VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

January 31, 2002

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Serial No.:	01- 711A
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
REQUESTS FOR ADDITIONAL INFORMATION – BEYOND SCOPE ISSUES
ITS 3.3.1: OTΔT AND OPΔT CONSTANTS (TAC Nos. MB2073 and MB2075)
ITS 3.3.1: OTΔT ALLOWABLE VALUE (TAC Nos. MB1437 and MB1432)

This letter transmits revisions to the North Anna Power Station (NAPS) 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 regarding the following items:

- Movement of the constants and gains for the overtemperature delta temperature (OTΔT) and overpower delta temperature (OPΔT) allowable values from the Technical Specifications to the Core Operating Limits Report. The NRC requested this information in a letter dated November 7, 2001 (TAC Nos. MB2073 and MB2075). Dominion provided a response to the NRC's request in a letter dated December 12, 2001 (Serial No. 01-711), which stated that the revised pages of the submittal would be provided at a later date.

- Derivation of the OTΔT allowable value. The NRC requested this information in a letter dated December 7, 2001 (TAC Nos. MB1437 and MB1432). Dominion provided a response to the NRC's request in a letter dated January 2, 2002 (Serial No. 01-751), which stated that the revised pages of the submittal would be provided at a later date.

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- Proposed changes to Surveillance Requirement 3.3.1.6, which calibrates the excore Nuclear Instrumentation System. The NRC requested this information in a letter dated September 18, 2001 (TAC Nos. MB1433 and MB1427). Dominion provided a response to the NRC's request in a letter dated November 8, 2001 (Serial No. 01-612). However, in a telephone call with members of your staff, on December 7, 2001, the Company agreed to revise the November 8, 2001 response.

Attached are the NRC's RAIs, our responses to the RAIs, and the revised pages of the submittal, which complete our responses to the subject RAIs. Additionally, we have marked up the pages of the draft Safety Evaluation to incorporate these changes, and included them as attachments to this letter.

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

Very truly yours,

For:

Leslie N. Hartz
Vice President - Nuclear Engineering

Attachment

Commitments made in this letter: None.

cc: U.S. Nuclear Regulatory Commission
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SN: 01-711A
Docket Nos.: 50-338/339
Subject: Proposed ITS RAI – ITS 3.3.1

COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Stephen P. Sarver, who is Director - Nuclear Licensing and Operations Support, of Virginia Electric and Power Company. He has affirmed before me that he is duly authorized to execute and file the foregoing document in behalf of that Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 31st day of January, 2002.

My Commission Expires: March 31, 2004.

Maggie McClure
Notary Public

(SEAL)

Attachment

Proposed Improved Technical Specifications
Response to Request for Additional Information
Section 3.3.1: Beyond Scope Issue
OTΔT and OPΔT Constants and Gains
TAC Nos. MB2073 and MB2075

Virginia Electric and Power Company
(Dominion)

North Anna Power Station Units 1 and 2

NAPS Responses to NRC Requests for Additional Information
ITS 5.0, Administrative Controls

TAC NOS. MB2073 and MB2075

5.6.5, CORE OPERATING LIMITS REPORT (COLR)

NRC RAI: Provide additional information regarding the movement of the constants and gains for the overtemperature delta temperature (OTΔT) and overpower delta temperature (OPΔT) allowable values to the Core Operating Limits Report (COLR).

Response: In a letter dated December 12, 2001, the company stated that two references, WCAP-8745-P-A and WCAP-14483-A, would be added to the list of analytical methods used to determine the core operating limits provided in ITS 5.6.5, "CORE OPERATING LIMITS REPORT (COLR)." This response completes that commitment.

WCAP-8745-P-A, "Design Bases for Thermal Overpower Delta-T and Thermal Overtemperature Delta-T Trip Functions," describes the methodology used to determine the OTΔT and OPΔT setpoints. WCAP-14483-A, "Generic Methodology for Expanded Core Operating Limits Report," documents the generic basis for relocating the OTΔT and OPΔT values from the Technical Specifications to the COLR. As stated in the December 12, 2001 letter, these documents are applicable to North Anna and are added to the list of analytical methods described in ITS 5.6.5.

In an unrelated change, two of the core operating limits, SHUTDOWN MARGIN and AXIAL FLUX DIFFERENCE, listed in 5.6.5.a are changed to upper case denoting that they are defined terms. Also, the Company has adopted the section-based page numbering scheme for Chapter 5.0 used in Revision 2 of the ITS NUREGs. A complete copy of Chapter 5.0 utilizing the new page numbering will be provided in a future supplement.

5.6 Reporting Requirements

5.6.2 Annual Radiological Environmental Operating Report (continued)

The Annual Radiological Environmental Operating Report shall include the results of analyses of all radiological environmental samples and of all environmental radiation measurements taken during the period pursuant to the locations specified in the table and figures in the ODCM, as well as summarized and tabulated results of these analyses and measurements commensurate with the format in the ODCM. In the event that some individual results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted in a supplementary report as soon as possible.

5.6.3 Annual Radioactive Effluent Release Report

----------NOTE----------
A single submittal may be made for a multiple unit station. The submittal shall combine sections common to all units at the station; however, for units with separate radwaste systems, the submittal shall specify the releases of radioactive material from each unit.

The Annual Radioactive Effluent Release Report covering the operation of the unit in the previous year shall be submitted prior to May 1 of each year in accordance with 10 CFR 50.36a. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be consistent with the objectives outlined in the ODCM and Process Control Program and in conformance with 10 CFR 50.36a and 10 CFR Part 50, Appendix I, Section IV.B.1.

5.6.4 Monthly Operating Reports

Routine reports of operating statistics and shutdown experience shall be submitted on a monthly basis no later than the 15th of each month following the calendar month covered by the report.

5.6.5 CORE OPERATING LIMITS REPORT (COLR) [R4]

a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:

   1. Safety Limits,

   2. SHUTDOWN MARGIN, [R11]

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) R4

a. (continued)

3. Moderator Temperature Coefficient,

4. Shutdown Bank Insertion Limits,

5. Control Bank Insertion Limits,

6. AXIAL FLUX DIFFERENCE limits, R11

7. Heat Flux Hot Channel Factor,

8. Nuclear Enthalpy Rise Hot Channel Factor,

9. Power Factor Multiplier, RAI 5.0-10 R4

10. Reactor Trip System Instrumentation - OTΔT and OPΔT Trip Parameters,

11. RCS Pressure, Temperature, and Flow DNB Limits, and RAI 5.0-10 R4

12. Boron Concentration.

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

1. VEP-FRD-42, "Reload Nuclear Design Methodology."

2. WCAP-9220-P-A, "WESTINGHOUSE ECCS EVALUATION MODEL–1981 VERSION."

3. WCAP-9561-P-A, "BART A-1: A COMPUTER CODE FOR THE BEST ESTIMATE ANALYSIS OF REFLOOD TRANSIENTS–SPECIAL REPORT: THIMBLE MODELING IN W ECCS EVALUATION MODEL."

4. WCAP-10266-P-A, "The 1981 Version of the Westinghouse ECCS Evaluation Model Using the BASH Code."

5. WCAP-10054-P-A, "Westinghouse Small Break ECCS Evaluation Model Using the NOTRUMP Code."

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) R4

b. (continued)

6. WCAP-10079-P-A, "NOTRUMP, A Nodal Transient Small Break and General Network Code."

7. WCAP-12610, "VANTAGE+ FUEL ASSEMBLY–REFERENCE CORE REPORT."

8. VEP-NE-2-A, "Statistical DNBR Evaluation Methodology."

9. VEP-NE-3-A, "Qualification of the WRB-1 CHF Correlation in the Virginia Power COBRA Code."

10. VEP-NE-1-A, "VEPCO Relaxed Power Distribution Control Methodology and Associated FQ Surveillance Technical Specifications."

11. WCAP-8745-P-A, "Design Bases for Thermal Overpower Delta-T and Thermal Overtemperature Delta-T Trip Functions." MB2073 MB2075 R11

12. WCAP-14483-A, "Generic Methodology for Expanded Core Operating Limits Report."

c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.

d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

5.6.6 PAM Report

When a report is required by Condition B of LCO 3.3.3, "Post Accident Monitoring (PAM) Instrumentation," a report shall be submitted within the following 14 days. The report shall outline the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status. R4

INSERT 1

1. Safety Limits, R11
2. SHUTDOWN MARGIN,
3. Moderator Temperature Coefficient,
4. Shutdown Bank Insertion Limits,
5. Control Bank Insertion Limits, R11
6. AXIAL FLUX DIFFERENCE limits,
7. Heat Flux Hot Channel Factor,
8. Nuclear Enthalpy Rise Hot Channel Factor,
9. Power Factor Multiplier,
10. Reactor Trip System Instrumentation - OTΔT and OPΔT Trip Parameters, RAI 5.0-10 R4
11. RCS Pressure, Temperature, and Flow DNB Limits, and
12. Boron Concentration.

INSERT 2

1. VEP-FRD-42, "Reload Nuclear Design Methodology."

2. WCAP-9220-P-A, "WESTINGHOUSE ECCS EVALUATION MODEL – 1981 VERSION."

3. WCAP-9561-P-A, "BART A-1: A COMPUTER CODE FOR THE BEST ESTIMATE ANALYSIS OF REFLOOD TRANSIENTS – SPECIAL REPORT: THIMBLE MODELING IN W ECCS EVALUATION MODEL."

4. WCAP-10266-P-A, "The 1981 Version of the Westinghouse ECCS Evaluation Model Using the BASH Code."

5. WCAP-10054-P-A, "Westinghouse Small Break ECCS Evaluation Model Using the NOTRUMP Code."

6. WCAP-10079-P-A, "NOTRUMP, A Nodal Transient Small Break and General Network Code."

7. WCAP-12610, "VANTAGE+ FUEL ASSEMBLY-REFERENCE CORE REPORT."

8. VEP-NE-2-A, "Statistical DNBR Evaluation Methodology."

9. VEP-NE-3-A, "Qualification of the WRB-1 CHF Correlation in the Virginia Power COBRA Code."

10. VEP-NE-1-A, "VEPCO Relaxed Power Distribution Control Methodology and Associated FQ Surveillance Technical Specifications."

