Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

JUN 0 8 2007

WBN-TS-07-04

10 CFR 50.90

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

Gentlemen:

In the Matter of) Docket No.50-390
Tennessee Valley Authority)

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 - TECHNICAL SPECIFICATION (TS) CHANGE TS-07-04, REACTOR TRIP SYSTEM/ENGINEERED SAFETY FEATURE LOGIC, REACTOR TRIP BREAKER ALLOWABLE OUTAGE TIME, AND SURVEILLANCE TESTING INTERVAL RELAXATIONS

The purpose of this letter is to request that Appendix A of Facility Operating License NPF-90, Watts Bar Unit 1 Technical Specifications, be amended in accordance with 10 CFR 50.90. The proposed amendment affects several Technical Specification sections to allow relaxations of various Reactor Trip System/ Engineered Safety Feature logic completion times, bypass test times, allowable outage times, and surveillance testing intervals previously reviewed and approved by NRC under Westinghouse WCAP-14333-P-A (Technical Specification Task Force (TSTF) 418, Revision 2) and WCAP-15376-P-A (TSTF 411, Revision 1) and incorporates TSTF Travelers (listed in the table below which were incorporated into Revisions 2 and 3 of NUREG 1431, "Standard Technical Specifications Westinghouse Plants:"

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NRC/NRR

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TSTF No./ Rev No.	Incorporated into NUREG 1431, Rev No.	Description	Date of NRC Approval Letter
169/1	1	Deletion of Condition 3.3.1.N	10/31/2000
311/0	0	Revision of Surveillance Frequency for TADOT on Turbine Trip Functional Unit	04/21/1999
411/1	3	Surveillance Test Interval Extensions for Components of the Reactor Protection System (WCAP-15376-P-A)	08/30/2002
418/2	3	RPS and ESFAS Test Times and Completion Times (WCAP-14333-P-A)	04/02/2003

Provided in Enclosure 1 is a description and justification of the proposed amendment. Annotated versions of the affected Technical Specification pages are provided in Enclosure 2. Enclosure 3 provides for information only the annotated version of the TS bases pages. Enclosure 4 provides the plant specific confirmation that analysis and component failure probabilities are applicable to WBN as required by condition 1 of both WCAP safety evaluation reports. Portions of Enclosure 4 are proprietary to Westinghouse. Enclosure 5 provides a non-proprietary version of the document contained in Enclosure 4.

Accordingly, Enclosure 6 includes a Westinghouse Application for Withholding Proprietary Information from Public Disclosure, and an accompanying Affidavit signed by Westinghouse, the owner of the information. Also included are a Proprietary Information Notice and a Copyright Notice. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission, and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR 2.790 of the Commission's regulations. TVA respectfully requests that the Westinghouse proprietary information be withheld from public disclosure in accordance with 10 CFR 2.390.

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Correspondence regarding the proprietary aspects of the Westinghouse report listed above, the Copyright Notice, or the supporting Westinghouse affidavit, should reference CAW-07-2275 and should be addressed to J. A. Gresham, Manager, Regulatory compliance and Plant Listing, Westinghouse Electric Company, LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

In accordance with 10 CFR 50.91(b)(1), a copy of this proposed license amendment is being forwarded to the state designee for the State of Tennessee.

There are no regulatory commitments in this submittal and TVA has not defined a specific schedule or milestone by which the approval of the amendment is needed. However, the surveillance frequency relaxations allowed by this amendment will allow for improvement in Maintenance Rule unavailability for several components, including the Reactor Trip Breakers. There, TVA requests approval as soon as practicable. TVA requests that once the amendment is approved, 120 days be allowed for implementation.

If you have any questions about this proposed change, please contact me at (423) 365-1824.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 8th day of June 2007.

Sincerely,

J. D. Smith
Manager, WBN Site Licensing
and Industry Affairs (Acting)

Enclosures
cc: See page 4

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ENCLOSURE 1

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
DOCKET NUMBER 390

PROPOSED TECHNICAL SPECIFICATION (TS) CHANGE NUMBER 07-04

TVA'S EVALUATION

1.0 DESCRIPTION

This letter proposes an amendment to Appendix A, "Technical Specifications (TS)," of the WBN Operating License, NPF-90. The proposed amendment affects several Technical Specification sections to allow relaxations of various Reactor Trip System/Engineered Safety Feature logic completion times, bypass test times, allowable outage times, and surveillance testing intervals previously reviewed and approved by NRC under Westinghouse WCAP-14333-P-A (Technical Specification Task Force (TSTF) 418, Revision 2) and WCAP-15376-P-A (TSTF-411, Revision 1). (WCAP-14333-P-A and WCAP-15376-P-A are henceforth referenced as WCAP-14333 and WCAP-15376.) The proposed amendment also incorporates approved TSTFs-169 and 311, which were incorporated into Revisions 2 and 3 of NUREG 1431, "Standard Technical Specifications Westinghouse Plants."

2.0 PROPOSED CHANGE

The proposed changes, as approved in WCAP-14333 (TSTF-418, Revision 2)and WCAP-15376 (TSTF-411, Revision 1), allow increases in the bypass test times for instrumentation channels and Reactor Trip Breakers (RTBs); test completion times for instrumentation channels, logic cabinets, master and slave relays, and RTBs; and surveillance test intervals for instrumentation channels, logic cabinets, master relays, and RTBs. The proposed changes in these test times and frequencies are listed in Section 3.0 Tables 3.1 and 3.2 of this Enclosure.

In addition, the proposed amendment implements approved TSTFs-169 and 311, which were incorporated into Revisions 2 and 3 of NUREG 1431, "Standard Technical Specifications Westinghouse Plants."

The TS markups are provided in Enclosure 2. The following numbered listing of proposed changes (1-33) identifies the basis (TSTF) and the affected Functions for each change. Note that the referenced Conditions, Surveillance Requirements, Functions, and notes reflect the WBN TS and are, in some cases, numbered differently than the equivalent items in NUREG 1431 and the TSTFs.

ENCLOSURE 1

1. Changed bypass time and completion times for TS 3.3.1 Condition D and associated Required Actions. Power Range Neutron Flux - High (Function 2a). TSTF-418.
2. Changed bypass time and completion times for TS 3.3.1 Condition E and associated Required Actions. Power Range Neutron Flux - Low (Function 2b) and Power Range Neutron Flux - High Positive Rate (Function 3a). TSTF-418.
3. Changed bypass time and completion times for TS 3.3.1 Condition M and associated Required Actions. Undervoltage RCPs (Function 11) and Underfrequency RCPs (Function 12). TSTF-418.
4. Changed TS 3.3.1 Condition N description and Required Action N.2 to indicate applicability to both Reactor Coolant Flow - Low single loop (Function 10a) and two loop trip (Function 10b) functions which are being combined by this change into a single Function 10. TSTF-169.
5. Changed bypass time and completion times for TS 3.3.1 Condition N and associated Required Actions. Reactor Coolant Flow - Low (Function 10). TSTF-418.
6. Changed bypass time and completion times for TS 3.3.1 Condition O and associated Required Actions. Turbine Trip - Low Fluid Oil Pressure (Function 14a). TSTF-418.
7. Changed completion times for TS 3.3.1 Condition P Required Actions. Safety Injection (SI) Input from ESFAS (Function 15) and Automatic Trip Logic (Function 19). TSTF-418.
8. Changed bypass time and completion times (TSTF-418) and deleted Note 2 (TSTF-411) for TS 3.3.1 Condition Q and associated Required Actions. Reactor Trip Breakers (Function 17).
9. Changed bypass time and completion times for TS 3.3.1 Condition U and associated Required Actions. SG Water Level Low-Low (Function 13). TSTF-418.
10. Changed bypass time and completion times for TS 3.3.1 Condition V and associated Required Actions. SG Water Level Low-Low - Vessel ΔT (Functions 13a and 13b). TSTF-418.
11. Changed bypass time and completion times for TS 3.3.1 Condition W and associated Required Actions. Overtemperature ΔT (Function 6), Overpower ΔT (Function 7) and Pressurizer Pressure - High (Function 8b). TSTF-418.
12. Changed bypass time and completion times for TS 3.3.1 Condition X and associated Required Actions. Pressurizer Pressure - Low (Function 8a) and Pressurizer Water Level - High (Function 9). TSTF-418.

13. Changed completion times for TS 3.3.1 Condition Y Required Actions. Turbine Trip - Turbine Stop Valve Closure (Function 14b). TSTF-418.

14. Changed SR 3.3.1.4 TADOT Frequency. RTBs (Function 17) and RTB Undervoltage and Shunt Trip Mechanisms (Function 18). TSTF-411.

15. Changed SR 3.3.1.5 Actuation Logic Test Frequency. Automatic Trip Logic Function 19. TSTF-411.

16. Changed SR 3.3.1.7 COT Frequency. Instrumentation Functions 2a, 2b, 3a, 6, 7, 8a, 8b, 9, 10, 13, 13a, and 13b. TSTF-411.

17. Changed SR 3.3.1.14 TADOT Frequency. Turbine Trip - Low Fluid Oil Pressure and Turbine Stop Valve Closure (Functions 14a and 14b). TSTF-311.

18. Combined TS 3.3.1 Reactor Coolant Flow - Low single loop and two loop trip Functions 10a and 10b into a single Function 10 and deleted associated Notes (g) and (h). TSTF-169.

19. Changed completion times for TS 3.3.2 Condition C Required Actions. Automatic Actuation Logic and Actuation Relays for Safety Injection (Function 1b), Containment Spray (Function 2b), Containment Isolation - Phase A (Function 3a(2)), Containment Isolation - Phase B (Function 3b(2)), and Automatic Switchover to Containment Sump (Function 7a). TSTF-418.

20. Changed bypass time and completion times for TS 3.3.2 Condition D and associated Required Actions. Safety Injection on Containment Pressure - High (Function 1c), Safety Injection on Pressurizer Pressure - Low (Function 1d), Safety Injection on Steam Line Pressure - Low (Function 1e), Steam Line Isolation on Steam Line Pressure - Low (Function 4d(1)), and Steam Line Isolation on Steam Line Pressure - Negative Rate - High (Function 4d(2)). TSTF-418.

21. Changed bypass time and completion times for TS 3.3.2 Condition E Required Actions. Containment Spray on Containment Pressure - High High (Function 2c), Containment Isolation - Phase B on Containment Pressure - High High (Function 3b(3)), and Steam Line Isolation on Containment Pressure - High High (Function 4c). TSTF-418.

