logic (Bases page 3.3 – 7) changed the word “are” to “may be.” The word “are” is restored and “may be” was deleted.

BASES

APPLICABLE
SAFETY
ANALYSES, LCO,
and
APPLICABILITY

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

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

The LCO requires all instrumentation performing an RTS Function, listed in Table 3.3.1-1 in the accompanying LCO, to be OPERABLE. A channel is OPERABLE with a trip setpoint value outside its calibration tolerance band provided the trip setpoint "as-found" value does not exceed its associated Allowable Value and provided the trip setpoint "as-left" value is adjusted to a value within the "as-left" calibration tolerance band of the nominal trip setpoint. A trip setpoint may be set more conservative than the nominal trip setpoint as necessary in response to the unit conditions. Failure of any instrument renders the affected channel(s) inoperable and reduces the reliability of the affected Functions.

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

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BASES

BACKGROUND

Reactor Trip Switchgear (continued)

the reactor trip or ESF, these diagrams also describe the various "permissive interlocks" that are associated with unit conditions. Each train has a built in testing device that can automatically test the decision logic matrix Functions and the actuation devices while the unit is at power. When any one train is taken out of service for testing, the other train is capable of providing unit monitoring and protection until the testing has been completed. The testing device is semiautomatic to minimize testing time.

③ | RS

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

The RTS functions to maintain the SLs during all AOs and mitigates the consequences of DBAs in all MODES in which the RTBs are closed.

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

The LCO requires all instrumentation performing an RTS Function, listed in Table 3.3.1-1 in the accompanying LCO, to be OPERABLE. Failure of any instrument renders the affected channel(s) inoperable and reduces the reliability of the affected Functions.

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TSTF
355

The LCO generally requires OPERABILITY of four or three channels in each instrumentation Function, two channels of Manual Reactor Trip in each logic Function, and two trains in each Automatic Trip Logic Function. Four OPERABLE instrumentation channels in a two-out-of-four configuration are required when one RTS channel is also used as a control system input. This configuration accounts for the possibility of the shared channel failing in such a manner that it creates a transient that requires RTS action. In

| R12

(continued)

Rev 12

Changes to ITS Submittal Not Associated With RAIs
ITS Section 3.3, Instrumentation

11. Bases section for Action L in the first and third paragraphs adds a discussion of a plant specific risk assessment.

Additional Response: The plant-specific risk assessment has been deleted from Condition L and added to Condition M. Also, eliminated references to single and two loop requirements that were not applicable.

BASES

ACTIONS

K.1 and K.2 (continued)

based on operating experience in performing the Required Actions and the knowledge that unit conditions will change slowly.

Required Action K is modified by a Note which permits unit temperature changes provided the temperature change is accounted for in the calculated SDM. Introduction of temperature changes, including temperature increases when a positive MTC exists, must be evaluated to ensure they do not result in a loss of required SDM.

L.1 and L.2

Condition L applies to the following reactor trip Functions:

- Pressurizer Pressure-Low;
- Pressurizer Water Level-High;
- Reactor Coolant Flow-Low;
- Undervoltage RCPs; and
- Underfrequency RCPs.

With one channel inoperable, the inoperable channel must be placed in the tripped condition within 72 hours. For the Pressurizer Pressure-Low, Pressurizer Water Level-High, Undervoltage RCPs, and Underfrequency RCPs trip Functions, placing the channel in the tripped condition when above the P-7 setpoint results in a partial trip condition requiring only one additional channel to initiate a reactor trip. For the Reactor Coolant Flow-Low and RCP Breaker Position (Two Loops) trip Functions, placing the channel in the tripped condition results in a partial trip condition requiring only one additional channel in the same loop to initiate a reactor trip. For the latter two trip Functions, two tripped channels in two RCS loops are required to initiate a reactor trip when below the P-8 setpoint and above the P-7 setpoint. These functions do not have to be OPERABLE below the P-7 setpoint because there are no loss of flow trips below the P-7 setpoint. There is insufficient heat production to generate DNB conditions below the P-7 setpoint. The 72 hours allowed to place the channel in the tripped condition is justified in Reference 7. An additional 6 hours is allowed

(continued)

R12

R5
R12R5
R12

BASES

ACTIONS

L.1 and L.2 (continued)

to reduce THERMAL POWER to below P-7 if the inoperable channel cannot be restored to OPERABLE status or placed in trip within the specified Completion Time.