11. WCAP-8745-P-A, "Design Bases for Thermal Overpower Delta-T and Thermal Overtemperature Delta-T Trip Functions." MB2073 MB2075 R11

12. WCAP-14483-A, "Generic Methodology for Expanded Core Operating Limits Report"

5.6.5.b

2a. WCAP-9220-P-A, Rev. 1, "WESTINGHOUSE ECCS EVALUATION MODEL - 1981 VERSION", February 1982 (W Proprietary).

(Methodology for LCO 3.2.2 - Heat Flux Hot Channel Factor).

(LA.9)

2b. WCAP-9561-P-A, ADD. 8, Rev. 1, "BART A-1: A COMPUTER CODE FOR THE BEST ESTIMATE ANALYSIS OF REFLOOD TRANSIENTS - SPECIAL REPORT: THIMBLE MODELING IN W ECCS EVALUATION MODEL", JULY 1986, (W Proprietary).

(Methodology for LCO 3.2.2 - Heat Flux Hot Channel Factor).

2c. WCAP-10266-P-A, Rev. 2, "The 1981 Version of the Westinghouse ECCS Evaluation Model Using the BASH Code", March 1987 (W Proprietary).

(Methodology for LCO 3.2.2 - Heat Flux Hot Channel Factor).

2d. WCAP-10054-P-A, "Westinghouse Small Break ECCS Evaluation Model Using the NOTRUMP Code," August 1985 (W Proprietary).

(Methodology for LCO 3.2.2 - Heat Flux Hot Channel Factor).

2e. WCAP-10079-P-A, "NOTRUMP, A Nodal Transient Small Break and General Network Code", August 1985 (W Proprietary).

(Methodology for LCO 3.2.2 - Heat Flux Hot Channel Factor).

2f. WCAP-12610, "VANTAGE+ FUEL ASSEMBLY REPORT," June 1990 (W Proprietary). -REFERENCE CORE (A.27)

(Methodology for LCO 3.2.2 - Heat Flux Hot Channel Factor.)

3a. VEP-NE-2-A, "Statistical DNBR Evaluation Methodology", June 1987.

(Methodology for LCO 3.2.3, Nuclear Enthalpy Rise Hot Channel Factor).

3b. VEP-NE-3-A, "Qualification of the WRB-1 CHF Correlation in the Virginia Power COBRA Code", July 1990.

(Methodology for LCO 3.2.3 Nuclear Enthalpy Rise Hot Channel Factor).

4. VEP-NE-1-A, "Vepco Relaxed Power Distribution Control Methodology and Associated FQ Surveillance Technical Specifications," March 1986.

(Methodology for LCO 3.2.2 - Heat Flux Hot Channel Factor and LCO 3.2.1 - Axial Flux Difference.)

(M.29)

WCAP-8745-P-A, "Design Bases for Thermal Overpower Delta-T and Thermal Overtemperature Delta-T Trip Functions."

WCAP-14483-A, "Generic Methodology for Expanded Core Operating Limits Report."

Insert proposed ITS 5.6.6

(M.9)

MB2073
MB2075
R11

(A.1)

ITS 5.0

05-26-94

ITS

5.6.5.b

2a. WCAP-9220-P-A, Rev. 1, "WESTINGHOUSE ECCS EVALUATION MODEL - 1981 VERSION", February 1982 (W Proprietary).

(Methodology for LCO 3.2.2 - Heat Flux Hot Channel Factor).

(LA.9)

2b. WCAP-9561-P-A, ADD. 3, Rev. 1, "BART A-1: A COMPUTER CODE FOR THE BEST ESTIMATE ANALYSIS OF REFLOOD TRANSIENTS - SPECIAL REPORT: THIMBLE MODELING IN W ECCS EVALUATION MODEL", JULY, 1986, (W Proprietary).

(Methodology for LCO 3.2.2 - Heat Flux Hot Channel Factor).

2c. WCAP-10266-P-A, Rev. 2, "The 1981 Version of the Westinghouse ECCS Evaluation Model Using the BASH Code", March 1987 (W Proprietary).

(Methodology for LCO 3.2.2 - Heat Flux Hot Channel Factor).

2d. WCAP-10054-P-A, "Westinghouse Small Break ECCS Evaluation Model Using the NOTRUMP Code," August 1985 (W Proprietary).

(Methodology for LCO 3.2.2 - Heat Flux Hot Channel Factor).

2e. WCAP-10079-P-A, "NOTRUMP, A Nodal Transient Small Break and General Network Code", August 1985 (W Proprietary).

(Methodology for LCO 3.2.2 - Heat Flux Hot Channel Factor).

2f. WCAP-12610, "VANTAGE+ FUEL ASSEMBLY REPORT," June 1990 (W Proprietary). -REFERENCE CORE

(A.27)

(Methodology for LCO 3.2.2 - Heat Flux Hot Channel Factor.)

3a. VEP-NE-2-A, "Statistical DNBR Evaluation Methodology", June 1987.

(Methodology for LCO 3.2.3, Nuclear Enthalpy Rise Hot Channel Factor).

3b. VEP-NE-3-A, "Qualification of the WRB-1 CHF Correlation in the Virginia Power COBRA Code", July 1990.

(Methodology for LCO 3.2.3 Nuclear Enthalpy Rise Hot Channel Factor).

4. VEP-NE-1-A, "Vepco Relaxed Power Distribution Control Methodology and Associated FQ Surveillance Technical Specifications," March 1986.

(M.25)

(Methodology for LCO 3.2.2 - Heat Flux Hot Channel Factor and LCO 3.2.1 - Axial Flux Difference.)

WCAP-8745-P-A, "Design Bases for Thermal Overpower Delta-T and Thermal Overtemperature Delta-T Trip Functions."

WCAP-14483-A, "Generic Methodology for Expanded Core Operating Limits Report."

INSERT ITS 5.6.6

(M.9)

MB2073
MB2075
R11

page 62 of 69

Rev 11

The purpose of the AO requirements in CTS Table 6.2-1 is to provide assurance that sufficient AOs are on the shift crew. This change is acceptable because it still provides at least three AOs with both units shutdown or defueled. This change is designated more restrictive because an additional AO is required. R4

M.25 ITS 5.6.5.b contains two analytical methods, WCAP-8745-P-A and WCAP-14483-A, which do not appear in the CTS. This changes the CTS by adding two analytical methods to those referenced in the Technical Specifications. MB2073 MB2075 R11

The purpose of the analytical methods referenced in 5.6.5 is to provide the NRC approved methodologies used to determine values in the COLR. Changes justified in other ITS Sections have relocated values to the COLR. These two analytical methods are used to determine those values. This change is designated as more restrictive because additional analytical methods are listed in the Technical Specifications.

RELOCATED SPECIFICATIONS
None

REMOVED DETAIL CHANGES

LA.1 *(Type 3 – Removing Procedural Details for Meeting TS Requirements and Related Reporting Problems)* CTS 6.8.1.i requires written procedures be established, implemented and maintained covering, "Quality Assurance Program for effluent and environmental monitoring, using the guidance in Regulatory Guide 1.21, Revision 1, June 1974 and Regulatory Guide 4.1, Revision 1, April 1975." ITS 5.4.1.c does not include the Regulatory Guide references. This changes the CTS by moving the references to the Regulatory Guides to the UFSAR.

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 procedures covering quality assurance for effluent and environmental monitoring. Also, this change is acceptable because these types of procedural details 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 references for meeting Technical Specification requirements are being removed from the Technical Specifications.

LA.2 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 5.7.1 states, "The components identified in Table 5.7-1 are designed and shall be maintained within the cyclic or transient limits of Table 5.7-1." CTS Table 5.7-1 contains the limits for component cyclic or transient limits and designs cycle or transient limits. ITS 5.5.5 states, "The components identified in the UFSAR, Section 5.2, are designed and shall be maintained within the cyclic or transient design limits." This changes the CTS by moving the limits specified in Table 5.7-1 to the UFSAR and calling them the cyclic or transient design limits.

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 to maintain the specified

DOC No.	Description of Changes	ITS Requirement	CTS Requirement
5.0 M.22	CTS 6.8.4.c, "Secondary Water Chemistry," requires, "A program for monitoring of secondary water chemistry to inhibit steam generator tube degradation." ITS 5.5.10, "Secondary Water Chemistry Program," states, "This program provides controls for monitoring secondary water chemistry to inhibit SG tube degradation and low pressure turbine disc stress corrosion cracking." This changes CTS by adding the fact that the Secondary Water Chemistry Program provides controls for monitoring secondary water chemistry to inhibit low pressure turbine disc stress corrosion cracking in addition to SG tube degradation.	5.5.10	6.8.4.c
5.0 M.23	Unit 1 CTS 6.12, High Radiation Area, footnote "*," states, "Health Physics personnel shall be exempt from the RWP issuance requirement during the performance of their assigned radiation protection duties, provided they comply with approved radiation protection procedures for entry into high radiation areas." Unit 2 CTS 6.12, High Radiation Area, footnote "*," states, "Health Physics personnel or personnel escorted by Health Physics personnel shall be exempt from the RWP issuance requirement during the performance of their assigned radiation protection duties, provided they comply with approved radiation protection procedures for entry into high radiation areas." ITS 5.7.1.c states, "Individuals qualified in radiation protection procedures and personnel continuously escorted by such individuals may be exempted from the requirement for an RWP or equivalent while performing their assigned duties provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas." ITS 5.7.2.c states, "Individuals qualified in radiation protection procedures may be exempted from the requirement for an RWP or equivalent while performing radiation surveys in such areas provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas." This changes the CTS by requiring that for personnel to be exempt from the RWP issuance requirement, they must be qualified in radiation protection procedures, or escorted by a qualified individual in high radiation areas. Changing the term "Health Physics" to "radiation protection" is addressed by DOC L.11.	5.7.1.c and 5.7.2.c	6.12 footnote "*"
5.0 M.24	CTS Table 6.2-1 requires that with both units in MODE 5 or 6 or defueled, two Auxiliary Operators (AOs) be part of the staff manning, one AO assigned to each unit.ITS 5.2.2.a states, "Two unit sites with both units shutdown or defueled require a total of three non-licensed operators for the two units." This changes the CTS by requiring three AOs with both units shutdown or defueled. Other changes to the AO requirements are addressed by DOC L.9.	5.2.2.a	Table 6.2-1