22. Changed completion times for TS 3.3.2 Condition G Required Actions. Automatic Actuation Logic and Actuation Relays for Steam Line Isolation (Function 4b) and Auxiliary Feedwater (Function 6a). TSTF-418.

23. Changed completion times for TS 3.3.2 Condition H Required Actions. Automatic Actuation Logic and Actuation Relays for Turbine Trip and Feedwater Isolation (Function 5a). TSTF-418.

24. Changed bypass time and completion times for TS 3.3.2 Condition I and associated Required Actions. Turbine Trip and Feedwater Isolation on SG Water Level High-High (Function 5b). TSTF-418.
25. Changed bypass time and completion times for TS 3.3.2 Condition K and associated Required Actions. Automatic Switchover to Containment Sump on Refueling Water Storage Tank Level - Low coincident with SI and Containment Sump Level - High (Function 7b). TSTF-418.
26. Changed bypass time and completion times for TS 3.3.2 Condition M and associated Required Actions. Auxiliary Feedwater on SG Water Level Low-Low (Function 6b). TSTF-418.
27. Changed bypass time and completion times for TS 3.3.2 Condition N and associated Required Actions. Auxiliary Feedwater on SG Water Level Low-Low - Vessel ΔT (Functions 6b(1) and 6b(2)). TSTF-418.
28. Changed bypass time and completion times for TS 3.3.2 Condition O and associated Required Actions. Turbine Trip and Feedwater Isolation on Main Steam Valve Vaults Water Level - High (Functions 5d and 5e). TSTF-418.
29. Changed SR 3.3.2.2 Actuation Logic Test Frequency. Automatic Actuation Logic and Actuation Relays Functions 1b, 2b, 3a(2), 3b(2), 4b, 5a, 6a, and 7a. TSTF-411.
30. Changed SR 3.3.2.3 Master Relay Test Frequency. Automatic Actuation Logic and Actuation Relays Functions 1b, 2b, 3a(2), 3b(2), 4b, 5a, 6a, and 7a. TSTF-411.
31. Changed SR 3.3.2.4 COT Frequency. Instrumentation Functions 1c, 1d, 1e, 2c, 3b(3), 4c, 4d(1), 4d(2), 5b, 6b, 6b(1), 6b(2), 7b, 8b(1), and 8b(2). TSTF-411.
32. Changed SR 3.3.6.2 Actuation Logic Test Frequency. Automatic Actuation Logic and Actuation Relays Function 2. TSTF-411.
33. Changed SR 3.3.6.3 Master Relay Test Frequency. Automatic Actuation Logic and Actuation Relays Function 2. TSTF-411.

3.0 BACKGROUND

The WBN TS were initially developed as Improved Standard Technical Specifications (ISTS) based on Revision 0 of NUREG 1431, "Standard Technical Specifications Westinghouse Plants," and proposed changes to the NUREG incorporated in Revision 1. The TSTF process is an industry and NRC controlled process for proposing and incorporating improvements to the ISTS. The revisions proposed by this amendment impact Technical Specifications 3.3.1, "Reactor Trip System (RTS) Instrumentation," 3.3.2, "Engineered Safety Feature Actuation

System (ESFAS) Instrumentation," and 3.3.6, "Containment Vent Isolation (CVI) Instrumentation," and are based on four TSTFs (169, 311, 411 and 418). All of the above TSTFs have been incorporated into the current revision of NUREG 1431 (Revision 3.0 dated March 3, 2004).

The initial issue of the WBN TS included the relaxation of RTS and ESFAS test times, allowed outage times (AOT) / completion times (CT), bypass test times (BT), and surveillance test intervals (STI) which were justified in the Westinghouse Owners Group (WOG) Technical Specification Optimization Program (TOP) document WCAP-10271-P-A and supplements thereto (References 11 and 12). The justification was based on the high reliability of the protection system equipment and the small impact of the changes on overall plant risk.

WCAP-14333 (TSTF-418)

WCAP-14333 provides the justification for increasing the bypass test times and the completion times for RTS and ESFAS instrumentation. The approach used in WCAP-14333 is consistent with that established by the WOG TOP, including fault tree models, actuation signals, component reliability, and most of the test and maintenance assumptions. Several enhancements in modeling were implemented as discussed in the WCAP. The changes justified in WCAP-14333 are summarized in Table 3.1 below.

Table 3.1

WCAP-14333 RTS and ESFAS Completion Time and Bypass Test Time Changes		
Component	Completion Time	Bypass Test Time
Analog Channels	6+6 hours to 72+6 hours	4 hours to 12 hours
Logic Cabinets	6+6 hours to 24+6 hours	no change
Master & Slave Actuation Relays	6+6 hours to 24+6 hours	no change

These improvements will allow additional time to perform maintenance and test activities, enhance safety, provide additional operational flexibility, and reduce the potential for forced outages related to compliance with the RTS and ESFAS instrumentation Technical Specifications. Industry information has shown that a significant number of trips that have occurred are related to instrumentation test and maintenance activities, indicating that these activities should be completed with caution and sufficient time should be available to complete these activities in an orderly and effective manner.

The NRC issued a Safety Evaluation on July 15, 1998, approving WCAP-14333. Southern Nuclear Operating Company submitted a License Amendment Request on October 13, 1999, for the Vogtle Units 1 and 2 to adopt the relaxations that were generically approved in WCAP-14333. As a result of the NRC review of this application, incremental conditional large early release probability (ICLERP) values were developed generically for all WOG plants. License amendments were issued for Vogtle approving the changes proposed in WCAP-14333.

WCAP-15376 (TSTF-411)

WCAP-15376 provides further improvements to the RPS, building on the approved changes of WCAP-10271 and WCAP-14333 and including changes to the fault tree models and incorporation of updated component failure probability data. WCAP-15376 provides the justification for increasing the bypass test time and the completion time for the reactor trip breakers and for increasing the surveillance test intervals for the reactor trip breakers, instrumentation channels, logic cabinets, and master relays of the RPS instrumentation. The changes justified in WCAP-15376 are summarized in Table 3.2 below.

Table 3.2

WCAP-15376 RTS and ESFAS Surveillance Test Interval and Completion Time Changes		
Component	Surveillance Test Interval	Completion Time and Bypass Time
Analog Channels	3 months to 6 months	No change
Logic Cabinets	2 months to 6 months	No change
Master Relays	2 months to 6 months	No change
Slave Relays	No change	No change
Reactor Trip Breakers	2 months to 4 months	AOT: 1 hour to 24 hours. Bypass Time: 2 hours to 4 hours.

The approach used in WCAP-15376 is consistent with the NRC's approach for using probabilistic risk assessment in risk-informed decisions on plant-specific changes to the licensing basis as presented in Regulatory Guides 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Current Licensing Basis," and 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications." The approach

addresses the impact on defense-in-depth and safety margins, as well as an evaluation of the impact on risk. The risk evaluation considers the three-tiered approach as presented by the NRC in Regulatory Guide 1.177 for the extension to the RTB completion time.

TSTF-169

TSTF 169 combines the single loop and two loop Reactor Coolant Flow Low reactor trip functions (3.3.1-10a and 10b) into one function. Table 3.3.1-1 notes g and h associated with this function are deleted, Condition N description is revised and Condition X is no longer applicable to this function. This change resolves an inconsistency with respect to the WCAP-10271 analyses by removing the potential for exceeding the AOT allowance evaluated in the WCAP.

TSTF-311

The proposed change revises the Frequency of SR 3.3.1.14 for performing a TADOT for Turbine Trip on Low Fluid Oil Pressure and Turbine Stop Valve Closure (Functions 14a and 14b). The LCO requires the Functions to be OPERABLE in MODE 1 above P-9 (50% RTP). The change will allow the test to be performed at power prior to exceeding the P-9 interlock instead of prior to reactor startup while continuing to ensure that the functions will be OPERABLE when required.

4.0 TECHNICAL ANALYSIS

4.1 WCAP-14333 and WCAP-15376

This analysis follows the implementation guidelines provided by the WOG for WCAP-14333 and WCAP-15376 and addresses the conditions and limitations specified in the NRC's safety evaluations (SE) for the WCAPs. In addition, although not specifically listed as a condition in the SEs, one commitment is addressed as stated in the response to NRC RAI 18 (Reference 10). The analysis demonstrates the applicability to WBN of the generic analyses performed to support the changes.

The approach used in this program and presented in WCAP-14333 and WCAP-15376 is consistent with the approach established by WOG TOP. The changes justified in the WCAPs were evaluated using a probabilistic risk assessment approach. The analyses included assessment of the impact of the changes on signal unavailability and plant risk. The justification for the acceptability of the changes was the small increase the changes had on plant risk. The probabilistic risk analysis, benefits of the program and

conclusions, and the relationship of the Technical Specification changes to the analysis are discussed in the WCAPs.

4.1.1 Risk Evaluation

The changes being considered in this analysis were evaluated consistent with the three-tiered approach defined in Regulatory Guide 1.177. Tier 1 addresses PRA insights and includes the risk analyses and sensitivity analyses to support the proposed Technical Specification changes. Tier 2 addresses avoidance of risk-significant plant configurations. Tier 3 addresses risk-informed plant configuration control and management.

4.1.1.1 Tier 1, PRA Capability and Insights

The Vogtle Electric Generating Plant PRA model was used for the generic risk analysis documented in WCAP 14333 (Reference 2) and WCAP 15376 (Reference 3). Enclosure 4 addresses the applicability of the generic analysis to the Watts Bar Nuclear Plant. The remainder of this section summarizes applicable information from references 2 and 3, and the associated NRC Staff Safety Evaluation Reports, References 18 and 21.

WCAP 14333

The NRC evaluation of WCAP-14333 is documented in a Safety Evaluation Report (SER), Reference 18. The staff used a three-tiered approach in its evaluation. The first tier evaluated the PRA model and the impact of the change on plant operational risk. The staff's review focused on the approach taken to develop a model and its capability to analyze the risk stemming from the proposed changes.

Most of the fault trees used in the WCAP-14333 analysis came directly from the WCAP-10271 analysis that had been previously reviewed and approved by the NRC staff. Additional fault trees were developed as necessary to model the addition of operator actions either to manually trip the reactor or to initiate safety injection.

Major aspects of the PRA modeling used in the WCAP-14333 analysis were evaluated including data, screening and truncation limits, level of detail, sensitivity, and uncertainty. Assumptions for the analysis are provided in Reference 2, paragraph 7.2. The NRC staff found these aspects of the PRA modeling to be reasonable.