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

The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 12 hours while performing routine surveillance testing of the other channels. The 12 hour time limit is justified in Reference 7.

R5
R12

M.1 and M.2

Condition M applies to the RCP Breaker Position reactor trip Function. There is one breaker position device per RCP breaker. With one channel inoperable, the inoperable channel must be restored to OPERABLE status within 72 hours. If the channel cannot be restored to OPERABLE status within the 72 hours, then THERMAL POWER must be reduced below the P-7 setpoint within the next 6 hours.

R12

This places the unit in a MODE where the LCO is no longer applicable. This Function does not have to be OPERABLE below the P-7 setpoint because other RTS Functions provide core protection below the P-8 setpoint. The 72 hours allowed to restore the channel to OPERABLE status and the 6 additional hours allowed to reduce THERMAL POWER to below the P-7 setpoint are justified by a plant-specific risk assessment consistent with Reference 7.

R12

The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 12 hours while performing routine surveillance testing of the other channels. The 12 hour time limit is justified by a plant-specific risk assessment consistent with Reference 7.

R12

BASES

ACTIONS

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

9

sufficient time to perform the calculations and determine that the SDM requirements are met. The SDM must also be verified once per 12 hours thereafter to ensure that the core reactivity has not changed. Required Action ~~P.1~~ ⁹ precludes any positive reactivity additions; therefore, core reactivity should not be increasing, and a 12 hour Frequency is adequate. The Completion Times of within 1 hour and once per 12 hours are based on operating experience in performing the Required Actions and the knowledge that unit conditions will change slowly.

9

←INSERT 1→
TSTF
286

⁹ M.1 and M.2

TSTF
135

Condition M applies to the following reactor trip Functions:

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

9 | R12
9

TSTF
169

With one channel inoperable, the inoperable channel must be placed in the tripped condition within 6 hours. ⁷² Placing the channel in the tripped condition results in a partial trip condition requiring only one additional channel to initiate a reactor trip, above the P-7 setpoint and below the P-8 setpoint. These Functions do not have to be OPERABLE below the P-7 setpoint because there are no loss of flow trips below the P-7 setpoint. ⁷² The 6 hours allowed to place the channel in the tripped condition is justified in Reference 7. An additional 6 hours is allowed to reduce THERMAL POWER to below P-7 if the inoperable channel cannot be restored to OPERABLE status or placed in trip within the specified Completion Time.

9

TSTF
169

←INSERT 2→
TSTF
169

In the same loop

←INSERT 3→

9 | R5

←INSERT 4→

TSTF
135

R12

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

(continued)

INSERT 1

Required Action K is modified by a Note which permits unit temperature changes provided the temperature change is accounted for in the calculated SDM. Introduction of temperature changes, including temperature increases when a positive MTC exists, must be evaluated to ensure they do not result in a loss of required SDM.

INSERT 2

For the Pressurizer Pressure – Low, Pressurizer Water Level – High, Undervoltage RCPs, and Underfrequency RCPs trip Functions, placing the channel into the tripped condition when above the P-7 setpoint results in a partial trip condition requiring only one additional channel to initiate a reactor trip. For the Reactor Coolant Flow – Low and RCP Breaker Position (Two Loops) trip Function, placing the

INSERT 3

For the latter two trip Functions, two tripped channels in two RCS loops are required to initiate a reactor trip when below the P-8 setpoint and above the P-7 setpoint.

INSERT 4

There is insufficient heat production to generate DNB conditions below the P-7 setpoint.

INSERT 5

Not used.

INSERT 6

Not used.

R5
R12

BASES

ACTIONS

L M 1 and M 2 (continued)

OPERABLE channel, and the low probability of occurrence of an event during this period that may require the protection afforded by the Functions associated with Condition M 1, R

TSTF
135

The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 4 hours while performing routine surveillance testing of the other channels. The 4 hour time limit is justified in Reference 7. 12 9

R12 2

N.1 and N.2
Condition N applies to the Reactor Coolant Flow—Low (Single Loop) reactor trip Function. With one channel inoperable, the inoperable channel must be placed in trip within 6 hours. If the channel cannot be restored to OPERABLE status or the channel placed in trip within the 6 hours, then THERMAL POWER must be reduced below the P-8 setpoint within the next 4 hours. This places the unit in a MODE where the LCO is no longer applicable. This trip Function does not have to be OPERABLE below the P-8 setpoint because other RTS trip Functions provide core protection below the P-8 setpoint. The 6 hours allowed to restore the channel to OPERABLE status or place in trip and the 4 additional hours allowed to reduce THERMAL POWER to below the P-8 setpoint are justified in Reference 7.
The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 4 hours while performing routine surveillance testing of the other channels. The 4 hour time limit is justified in Reference 7.