INSERT 5.0 M-25

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MB2073
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Table M – More Restrictive Changes
ITS Section 5.0 – Administrative Controls
Insert

DOC No.	Description of Changes	ITS Requirement	CTS Requirement
5.0 M.25	ITS 5.6.5.b contains two analytical methods, WCAP-8745-P-A and WCAP-14483-A, which do not appear in the CTS. This changes the CTS by adding two analytical methods to those referenced in the Technical Specifications.	5.6.5.b	None

Attachment

Proposed Improved Technical Specifications
Response to Request for Additional Information
Section 3.3.1: Beyond Scope Issue
Derivation of OTΔT Allowable Value
TAC Nos. MB1437 and MB1432

Virginia Electric and Power Company
(Dominion)

North Anna Power Station Units 1 and 2

NAPS Responses to NRC Requests for Additional Information
ITS LCO 3.3.1, RPS Instrumentation

TAC NOS. MB1437 and MB1432

3.3.1, Discussion of Change (DOC) L.21

NRC RAI: Please describe in detail how the allowable value for the OT delta T was derived. Include in this description what assumptions were made (including the values that were omitted, and those that were included) and how the values that are included in the calculation are statistically combined.

Response: After evaluating the NRC's request, the Company determined that the additional costs that would be required to obtain the NRC's approval of the proposed change are not warranted. Therefore, we are withdrawing the proposed change. The CTS value is retained, which is more conservative than the value originally proposed in the ITS. DOC L.21, which justified the change from 2.0% to 2.3%, is eliminated.

Table 3.3.1-1 (page 4 of 5)
Reactor Trip System Instrumentation

Note 1: Overtemperature ΔT

The Overtemperature ΔT Function Allowable Value shall not exceed the following nominal trip setpoint by more than 2.0% of ΔT span. MB 1437 MB 1432 R11

$$\Delta T \le \Delta T_0 \left\{ K_1 - K_2 \frac{(1+\tau_1 s)}{(1+\tau_2 s)}[T - T'] + K_3(P - P') - f_1(\Delta I) \right\}$$

Where: ΔT is measured RCS ΔT, °F.
ΔT_0 is the indicated ΔT at RTP, °F.
s is the Laplace transform operator, sec^{-1}.
T is the measured RCS average temperature, °F.
T' is the nominal T_{avg} at RTP, ≤ [*]°F.

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

$K_1 \le$ [*] $K_2 \ge$ [*]/°F $K_3 \ge$ [*]/psig

$\tau_1 \ge$ [*] sec $\tau_2 \le$ [*] sec

$f_1(\Delta I)$ = [*]{[*]% - (q_t - q_b)} when $q_t - q_b <$ [*]% RTP R11
0% of RTP when [*]% RTP ≤ $q_t - q_b$ ≤ [*]% RTP
[*]{(q_t - q_b) - [*]} when $q_t - q_b >$ [*]% RTP

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

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

MB 1437
MB 1432
R11

CTS

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

Note 1

Note 1: Overtemperature ΔT

TSTF 355

The Overtemperature ΔT Function Allowable Value shall not exceed the following Nominal Trip Setpoint by more than ~~3.8~~ 2.0 % of ΔT span.

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

Where: ΔT is measured RCS ΔT, °F.
ΔT_0 is the indicated ΔT at RTP, °F.
s is the Laplace transform operator, sec^{-1}.
T is the measured RCS average temperature, °F
T′ is the nominal T_{avg} at RTP, ≤ [588] °F. [*]

P is the measured pressurizer pressure, psig
P′ is the nominal RCS operating pressure, ≥ [2235] psig

TSTF 310

K_1 ≤ [1.09] [*] K_2 ≥ [0.0138] °F K_3 ≥ [0.000671] /psig
τ_1 ≥ [8] sec τ_2 ≤ [3] sec τ_3 ≤ [2] sec
τ_4 ≥ [33] sec τ_5 ≤ [4] sec τ_6 ≤ [2] sec

$f_1(\Delta I)$ = {[1.26]35 %-(q_t - q_b)} when $q_t - q_b$ ≤ -[35]% RTP
0% of RTP when -[35]% RTP < $q_t - q_b$ ≤ [7]% RTP
-[1.35]((q_t - q_b) - [7]) when $q_t - q_b$ > [7]% RTP [*]

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

WOG-EO-29 R11

TSTF 339

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

Rev. 11

ITS
Table 3.3.1-1,
pg 5 of 5

A.1

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS ALLOWABLE Values

NOTATION (Continued)

LA.11

Note 2: Overpower $\Delta T \le \Delta T_0 \left[K_4 - K_5 \left(\frac{\tau_3 S}{1+\tau_3 S} \right) T - K_6 (T - T') - f_2(\Delta I) \right]$

Where:

- ΔT_0 = Indicated ΔT at RATED THERMAL POWER
- T = Average temperature, °F
- T' = Indicated T_{avg} at RATED THERMAL POWER ≤ 586.8°F — A.6
- K_4 ≤ * 1.079 *
- K_5 ≥ * 0.02/°F for increasing average temperature — LA.5
- K_5 = * 0 for decreasing average temperatures — L.19
- K_6 ≤ 0.09164 for $T > T'$; K_6 = 0 for $T \le T'$ — LA.5
  - *
- $\frac{\tau_3 S}{1+\tau_3 S}$ = The function generated by the rate lag controller for T_{avg} dynamic compensation — LA.9
- τ_3 = Time constant utilized in the rate lag controller for T_{avg} — L.19
  - τ_3 ≤ 10 secs. * — LA.5
- S = Laplace transform operator (sec^{-1}) — LA.5
- $f_2(\Delta I)$ = 0 for all ΔI * — LA.5

Note 3: The channel's maximum trip point shall not exceed its computed trip point by more than 2 percent span.

ITS 3.3.1 MB1437 MB1432 R11 3-3-92

~~* The value for K_4 shall be equal to 1.016 for the period of operation until steam generator replacement.~~ — A.6

The values denoted by * are specified in the COLR — LA.5

Page 20 of 20

Rev. 11

A.1

ITS
Table 3.3.1-1
page 5 of 5

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION ~~TRIP SETPOINTS~~ ALLOWABLE VALUES

LA.11

NOTATION (Continued)

Note 2: Overpower $\Delta T \leq \Delta T_0[K_4 - K_5\left(\frac{\tau_3 S}{1+\tau_3 S}\right) T - K_6 (T-T") - f_2(\Delta I)]$

where: ΔT_0 = Indicated ΔT at RATED THERMAL POWER

T = Average temperature, °F

$T"$ = Indicated T_{avg} at RATED THERMAL POWER $\leq$ 586.8°F. — L.19

K_4 $\leq$ 1.079 *

K_5 $\geq$ 0.02/°F for increasing average temperature * — LA.5

K_5 = 0 for decreasing average temperatures *

K_6 $\leq$ 0.00164 for $T > T"$; $K_6 = 0$ for $T \leq T"$ *

$\frac{\tau_3 S}{1+\tau_3 S}$ = The function generated by the rate lag controller for T_{avg} dynamic compensation — LA.9

τ_3 = Time constant utilized in the rate lag controller for T_{avg} — L.19

$\tau_3 \leq$ 10 secs. * — LA.5

S = Laplace transform operator (sec^{-1})

$f_2(\Delta I)$ = 0 for all ΔI * — LA.5

Note 3: The channel's maximum trip point shall not exceed its computed trip point by more than 2 percent span.

MB1437
MB1432
R11

The values denoted by * are specified in the COLR — LA.5

ITS 3.3.1

8-25-86

page 22 of 22

Rev. 11

and τ_3 are modified with less than or equal to (≤), or greater than or less to (≥) symbols to allow a tolerance. This changes the CTS by allowing the values of the constants 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 basis. The value of each constant of the Overtemperature and Overpower ΔT functions is only allowed to vary in the conservative direction for the function. This will ensure their setpoints will not exceed the safety analyses assumption for these functions. 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.20 *(Category 5 – Deletion of Surveillance Requirement)* CTS 4.3.1.1.2 states, "The REACTOR TRIP SYSTEM RESPONSE TIME of each reactor trip function shall be demonstrated to be within its limit at least once per 18 months." ITS Table 3.3.1-1 under the Surveillance Requirements column lists SR 3.3.1.16. This SR states, "Verify RTS RESPONSE TIME is within limits." This SR is required for all RTS Functions except the following: (1) Manual Reactor Trip, (3.a) Power Range Neutron Flux High Positive Rate, (4) Intermediate Range Neutron Flux, (7) Overpower ΔT, (15) Steam/Feed Flow Mismatch and Low Steam Generator Water Level, (16) Turbine Trip, (17) SI input from ESF, (11) Reactor Coolant Pump Breaker Position Trip, (19) Reactor Trip Breakers, (20) RTB Undervoltage and Shunt Trip Mechanisms, and (21) Automatic Trip Logic. This changes the CTS by deleting the Response Time Testing requirements for the listed functions. RAI 3.3.1-37 R5

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

L.21 Not used. MB1437 MB1432 R11

MB1437
MB1432
R11

L.22 *(Category 2 – Relaxation of Applicability)* Unit 1 CTS Table 4.3-1 Function 18, Turbine Trip on Low Auto Stop Oil Pressure or Turbine Stop Valve Closure states the related Surveillance is required as MODES 1 and 2. The Surveillance required is a CHANNEL FUNCTIONAL TEST with a listed frequency of S/U (1). S/U requires the surveillance to be performed prior to each reactor start up. Note (1) states, "If not performed within the previous 31 days." The applicable MODES or other specified conditions for ITS Table 3.3.1-1 Function 16, Turbine Trip on Low Auto Stop Oil Pressure or Turbine Stop Valve Closure is 1(g) with SR 3.3.1.15 as one of the required Surveillances. Note (g) states, "Above the P-8 (Power Range Neutron Flux) interlock." This changes the CTS by changing the applicability of the Surveillance from MODES 1 and 2 to MODE 1 above the P-8 interlock.