The common cause failure approach and the approach to assess the unavailability of components due to maintenance activities were changed from the WCAP 10271 analysis to provide a more

representative analysis. These modeling approaches are discussed in Reference 2, paragraph 7.1.

The risk quantification conservatively did not take credit for potential trip reduction due to the implementation of revised technical specifications. Sensitivity cases were quantified to show the potential impact on plant safety due to trip reduction (Reference 2, paragraph 8.1).

In response to a NRC staff request, Westinghouse performed sensitivity studies on several important parameters assumed in the risk analysis, i.e., human error probability, maintenance frequency, common cause failure probability, and ATWS mitigating system actuation circuitry (AMSAC) availability. The studies indicated that the impact of the variation in those parameters on plant risk is insignificant (Reference 18).

The NRC staff qualitatively considered the impact of the proposed TS changes on the risk from external events such as fire and earthquake events. From its review, the NRC staff found that the proposed TS changes will have only a very small impact on the risk from external events; that small impact on risk is acceptable to the NRC staff.

The impact of the proposed changes on CDF and LERF are provided in TSTF-418, Revision 2, Table 1.3 (which presents the same information contained in Table 8.4 of WCAP-14333) and Table 1.4 (which presents the same information provided in the response to RAI Question 13 in OG-96-110, Reference 8), respectively. The CDF and LERF values are provided for the pre-TOP, TOP, and the WCAP-14333 proposed changes. The ΔCDF and ΔLERF values are also provided referenced to pre-TOP and TOP conditions. The results of a sensitivity analysis are also provided that credit a 0.5/year reduction in the reactor trip initiating event frequency due to reduction in the number of analog channel tests. The ICCDP and ICLERP values are provided in Table 1.5 of TSTF-418, Revision 2 (which presents the same information as in RAI Question 11 in OG-96-110).

The ΔCDF, ICCDP, ΔLERF, and ICLERP values provided in the WCAP and subsequent RAIs met the criteria of small changes in risk defined in RG-1.174 and 1.177. Based on the Tier 1 evaluation, the NRC staff found that the PRA model used for the proposed TS changes in WCAP-14333 is reasonable.

WCAP-15376

The NRC staff evaluation of WCAP-15376 is documented in a Safety Evaluation Report (SER), Reference 21. The PRA model used in

WCAP 15376 is similar, but not identical, to the model used in WCAP-14333. The WCAP-14333 model has been previously reviewed and approved by the NRC staff.

In previous studies, the logic cabinets were modeled to the component level using generic data. In the WCAP-15376 analysis, the logic cabinets are modeled at the card level. This was done because industry-specific failure rate data is available at the card level. Westinghouse collected card failure data via an industry survey. The results of that survey are considered proprietary by Westinghouse.

In WCAP-15376 independent models were developed for selected RPS signals. These signals include safety injection; pressurizer pressure low interlocked with P-11; auxiliary feedwater pump start signal from steam generator level lo-lo in one loop; reactor trip single source from pressurizer pressure high; reactor trip diverse source from pressurizer pressure high or over temperature delta T. The safety injection and reactor trip signals were evaluated with and without manual reactor trip. The proposed TS changes were evaluated both individually and combined with changes proposed in WCAP-14333 for the bounding SSPS plant. The results were consistent with those reported in WCAP-14333.

Assumptions for the analysis are provided in Reference 3, paragraph 8.3.2.

A review of WBN maintenance records for SSPS determined that the failure data for SSPS cards was bounded by the component failure data and corrective maintenance intervals reported in WCAP-14333 and WCAP-15376. Therefore, these analyses are considered applicable to WBN.

Common cause failure modeling, based upon the Multiple Greek Letter (MGL) method, is described in reference 3, paragraph 8.3.1.

The risk quantification conservatively did not take credit for potential trip reduction due to the implementation of the revised analog channel STIs in WCAP-10271 (Reference 3, paragraph 8.4).

Section 8.4 of WCAP-15376 provides the risk analysis results for the proposed changes in CT and STI. The ΔCDF and ΔLERF values are provided in Tables 8.29 and 8.32, respectively, referenced to a base case which represents the changes previously approved in WCAP-14333. The response to NRC RAI Questions 4 and 11 in WOG letter OG-02-002 (Reference 9) provided the impact of the requested Completion Time change (24 hour CT plus 6 hours to reach MODE 3, or a total of 30 hours) on ICCDP and ICLERP for a

RTB undergoing preventative or corrective maintenance with the associated logic train inoperable for the bounding 2/3 logic. The risk metrics as identified in RG 1.174 and 1.177 were met for the proposed changes.

The NRC staff found that the quality of the PRA was sufficient for the evaluation of the proposed changes.

Cumulative Change

WCAP-15376 provides the cumulative change to CDF from technical specification changes associated with both WCAP-14333 and WCAP-15376 (Reference 3, paragraph 8.4.4). The ΔCDF and ΔLERF values are cumulative from WCAP-10271 to WCAP-15376. The ΔLERF acceptance criterion is satisfied. The ΔCDF acceptance criterion going from WCAP-10271 to WCAP-15376 is slightly exceeded. This is addressed in WCAP-15376 Section 8.4.4 and Table 8.33. The cumulative ΔCDF from pre-TOP conditions to WCAP-15376 conditions is discussed using the sensitivity analysis values from Table 8.4 of WCAP-14333 for 2/4 logic and 2/3 logic combined with the ΔCDF values from Table 8.29 of WCAP-15376. The cumulative ΔCDF for the 2/4 logic is 5.7E-07 per year, which is close to but slightly exceeds the acceptance criterion of 5E-7. The cumulative ΔCDF for the 2/3 logic change is 1.1E-06 per year, which slightly exceeds the acceptance criterion. However, at WBN, since the DCCP is only changing from the TOP to WCAP-15376 conditions (not pre-TOP), the ΔCDF acceptance criterion is satisfied. Another consideration in support of meeting the ΔCDF acceptance criterion with the extended completion times is the avoidance of shutdown risk.

4.1.1.2 Tier 2, Avoidance of Risk-Significant Plant Configurations

Tier 2 requires an examination of the need to impose additional restrictions when operating with the proposed changes in order to avoid risk-significant equipment outage configurations.

WCAP-14333

Westinghouse performed an evaluation of equipment according to its contribution to plant risk while the equipment covered by the proposed changes is out of service for maintenance or testing in response to RAI Question 18. Westinghouse performed an importance analysis for 25 top events for each of the test or maintenance configurations associated with the proposed TS changes. The analysis determined the system importances for plant configurations with no ongoing test or maintenance activities (all components available) and, then, for plant

configurations with test or maintenance individually on analog channels, logic trains, master relays, and slave relays. It was assumed that during test or maintenance activities the corresponding component/train was unavailable. The system importances for both cases were compared. The importance rankings for systems did not change for the analog channels, master relays, or slave relays. For the case of a SSPS logic train in maintenance, the following systems had a relatively significant increase in their importance ranking: Auxiliary Feedwater (AFW), reactor trip, high pressure injection, low pressure injection, and containment cooling.

The response to RAI Question 11 also discussed an inoperable logic train as the only configuration that would significantly impact core damage. Therefore, it is concluded that the only plant configuration with proposed TS changes implemented with a significant impact on CDF or the relative importance of other systems is one logic train inoperable. Therefore, the Tier 2 limitations are only appropriate when a logic cabinet is out of service. There are no Tier 2 limitations when a slave relay, master relay, or other analog channel is out of service.

WBN uses a risk matrix in plant procedure TI-124, "Equipment to Plant Risk Matrix" (Reference 15), to determine risk significant equipment outage configurations. The matrix currently addresses trains of SSPS removed from service, and analog channels placed in trip or bypass (most testing at WBN is performed with the channel in bypass). With a train of SSPS removed from service, the risk matrix currently prohibits several systems including the reactor trip breakers and auxiliary feedwater system level control valves from being removed from service.

Incorporation of the evaluation and results from WCAP-14333 at WBN will involve modifying TI-124 to discuss the implications of removing a logic cabinet from service and limit the simultaneous removal of Tier 2 functions from service. There will be no restrictions applied when a logic train is being tested under the 4-hour bypass allowance. Entry into these conditions is not typically planned during power operation other than for surveillance testing. Since these Conditions are typically entered due to equipment failure, it follows that some of the following Tier 2 restrictions may not be met at the time of Condition entry. If this situation were to occur during the extended CT, the Tier 3 Configuration Risk Management Program discussed below will assess the emergent condition and direct activities to limit risk. There will be no Tier 2 limitations when a slave relay, master relay, or other analog channel is out of service.

The following restrictions are applicable to incorporate the evaluation and results from WCAP-14333:

- To preserve ATWS mitigation capability, activities that degrade the ability of the AFW system, reactor coolant system (RCS) pressure relief system (pressurizer power operated relief valves (PORVs) and safety valves), AMSAC, or turbine trip should not be scheduled when a logic train is inoperable for maintenance.

- To preserve loss of coolant accident mitigation capability, one complete emergency core cooling system train that can be actuated automatically must be maintained when a logic train is inoperable for maintenance.

- To preserve reactor trip and safeguards actuation capability, activities that cause master relays or slave relays in the available train to be unavailable and activities that cause analog channels to be unavailable should not be scheduled when a logic train is inoperable for maintenance.

- Activities in electrical systems (e.g., AC and DC power) and cooling systems (e.g. essential service water and component cooling water) that support the systems or functions listed in the first three bullets should not be scheduled when a logic train is inoperable for maintenance. That is, one complete train of a function that supports a complete train of a function noted above must be available.

- To preserve capabilities to prevent large early releases, activities that degrade the ability of the containment spray system, air return fans, and ice condenser should not be scheduled when a logic train is inoperable for maintenance.

WCAP-15376

WCAP-15376, section 8.5, provides recommended Tier 2 restrictions when a RTB train is inoperable for maintenance. These restrictions do not apply when a RTB train is being tested under the 4-hour bypass allowance. Entry into a Condition where an RTB train is removed from service is not a typical pre-planned evolution during power operation, other than for surveillance testing. Since this Condition is typically entered due to equipment failure, it follows that some of the following Tier 2 restrictions may not be met at the time of Condition entry. If this situation were to occur during the extended 24-hour CT, the Tier 3 Configuration Risk Management Program discussed below will

assess the emergent condition and direct activities to limit risk.