TSTF
169

M 1 and 2

Condition 1 applies to the RCP Breaker Position Single Loop reactor trip function. There is one breaker position device per RCP breaker. With one channel inoperable, the inoperable channel must be restored to OPERABLE status within 6 hours. If the channel cannot be restored to OPERABLE status within the 6 hours, then THERMAL POWER must be reduced below the P-8 setpoint within the next 4 hours. 7 6

TSTF
169+135
R12

3 9

(continued)

INSERT 1

Not used.

INSERT 2

Not used.

R5
R12

BASES

ACTIONS

M 0.1 and 0.2 (continued)

This places the unit in a MODE where the LCO is no longer applicable. This Function does not have to be OPERABLE below the P-8 setpoint because other RTS Functions provide core protection below the P-8 setpoint. The 2 hours allowed to restore the channel to OPERABLE status and the 4 additional hours allowed to reduce THERMAL POWER to below the P-8 setpoint are justified in Reference 7. The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 4 hours while performing routine surveillance testing of the other channels. The 4 hour time limit is justified in Reference 7.

Space
=>

7 9
72 9
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12 9
INSERT 2 | R
12

N 0.1 and 0.2

Condition applies to Turbine Trip on Low Auto Stop Oil Pressure or on Turbine Stop Valve Closure. With one channel inoperable, the inoperable channel must be placed in the trip condition within 2 hours. If placed in the tripped condition, this results in a partial trip condition requiring only one additional channel to initiate a reactor trip. If the channel cannot be restored to OPERABLE status or placed in the trip condition, then power must be reduced below the P-8 setpoint within the next 4 hours. The 2 hours allowed to place the inoperable channel in the tripped condition and the 4 hours allowed for reducing power are justified in Reference 7.

The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 4 hours while performing routine surveillance testing of the other channels. The 4 hour time limit is justified in Reference 7.

2
TSTF,
169+
135

RAZ
331-15
R12

D 0.1 and 0.2

Condition applies to the SI Input from ESFAS reactor trip and the RTS Automatic Trip Logic in MODES 1 and 2. These actions address the train orientation of the RTS for these Functions. With one train inoperable, 24 hours are allowed to restore the train to OPERABLE status (Required Action 0.1) or the unit must be placed in MODE 3 within the

(continued)

INSERT

by a plant-specific risk assessment consistent with

Changes to ITS Submittal Not Associated With RAIs
ITS Section 3.3, Instrumentation

12. Bases section for SR 3.3.1.4 in the second paragraph makes minor wording changes.

Additional Response: The second paragraph starting with the fifth sentence is re-structured to state the following: "The test of the bypass breaker is a local shunt trip actuation. A Note has been added to indicate that this test must be performed on the bypass breaker. The local manual shunt trip test of the RTB bypass breaker shall be conducted immediately after placing the bypass breaker into service. This test must be conducted prior to the start of testing on the RTS or maintenance on a RTB."

BASES

SURVEILLANCE
REQUIREMENTSSR 3.3.1.3 (continued)

Two Notes modify SR 3.3.1.3. Note 1 indicates that the excore NIS channel shall be adjusted if the absolute difference between the incore and excore AFD is $\geq 3\%$. Note 2 clarifies that the Surveillance is required only if reactor power is $\geq 50\%$ RTP and that 7 days are allowed for performing the Surveillance and channel adjustment, if necessary, after reaching 50% RTP. A power level of $\geq 50\%$ RTP is consistent with the requirements of SR 3.3.1.9. Performance of SR 3.3.1.9 may be used in lieu of SR 3.3.1.3 since SR 3.3.1.9 calibrates (i.e., requires channel adjustment) the excore channels to the incore channels and therefore envelopes the performance of SR 3.3.1.3.

For each operating cycle, the initial channel normalization is performed under SR 3.3.1.9. Subsequent verification at a frequency of every 31 EFPD is adequate. It is based on unit operating experience, considering instrument reliability, and the slow changes in neutron flux during the fuel cycle, which can be detected during this interval.