RAI 3.3.1-01 R5

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

L.23 *(Category 4 – Relaxation of Required Action)* CTS Table 3.3-1 Function 2 Power Range Neutron Flux (PRNF) and Function 3 PRNF High Positive and Negative Rate trips state that Action 2 is to be entered for an inoperable channel. Action 2, Part a states that an inoperable channel must be placed in the tripped condition within 72 hours. Action 2, Part b allows the testing of additional channel with one channel inoperable. Action 2, Part c states that THERMAL POWER is to be limited to ≤ 75 % Rated Thermal Power (RTP) and the PRNF trip setpoints are to be reduced to ≤ 85% RTP within 78 hours. Action 2, Part d provides instructions for determining the

RAI 3.3.1-04 R5

Changes Not Associated With RAI Responses
ITS LCO 3.3.1, RPS Instrumentation

1. Table 3.3-1, Note 1, Overtemperature ΔT is revised to incorporate editorial change WOG-ED-29. WOG-ED-29 makes editorial corrections requested by the NRC to the changes to the $f_1(\Delta I)$ equation modified by TSTF-339.

Table 3.3.1-1 (page 4 of 5)
Reactor Trip System Instrumentation

Note 1: Overtemperature ΔT

The Overtemperature ΔT Function Allowable Value shall not exceed the following nominal trip setpoint by more than 2.0% of ΔT span. R11

$$\Delta T \le \Delta T_0 \left\{ K_1 - K_2 \frac{(1+\tau_1 s)}{(1+\tau_2 s)}[T - T'] + K_3(P - P') - f_1(\Delta I) \right\}$$

Where: ΔT is measured RCS ΔT, °F.
ΔT_0 is the indicated ΔT at RTP, °F.
s is the Laplace transform operator, sec^{-1}.
T is the measured RCS average temperature, °F.
T' is the nominal T_{avg} at RTP, ≤ [*]°F.

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

$K_1 \le$ [*] $K_2 \ge$ [*]/°F $K_3 \ge$ [*]/psig

$\tau_1 \ge$ [*] sec $\tau_2 \le$ [*] sec

$f_1(\Delta I)$ = [*]{[*]% - (q_t - q_b)} when $q_t - q_b <$ [*]% RTP R11
0% of RTP when [*]% RTP ≤ $q_t - q_b$ ≤ [*]% RTP
[*]{(q_t - q_b) - [*]} when $q_t - q_b >$ [*]% RTP

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

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

CTS

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

R11

Note 1

Note 1: Overtemperature ΔT

The Overtemperature ΔT Function Allowable Value shall not exceed the following Nominal Trip Setpoint by more than [3.8] 2.0 % of ΔT span. TSTF 355 7 14

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

Where: ΔT is measured RCS ΔT, °F.
ΔT_o is the indicated ΔT at RTP, °F.
s is the Laplace transform operator, sec^{-1}.
T is the measured RCS average temperature, °F
T' is the nominal T_{avg} at RTP, ≤ [588] °F. [*] ≥

P is the measured pressurizer pressure, psig
P' is the nominal RCS operating pressure, [2235] psig ≥

TSTF 310

[*]

K_1 ≤ [1.09] K_2 ≥ [0.0138] °F K_3 ≤ [0.000671] psig
τ_1 ≥ [8] sec τ_2 ≤ [3] sec τ_3 ≤ [2] sec
τ_4 ≥ [33] sec τ_5 ≤ [4] sec τ_6 ≤ [2] sec 14

[*]

$f_1(\Delta I)$ = [26.35] (%-) + $(q_t - q_b)$} when $q_t - q_b$ ≤ - [35] % RTP
0% of RTP when -[35] % RTP ≤ $q_t - q_b$ ≤ [7] % RTP
[*] -1.35 $((q_t - q_b)$ - 7) when $q_t - q_b$ > [7] % RTP

WOG-EO-29 R11

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

TSTF 339

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

Rev. 11

DOC No.	Description of Change	ITS Requirement	CTS Requirement	Change Type
3.3.1 L.20	CTS 4.3.1.1.2 states, "The REACTOR TRIP SYSTEM RESPONSE TIME of each reactor trip function shall be demonstrated to be within its limit at least once per 18 months." ITS Table 3.3.1-1 under the Surveillance Requirements column lists SR 3.3.1.16. This SR states, "Verify RTS RESPONSE TIME is within limits." This SR is required for all RTS Functions except the following: (1) Manual Reactor Trip, (3.a) Power Range Neutron Flux High Positive Rate, (4) Intermediate Range Neutron Flux, (7) Overpower ΔT, (15) Steam/Feed Flow Mismatch and Low Steam Generator Water Level, (16) Turbine Trip, (17) SI input from ESF, (11) Reactor Coolant Pump Breaker Position Trip, (19) Reactor Trip Breakers, (20) RTB Undervoltage and Shunt Trip Mechanisms, and (21) Automatic Trip Logic. This changes the CTS by deleting the Response Time Testing requirements for the listed functions.	SR 3.3.1.16	4.3.1.1.2	5
3.3.1 L.21 Deleted	~~CTS 2.2 Limiting Safety System Setting states in Table 2.2-1 Note 3, "the channel's maximum trip point shall not exceed its computed trip point by more than 2 percent of span." This applies to the Overtemperature and Overpower ΔT trip setpoints for the Allowable Values as stated in Notes 1 and 2. ITS 3.3.1 in Table 3.3.1-1 states for the Overtemperature and Overpower ΔT that the functions Allowable Values are listed in Notes 1 and 2. The Overtemperature ΔT Allowable Value formula is modified by a Note that states, "The Overtemperature ΔT Function Allowable Value shall not exceed the following nominal trip setpoint by more than 2.3 % of ΔT span." This changes the CTS requirement for Overtemperature ΔT by increasing the % of ΔT span from a value of 2.0 to 2.3.~~	Table 3.3.1-1 Note 1	Table 2.2-1 Note 3	1

R11
MB1437
MB1432

Change Category:
1 - Relaxation of LCO Requirements
2 - Relaxation of Applicability
3 - Relaxation of Completion Time
4 - Relaxation of Required Action
5 - Deletion of Surveillance Requirement
6 - Relaxation Of Surveillance Requirement Acceptance Criteria
7 - Relaxation Of Surveillance Frequency
8 - Deletion of Reporting Requirements

Attachment

Proposed Improved Technical Specifications
Response to Request for Additional Information
Section 3.3.1: Beyond Scope Issue
Proposed Changes to Surveillance Requirement 3.3.1.6
TAC Nos. MB1433 and MB1427

Virginia Electric and Power Company
(Dominion)

North Anna Power Station Units 1 and 2

North Anna ITS RAI
LCO 3.3.1 – RTS Instrumentation
Beyond Scope Issue (TAC Nos. MB1433 and MB1427)
Revised Response to ITS RAI 3.3.1-39

RAI (TAC Nos. MB1433 and MB1427):

Standard Technical Specifications (STS) SR 3.3.1.6 calls for calibrating the excore Nuclear Instrumentation System (NIS) channels to agree with incore detector measurements every 92 Effective Full-Power Days (approximately quarterly) when thermal power is ≥ 50% Rated Thermal Power (RTP). This SR is performed to verify the f (ΔI) input to the overtemperature ΔT trip.

The proposed North Anna ITS SR 3.3.1.6 calls for the comparing the results of the excore channels to incore detector measurements and adjusting the NIS channel if the absolute difference is ≥ 3%. The surveillance frequency and thermal power condition are the same as in the STS.

Virginia Electric and Power Company (VEPCO) has not provided any Technical Justification for applying the 3% absolute difference value. VEPCO has indicated that the 3% value was chosen to be consistent with SR 3.3.1.3, which includes the same note. However, SR 3.3.1.3 is for thermal power ≥ 15% RTP and has a monthly testing requirement. The function of SR 3.3.1.3 is similar to SR 3.3.1.6 in that it is also performed to verify the f (ΔI) input to the overtemperature ΔT trip.

VEPCO is requested to address the following staff questions.

1. Provide technical justification for choosing a 3% absolute difference at power levels ≥ 50% RTP. This discussion should include the impact that a 3% absolute difference between excore NIS channels and incore detector measurements may have on the Overtemperature ΔT setpoint. Also, discuss which transients/accidents credit the Overtemperature ΔT trip and how the sequence of events and results (Minimum Departure from Nucleate Boiling Ratio, Reactor Coolant System Pressure, Fuel Temperature, etc.) are impacted.

2. By not adopting the STS for SR 3.3.1.6, it appears that the proposed ITS Surveillance Requirements 3.3.1.6 and 3.3.1.3 are identical at thermal power ≥ 50% RTP. Both Surveillance Requirements now include the 3% absolute difference note and they both have the function of verifying the f (ΔI) input to the overtemperature ΔT trip. Discuss how the proposed ITS SR 3.3.1.6 is different from SR 3.3.1.3 at thermal power levels ≥ 50%, and why the wording of STS 3.3.1.6 is not being adopted.

RAI on JFD 15 (NRC Letter dated June 4, 2001)

Changing ISTS SR 3.3.1.6 to "Compare" from "Calibrate" is a generic change that requires documentation of a design difference or an approved TSTF.

The NRC requested additional information on ITS Specification 3.3.1 in a letter dated June 4, 2001. Comment labeled 3.3.1-39 questioned a justification for a change to ITS SR 3.3.1.6 (JFD 15). The comment stated "The Company disagreed with the comment but modified JFD 15 in response to the RAI."

North Anna ITS RAI
LCO 3.3.1 – RTS Instrumentation
Beyond Scope Issue (TAC Nos. MB1433 and MB1427)
Revised Response to ITS RAI 3.3.1-39

Original Response:

As stated in the Requests for Additional Information (RAIs) quoted above (from the NRC's letters of June 4, 2001, and September 18, 2001), the North Anna Power Station (NAPS) Improved Technical Specifications (ITS) proposed certain deviations from the Standard Technical Specifications (STS). These changes were proposed to reflect current Technical Specification (CTS) requirements and operating practices.