The following restrictions will be put in place:

- The probability of failing to trip the reactor on demand will increase when a RTB train is removed from service; therefore, systems designed for mitigating an ATWS event should be maintained and available. RCS pressure relief system (pressurizer power operated relief valves (PORVs) and safety valves), AFW flow (for RCS heat removal), AMSAC, or turbine trip should not be scheduled when a RTB is inoperable for maintenance.

- Due to the increased dependence on the available reactor trip train when one logic train or one RTB train is inoperable for maintenance, activities that cause master relays or slave relays in the available train to be unavailable and activities that cause analog channels to be unavailable should not be scheduled when a RTB is inoperable for maintenance.

- Activities in electrical systems (e.g. AC and DC power) and cooling systems (e.g. essential service water) that support the systems or functions listed in the first two bullets should not be scheduled when a logic train is inoperable for maintenance. That is, one complete train of a function that supports a complete train of a function noted above must be available.

4.1.1.3 Tier 3, Risk-Informed Configuration Risk Management

Tier 3 requires a proceduralized process to assess the risk associated with both planned and unplanned work activities. The objective of the third tier is to ensure that the risk impact of out-of-service equipment is evaluated prior to performing any maintenance activity. The following is a discussion of the program in place at WBN.

At WBN, the following procedures control the risk evaluation process and aid in the avoidance of risk-significant plant configurations.

- Standard Programs and Processes (SPP) 7.1, "Work Control Process"

- Technical Instruction (TI) 124, "Equipment to Plant Risk Matrix"

ENCLOSURE 1

SPP-7.1 specifies the general responsibilities and standard programmatic controls for the work control process. This procedure applies to all work activities that affect or have the potential to affect a plant component, system, or unit configuration.

WBN's long-term maintenance plan is a product of the preventive and surveillance process and specifies the frequency for implementation of maintenance and surveillance activities necessary for the reliability of critical components in each system. An established 12-week rolling schedule includes the preliminary defense-in-depth assessment, which documents the allowable combinations of system and Functional Equipment Groups (FEGs) that may be simultaneously worked online or during shutdown conditions. FEGs are sets of equipment that have been evaluated for acceptable out-of-service combinations. They are used to schedule planned maintenance and establish equipment clearances.

Predetermined FEG work windows are established for online maintenance and outage periods. The work windows are based on recommended maintenance frequencies and sequenced to minimize the risk of online maintenance. Work windows are defined by week and repeat at 12-week intervals. The work windows ensure required surveillances are performed within their required frequency and that division/train/loop/channel interferences are minimized. The WBN scheduling organization maintains a long-range schedule based on required surveillance testing of online activities and plant conditions.

The surveillance testing schedule provides the "backbone" for the long-term maintenance plan. Other periodic activities (preventive maintenance items) are scheduled with related surveillance tests to maximize component availability. FEGs are used to ensure work on related components is evaluated for inclusion in the work window. Related corrective maintenance activities are also evaluated for inclusion in the work window provided by surveillance and preventive maintenance performance. The inclusion of identified work in the FEG work window with the surveillance tests and preventive maintenance items maximizes component availability and operability.

The TI-124 risk assessment methodology is used for online maintenance activities. For online maintenance, a risk assessment is performed prior to work window implementation and emergent work is evaluated against the assessed scope.

In general, risk is evaluated based upon the WBN Probabilistic Safety Analysis (PSA) and maintaining defense in depth relative to key safety functions. The TI-124 risk assessment guidelines utilize the results of the WBN PSA. Other safety considerations, such as Technical Specifications, maintenance rule risk significant systems, structures, and components (SSCs), and significant changes in weather or offsite power availability, are considered in the site-specific configuration risk management program (CRMP) and are used to determine which system, component, and FEG combinations may be worked online. In addition, an assessment of scheduled activities is performed before implementation of a work window. The assessment includes reviews for the following:

- The schedule is evaluated against the risk bases outlined in the WBN PSA.

- Maximizing safety (reducing risk) when performing online work.

- Avoidance of recurrent entry into a specific limiting condition for operation (LCO) for multiple activities. Activities that require entering the same LCO are combined to limit the number of times an LCO must be established, thus maximizing the equipment's availability.

- If the risk associated with a particular activity cannot be determined, site engineering is requested to perform a risk assessment.

- Implementing compensatory measures and requirements for management authorization for higher risk configurations.

Paragraph (a)(4) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," became effective in November 2000. The requirements of (a)(4) and the CRMP as defined in RG 1.177 appear to overlap in certain areas. This was acknowledged by NRC in the "Statement of Considerations" for 10 CFR 50.65 (Federal Register: July 19, 1999, Volume 64, Number 137). In this statement, NRC indicated that, after the revision to 10 CFR 50.65 is effective, NRC will expeditiously support licensee requests to remove the CRMP requirements from plant TS. Considering this, a description of the CRMP will not be added to the Technical Specifications.

4.1.1.4 Maintenance Rule Control

In accordance with Regulatory Guide 1.177, paragraph 3.2, corrective action for RPS/ESFAS hardware within the scope of the proposed TS changes which fails to meet performance criteria will include an evaluation to determine if the AOT or STI should be decreased.

4.1.2 Safety Evaluation Conditions

NRC approval of WCAP-14333 was subject to the following conditions requiring plant-specific information:

1. Confirm the applicability of the WCAP-14333 analyses for the plant.

2. Address the Tier 2 and Tier 3 analyses including the Configuration Risk Management Program insights and confirm that these insights are incorporated into the decision making process before taking equipment out of service.

NRC approval of WCAP-15376 was subject to the following conditions requiring plant-specific information:

1. Confirm the applicability of the topical report to the plant and perform a plant-specific assessment of containment failures and address any design or performance differences that may affect the proposed changes.

2. Address the Tier 2 and Tier 3 analyses including risk significant configuration insights and confirm that these insights are incorporated into the plant-specific configuration risk management program.

3. The risk impact of concurrent testing of one logic cabinet and associated reactor trip breaker needs to be evaluated on a plant-specific basis to ensure conformance with the WCAP-15376-P, Rev. 0 evaluation, and RGs 1.174 and 1.177.

4. To ensure consistency with the reference plant, the model assumptions for human reliability in WCAP-15376-P, Rev. 0 should be confirmed to be applicable to the plant-specific configuration.

5. For future digital upgrades with increased scope, integration and architectural differences beyond that of Eagle 21, the staff finds the generic applicability of WCAP-15376-P, Rev. 0 to future digital systems not clear and should be considered on a plant-specific basis.

6. An additional commitment from the response to NRC RAI Question 18 in Reference 10 requires that each plant review their setpoint calculation methodology to ascertain the impact of extending the COT Surveillance Frequency from 92 days to 184 days.

WCAP-14333 and WCAP-15376 SE Condition 1, Topical Report Applicability Determination

In order to address SE Condition 1 for both WCAPs, Westinghouse issued implementation guidelines for licensees to confirm the analyses are applicable to their plant. The applicability evaluation is provided in Enclosure 4.

WCAP-14333 and WCAP-15376 SE Condition 2, Tier 2 and Tier 3 Analyses

SE Condition 2 for both topical reports is addressed above under the Tier 2 and Tier 3 discussions.

WCAP-15376 SE Condition 3, Concurrent Testing Risk

The response to NRC RAI Question 4 in Reference 9 provided the ICCDP for the configuration where both the logic train and associated RTB are out of service for preventive maintenance for a total time of 30 hours, which includes a CT of 24 hours plus 6 hours to enter Mode 3. The ICCDP for 30 hours of unavailability for this configuration is 3.2E-07, which meets the RG 1.177 acceptance criteria of less than 5E-07. Since this ICCDP value is based on the logic train and reactor trip breaker being out of service concurrently for 30 hours, bypassing one logic train and associated RTB train for 4 hours for testing will also meet the RG 1.177 ICCDP guideline.

SE Condition 3 is addressed by demonstrating the applicability of the WCAP-15376 analysis as discussed in the response to SE Condition 1 (see Enclosure 4).

WCAP-15376 SE Condition 4, Human Reliability

The evaluation of the applicability of the model assumptions for human reliability in WCAP-15376 to WBN are provided in Enclosure 4.

WCAP-15376 SE Condition 5, Future Digital Upgrades

This condition does not currently apply to WBN. Future digital upgrades will require separate evaluation.

WCAP-15376 RAI Question 18 Commitment, Setpoint Calculations

The response to this RAI in Reference 9 noted that plant-specific RTS and ESFAS setpoint uncertainty calculations and assumptions, including instrument drift, will be reviewed to determine the impact of extending the Surveillance Frequency of the COT from 92 days to 184 days.

The rack drift terms used in the applicable WBN RTS and ESFAS setpoint calculations are documented in WCAP-12096 (Reference 13). For the Eagle 21 process protection channels, the calculations include a conservative one-year drift allowance. The Eagle 21 system is designed to continuously perform self-diagnostics and self-calibration of analog input signals so that drift is continuously corrected. This feature will not be affected by the proposed changes to the COT frequency. Further, a board which failed auto calibration would be alarmed by the system. Based on the use of a conservative drift allowance in the setpoint calculation and the continuous auto-calibration of the Eagle 21 channels, it is concluded that the setpoint calculations for the Eagle 21 channels are not impacted by the increase in the COT surveillance frequency.

The rack drift value used for the Power Range Nuclear Instrumentation System (NIS) racks is a generic value for analog channels as documented in Reference 13. In support of the COT extension from 92 days to 184 days, WBN analyzed drift data for NIS Technical Specification reactor trip and permissive functions using a large population (more than 500 data points) of as-found and as-left values from COT performances over more than four fuel cycles. Typically, no adjustments were required for long intervals, i.e., since the bistable setting was found to be within the as-left tolerance, it was left in the as-found state, in some instances for as long as three cycles without adjustment. In no case did the as-found value exceed the acceptable as-found allowance. In only two cases did the as-found values exceed the acceptable as-left allowance, thereby requiring adjustment to within the as-left allowance, and in both instances, the as-found value was still within the acceptable as-found allowance. The data shows that drift is minimal for these channels and is well within the uncertainty allowance. Therefore, it is concluded that increasing the COT surveillance interval will have no impact on the Power Range NIS setpoint calculation.