SR 3.3.1.4

SR 3.3.1.4 is the performance of a TADOT every 31 days on a STAGGERED TEST BASIS. This test shall verify OPERABILITY by actuation of the end devices. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

The RTB test shall include separate verification of the undervoltage and shunt trip mechanisms. Independent verification of RTB undervoltage and shunt trip Function is not required for the bypass breakers. No capability is provided for performing such a test at power. The independent test for bypass breakers is included in SR 3.3.1.14. The test of the bypass breaker is a local shunt trip actuation. A Note has been added to indicate that this test must be performed on the bypass breaker. The local manual shunt trip of the RTB bypass shall be conducted immediately after placing the bypass breaker into service.

(continued)

RAIs
MB 1433
MB 1427
RB
3.3.1-39
RS

RS
R12

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.4 (continued)

This test must be conducted prior to the start of testing on the RTS or maintenance on a RTB. This checks the mechanical operation of the bypass breaker.

R5
R12

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

SR 3.3.1.5

SR 3.3.1.5 is the performance of an ACTUATION LOGIC TEST. The SSPS is tested every 31 days on a STAGGERED TEST BASIS, using the semiautomatic tester. The train being tested is placed in the bypass condition, thus preventing inadvertent actuation. Through the semiautomatic tester, all possible logic combinations, with and without applicable permissives, are tested for each protection function, including operation of the P-7 permissive which is a logic function only. The Frequency of every 31 days on a STAGGERED TEST BASIS is adequate. It is based on industry operating experience, considering instrument reliability and operating history data.

RAI
3.3.1-05
R12

SR 3.3.1.6

SR 3.3.1.6 is the performance of a TADOT and is performed every 92 days, as justified in Reference 7. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

RAIs
MB 1433
MB 1427
R8
3.3.1-39
R5
R5

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

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.1.4

SR 3.3.1.4 is the performance of a TADOT every 31 days on a STAGGERED TEST BASIS. This test shall verify OPERABILITY by actuation of the end devices.

INSERT 1 TSTF 205

The RTB test shall include separate verification of the undervoltage and shunt trip mechanisms. Independent verification of RTB undervoltage and shunt trip Function is not required for the bypass breakers. No capability is provided for performing such a test at power. The independent test for bypass breakers is included in SR 3.3.1.14. The bypass breaker test shall include a local shunt trip. A Note has been added to indicate that this test must be performed on the bypass breaker, prior to placing it in service.

5

of the
actuation

13

9 / RS
R12

INSERT 2

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

SR 3.3.1.5

SR 3.3.1.5 is the performance of an ACTUATION LOGIC TEST. The SSPS is tested every 31 days on a STAGGERED TEST BASIS, using the semiautomatic tester. The train being tested is placed in the bypass condition, thus preventing inadvertent actuation. Through the semiautomatic tester, all possible logic combinations, with and without applicable permissives, are tested for each protection function. The Frequency of every 31 days on a STAGGERED TEST BASIS is adequate. It is based on industry operating experience, considering instrument reliability and operating history data.

INSERT 3 9 / RS

SR 3.3.1.6

Comparison

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

30

Added to
SR 3.3.1.9

(continued)

RAI
MB1433
MB1427
R8, R15
3.3.1-39
R5, R15, R16

KCU16

INSERT 1

A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

INSERT 2

The local manual shunt trip test of the RTB bypass breaker shall be conducted immediately after placing the bypass breaker into service. This test must be conducted prior to the start of testing on the RTS or maintenance on a RTB. This checks the mechanical operation of the bypass breaker.

RS
R12

INSERT 3

, including operation of the P-7 permissive which is a logic function only.

TSTF
397

MB1433
MB1427
RAI
3.3.1-39
RS
R15

Changes to ITS Submittal Not Associated With RAIs
ITS Section 3.3, Instrumentation

15. Bases section for SR 3.3.1.12 in the second paragraph changes the “rate lag compensation” to “dynamic compensation.” This is required because the SR verifies OT Δ T and OP Δ T functions. One function has a “rate lead” compensation correction, while the other has a “rate lag” compensation correction. “Dynamic compensation” provides an accurate description for these compensation factors.

Additional Response: The word “dynamic” is retained and modifying sentence is added to state “The OT Δ T function is lead/lag compensated and the OP Δ T function is rate/lag compensated.”

BASES

SURVEILLANCE
REQUIREMENTSSR 3.3.1.12 (continued)

This test will verify the dynamic compensation for flow from the core to the RTDs. The OT Δ T function is lead/lag compensated and the OP Δ T function is rate/lag compensated.