In response to the NRC's questions, VEPCO (the Company) will delete the proposed changes and adopt a proposed generic change (TSTF) to the STS. This TSTF addresses the Company's concerns with the STS requirements. A copy of the TSTF, which justifies the proposed changes, is attached to this letter.

The following changes to the proposed NAPS ITS are a result of adopting the TSTF:

1. In Note 2 to SR 3.3.1.3, the allowance for completing the surveillance is changed from 24 hours after THERMAL POWER ≥ 15 % RTP to 7 days after THERMAL POWER ≥ 50 % RTP.

2. The SR 3.3.1.6 frequency is extended from 92 EFPD to 18 months. With the change in frequency, SR 3.3.1.6 is renumbered to be SR 3.3.1.9, and SR 3.3.1.9 is renumbered to be SR 3.3.1.6.

3. Note 3 is added to SR 3.3.1.3. This allows the performance of new SR 3.3.1.9 to satisfy the requirements of SR 3.3.1.3.

4. New SR 3.3.1.9 is changed from "Compare results of the excore channels to incore detector measurements," to "Calibrate excore channels to agree with incore detector measurements."

5. New SR 3.3.1.9 Note 1 is revised to read, "Neutron detectors are excluded from CHANNEL CALIBRATION." Note 1 previously stated, "Adjust NIS channel if absolute difference ≥ 3%."

6. In Note 2 of the new SR 3.3.1.9, the allowance for completing the surveillance is changed from 24 hours to 7 days.

7. SR 3.3.1.11 adds Note 2, which states, "This surveillance shall include verification that the time constants are adjusted to the prescribed values."

8. SR 3.3.1.12 adds a Note that states, "Neutron detectors are excluded from CHANNEL CALIBRATION."

9. For each of the changes summarized above, a change is made to the associated Bases section to reflect the revised ITS.

10. Table 3.3.1-1 Function 6, SR 3.3.1.6 is changed to SR 3.3.1.9 and Function 12 and 13, SR 3.3.1.9 are changed to SR 3.3.1.6.

The ITS submittal pages that are revised as a result of this response are attached. With these modifications, the revised response to RAI 3.3.1-39 is that the Company agrees with the comment and deletes JFD 15 to the Specifications.

Additional Response

During a telephone conference call on December 7, 2001, the NRC provided comments on the previous response. The NRC has not approved the proposed TSTF incorporated in the previous response. The NRC recommended that we remove the proposed TSTF from the North Anna ITS. The NRC also stated that the Frequency for SR 3.3.1.9 might be extended based on plant specific calibration history.

The Company will take the action proposed in the comment. The proposed TSTF was removed from the NAPS ITS and the Frequency for ITS SR 3.3.1.9 is revised to 12 months based on plant specific data. The following changes are made:

SR 3.3.1.3
In Note 2 to SR 3.3.1.3, the allowance for completing the surveillance is changed from 7 days after THERMAL POWER ≥ 50 % RTP to 72 hours after THERMAL POWER ≥ 15 % RTP. The THERMAL POWER value is consistent with the CTS and the ISTS. The time in the ISTS is "[24] hours." This time does not appear in the CTS. However, 24 hours is insufficient time to stabilize the plant, obtain and analyze a flux map, and calibrate the NIS channels. The proposed value of 72 hours allows sufficient time to perform these tasks in a quality manner. Note 3 to SR 3.3.1.3 is deleted, consistent with the ISTS.

With the exception of a bracketed value, ITS SR 3.3.1.3 is consistent with ISTS SR 3.3.1.3.

SR 3.3.1.9
Proposed Note 1 to SR 3.3.1.9 is deleted, consistent with the ISTS.
In Note 2 to SR 3.3.1.9 (now the only Note), the allowance for completing the surveillance is changed from 7 days after THERMAL POWER ≥ 50 % RTP to 72 hours after THERMAL POWER ≥ 50 % RTP. The THERMAL POWER value is consistent with the ISTS. A similar allowance does not appear in the CTS. The time in the ISTS is "[24] hours." This time does not appear in the CTS. However, 24 hours is insufficient time to stabilize the plant, obtain and analyze a flux map, and calibrate the NIS channels. The proposed value of 72 hours allows sufficient time to perform these tasks in a quality manner.

The SR 3.3.1.9 Frequency is changed from 18 months to 12 months. The ISTS Frequency for SR 3.3.1.6 (the equivalent of SR 3.3.1.9) is "[92] EFPD." The CTS does not require periodic calibration of the NIS channels AFD indications, but requires calibration when the difference between incore and excore AFD exceeds 3%. Plant data was examined by two different methods to demonstrate a 12 month Frequency for the North Anna ITS is appropriate.

In the first method, differences between incore and excore AFD indications recorded during monthly flux maps during the last fuel cycles for Unit 1 and Unit 2 were extrapolated to project the difference at 12 months. The extrapolation was based on the largest channel deviation between incore and excore Axial Flux Difference (AFD), increased by the ratio of 12 months to the interval between the measurement and the last calibration. This extrapolated value was compared to the 3% limit for difference between the incore and excore AFD. The largest extrapolated value was 2.5%, well below the 3% limit.

The second method used the first full power flux map in a cycle as the basis for a new NI calibration. That calibration was then assumed to be installed for the entire fuel cycle. A determination was performed of each NIS channel's theoretical AFD, i.e., the AFD that would be indicated if there were no NIS calibrations performed. This value was compared to the incore AFD measured during each flux map during the cycle (approximately 18 flux maps per cycle). Four operating cycles were considered (the two most recent cycles for Unit 1 and Unit 2). The results showed excellent agreement between the incore and excore AFD, typically under 0.2% difference. The largest difference between incore and excore AFD at 12 months was 1.5%, also well within the 3% limit.

As both methods of analysis show significant margin to the 3% limit, it is reasonable to apply a 12 month Frequency to the ITS SR 3.3.1.9 NIS channel calibration.

With the exception of bracketed values, ITS SR 3.3.1.9 is consistent to ISTS SR 3.3.1.6.

<u>SR 3.3.1.11</u>
Note 2 to SR 3.3.1.11, which stated, "This surveillance shall include verification that the time constants are adjusted to the prescribed values," is deleted, consistent with the ISTS.

ITS SR 3.3.1.11 is consistent with ISTS SR 3.3.1.11.

<u>SR 3.3.1.12</u>
SR 3.3.1.12 Note, which stated, "Neutron detectors are excluded from CHANNEL CALIBRATION," is deleted, consistent with the ISTS.

With the exception of design related changes described in ITS JFD 9, SR 3.3.1.12 is consistent with ISTS SR 3.3.1.12.

For each of the changes summarized above, a change is made to the associated Bases section to reflect the revised ITS.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.1.3	----------NOTES---------- 1. Adjust NIS channel if absolute difference is ≥ 3%. 2. Not required to be performed until 72 hours after THERMAL POWER is ≥ 15% RTP. ---------- Compare results of the incore detector measurements to NIS AFD.	31 effective full power days (EFPD)
SR 3.3.1.4	----------NOTE---------- This Surveillance must be performed on the reactor trip bypass breaker immediately after placing the bypass breaker in service. ---------- Perform TADOT.	31 days on a STAGGERED TEST BASIS
SR 3.3.1.5	Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS
SR 3.3.1.6	----------NOTE---------- Verification of setpoint is not required. ---------- Perform TADOT.	92 days
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.	92 days

RAIs MB 1433 MB 1427 R8, R15 3.3.1-39 R5, R15

RAIs MB 1433 MB 1427 R8 3.3.1-39 R5

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY	
SR 3.3.1.8	----------NOTE---------- This Surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions. ---------- Perform COT.	-----NOTE----- Only required when not performed within previous 92 days ---------- Prior to reactor startup AND Four hours after reducing power below P-6 for source range instrumentation AND Twelve hours after reducing power below P-10 for power and intermediate instrumentation AND Once per 92 days thereafter	RAI 3.3.1-31 3.3.1-33 R5 R12 R5
SR 3.3.1.9	----------NOTE---------- Not required to be performed until 72 hours after THERMAL POWER is ≥ 50% RTP. ---------- Calibrate excore channels to agree with incore detector measurements.	12 months	RAIs MB 1433 MB 1427 R8, R15 3.3.1-39 R5, R15

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY	
SR 3.3.1.10	----------NOTE---------- This Surveillance shall include verification that the time constants are adjusted to the prescribed values. ---------- Perform CHANNEL CALIBRATION.	18 months	
SR 3.3.1.11	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION.	18 months	RAIs MB 1433 MB 1427 R8, R15 3.3.1-39 R5, R15
SR 3.3.1.12	Perform CHANNEL CALIBRATION.	18 months	RAIs MB 1433 MB 1427 R8, R15 3.3.1-39 R5, R15
SR 3.3.1.13	Perform COT.	18 months	
SR 3.3.1.14	----------NOTE---------- Verification of setpoint is not required. ---------- Perform TADOT.	18 months	
SR 3.3.1.15	----------NOTE---------- Verification of setpoint is not required. ---------- Perform TADOT.	Prior to exceeding the P-8 interlock whenever the unit has been in MODE 3, if not performed within the previous 31 days	

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.2

SR 3.3.1.2 compares the calorimetric heat balance calculation to the NIS channel output every 24 hours. If the calorimetric exceeds the NIS channel output by > 2% RTP, the NIS is not declared inoperable, but must be adjusted. If the NIS channel output cannot be properly adjusted, the channel is declared inoperable.

Two Notes modify SR 3.3.1.2. The first Note indicates that the NIS channel output shall be adjusted consistent with the calorimetric results if the NIS channel output is more than 2% below the calorimetric indicated power. The second Note clarifies that this Surveillance is required only if reactor power is ≥ 15% RTP and that 12 hour is allowed for performing the first Surveillance after reaching 15% RTP. At lower power levels, calorimetric data are inaccurate.