4.1.3 Plant-Specific Evaluations of Functions not Evaluated Generically in WCAP-14333 and WCAP-15376

Insert 7 of TSTF-411 Revision 1 and Insert 14 of TSTF-418 Revision 2 state that in order to apply TS relaxations to plant-

specific functions not evaluated generically, licensees must submit plant-specific evaluations for NRC review and approval. Section 4.0 of TSTF-418 states that several utilities completed plant-specific evaluations to demonstrate that the changes in WCAP-10271 and its supplements are applicable to functions not generically evaluated. As noted in Section 11.0 of both WCAP-14333 and WCAP-15376, as well as in TSTF-418, the changes approved in the WCAPs are also applicable to those plant-specific functions for which evaluations have been performed to demonstrate applicability of WCAP-10271. Therefore, for those cases, additional plant-specific evaluations are not required to demonstrate applicability of WCAP-14333 and WCAP-15376 to these plant-specific functions.

As indicated previously, the initial issue of the WBN TS included the changes which were justified in WCAP-10271 and its supplements (References 11 and 12). An evaluation of the applicability of the generic analyses to the WBN RTS and ESFAS functions was performed and is documented as Reference 9 of TS Bases 3.3.1 and Reference 10 of TS Bases 3.3.2. This applicability evaluation documented an additional evaluation of those WBN functions which were not generically evaluated in WCAP-10271 and demonstrated applicability of the WCAP-10271 analyses to certain plant-specific functions. These plant-specific evaluations included the Eagle 21 digital process protection system and, therefore, the changes in WCAP-14333 and WCAP-15376 are also applicable to Eagle 21.

Based on the above, the changes in WCAP-14333 and WCAP-15376 are applicable to the following plant-specific functions which were not generically evaluated: (1) Reactor Trip on SG Water Level Low-Low with Trip Time Delay (Function 3.3.1-13), (2) Auxiliary Feedwater actuation on SG Water Level Low-Low with Trip Time Delay (Function 3.3.2-6b), (3) the Automatic Switchover to Containment Sump on Refueling Water Storage Tank Level Low coincident with Safety Injection and Containment Sump Level High (Function 3.3.2-7b), and (4) Feedwater Isolation on Main Steam Valve Vaults Water Level High (Functions 3.3.2-5d and 5e).

4.2 Other TSTFs

TSTF-169

TSTF-169 combines the single loop and two loop Reactor Coolant Flow Low reactor trip functions (3.3.1-10a and 10b) into one function. In addition, Table 3.3.1-1 notes g and h associated with this function are no longer required and are deleted, the Condition N description is revised, and Condition X is no longer applicable to this function.

This change resolves an inconsistency with respect to the WCAP-10271 analyses by removing the potential for exceeding the AOT allowance evaluated in the WCAP. As described in the TSTF justification, if a single Reactor Coolant Flow channel is inoperable above P-8, Action N.1 requires the channel to be tripped within 6 hours or power reduced below P-8 within 10 hours. If the channel cannot be tripped, the Applicability of the two-loop trip function is entered (below P-8) and Action X.1 again requires the channel to be tripped within 6 hours or power reduced below P-7 (per Action X.2) in 12 hours. Since many loop components are common to both trip functions, sequential entry into N then X would allow a 22 hour AOT when only a 12 hour AOT for maintenance was evaluated in WCAP-10271 and its supplements. A 22 hour allowance is also inconsistent with the TOPS Guidelines, WOG-90-18, dated 11/1/90. The changes to AOT and BT are justified by WCAP-14333.

TSTF-311

The proposed change revises the Frequency of SR 3.3.1.14 for performing a TADOT for Turbine Trip on Low Fluid Oil Pressure and Turbine Stop Valve Closure (Functions 14a and 14b) to be consistent with the applicability for these Functions. The LCO requires the Functions to be OPERABLE in MODE 1 above P-9 (50% RTP). Currently the test is required to be performed prior to reactor startup if it has not been performed within the previous 31 days. The change will allow the test to be performed at power prior to exceeding the P-9 interlock instead of prior to reactor startup.

Since these reactor-trip-on-turbine-trip Functions are not required until reactor power is above the P-9 setpoint, testing in MODE 1 prior to reaching 50% power will continue to ensure the Functions will be OPERABLE when required. These Functions can be tested at power with minimal perturbations to plant systems.

4.3 Deviations from Approved Changes

WCAP-14333 (TSTF-418)

TSTF-418 Revision 2, Inserts 1, 2 and 3 were not included in proposed change based on the following justification:

- The Functions do not have installed bypass capability.
- The bypass test Note is already included in the WBN TS.

- For 3.3.1 Condition Q, Reactor Trip Breakers (Function 17), the changes in TSTF-418 were superseded by TSTF-411, which did not include Note 3 (Insert 3). WBN is implementing option 3 of TSTF-411 Insert 6.

- WBN TS does not have a reactor trip function for RCP Breaker Position (Function 3.3.1-11 in TSTF-418) or the applicable Conditions L (existing) and M (proposed).

The TSTF-418 changes to TS Section 3.3.5, Loss of Power (LOP) Diesel Generator Start Instrumentation, do not apply to WBN and, therefore, are not implemented, due to differences between the WBN TS and NUREG 1431 format of Section 3.3.5. The Completion Time for Required Action A.1 will remain 6 hours.

WCAP-15376 (TSTF-411)

TSTF-411 Revision 1 change in frequency for SR 3.3.1.8, which applies to the source and intermediate range flux instrumentation, was not included in the proposed change because the Gamma-Metrics equipment used at WBN for the source and intermediate ranges was not evaluated in the WCAP.

TSTF-169

As a result of combining the single loop and two loop Reactor Coolant Flow Low reactor trip functions into one function, Condition N for the single loop function was deleted and the remaining Conditions of 3.3.1 were renumbered in the TSTF. The WBN implementation of this change retains Condition N for the function and Condition X is no longer applicable to the function. Condition X is still applicable to other Functions.

TSTF-311

No deviations.

5.0 REGULATORY SAFETY ANALYSIS

The proposed amendment would revise TS sections 3.3.1, 3.3.2 and 3.3.6 to implement relaxations of Reactor Trip System and Essential Safety Features Actuation System test times and test intervals previously reviewed and approved by the NRC under Westinghouse WCAP-14333-P-A (TSTF-418, Revision 2) and WCAP-15376-P-A (TSTF-411, Revision 1). The proposed amendment also incorporates approved TSTFs-169 and 311, which were incorporated into Revisions 2 and 3 of NUREG 1431, "Standard Technical Specifications Westinghouse Plants."

It is important to note that Diablo Canyon (another Eagle 21 plant) has submitted (February 13, 2004 and received approval (January 5, 2005) of similar changes as proposed in this amendment request.

5.1 No Significant Hazards Consideration

The following evaluates the proposed amendment to determine whether a significant hazards consideration exists by addressing the standards set forth in 10 CFR 50.92(c):

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   The proposed changes do not result in any modifications to RTS and ESFAS hardware, design requirements, or functions. No system operational parameters are affected. The protection system will continue to perform the intended design functions consistent with the design bases and accident analyses. The proposed changes will not modify any system interfaces and, therefore, could not increase the likelihood of an accident described in the UFSAR. The proposed amendment will not change, degrade or prevent actions, or alter any assumptions previously made in evaluating the radiological consequences of an accident described in the UFSAR.

   Plant-specific evaluations confirm the applicability of the WCAP-14333 and WCAP-15376 analyses to WBN. Implementation of the approved changes is in accordance with the conditions of the NRC safety evaluations for these reports and will result in an insignificant risk impact.

   The proposed changes to the completion time, bypass test time, and surveillance frequencies reduce the potential for inadvertent reactor trips and spurious actuations and, therefore, do not increase the probability of any accident previously evaluated. The proposed changes to the allowed completion time, bypass test time, and surveillance frequencies do not change the response of the plant to any accidents and have an insignificant impact on the reliability of the RTS and ESFAS signals. The RTS and ESFAS will remain highly reliable and the proposed changes will not result in a significant increase in the risk of plant operation. This is demonstrated by showing that the impact on plant safety as measured by core damage frequency is less than 1.0E-06 per year and the impact on large early release frequency is less than 1.0E-07 per year. In addition, for the completion time

change, the incremental conditional core damage probabilities and incremental conditional large early release probabilities are less than 5.0E-07 and 5.0E-08, respectively. These changes meet the acceptance criteria in Regulatory Guides 1.174 and 1.177. Therefore, since the RTS and ESFAS will continue to perform their functions with high reliability as originally assumed, and the increase in risk as measured by CDF, LERF, ICCDP, and ICLERP is within the acceptance criteria of existing regulatory guidance, there will not be a significant increase in the consequences of any accidents.

The proposed changes do not adversely affect accident initiators or precursors nor alter the design assumptions, conditions, or configuration of the facility or the manner in which the plant is operated and maintained. The proposed changes do not alter or prevent the ability of structures, systems, and components from performing their intended function to mitigate the consequences of an initiating event within the assumed acceptance limits. The proposed changes do not affect the source term, containment isolation, or radiological release assumptions used in evaluating the radiological consequences of an accident previously evaluated. Further, the proposed changes do not increase the types or amounts of radioactive effluent that may be released offsite, nor significantly increase individual or cumulative occupational/public radiation exposures. The proposed changes are consistent with the safety analysis assumptions and resultant consequences.

Therefore, this change does not increase the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

The proposed amendment does not require any design changes, physical modifications or changes in normal operation of the RTS and ESFAS instrumentation. Existing setpoints will be maintained. The changes do not affect functional performance requirements of the instrumentation. No changes are required to accident analysis assumptions. The changes do not introduce different malfunctions, failure modes, or limiting single failures. The changes to the completion time, bypass test time, and surveillance frequency do not change any existing accident scenarios nor create any new or different accident scenarios.

Therefore, this change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

   The proposed changes do not alter the manner in which safety limits, limiting safety system settings, or limiting conditions for operation are determined. The safety analysis acceptance criteria are not impacted by these changes. Redundant RTS and ESFAS trains are maintained, and diversity with regard to the signals that provide reactor trip and engineered safety features actuation is also maintained. All signals credited as primary or secondary and all operator actions credited in the accident analyses will remain the same. The proposed changes will not result in plant operation in a configuration outside the design basis. The calculated impact on risk is insignificant and meets the acceptance criteria contained in Regulatory Guides 1.174 and 1.177. Although there was no attempt to quantify any positive human factors benefit due to increased completion time, bypass test time, and surveillance frequencies, it is expected that there would be a net benefit due to a reduced potential for spurious reactor trips and actuations associated with testing.

   Therefore, it is concluded that this change does not involve a significant reduction in the margin of safety.

Conclusion

Based on the above, it is concluded that operation of WBN Unit 1 in accordance with the proposed change to the Technical Specifications does not involve a significant hazards consideration.