R5
R12

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

SR 3.3.1.13

SR 3.3.1.13 is the performance of a COT of RTS interlocks every 18 months. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL OPERATIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

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

SR 3.3.1.14

SR 3.3.1.14 is the performance of a TADOT of the Manual Reactor Trip, RCP Breaker Position, and the SI Input from ESFAS. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. This TADOT is performed every 18 months. The test shall independently verify the OPERABILITY of the undervoltage and shunt trip mechanisms for the Manual Reactor Trip Function for the Reactor Trip Breakers and undervoltage trip mechanism for the Reactor Trip Bypass Breakers. The Reactor Trip Bypass Breaker test shall include testing of the automatic undervoltage trip.

R:
R1:

(continued)

RAI
MB1433
MB1427
R8, R15

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.11 (continued)

plateau or preamp discriminator curves, evaluating those curves, and comparing the curves to the manufacturer's data. This Surveillance is not required for the NIS power range detectors for entry into MODE 2 or 1, and is not required for the NIS intermediate range detectors for entry into MODE 2, because the unit must be in at least MODE 2 to perform the test for the intermediate range detectors and MODE 1 for the power range detectors. The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed on the 18 month Frequency.

①
Unit ②
①

SR 3.3.1.12

SR 3.3.1.12 is the performance of a CHANNEL CALIBRATION, as described in SR 3.3.1.10, every 18 months. This SR is modified by a Note stating that this test shall include verification of the RCS resistance temperature detector (RTD) bypass loop flow rate.

(INSERT 1)

TSTF 19
①
⑥

This test will verify the ^{dynamic} rate lag compensation for flow from the core to the RTDs. ~~THE OTAT FUNCTION IS LEAD/LAG COMPENSATED AND THE OTAT FUNCTION IS RATE/LAG COMPENSATED.~~

③ | RS
R12

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

SR 3.3.1.13

SR 3.3.1.13 is the performance of a COT of RTS interlocks every 18 months.

TSTF 205 ①

(INSERT 2)

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

(continued)

Rev 15

Changes to ITS Submittal Not Associated With RAIs
ITS Section 3.3, Instrumentation

16. Bases section for SR 3.3.1.14 in the first paragraph makes minor wording changes.

Additional Response: The Bases section for SR 3.3.1.14 is revised. The word "circuits" is deleted and the word "mechanism" is restored.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.12 (continued)

This test will verify the dynamic compensation for flow from the core to the RTDs. The $OT\Delta T$ function is lead/lag compensated and the $OP\Delta T$ function is rate/lag compensated.

R5
R12

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

SR 3.3.1.13

SR 3.3.1.13 is the performance of a COT of RTS interlocks every 18 months. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL OPERATIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

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

SR 3.3.1.14

SR 3.3.1.14 is the performance of a TADOT of the Manual Reactor Trip, RCP Breaker Position, and the SI Input from ESFAS. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. This TADOT is performed every 18 months. The test shall independently verify the OPERABILITY of the undervoltage and shunt trip mechanisms for the Manual Reactor Trip Function for the Reactor Trip Breakers and undervoltage trip mechanism for the Reactor Trip Bypass Breakers. The Reactor Trip Bypass Breaker test shall include testing of the automatic undervoltage trip.

R5
R12

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.1.14

SR 3.3.1.14 is the performance of a TADOT of the Manual Reactor Trip, RCP Breaker Position, and the SI Input from ESFAS. This TADOT is performed every 18 months. The test shall independently verify the OPERABILITY of the undervoltage and shunt trip mechanisms for the Manual Reactor Trip Function for the Reactor Trip Breakers and Reactor Trip Bypass Breakers. The Reactor Trip Bypass Breaker test shall include testing of the automatic undervoltage trip.

① TSTF205
← INSERT 1
② undervoltage trip mechanism for the
R12
RS

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

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

SR 3.3.1.15

SR 3.3.1.15 is the performance of a TADOT of Turbine Trip Functions. This TADOT is as described in SR 3.3.1.4, except that this test is performed prior to reactor startup. A Note states that this Surveillance is not required if it has been performed within the previous 31 days. Verification of the trip setpoint does not have to be performed for this Surveillance. Performance of this test will ensure that the turbine trip Function is OPERABLE prior to taking the reactor critical. This test cannot be performed with the reactor at power and must therefore be performed prior to reactor startup.