The Frequency of every 24 hours is adequate. It is based on unit operating experience, considering instrument reliability and operating history data for instrument drift. Together these factors demonstrate the change in the absolute difference between NIS and heat balance calculated powers rarely exceeds 2% in any 24 hour period.

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

SR 3.3.1.3

SR 3.3.1.3 compares the incore system to the NIS channel output every 31 EFPD. If the absolute difference is ≥ 3%, the NIS channel is still OPERABLE, but it must be readjusted. The adjustment is a recalibration of the upper and lower Power Range detectors to incorporate the results of the flux map.

RAIs MB 1433 MB 1427 R8, R15 3.3.1-39 R5, R15

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

RAIs MB 1433 MB 1427 R8, R15 3.3.1-39 R5, R15

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 ≥ 3%. Note 2

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.3 (continued)

clarifies that the Surveillance is required only if reactor power is ≥ 15% RTP and that 72 hours is allowed for performing the first Surveillance after reaching 15% RTP. RAIs MB 1433 MB 1427 R8, 15 3.3.1-39 R5, 15

The Frequency of every 31 EFPD is adequate. It is based on unit operating experience, considering instrument reliability and operating history data for instrument drift. Also, the slow changes in neutron flux during the fuel cycle can be detected during this interval. RAIs MB 1433 MB 1427 R8, 15 3.3.1-39 R5, 15

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 and 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 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.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.8 (continued)

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.

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

RAIs MB 1433 MB 1427 R8, 15 3.3.1-39 R5, 15

SR 3.3.1.9 is a calibration of the excore channels to the incore channels. If the measurements do not agree, the excore channels are not declared inoperable but must be calibrated to agree with the incore detector measurements. If the excore channels cannot be adjusted, the channels are declared inoperable. This Surveillance is performed to verify the f(ΔI) input to the overtemperature ΔT Function.

A Note modifies SR 3.3.1.9. The Note states that this Surveillance is required only if reactor power is ≥ 50% RTP and that 72 hours is allowed for performing the first surveillance after reaching 50% RTP.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.9 (continued)

The Frequency of 12 months is adequate. It is based on plant operating experience, considering instrument reliability and operating history data for instrument drift.

RAIs MB 1433 MB 1427 R8, 15 3.3.1-39 R5, 15

SR 3.3.1.10

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

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

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

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

SR 3.3.1.11

SR 3.3.1.11 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 neutron detectors are excluded from the CHANNEL CALIBRATION. The CHANNEL CALIBRATION for the power range neutron detectors consists of a normalization of the detectors based on a power calorimetric and flux map performed above 15% RTP. The CHANNEL CALIBRATION for the source range and intermediate range neutron detectors consists of obtaining the detector plateau or preamp discriminator curves, evaluating those curves, and comparing those 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

RAIs MB 1433 MB 1427 R8, 15 3.3.1-39 R5, 15

RAIs MB 1433 MB 1427 R8, 15 3.3.1-39 R5, 15

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.11 (continued)

is based on the need to perform this Surveillance under the conditions that apply during a unit 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.

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. Whenever a sensing element is replaced, the next required CHANNEL CALIBRATION of the resistance temperature detector (RTD) sensors is accomplished by an inplace cross calibration that compares the other sensing elements with the recently installed sensing element. RAIs MB 1433 MB 1427 R8, R15 3.3.1-39 R5, R15

This test will verify the dynamic compensation for flow from the core to the RTDs. The OTΔT function is lead/lag compensated and the OPΔT function is rate lag compensated. R5 R12 MB 1433 MB 1427 RAI 3.3.1-39 R15

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.

CTS

SURVEILLANCE REQUIREMENTS

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

	SURVEILLANCE		FREQUENCY
Channel Check	SR 3.3.1.1	Perform CHANNEL CHECK.	12 hours
Channel Calibration	SR 3.3.1.2	NOTES 1. Adjust NIS channel if absolute difference is > 2%. Calorimetric exceeds NIS by (4) 2. Not required to be performed until ~~[12]~~ hours after THERMAL POWER is ≥ 15% RTP. (7) Compare results of calorimetric heat balance calculation to Nuclear Instrumentation System (NIS) channel output.	24 hours
Channel Calibration	SR 3.3.1.3	NOTES 1. Adjust NIS channel if absolute difference is ≥ 3%. 2. Not required to be performed until (72) [24] hours after THERMAL POWER is ≥ [15]% RTP. (18) MB1433 MB1427 RAI 3.3.1-39 R5, R8, R15 Compare results of the incore detector measurements to NIS AFD.	31 effective full power days (EFPD)

(continued)

Rev 15

CTS

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY
Channel Functional Test	SR 3.3.1.4	----------NOTE---------- This Surveillance must be performed on the reactor trip bypass breaker ~~prior to~~ placing the bypass breaker in service. ---------- Perform TADOT.	immediately after (5) 31 days on a STAGGERED TEST BASIS
Channel Functional Test	SR 3.3.1.5	Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS
New Move to 3.3.1.9	SR 3.3.1.~~6~~ (9)	----------NOTE---------- Not required to be performed until ~~[24]~~ (72) hours after THERMAL POWER is ≥ 50% RTP. ---------- Calibrate excore channels to agree with incore detector measurements.	(18) 12 months ~~[92]~~ EFPD (19)
Channel Functional Test	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.	~~[92]~~ days (7)

(continued)

RAIs
MB 1433
MB 1427
R8, R15
3.3.1-39
R5, R15

Rev. 15

RAI 3
MB1433
MB1427
R8, R15
3.3.1-39
R5, R15

CTS

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
Channel Functional Test (move to 3.3.1.6)	SR 3.3.1.~~9~~ 6	----------NOTE---------- Verification of setpoint is not required. ---------- Perform TADOT.	~~92~~ days	19 8 7
Channel Calibration	SR 3.3.1.10	----------NOTE---------- This Surveillance shall include verification that the time constants are adjusted to the prescribed values. ---------- Perform CHANNEL CALIBRATION.	~~18~~ months	7
Channel Calibration	SR 3.3.1.11	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION.	~~18~~ months	7
Channel Calibration	SR 3.3.1.12	~~----------NOTE---------- This Surveillance shall include verification of Reactor Coolant System resistance temperature detector bypass loop flow rate. ----------~~ Perform CHANNEL CALIBRATION.	~~18~~ months	9 7
Channel Functional Test	SR 3.3.1.13	Perform COT.	18 months	

(continued)

RAI
MB 1433
MB 1427
R8, R15
3.3.1-39
R5, R15.

Rev. 15

13. References to RTS interlock P-9 are deleted. The North Anna design does not utilize this function, but uses the P-8 function to perform the same requirements. Function e. and f. have been re-lettered.

14. The Overtemperature ΔT and Overpower ΔT formulas of the ISTS Table 3.3.1-1 in Notes 1 and 2 have been modified to reflect the North Anna CTS requirements. These changes are acceptable because they reflect the CTS formulas in the ITS requirements for these functions. Values for the notes, such as τ_4, τ_5, τ_6, and τ_7 that are not needed, are deleted.

15. Not used.

16. The CHANNEL OPERATIONAL TEST (COT) and the CHANNEL CALIBRATION apply to the P–10 and P–13 inputs, not the P–7 logic function. Logic functions are tested under SR 3.3.1.5. This change is an administrative clarification to address the relationship between these interlocks. This change is consistent with proposed change TSTF–347.

MB1433
MB1427
RB
RAI 3.3.1-39
R5
RAI 3.3.1-05
R5

17. ISTS Table 3.3.1-1 Function 2.A, Power Range Neutron Flux High, does not specify a monthly CHANNEL CALIBRATION to be performed. ITS SR 3.3.1.3 is added to the Power Range Neutron Flux High requirements. This requires a comparison of incore to excore indication of AFD every 31 EFPD. An adjustment of the NIS channels is required if absolute difference is ≥ 3%. The SR is not required to be performed until 72 hours after THERMAL POWER exceeds 15 % RTP. The allowed time for delaying the performance of the SR is consistent with SR 3.3.1.9. This change is acceptable because all PRNF channels require accurate AFD indications.

MB1433
MB1427
RB, R15
RAI 3.3.1-39
R5, R15
RAI 3.3.1-32
R5

18. ISTS SR 3.3.1.6 is modified by a Note which allows the calibration to not be performed until [24] hours after THERMAL POWER is ≥ 50% RTP. ISTS 3.3.1.6 is equivalent to ITS 3.3.1.9. The Note is modified to allow 72 hours after THERMAL POWER is ≥ 50% RTP instead of 24 hours to perform the Surveillance. ISTS SR 3.3.1.3, Note 2, states, "Not required to be performed until [24] hours after THERMAL POWER is ≥ [15]% RTP." ITS SR 3.3.1.3, Note 2, states, "Not required to be performed until 72 hours after THERMAL POWER is ≥ 15% RTP." These Surveillances are performed using the first flux maps performed after refueling. Twenty-four hours is insufficient time 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 flux map, and perform the Surveillances using the map results. Analysis of the first flux maps 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. Seventy-two hours provides sufficient time to perform the activities in a quality manner.

MB1433
MB1427
R15
RAI 3.3.1-39
R15

19. ISTS SR 3.3.1.9 requires calibration of the excore channels to the incore detector measurements every [92] EFPD. The equivalent Surveillance, ITS SR 3.3.1.9, requires calibration of the excore channels to the incore detector measurements every 12 months. The CTS does not require periodic calibration of the NIS channels AFD indications, but requires calibration when the difference between incore and excore AFD exceeds 3%. Plant data was examined by two different methods to demonstrate a 12 month surveillance interval for the North Anna ITS is appropriate.

    In the first method, differences between incore and excore AFD indications measured during monthly flux maps during the last fuel cycles for Unit 1 and Unit 2 were extrapolated to the difference at 12 months. The extrapolation was based on the largest channel deviation between incore and excore Axial Flux Difference (AFD), increased by the ratio of 12 months to the interval between the measurement and the last calibration. This extrapolated value was compared to the 3% tolerance limit for the difference between the incore and excore AFD. The largest extrapolated value was 2.5%, well below the 3% limit.