5.2 Applicable Regulatory Requirements/Criteria

The regulatory bases and guidance documents associated with the RTS and ESFAS functions affected by the proposed changes include:

GDC-13 requires that instrumentation shall be provided to monitor variables and systems over their anticipated ranges for normal operation, for anticipated operational occurrences, and for accident conditions as appropriate to assure adequate safety, including those variables and systems that can affect the fission process, the integrity of the reactor core, the reactor coolant pressure boundary, and the containment and its associated

systems.

GDC-20 requires that the protection system(s) shall be designed (1) to initiate automatically the operation of appropriate systems including the reactivity control systems, to assure that specified acceptable fuel design limits are not exceeded as a result of anticipated operational occurrences and (2) to sense accident conditions and to initiate the operation of systems and components important to safety.

GDC-21 requires that the protection system(s) shall be designed for high functional reliability and testability.

GDC-22 through GDC-25 and GDC-29 require various design attributes for the protection system(s), including independence, safe failure modes, separation from control systems, requirements for reactivity control malfunctions, and protection against anticipated operational occurrences.

Regulatory Guide 1.22 discusses an acceptable method of satisfying GDC-20 and GDC-21 regarding the periodic testing of protection system actuation functions. These periodic tests should duplicate, as closely as practicable, the performance that is required of the actuation devices in the event of an accident.

Regulatory Guide 1.174 describes a method for using probabilistic risk assessment in risk-informed decisions on changes to the licensing basis. Regulatory Guide 1.177 addresses evaluating the impact of technical specification changes on defense-in-depth and safety margins and describes a three-tiered approach to the risk evaluation.

Implementation of the proposed changes will not compromise compliance with the requirements of these documents.

Based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

6.0 ENVIRONMENTAL CONSIDERATION

The proposed change does not involve a significant hazards consideration, a significant change in the types of or significant increase in the amounts of any effluents that may be released offsite, or a significant increase in individual or

cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(10). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

7.0 REFERENCES

1. NUREG-1431, Revision 3, "Standard Technical Specification Westinghouse Plants."
2. WCAP-14333-P-A, Revision 1, "Probabilistic Risk Analysis of the RPS and ESFAS Test Times and Completion Times," October 1998.
3. WCAP-15376-P-A, Revision 1, "Risk-Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times," March 2003.
4. TSTF-169, Revision 1, "Deletion of Condition 3.3.1.N."
5. TSTF-311, Revision 0, "Revision of Surveillance Frequency for TADOT on Turbine Trip Functional Unit."
6. TSTF-411, Revision 1, "Surveillance Test Interval Extensions for Components of the Reactor Protection System (WCAP-15376-P-A)."
7. TSTF-418, Revision 2, "RPS and ESFAS Test Times and Completion Times (WCAP-14333-P-A)."
8. Westinghouse Owners Group letter OG-96-110 dated December 20, 1996 (copy included in the back of Reference 2 above).
9. Westinghouse Owners Group letter OG-02-002 dated January 8, 2002 (copy included in Appendix D of Reference 3 above).
10. Westinghouse Owners Group letter OG-01-058 dated September 28, 2001 (copy included in Appendix D of Reference 2 above).
11. WCAP-10271-P-A Supplement 2, Revision 1, "Evaluation of Surveillance Frequencies and Out of Service Times for the Engineered Safety Features Actuation System," June 1990.
12. WCAP-10271-P-A and Supplement 1-P-A, "Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System," May 1986.
13. WCAP-12096 Revision 9, "Westinghouse Setpoint Methodology for Protection Systems Watts Bar Unit 1 Eagle 21 Version," March 2005.
14. TVA WBNP Probabilistic Safety Assessment, Summary Report, Revision 3, June 2005.
15. TVA WBN TI-124, "Equipment to Plant Risk Matrix," R11.

16. TVA Calculation CN-NUC-WBN-NTB-WBNOSG4031, Equipment Required for Safe Shutdown per 10CFR50 Appendix R, R33.

17. TVA WBN TI-119, "Maintenance Rule Performance Indicator Monitoring, Trending, and Reporting - 10CFR50.65," R27.

18. Safety Evaluation by the Office of Nuclear Reactor Regulation, Approval of WCAP-14333P (Proprietary) and WCAP-14334NP (Non-proprietary), "Probabilistic Risk Analysis of the RPS and ESFAS Test Times and Completion Times," 7/15/1998.

19. Regulatory Guide 1.174, An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis.

20. Regulatory Guide 1.177, An Approach for Plant-Specific Risk-Informed Decisionmaking: Technical Specifications.

21. Safety Evaluation by the Office of Nuclear Reactor Regulation, WCAP-15376P, Rev 0, "Risk-Informed assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times," Westinghouse Owners Group Project No. 694, 12/20/2002.

22. SPP-7.1, TVAN Standard Programs and Processes, "On Line Work Management."

ENCLOSURE 2

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
DOCKET NUMBER 390

PROPOSED TECHNICAL SPECIFICATION (TS) CHANGE NUMBER 07-04
TECHNICAL SPECIFICATION CHANGES - MARKED PAGES

I. AFFECTED PAGE LIST

3.3-2	3.3-14
3.3-3	3.3-17
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3.3-10	3.3-30
3.3-11	3.3-31
3.3-12	3.3-55

II. MARKED PAGES

See attached.

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REPLACE WITH

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One channel or train inoperable.	C.1 Restore channel or train to OPERABLE status.	48 hours
	OR	
	C.2 Open RTBs.	49 hours
D. One Power Range Neutron Flux–High channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 4 hours for surveillance testing and setpoint adjustment of other channels. ----------	
	D.1.1 Place channel in trip.	6 hours
	AND	
	D.1.2 Reduce THERMAL POWER to ≤ 75% RTP.	12 hours
	OR	
	D.2.1 Place channel in trip.	6 hours
	AND	
	----------NOTE---------- Only required to be performed when the Power Range Neutron Flux input to QPTR is inoperable. ----------	
	D.2.2 Perform SR 3.2.4.2.	Once per 12 hours
	OR	
	D.3 Be in MODE 3.	12 hours

TSTF 418, R2

REPLACE WITH

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TSTF 418, R2

REPLACE WITH

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(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. One channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. ----------		
	E.1	Place channel in trip.	6 hours
	OR		
	E.2	Be in MODE 3.	12 hours
F. THERMAL POWER > P-6 and < P-10, one Intermediate Range Neutron Flux channel inoperable.	F.1	Reduce THERMAL POWER to < P-6.	2 hours
	OR		
	F.2	Increase THERMAL POWER to > P-10.	2 hours
G. THERMAL POWER > P-6 and < P-10, two Intermediate Range Neutron Flux channels inoperable.	G.1	Suspend operations involving positive reactivity additions.	Immediately
	AND		
	G.2	Reduce THERMAL POWER to < P-6.	2 hours
H. THERMAL POWER < P-6, one or two Intermediate Range Neutron Flux channels inoperable.	H.1	Restore channel(s) to OPERABLE status.	Prior to increasing THERMAL POWER to > P-6

TSTF 418, R2
REPLACE WITH
12

TSTF 418, R2
REPLACE WITH
72
78

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
M. One channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. ----------	
	M.1 Place channel in trip.	6 hours
	OR	
	M.2 Reduce THERMAL POWER to < P-7.	12 hours
N. One Reactor Coolant Flow--Low ~~(single loop)~~ channel inoperable.	----------NOTE---------- One channel may be bypassed for up to 4 hours for surveillance testing. ----------	
	N.1 Place channel in trip.	6 hours
	OR	
	N.2 Reduce THERMAL POWER to < P-8.	10 hours

TSTF 418, R2
REPLACE WITH
12

TSTF 418, R2
REPLACE WITH
72

TSTF 418, R2
REPLACE WITH
78

TSTF 169, R1
DELETE

TSTF 418, R2
REPLACE WITH
72

TSTF 418, R2
REPLACE WITH
78

TSTF 169, R1
REPLACE WITH
P-7.

(continued)

ACTIONS (continued)

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

TSTF-418, R2
REPLACE WITH
12

TSTF-418, R2
REPLACE WITH
72
76

TSTF-411, R1
REPLACE WITH
24
30

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
Q. One RTB train inoperable.	-----NOTES----- 1. One train may be bypassed for up to 2 hours for surveillance testing, provided the other train is OPERABLE.		TSTF-411, R1 REPLACE WITH NOTE
TSTF-411, R1 DELETE	2. One RTB may be bypassed for up to 2 hours for maintenance on undervoltage or shunt trip mechanisms, provided the other train is OPERABLE.		TSTF-411, R1 REPLACE WITH 4
	Q.1	Restore train to OPERABLE status.	1 hour
	OR		
	Q.2	Be in MODE 3.	7 hours
R. One channel inoperable.	R.1	Verify interlock is in required state for existing unit conditions.	1 hour
	OR		
	R.2	Be in MODE 3.	7 hours
S. One channel inoperable.	S.1	Verify interlock is in required state for existing unit conditions.	1 hour
	OR		
	S.2	Be in MODE 2.	7 hours

TSTF-411, R1 REPLACE WITH 24 hours 30

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
T. One trip mechanism inoperable for one RTB.	T.1	Restore inoperable trip mechanism to OPERABLE status.	48 hours
	OR		
	T.2.1	Be in MODE 3.	54 hours
	AND		
	T.2.2	Open RTB.	55 hours
U. One Steam Generator Water Level Low-Low channel inoperable.	----------NOTE---------- One channel may be bypassed for up to 4 hours for surveillance testing. ----------		
	U.1.1	Place channel in trip.	6 hours
	AND		
	U.1.2	For the affected protection set, set the Trip Time Delay (T_S) to match the Trip Time Delay (T_M).	6 hours
	OR		
	U.2	Be in MODE 3.	12 hours

TSTF-418, R2
REPLACE WITH
12

TSTF-418, R2
REPLACE WITH
72
72
78

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
V. One Vessel ΔT channel inoperable.	----------NOTE---------- One channel may be bypassed for up to 4 hours for surveillance testing. ---------- V.1 Set the Trip Time Delay threshold power level for (T_S) and (T_M) to 0% power. OR V.2 Be in MODE 3.	6 hours 12 hours
W. One channel inoperable.	----------NOTE---------- One channel may be bypassed for up to 4 hours for surveillance testing. ---------- W.1 Place channel in trip. OR W.2 Be in MODE 3.	6 hours 12 hours
X. One channel inoperable.	----------NOTE---------- One channel may be bypassed for up to 4 hours for surveillance testing. ---------- X.1 Place channel in trip. OR X.2 Reduce THERMAL POWER to < P-7.	6 hours 12 hours