TSTF205
← INSERT 1 ②
← INSERT 2 TSTF 311
⑨
Exceeding the P-8 interlock TSTF 311

SR 3.3.1.16

SR 3.3.1.16 verifies that the individual channel/train actuation response times are less than or equal to the maximum values assumed in the accident analysis. Response time testing acceptance criteria are included in Technical Requirements Manual, Section 15 (Ref. 8). Individual component response times are not modeled in the analyses.

④
②

(continued)

Rev 12

Changes to ITS Submittal Not Associated With RAIs
ITS Section 3.3, Instrumentation

17. Bases section for SR 3.3.1.16 third paragraph states, “. . . with the resulting measured response time compared to the appropriate UFSAR response time.” This is incorrect and should state, “. . . TRM response time.”

Additional Response: The Bases section for SR 3.3.1.16 is clarified. The affected sentence in the third paragraph is changed to read “. . . with the resulting measured response time compared to the appropriate UFSAR response time as listed in the TRM.”

BASES

SURVEILLANCE
REQUIREMENTSSR 3.3.1.16 (continued)

resulting measured response time compared to the appropriate UFSAR response time as listed in the TRM. Alternately, the response time test can be performed with the time constants set to their nominal value, provided the required response time is analytically calculated assuming the time constants are set at their nominal values. The response time may be measured by a series of overlapping tests such that the entire response time is measured.

R5
R12

As appropriate, each channel's response must be verified every 18 months on a STAGGERED TEST BASIS. Testing of the final actuation devices is included in the testing. Response times cannot be determined during unit operation because equipment operation is required to measure response times.

Experience has shown that these components usually pass this surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.3.1.16 is modified by a Note stating that neutron detectors are excluded from RTS RESPONSE TIME testing. This Note is necessary because of the difficulty in generating an appropriate detector input signal. Response of neutron flux signal portion of the channel time shall be measured from the detector or input of the first electronic component in the channel. Excluding the detectors is acceptable because the principles of detector operation ensure a virtually instantaneous response.

REFERENCES

1. UFSAR, Chapter 7.
2. UFSAR, Chapter 6.
3. UFSAR, Chapter 15.
4. IEEE-279-1971.
5. 10 CFR 50.49.
6. RTS/ESFAS Setpoint Methodology Study (Technical Report EE-0116).
7. WCAP-10271-P-A, Supplement 1, Rev. 1, June 1990 and WCAP-14333-P-A, Rev. 1, October 1998.

R5
R12

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.16 (continued)

The analyses model the overall or total elapsed time, from the point at which the parameter exceeds the trip setpoint value at the sensor to the point at which the equipment reaches the required functional state (i.e., control and shutdown rods fully inserted in the reactor core).

For channels that include dynamic transfer Functions (e.g., lag, lead/lag, rate/lag, etc.), the response time test may be performed with the transfer function set to one, with the resulting measured response time compared to the appropriate ~~FSAR response time~~. Alternately, the response time test can be performed with the time constants set to their nominal value, provided the required response time is analytically calculated assuming the time constants are set at their nominal values. The response time may be measured by a series of overlapping tests such that the entire response time is measured.

AS LISTED
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TRM

② | RS
R12

④

①

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

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

⑤

REFERENCES

1. ~~U~~ FSAR, Chapter ~~B7~~.
2. ~~U~~ FSAR, Chapter ~~6~~.
3. ~~U~~ FSAR, Chapter ~~15~~.
4. IEEE-279-1971.

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② ①
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(continued)

Rev 12

Changes to ITS Submittal Not Associated With RAIs
ITS Section 3.3, Instrumentation

19. Reference section for number 6 states that technical report EE-0101 is the RTS/ESFAS Setpoint Methodology Study. This should state that "Technical Reports EE-0101 and EE-0116."

Additional Response: The Bases section for Allowable Values and RTS Setpoints has been modified to provide the correct references for this section. The References listing was also modified by deleting a Technical Report reference.

BASES

BACKGROUND

Signal Process Control and Protection System (continued)

reactor is at power may be accomplished without causing trip. Provisions to allow removing logic channels from service during maintenance are unnecessary because of the logic system's designed reliability.