    The second method used the first full power flux map in a cycle as the basis for a new NI calibration. That calibration was then be assumed to be installed for the entire fuel cycle. A determination was performed of each NIS channel's theoretical AFD, i.e., the AFD that would be indicated if there were no NIS calibrations performed, and was compared to the incore AFD measured during each flux map during the cycle. Four operating cycles were considered (the two most recent cycles for Unit 1 and Unit 2). Approximately 18 flux maps were considered per fuel cycle. The results showed excellent agreement between the incore and excore AFD, typically under 0.2% difference. The largest difference between incore and excore AFD at 12 months was 1.5%, also well below the 3% limit.

    As both methods of analysis show significant margin to the 3% limit, it is reasonable to apply a 12 month Frequency to the ITS SR 3.3.1.9 NIS channel calibration.

    This change in Frequency results in reordering the Surveillances. ISTS SR 3.3.1.6 is moved to ITS SR 3.3.1.9. ISTS SR 3.3.1.9 is moved to ITS SR 3.3.1.6. Table 3.3.1-1 is revised to reflect this change.

MB1433
MB1427
R15
RAI
3.3.1-39
R15

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2 (continued)

allowed for performing the first Surveillance after reaching 15% RTP. At lower power levels, calorimetric data are inaccurate.

The Frequency of every 24 hours is adequate. It is based on unit operating experience, considering instrument reliability and operating history data for instrument drift. Together these factors demonstrate the change in the absolute difference between NIS and heat balance calculated powers rarely exceeds 2% in any 24 hour period.

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

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

SR 3.3.1.3

SR 3.3.1.3 compares the incore system to the NIS channel output every 31 EFPD. If the absolute difference is ≥ 3%, the NIS channel is still OPERABLE, but must be readjusted. (INSERT) (3)

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

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 ≥ 3%. Note 2 clarifies that the Surveillance is required only if reactor power is ≥ ~~[15%]~~ RTP and that ~~24~~ (12) hours is allowed for performing the first Surveillance after reaching ~~[15%]~~ RTP. (1) (9) (1)

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

(continued)

Rev 15

INSERT 1

The adjustment is a recalibration of the upper and lower Power Range detectors to incorporate the results of the flux map.

MB1433
MB1427
R8
RAI 3.3.1-39
R5

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

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. <INSERT 2> 5 9 R5 R12

of the actuation is

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 R5

SR 3.3.1.~~6~~ 9

SR 3.3.1.~~6~~ is a calibration of the excore channels to the incore channels. If the measurements do not agree, the excore channels are not declared inoperable but must be calibrated to agree with the incore detector measurements. If the excore channels cannot be adjusted, the channels are declared inoperable. This Surveillance is performed to verify the f(ΔI) input to the overtemperature ΔT Function.

Move to SR 3.3.1.9

9

(continued)

RAIs MB1433 MB1427 R8, R15
3.3.1-39 R5, R15

RCN 15

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

R5
R12

and prior to the start of testing on the RTS or maintenance on a RTB. This checks the mechanical operation of the bypass breaker.

INSERT 3

T57F
347

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

MB143
MB427
RAI
3.3.1-39
R5, R15

RAI 3.3.1-39 R5, R15
RAI MB 1453 MB 1427 R8, R15

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.6 (continued)

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

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

move to SR 3.3.1.9

SR 3.3.1.7

SR 3.3.1.7 is the performance of a COT every 92 days.

A COT is performed on each required channel to ensure the entire channel will perform the intended Function. INSERT TSTF 205 R15

The nominal trip Setpoints must be within the Allowable Values specified in Table 3.3.1-1.

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

~~The "as found" and "as left" values must also be recorded and reviewed for consistency with the assumptions of Reference 7.~~ 19 R6

SR 3.3.1.7 is modified by a Note that provides a 4 hour delay in the requirement to perform this Surveillance for source range instrumentation when entering MODE 3 from MODE 2. This Note allows a normal shutdown to proceed without a delay for testing in MODE 2 and for a short time in MODE 3 until the RTBs are open and SR 3.3.1.7 is no longer required to be performed. If the unit is to be in MODE 3 with the RTBs closed for > 4 hours this Surveillance must be performed prior to 4 hours after entry into MODE 3.

The Frequency of 92 days is justified in Reference 7.

(continued)

Rev 15

MB1433
MB1427
R3, R15
RA2
3.3.1-39
R5, R15

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 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.

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. <INSERT 1> TSTF 205 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. 4 hours 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. <INSERT 2>

RAI 3.3.1-31 3.3.1-33 R5 R12

TSTF 242

SR 3.3.1.9

SR 3.3.1.9 is the performance of a TADOT and is performed every 92 days, as justified in Reference 7. <INSERT 5>

RAI MB1433 MB1427 R8, R15

TSTF 205

R5

move to SR 3.3.1.6

(continued)

Rev 15

RAI MB1433 MB1427 R8, R15

BASES

SURVEILLANCE REQUIREMENTS

move to SR 3.3.1.6

SR 3.3.1.~~9~~ 6 (continued)

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.

9

SR 3.3.1.10

A CHANNEL CALIBRATION is performed every ~~[18]~~ 6 months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy.

1

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

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

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

SR 3.3.1.11

SR 3.3.1.11 is the performance of a CHANNEL CALIBRATION, as described in SR 3.3.1.10, every ~~[18]~~ 6 months. This SR is modified by a Note stating that neutron detectors are excluded from the CHANNEL CALIBRATION. The CHANNEL CALIBRATION for the power range neutron detectors consists of a normalization of the detectors based on a power calorimetric and flux map performed above 15% RTP. The CHANNEL CALIBRATION for the source range and intermediate range neutron detectors consists of obtaining the detector

1

(continued)

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

Rev 15

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

<INSERT 1> TSTF 19

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.

(1) (6)

This test will verify the dynamic rate lag compensation for flow from the core to the RTDs. THE OTΔT function is lead/lag compensated and the OPΔT function is rate lag compensated. The Frequency is justified by the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

(3) R5 R12

SR 3.3.1.13

SR 3.3.1.13 is the performance of a COT of RTS interlocks every 18 months. <INSERT 2> TSTF 205 (1)

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

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

INSERT 1

Whenever a sensing element is replaced, the next required CHANNEL CALIBRATION of the resistance temperature detector (RTD) sensors is accomplished by an inplace cross calibration that compares the other sensing elements with the recently installed sensing element.

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

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.

17. TSTF – 135 provides an insert for the Source Range Neutron Flux function in the Applicable Safety Analyses, LCO, and Applicability section of the Bases. This insert states, "are addressed in LCO 3.3.9, 'Boron Dilution Protection System (BDPS),'for MODES 3, 4, or 5 and LCO 3.9.3, 'Nuclear Instrumentation,' for MODE 6." The plant does not utilize BDPS instrumentation channels for boron dilution event protection, but relies on the isolation of unborated water sources that could dilute the RCS inventory. Therefore, the reference to LCO 3.3.9 is not appropriate and is deleted.

MB1433
MB1427
R3, R15
RAI 331-37
R5, R15

18. Not used.

19. The ISTS Bases for SR 3.3.1.7 includes a paragraph that describes the recording and reviewing of the "as-found" and "as-left" values of SR to ensure consistency with Reference 7. The reference cites WCAP-10271. ITS SR 3.3.1.7 does not include this Bases paragraph. This is acceptable based on CTS Amendment 228 (Unit 1) and 202 (Unit 2) which adopted WCAP-10271. In the license amendment request for this CTS change, the following condition for adopting WCAP-10271 was listed: A review of the 'as found' and 'as left' data over a twelve-month period should provide sufficient information to address the adequacy of the existing setpoints and allowable values." The response to the requirement stated, "The licensee evaluated the 'as found' and 'as left' plant data. In every case the drift with 95 percent confidence level was well below one percent per quarter. Permissive drifts were less than one percent over any 18 month period and the drifts of the control parameters were within acceptable limits of the plant control systems." There was no commitment to perform an on-going evaluation of "as-found" and "as-left" data because the instrumentation is stable. From this response provided by the licensee, the NRC concluded that the CTS change was acceptable. Therefore, the Bases paragraph requiring the recording and reviewing of 'as found' and 'as left' data is not required and is deleted. If the SR is not met, the ITS Actions will be followed.

R6

ITS

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

Note SR3.3.1.8 SR3.3.1.15 Note SR3.3.1.2 Notes 1 & 2 SR 3.3.1.3

(1) – If not performed in previous 31 days. (92 days for ITS SR 3.3.1.8) L.11 R12 RAI 3.3.1-33 R5 A.25

(2) – Heat balance only, above 15% of RATED THERMAL POWER. L.15
<INSERT PROPOSED NOTE>

(3) – Compare incore to excore axial offset above 15% of RATED THERMAL POWER. Adjust channel if absolute difference ≥ 3 percent. L.9 RAI MB1433 MB1427 R8, R15 3.3.1-39 R5, R15

Note SR 3.3.1.14

(4) – Manual ESF functional input check every 18 months. A.14

Frequency SR 3.3.1.4 SR 3.3.1.5 Note SR 3.3.1.11

(5) – Each train or logic channel shall be tested at least every ~~62~~ 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

TADOT

(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

TADOT

(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 RAI 3.3.1-31 R5

SR 3.3.1.8 Note SR 3.3.1.8

(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

SR 3.3.1.7 Note

<INSERT proposed Note> L.24 RAI 3.3.1-10 R5

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

Rev. 0 3.3.1

A.1

03-09-00

TABLE 4.3-1 (CONTINUED)

ITS	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
Note SR 3.3.1.8 SR 3.3.1.15	(1) –	If not performed in previous 31 days. (92 days for ITS SR 3.3.1.8)	L.11 RAI 3.3.1-33 R5 R12 A.25
Note SR 3.3.1.2	(2) –	Heat balance only, above 15% of RATED THERMAL POWER. Adjust channel if absolute difference >2 percent. <INSERT PROPOSED NOTE>	L.7 L.15
Notes 1 & 2 SR 3.3.1.3	(3) –	Compare incore to excore axial offset above 15% of RATED THERMAL POWER. Recalibrate if absolute difference ≥ 3 percent.	L.9
Note SR 3.3.1.14	(4) –	Manual ESF functional input check every 18 months.	RAIs MB3433 R8, R15 MB1427 3.3.1-39 R5, R15 A.14
FREQUENCY SR 3.3.1.4 SR 3.3.1.5 NOTE SR 3.3.1.11	(5) –	Each train or logic channel shall be tested at least every 62 (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
TADOT	(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
TADOT	(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
SR 3.3.1.8 Note SR 3.3.1.8	(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.	RAI 3.3.1-31 R5 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
SR 3.3.1.7 Note	<INSERT Proposed Note>		L.24 RAI 3.3.1-10 R5 RAI MB1433 MB1427 R8, R15

Rev 15. 3.3.1-3 R5 R15

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.