TSTF-418, R2
REPLACE WITH
12

TSTF-418, R2
REPLACE WITH
72
78

TSTF-418, R2
REPLACE WITH
72
78

TSTF-418, R2
REPLACE WITH
72
78

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETIO
Y. One, two or three Turbine Stop Valve Closure channels inoperable.	Y.1	Place channel(s) in trip.	6 hours
	OR		
	Y.2	Reduce THERMAL POWER to < P-9.	10 hours
Z. Two RTS Trains inoperable	Z.1	Enter LCO 3.0.3.	Immediately

TSTF-418, R2

REPLACE WITH

72

76

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.1.2	NOTES 1. Adjust NIS channel if absolute difference is > 2%. 2. Required to be performed within 12 hours after THERMAL POWER is ≥ 15% RTP.	
	Compare results of calorimetric heat balance calculation to Nuclear Instrumentation System (NIS) channel output.	24 hours

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.3	----------NOTES---------- 1. Adjust NIS channel if absolute difference is ≥ 3%. 2. Required to be performed within 96 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 prior to 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---------- Required to be performed within 6 days after THERMAL POWER is ≥ 50% RTP. ---------- Calibrate excore channels to agree with incore detector measurements.	92 EFPD

TSTF-411, R1
REPLACE WITH
62

TSTF-411, R1
REPLACE WITH
92

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.7	----------NOTE---------- For Functions 2 and 3 (Power Range Instrumentation), this Surveillance shall include verification that interlock P-10 is in the required state for existing unit conditions. ---------- Perform COT.	92 days TSTF-411, R1 REPLACE WITH 184
SR 3.3.1.8	----------NOTES---------- 1. 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. 2. This Surveillance shall include verification that interlock P-6 is in the required state for existing unit conditions. ---------- Perform COT.	------NOTE------ Only required when not performed within previous 31 days ---------- Prior to reactor startup AND Four hours after reducing power below P-10 for intermediate range instrumentation AND Four hours after reducing power below P-6 for source range instrumentation AND Every 31 days thereafter

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.14	----------NOTE---------- Verification of setpoint is not required. ----------	-----NOTE----- Only required when not performed within previous 31 days ----------
	Perform TADOT.	Prior to reactor startup
SR 3.3.1.15	----------NOTE---------- Neutron detectors are excluded from response time testing. ----------	
	Verify RTS RESPONSE TIME is within limits.	18 months on a STAGGERED TEST BASIS

TSTF-311, R0

REPLACE WITH

Prior to exceeding the P-9 interlock whenever the unit has been in MODE 3, if not performed within the previous 31 days

TSTF-169, R1

REPLACE WITH

1 (f)

Table 3.3.1-1 (page 3 of 9)
Reactor Trip System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL TRIP SETPOINT
9.	Pressurizer Water Level-High	1 (f)	3	X	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≤ 92.7% span	92% span
10.	Reactor Coolant Flow-Low	TSTF-169, R1 - MOVE INFORMATION OF BOX UP TO HERE					
	a. Single Loop	1 (g)	3 per loop	N	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.15	≥ 89.7% flow	90% flow
	b. Two Loops	1 (h)	3 per loop	X	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.15	≥ 89.7% flow	90% flow
11.	Undervoltage RCPs	1 (f)	1 per bus	M	SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.15	≥ 4734 V	4830 V
12.	Underfrequency RCPs	1 (f)	1 per bus	M	SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.15	≥ 56.9 Hz	57.5 Hz

TSTF-169, R1

DELETE

(continued)

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

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

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One train inoperable.	C.1 --------NOTE-------- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. ---------- Restore train to OPERABLE status.	6 hours
	OR	
	C.2.1 Be in MODE 3.	12 hours
	AND	
	C.2.2 Be in MODE 5.	42 hours
D. One channel inoperable.	D.1 --------NOTE-------- One channel may be bypassed for up to 4 hours for surveillance testing. ---------- Place channel in trip.	6 hours
	OR	
	D.2.1 Be in MODE 3.	12 hours
	AND	
	D.2.2 Be in MODE 4.	18 hours

TSTF-418, R2

REPLACE WITH

12

TSTF-418, R2

REPLACE WITH

24

30

60

TSTF-418, R2

REPLACE WITH

72

78

84

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One Containment Pressure channel inoperable.	E.1 --------NOTE-------- One ~~Additional~~ channel may be bypassed for up to 4 hours for surveillance testing. ---------- Place channel in bypass.	6 hours
	OR	
	E.2.1 Be in MODE 3.	12 hours
	AND	
	E.2.2 Be in MODE 4.	18 hours
F. One channel or train inoperable.	F.1 Restore channel or train to OPERABLE status.	48 hours
	OR	
	F.2.1 Be in MODE 3.	54 hours
	AND	
	F.2.2 Be in MODE 4.	60 hours

TSTF-418, R2
DELETE

TSTF-418, R2
REPLACE WITH
12

TSTF-418, R2
REPLACE WITH
72
78
84

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. One train inoperable.	G.1 --------NOTE-------- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. ---------- Restore train to OPERABLE status.	6 hours
	OR	
	G.2.1 Be in MODE 3.	12 hours
	AND	
	G.2.2 Be in MODE 4.	18 hours
H. One train inoperable.	H.1 --------NOTE-------- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. ---------- Restore train to OPERABLE status.	6 hours
	OR	
	H.2.1 Be in MODE 3.	12 hours
	AND	
	H.2.2 Be in MODE 4.	18 hours

TSTF-418, R2

REPLACE WITH

24

30

36

TSTF-418, R2

REPLACE WITH

24

30

36

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
I. One Steam Generator Water Level--High High channel inoperable.	I.1	--------NOTE-------- One channel may be bypassed for up to 4 hours for surveillance testing. ---------- Place channel in trip.	6 hours
	OR		
	I.2.1	Be in MODE 3.	12 hours
	OR		
	I.2.2	Be in MODE 4.	18 hours
J. One Main Feedwater Pumps trip channel inoperable.	J.1	Restore channel to OPERABLE status.	48 hours
	OR		
	J.2	Be in MODE 3.	54 hours
K. One channel inoperable.	K.1	--------NOTE-------- One additional channel may be bypassed for up to 4 hours for surveillance testing. ---------- Place channel in bypass.	6 hours
	OR		

TSTF-418, R2
REPLACE WITH
12

TSTF-418, R2
REPLACE WITH
72
78
84

TSTF-418, R2
DELETE

TSTF-418, R2
REPLACE WITH
72

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
K. (continued)	K.2.1 Be in MODE 3.	12 hours
	AND	
	K.2.2 Be in MODE 5.	42 hours
L. One P-11 interlock channel inoperable.	L.1 Verify interlock is in required state for existing unit condition.	1 hour
	OR	
	L.2.1 Be in MODE 3.	7 hours
	AND	
	L.2.2 Be in MODE 4.	13 hours

TSTF-418, R2

REPLACE WITH

78

108

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
M. One Steam Generator Water Level--Low--Low channel inoperable.	----------NOTE---------- One channel may be bypassed for up to 4 hours for surveillance testing. ----------	
	M.1.1 Place channel in trip.	6 hours
	AND	
	M.1.2 For the affected protection set, set the Trip Time Delay (T_s) to match the Trip Time Delay (T_m)	6 hours
	OR	
	M.2.1 Be in MODE 3.	12 hours
	AND	
	M.2.2 Be in MODE 4.	18 hours
N. One Vessel ΔT channel inoperable.	----------NOTE---------- One channel may be bypassed for up to 4 hours for surveillance testing. ----------	
	N.1 Set the Trip Time Delay threshold power level for (T_s) and (T_m) to 0% power.	6 hours
	OR	
	N.2 Be in MODE 3.	12 hours

TSTF-418, R2
REPLACE WITH
12

TSTF-418, R2
REPLACE WITH
72
72
78
84

TSTF-418, R2
REPLACE WITH
72
78

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
O. One MSVV Room Water Level High channel inoperable TSTF-418, R2 REPLACE WITH 12	----------NOTE---------- The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. ----------	
	O.1 Place channel in trip	6 hours
	OR	
	O.2 Be in MODE 3	12 hours

TSTF-418, R2
REPLACE WITH
72
78

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQU
SR 3.3.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.2.2	Perform ACTUATION LOGIC TEST.	31 days o STAGGERED BASIS
SR 3.3.2.3	Perform MASTER RELAY TEST.	31 days o STAGGERED BASIS
SR 3.3.2.4	Perform COT.	92 days

TSTF-411, R1
REPLACE WITH
92
92
184

(continued)

TSTF-411, R1

INSERT

NOTE

This surveillance is only applicable to the actuation logic of the ESFAS instrumentation.

Refer to Table 3.3.6-1 to determine which SRs apply for each Containment Vent Isolation Function.

	SURVEILLANCE	FREQUENCY
SR 3.3.6.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.6.2	Perform ACTUATION LOGIC TEST.	31 days on STAGGERED T BASIS
SR 3.3.6.3	Perform MASTER RELAY TEST.	31 days on STAGGERED T BASIS
SR 3.3.6.4	Perform COT.	92 days
SR 3.3.6.5	Perform SLAVE RELAY TEST.	92 days OR 18 months for Westinghouse type AR relays
SR 3.3.6.6	NOTE Verification of setpoint is not required. Perform TADOT.	18 months
SR 3.3.6.7	Perform CHANNEL CALIBRATION.	18 months

TSTF-411, R1

REPLACE WITH

92

92

TSTF-411, R1

INSERT

NOTE

This surveillance is only applicable to the master relays of the ESFAS instrumentation.

ENCLOSURE 3

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
DOCKET NUMBER 390

PROPOSED TECHNICAL SPECIFICATION (TS) CHANGE NUMBER 05-01
TECHNICAL SPECIFICATION CHANGES - MARKED PAGES

I. AFFECTED PAGE LIST

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II. MARKED PAGES

See attached.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

9. Pressurizer Water Level-High (continued)

reactor trip is actuated prior to the pressurizer becoming water solid. The LCO requires three channels of Pressurizer Water Level-High to be OPERABLE. The pressurizer level channels are used as input to the Pressurizer Level Control System. A fourth channel is not required to address control/protection interaction concerns. The level channels do not actuate the safety valves, and the high pressure reactor trip is set below the safety valve setting. Therefore, with the slow rate of charging available, pressure overshoot due to level channel failure cannot cause the safety valve to lift before reactor high pressure trip.