Allowable Values and RTS Setpoints

The trip setpoints used in the bistables are based on the analytical limits cited in Reference 3. The selection of these trip setpoints is such that adequate protection is provided when all sensor and processing time delays are taken into account. To allow for calibration tolerances, instrumentation uncertainties, instrument drift, and severe environment errors for those RTS channels that must function in harsh environments as defined by 10 CFR 50.49 (Ref. 5), the Allowable Values specified in Table 3.3.1-1 in the accompanying LCO are conservative with respect to the analytical limits. The methodology used to calculate the trip setpoints and Allowable Values, including their explicit uncertainties, is cited in the "RTS/ESFAS Setpoint Methodology Study" (Ref. 6) which incorporates all of the known uncertainties applicable to each channel. The magnitudes of these uncertainties are factored into the determination of each trip setpoint and corresponding Allowable Value. The trip setpoint entered into the bistable is more conservative than that specified by the Allowable Value (LSSS) to account for measurement errors detectable by the COT. The Allowable Value serves as the Technical Specification OPERABILITY limit for the purpose of the COT. One example of such a change in measurement error is drift during the surveillance interval. If the measured setpoint does not exceed the Allowable Value, the bistable is considered OPERABLE.

R5
R12

R5

R5

The trip setpoint is the value at which the bistable is set and is the expected value to be achieved during calibration. The trip setpoint value ensures the LSSS and the safety analysis limits are met for surveillance interval selected when a channel is adjusted based on stated channel uncertainties. Any bistable is considered to be properly adjusted when the "as left" setpoint value is within the band for CHANNEL CALIBRATION uncertainty allowance (i.e., \pm rack calibration + comparator setting uncertainties). The trip

(continued)

BASES

SURVEILLANCE
REQUIREMENTSSR 3.3.1.16 (continued)

resulting measured response time compared to the appropriate UFSAR response time as listed in the TRM. Alternately, the response time test can be performed with the time constants set to their nominal value, provided the required response time is analytically calculated assuming the time constants are set at their nominal values. The response time may be measured by a series of overlapping tests such that the entire response time is measured.

R5
R12

As appropriate, each channel's response must be verified every 18 months on a STAGGERED TEST BASIS. Testing of the final actuation devices is included in the testing. Response times cannot be determined during unit operation because equipment operation is required to measure response times.

Experience has shown that these components usually pass this surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.3.1.16 is modified by a Note stating that neutron detectors are excluded from RTS RESPONSE TIME testing. This Note is necessary because of the difficulty in generating an appropriate detector input signal. Response of neutron flux signal portion of the channel time shall be measured from the detector or input of the first electronic component in the channel. Excluding the detectors is acceptable because the principles of detector operation ensure a virtually instantaneous response.

REFERENCES

1. UFSAR, Chapter 7.
2. UFSAR, Chapter 6.
3. UFSAR, Chapter 15.
4. IEEE-279-1971.
5. 10 CFR 50.49.
6. RTS/ESFAS Setpoint Methodology Study (Technical Report EE-0116).
7. WCAP-10271-P-A, Supplement 1, Rev. 1, June 1990 and WCAP-14333-P-A, Rev. 1, October 1998.

R5
R12

BASES

BACKGROUND

Signal Process Control and Protection System (continued)

prevent the protection function actuation. These requirements are described in IEEE-279-1971 (Ref. 4). The actual number of channels required for each unit parameter is specified in Reference 1.

RS

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

Trip Setpoints and Allowable Values and RTS Setpoints

The Trip Setpoints are the nominal values at which the bistables are set. Any bistable is considered to be properly adjusted when the "as left" value is within the band for CHANNEL CALIBRATION accuracy (i.e., \pm rack calibration comparator setting accuracy).

TSTF: 355

The Trip Setpoints used in the bistables are based on the analytical limits stated in Reference 1. The selection of these Trip Setpoints is such that adequate protection is provided when all sensor and processing time delays are taken into account. To allow for calibration tolerances, instrumentation uncertainties, instrument drift, and severe environment errors for those RTS channels that must function in harsh environments as defined by 10 CFR 50.49 (Ref. 5), the Trip Setpoints and Allowable Values specified in

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RS
R12

Table 3.3.1-1 in the accompanying LCD are conservatively adjusted with respect to the analytical limits. A detailed description of the methodology used to calculate the Trip Setpoints including their explicit uncertainties, is provided in the "RTS/ESFAS Setpoint Methodology Study" (Ref. 6). The actual nominal Trip Setpoint entered into the

9
RS

and Allowable Values

Cited

bistable is more conservative than that specified by the Allowable Value to account for changes in random measurement errors detectable by a COT. One example of such a change in measurement error is drift during the surveillance interval. If the measured setpoint does not exceed the Allowable Value, the bistable is considered OPERABLE.