PAI 3.3.1-02 3.3.1-18 R5

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.

PAI 3.3.1-08 R5

PAI 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 ≥ 3 percent." The CTS does not specify a CHANNEL CALIBRATION for the Overtemperature (OT)ΔT function. ITS Table 3.3.1–1 specifies SR 3.3.1.3 for PRNF and OTΔT 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

PAI 3.3.1-32 R5

MB 1433 MB 1427 R8, R15 3.3.1-39 R5, R15

if absolute difference is ≥ 3 %." Note 2 states, "Not required to be performed until 72 hours after THERMAL POWER is ≥ 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 OTΔT functions. MB1433 MB1427 R3, R15 RAI 3.3.1-39 R5, 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 OTΔT 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 OTΔT 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 R5

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 R5

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 R5

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 requirements are specifically 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 R5 MB1433 MB1427 R8, R15

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. RAI 3.3.1-39 R5, R15

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 R5

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 (ΔI) 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, "Calibrate excore channels to agree with incore detector measurements." This SR must be performed every 12 months. A Note modifies the requirement. It states, "Not required to be performed until 72 hours after THERMAL POWER is ≥ 50%." This changes the CTS by requiring an additional Surveillance Requirement for the OTΔT Function. MB1433 MB1427 R8, R15 RAI 3.3.1-39 R5, R15

The purpose of ITS SR 3.3.1.9 is to ensure accurate inputs to f (ΔI) from NIS channels for the OTΔT Function. This change is acceptable because the OTΔT Functions receive inputs for the f (ΔI) 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 (ΔI) can be determined for the OTΔT Function. . Twenty-four hours is insufficient time 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. Seventy-two hours provides sufficient time to perform the activities in a quality manner. 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 R5

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

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 R5

MB 1433
MB 1429
RAI
3.3.1-39
R15

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.

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.

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 Function11 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

basis. The addition of the symbols provides for a conservative tolerance for the RTS interlock function in accordance with the safety analyses assumptions. 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.9 *(Category 7 – Relaxation of Surveillance Frequency)* 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 ≥ 3 percent." ITS Table 3.3.1–1 specifies SR 3.3.1.3 for the Overtemperature ΔT function. SR 3.3.1.3 states, " Compare results of the incore detector measurements to NIS AFD." Two Notes modify the SR. Note 1 states, "Adjust NIS channel if absolute difference is ≥ 3 %." Note 2 states, "Not required to be performed until 72 hours after THERMAL POWER is ≥ 15 % RTP." This changes the CTS by specifically stating that 72 hours is allowed before requiring the completion of a CHANNEL CALIBRATION after THERMAL POWER ≥ 15 % RTP.

RAI 3.3.1-32 R5

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

The purpose of ITS SR 3.3.1.3 Note 2 is to state that the SR is only applicable above the 15 % RTP and 72 hours provides a reasonable period of time to perform the SR after exceeding the required power level. This SR is consistent with SRs 3.2.3.1 and 3.3.1.9 that provide for a surveillance of AFD and ΔI requirements with the same time allowance. 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 72 hours after exceeding 15 % RTP is a reasonable period of time to perform the flux mapping, compare the result with the indicated AFD of the NIS channels, and make any required adjustments. The incore to excore indication of ΔI below 15 % of RTP does not provide for accurate comparisons, therefore a limit of 15% is placed on the applicability of the SR. This change is designated as less restrictive because Surveillances can be performed less frequently under the ITS than under the CTS.

L.10 *(Category 7 – Relaxation Of Surveillance Frequency)* CTS Table 4.3-1 list for the Power Range (Low Setpoint), Intermediate Range, and the Source Range channels S/U [(1)] requirements for a CHANNEL FUNCTIONAL TEST (CFT). This also requires the CFT be performed prior to a reactor start up if not completed within the previous 31 days (Note [(1)]). The Source and Intermediate Ranges additionally require Q [(12)] requirement. Note [(12)] states, "Quarterly Surveillance in Modes 3*, 4*, and 5* shall also include verification that Permissive P-6 and P-10 are in their required state

DOC No.	Description of Change	ITS Requirement	CTS Requirement
3.3.1 A.26	CTS Table 3.3-1 Action 1 states with the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement the unit must be shutdown within a given time. Additionally, Action 1 states that one channel may be bypassed for up to 4 hours for concurrent surveillance testing of the RTB and automatic trip logic provided the other channel is OPERABLE. Action 1 applies to Function 21 Reactor Trip Breakers. ITS Table 3.3.1 –1 for function 19 requires Condition P to be entered for an inoperable train. Condition P requires with one RTB train inoperable, it must be restored to OPERABLE status or the unit must be shutdown. Three Notes modify Condition P. Note 3 states that one RTB train may be bypassed for up to 4 hours for concurrent surveillance testing of the RTB and automatic trip logic, provided the other channel is OPERABLE. This changes the CTS by placing the allowance of concurrent surveillance testing into a Note in the ITS format.	3.3.1 ACTION P Note 3	Table 3.3-1 Action 1
3.3.1 A.27	CTS Table 3.3-1 Function 20 RCP Breaker Position provides for a reactor trip. The total number of channels is one per (RCP) breaker and for an inoperable channel Action 8 must to be entered and requires the inoperable channel to be placed into trip within 72 hours or the unit is required to be placed below P-7 interlock within 78 hours. ITS 3.3.1 for RCP Breaker Position specifies the required channels is one per RCP (breaker) and requires Condition M for an inoperable channel. The Condition provides for an inoperable channel that the channel must be placed in trip within 72 hours or power must be reduced below P-7 setpoint within 78 hours. This changes the CTS by stating the channel requirement for RCP breaker position as one per RCP.	3.3.1 ACTION M	Table 3.3-1
3.3.1 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 ≥ 3 percent." The CTS does not specify a CHANNEL CALIBRATION for the Overtemperature (OT)ΔT function. ITS Table 3.3.1–1 specifies SR 3.3.1.3 for PRNF and OTΔT 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 if absolute difference is ≥ 3 %." Note 2 states, "Not required to be performed until 24 hours after THERMAL POWER is ≥ 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 OTΔT functions.	SR 3.3.1.3 NOTE 1	Table 4.3-1 Note (3)

72

R15
MB1433
MB1427

DOC No.	Description of Change	ITS Requirement	CTS Requirement	Change Type
3.3.1 L.9	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 ≥ 3 percent." ITS Table 3.3.1–1 specifies SR 3.3.1.3 for the Overtemperature ΔT function. 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 if absolute difference is ≥ 3 %." Note 2 states, "Not required to be performed until 24 hours after THERMAL POWER is ≥ 15 % RTP." The change from monthly to every 31 EFPD is addressed by DOC L.16. This changes the CTS by allowing 24 hours to perform a CHANNEL CALIBRATION after THERMAL POWER exceeds 15 % RTP for the surveillance testing.	SR 3.3.1.3 NOTE 2	None	7

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Specifically stating that 72

is allowed before requiring the completion of a

Change Category:
1 - Relaxation of LCO Requirements
2 - Relaxation of Applicability
3 - Relaxation of Completion Time
4 - Relaxation of Required Action
5 - Deletion of Surveillance Requirement
6 - Relaxation Of Surveillance Requirement Acceptance Criteria
7 - Relaxation Of Surveillance Frequency
8 - Deletion of Reporting Requirements

Table M – More Restrictive Changes
ITS Section 3.3 – Instrumentation

DOC No.	Description of Change	ITS Requirement	CTS Requirement
3.3.1 M.13	CTS Table 4.3–1 Surveillance Requirements do not require a quarterly test on the OTΔT Functions to ensure an accurate input for the f (ΔI) from the required Power Range channels. ITS Table 3.3.1–1 Function 6 states SR 3.3.1.6 must be performed. ITS SR 3.3.1.6 states, "Compare results of the excore channels to the incore detector measurements." This SR must be performed every 92 effective full power days (EFPD). Two Notes modify the requirement. Note 1 states, " Adjust NIS channel if absolute difference is ≥ 3%." Note 2 states, "Not required to be performed until 24 hours after THERMAL POWER is ≥ 50%." This changes the CTS by requiring an additional Surveillance Requirement for the OTΔT Function.	Table 3.3.1-1, SR 3.3.1.6 NOTE 1	None
3.3.2 M.1	CTS Surveillance requirement 4.3.2.1.2 requires the testing of the ESFAS interlocks to determine OPERABILITY. The two interlocks P-11 and P-12 are required to be OPERABLE. No specific requirement is stated or implied to perform a CHANNEL CHECK for the interlocks. ITS SR 3.3.2.1 is added to the surveillance requirements for the P-11 and P-12 interlocks. This change modifies the CTS requirements for these interlocks and requires a CHANNEL CHECK to be performed every twelve hours.	SR 3.3.2.1	4.3.2.1.2
3.3.2 M.2	CTS Surveillance listed in Table 4.3-2 provide CHANNEL CALIBRATION requirements for a variety of functions to be performed at a R (refueling) frequency. ITS Surveillance Requirement 3.3.2.8 specifies a CHANNEL CALIBRATION be performed every 18 months. A Note modifies the SR that states "This Surveillance shall include verification that the time constants are adjusted to the prescribed values." This changes the CTS by adding the requirement to perform a verification of time constants adjusted to prescribed values with a CHANNEL CALIBRATION of the various safety functions.	SR 3.3.2.8 NOTE	Table 4.3-2

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12 months. A NOTE modifies

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