INSERT
TSTF
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(continued)

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BASES

REFERENCES
(continued)

- 5. 10 CFR 50.49.
- 6. RTS/ESFAS Setpoint Methodology Study. Technical Report ES-0116 (2) 1
- 7. WCAP-10271-P-A, Supplement ¹2, Rev. 1, June 1990, and WCAP-14333-P-A REV. 1, October 1998
- 8. Technical Requirements Manual, Section 15, Response Times. (2)

R5
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2

Changes to ITS Submittal Not Associated With RAIs
ITS Section 3.3, Instrumentation

20. Various Bases sections NUREG –1431 markup corrections.

Additional Response: No change occurred to the Bases section referenced by this change. The NUREG markup pages were modified to agree with the typed Bases pages.

**Changes to ITS Submittal Not Associated With RAIs
ITS Section 3.3, Instrumentation**

21. A correction to DOC LA.6.

Additional Response: Note 13 in the first paragraph is changed to Note 12. This was a typo.

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

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 observation of the permissive annunciator window.” The requirement of verification for P-6 and P-10 is retained in ITS SR 3.3.1.8. This changes the CTS by moving the requirement of “observation of the permissive annunciator window,” 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 requirements for the OPERABILITY of interlocks P-6 and P-10. The information about the interlocks does not provide a specific requirement for each function, but only describe the mechanics for the function verification. 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.7 *(Type 3 – Removing Procedural Details for Meeting TS Requirements and Related Reporting Problems)* CTS 2.2.1 Action states, “with the RTS instrumentation setpoint less conservative than the Allowable Value, the instrumentation channel must be declared inoperable.” With the channels inoperable, the applicable Action of ITS 3.3.1.1 shall be entered, and the channel’s trip setpoint shall be adjusted to be

**Changes to ITS Submittal Not Associated With RAIs
ITS Section 3.3, Instrumentation**

22. A correction to DOC M.8.

Additional Response: DOC M.8 originally read "CTS Table 4.3-1 contains the Surveillance Requirements for the Intermediate Range and Source Range channels. A CHANNEL FUNCTIONAL TEST is required with a footnote. ITS SR 3.3.1.8 for the Intermediate and Source Ranges requires a CHANNEL OPERATIONAL TEST every 92 days." This is changed to read "CTS Table 4.3-1 contains a Surveillance Requirement for the Intermediate Range channels. A CHANNEL CALIBRATION is required and modified by a footnote. ITS SR 3.3.1.11 for the Intermediate Ranges requires a CHANNEL CALIBRATION every 18 months."

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

designated as more restrictive because the additional restrictions have been placed on the CTS requirements.

RAI
3.3.1-23
R5

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
R5

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. The CHANNEL CALIBRATION is added to provide appropriate Technical Specification OPERABILITY requirements to ensure the function can perform its safety function. The ITS Note ensures the time constants requirement is explicitly stated. The time constants for various functions are currently verified under CTS requirements. The addition of the ITS Note to the surveillance requirement is considered an administrative change. This change is designated as more restrictive because the current requirement for the Turbine Trip does not require periodic CHANNEL CALIBRATION verification.

RAI
3.3.1-24
R12

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. A Note modifies the SR. The Note states, "Neutron detectors are excluded from CHANNEL CALIBRATION." This changes the CTS by deleting a portion of the Note allowing the Specification 4.0.4 allowance.

R5
R12

R5

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, and because a new requirement has been added to the SR.

MB1433
MB1427
RB, R15
RAI
3.3.1-39
R5 R15

**Additional Change
LCO 3.3.1**

23. DOC A.27 first paragraph states "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 is changed to read, "The Condition provides for an inoperable channel that the channel must be **returned to OPERABLE status** within 72 hours or power must be reduced below P-7 setpoint within 78 hours." This change is to accurately reflect the ITS requirement. (The bold type indicates the affected words.)

DISCUSSION OF CHANGES
ITS 3.3.1, RTS INSTRUMENTATION

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 returned to OPERABLE status 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

RAI
3.3.1-08
R12

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 if absolute difference \geq 3 percent." The CTS does not specify a CHANNEL CALIBRATION for the Overtemperature (OT) Δ T function. ITS Table 3.3.1-1 specifies SR 3.3.1.3 for PRNF and OT Δ T functions. SR 3.3.1.3 states, "Compare results of the incore detector measurements to NIS AFD," every 31 effective full power days (EFPD). Two Notes modify the SR. Note 1 states, "Adjust NIS channel

RAI
3.3.1-12
RS

MB1433
MB M27
R0, RS
3.3.1-39
RS, R15