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

TSTF-169, R1

DELETE

10. Reactor Coolant Flow-Low

a. Reactor Coolant Flow-Low (Single Loop)

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

TSTF-169, R1

REPLACE

P-7.

The LCO requires three Reactor Coolant Flow-Low channels per loop to be OPERABLE in MODE 1 above P-8.

In MODE 1 above the P-8 setpoint, a loss of flow in one RCS loop could result in DNB conditions

TSTF-169, R1

INSERT

Above the P-7 setpoint, the reactor trip on low flow in two or more RCS loops is automatically enabled.

(continued)

BASES

TSTF-169, R1
INSERT
and above the P-7 setpoint,

TSTF-169, R1
DELETE

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

TSTF-169, R1
REPLACE WITH
10.

a. Reactor Coolant Flow-Low (Single Loop) (continued)

in the core. In MODE 1 below the P-8 setpoint, a loss of flow in two or more loops is required to actuate a reactor trip (Function 10.b, because of the lower power level and the greater margin to the design limit DNBR.

The Reactor Coolant Flow-Low Trip Setpoint and Allowable Value are specified in % indicated loop flow, however, the Eagle-21™ values entered through the MMI are specified in an equivalent % differential pressure.

TSTF-169, R1
INSERT
because of the higher power level.

b. Reactor Coolant Flow-Low (Two Loops)

The Reactor Coolant Flow-Low (Two Loops) trip Function ensures that protection is provided against violating the DNBR limit due to low flow in two or more RCS loops while avoiding reactor trips due to normal variations in loop flow.

Above the P-7 setpoint and below the P-8 setpoint, a loss of flow in two or more loops will initiate a reactor trip. Each loop has three flow detectors to monitor flow. The flow signals are not used for any control system input.

The LCO requires three Reactor Coolant Flow-Low channels per loop to be OPERABLE.

In MODE 1 above the P-7 setpoint and below the P-8 setpoint, the Reactor Coolant Flow-Low (Two Loops) trip must be OPERABLE. Below the P-7 setpoint, all reactor trips on low flow are automatically blocked since no conceivable power distributions could occur that would cause a DNB concern at this low power level. Above the P-7 setpoint, the reactor trip on low flow in two or more RCS loops is automatically enabled. Above the P-8 setpoint, a loss of flow in any one loop will actuate a reactor trip because of the higher power level and the reduced margin to the design limit DNBR.

TSTF-169, R1
DELETE

TSTF-169, R1
INSERT
Below the P-7 setpoint, all reactor trips on low flow are automatically blocked since there is insufficient heat production to generate DNB conditions.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

k. Reactor Coolant Flow-Low (Two Loops) (continued)

The Reactor Coolant Flow-Low Trip Setpoint and Allowable Value are specified in % indicated loop flow, however, the Eagle 21™ values entered through the MMI are specified in an equivalent % differential pressure.

11. Undervoltage Reactor Coolant Pumps

TSTF-169, R1

DELETE

The Undervoltage RCPs reactor trip Function ensures that protection is provided against violating the DNBR limit due to a loss of flow in two or more RCS loops. The voltage to each RCP is monitored. Above the P-7 setpoint, a loss of voltage detected on two or more RCP buses will initiate a reactor trip. This trip Function will generate a reactor trip before the Reactor Coolant Flow-Low (Two Loops) Trip Setpoint is reached. The loss of voltage in two loops must be sustained for a length of time equal to or greater than that set in the time delay. Time delays are incorporated into the Undervoltage RCPs channels to prevent reactor trips due to momentary electrical power transients.

TSTF-169, R1

INSERT

in two or more RCS loops.

The LCO requires one Undervoltage RCP channel per bus to be OPERABLE.

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

12. Underfrequency Reactor Coolant Pumps

The Underfrequency RCPs reactor trip Function ensures that protection is provided against violating the DNBR limit due to a loss of flow in two or more RCS loops from a major network frequency disturbance. An underfrequency condition will slow down the pumps.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

12. Underfrequency Reactor Coolant Pumps (continued)

thereby reducing their coastdown time following a pump trip. The proper coastdown time is required so that reactor heat can be removed immediately after reactor trip. The frequency of each RCP bus is monitored. Above the P-7 setpoint, a loss of frequency detected on two or more RCP buses will initiate a reactor trip. This trip Function will generate a reactor trip before the Reactor Coolant Flow - Low (Two Loops) Trip Setpoint is reached. Time delays are incorporated into the Underfrequency RCPs channels to prevent reactor trips due to momentary electrical power transients.

TSTF-169, R1

DELETE

The LCO requires one Underfrequency RCP channel per bus to be OPERABLE.

TSTF-169, R1

INSERT

in two or more RCS loops.

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

13. Steam Generator Water Level-Low Low

Loss of the steam generator as a heat sink can be caused by the loss of normal feedwater, a station blackout or a feedline rupture. Feedline ruptures inside containment are protected by the containment high pressure trip Function, based on a 1994 TVA analysis (Ref. 3). Feedline ruptures outside containment and the other causes of the heat sink loss are protected by the SG Water Level Low-Low trip Function.

The SG Water Level - Low Low trip Function ensures that protection is provided against a loss of heat sink and actuates the AFW System prior to uncovering the SG tubes. The SGs are the heat sink for the reactor. In order to act as a heat sink, the SGs must contain a minimum amount of water. A narrow range low low level in any SG is indicative of a loss of heat sink for the reactor. The level transmitters provide input to the

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

16. Reactor Trip System Interlocks (continued)

Above the P-6 interlock setpoint, the NIS Source Range Neutron Flux reactor trip may be blocked, and this Function would no longer be necessary. In MODE 3, 4, 5, or 6, the P-6 interlock is not required to be OPERABLE because the NIS Source Range is providing core protection.

b. Low Power Reactor Trips Block, P-7

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

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

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

TSTF-169, R1

REPLACE WITH

(in two or more RCS loops)

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

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

- Pressurizer Pressure–Low;
- Pressurizer Water Level–High;

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

b. Low Power Reactor Trips Block, P-7 (continued)

Reactor Coolant Flow–Low (Two Loops)

Undervoltage RCPs; and

Underfrequency RCPs.

TSTF-169, R1

REPLACE WITH

(in two or more RCS loops)

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

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

The low power trips are blocked below the P-7 setpoint and unblocked above the P-7 setpoint.

In MODE 2, 3, 4, 5, or 6, this Function does not have to be OPERABLE because the interlock performs its Function when power level drops below 10% power, which is in MODE 1.

c. Power Range Neutron Flux, P-8

TSTF-169, R1

DELETE

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

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

(continued)

BASES

TSTF-418, R2

REPLACE WITH

72

ACTIONS (continued)

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

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

TSTF-418, R2

REPLACE WITH

Reference 14

The NIS power range detectors provide input to the CRD System and the SG Water Level Control System and, therefore, have a two-out-of-four trip logic. A known inoperable channel must be placed in the tripped condition. This results in a partial trip condition requiring only one-out-of-three logic for actuation. The 6 hours allowed to place the inoperable channel in the tripped condition is justified in WCAP-10271-P-A (Ref. 7).

TSTF-418, R2

REPLACE WITH

78

In addition to placing the inoperable channel in the tripped condition, THERMAL POWER must be reduced to ≤ 75% RTP within 12 hours. Reducing the power level prevents operation of the core with radial power distributions beyond the design limits. With one of the NIS power range detectors inoperable, 1/4 of the radial power distribution monitoring capability is lost.

TSTF-418, R2

REPLACE WITH

72

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

TSTF-418, R2

DELETE

TSTF-418, R2

REPLACE WITH

Seventy-eight

As an alternative to the above actions, the plant must be placed in a MODE where this Function is no longer required OPERABLE. Twelve hours are allowed to place the plant in MODE 3. This is a reasonable time, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging plant systems. If Required Actions cannot be completed within their allowed Completion Times, LCO 3.0.3 must be entered.

TSTF-418, R2

INSERT

The 78-hour Completion Time includes 72 hours for channel corrective maintenance and an additional 6 hours for the MODE reduction as required by Required Action D.3.

The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypass condition for up to 4 hours while performing routine surveillance testing of other channels. The Note also

TSTF-418, R2

REPLACE WITH

12

TSTF-418, R2

REPLACE WITH

is

(continued)

BASES

ACTIONS

TSTF-418, R2

REPLACE WITH

12

D.1.1, D.1.2, D.2.1, D.2.2, and D (continued)

allows placing the inoperable channel in the bypass condition to allow setpoint adjustments of other channels when required to reduce the setpoint in accordance with other Technical Specifications. The 4 hour time limit is justified in Reference 7.

TSTF-418, R2

REPLACE WITH

Reference 14

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

TSTF-418, R2

REPLACE WITH

72

E.1 and E.2

Condition E applies to the following reactor trip Functions:

- Power Range Neutron Flux-Low; and
- Power Range Neutron Flux-High Positive Rate

A known inoperable channel must be placed in the tripped condition within 6 hours. Placing the channel in the tripped condition results in a partial trip condition requiring only one-out-of-two logic for actuation of the two-out-of-three trips and one-out-of-three logic for actuation of the two-out-of-four trips. The 6 hours allowed to place the inoperable channel in the tripped condition is justified in Reference 7.

If the inoperable channel cannot be placed in the trip condition within the specified Completion Time, the plant must be placed in a MODE where these Functions are not required OPERABLE. An additional 6 hours is allowed to place the plant in MODE 3. Six hours is a reasonable time, based on operating experience, to place the plant in MODE 3 from full power in an orderly manner and without challenging plant systems.

TSTF-418, R2

REPLACE WITH

Reference 14

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

TSTF-418, R2

REPLACE WITH

12

(continued)

BASES

TSTF-418, R2

REPLACE WITH

14

TSTF-418, R2

REPLACE WITH

72

TSTF-418, R2
TSTF-169, R1

REPLACE WITH

Placing the channel in the tripped condition when above the P-8 setpoint results in a partial trip condition requiring only one additional channel in the same loop to initiate a reactor trip. Two tripped channels in each of two RCS loops are required to initiate a reactor trip when below the P-8 setpoint and above the P-7 setpoint. This Function does not have to be OPERABLE below the P-7 setpoint because there is no loss of flow trip below the P-7 setpoint. There is insufficient heat production to generate DNB conditions below the P-7 setpoint. The 72 hours allowed to place the channel in the tripped condition is justified in Reference 14. An additional 6 hours is allowed to reduce THERMAL Power to below P-7 if the inoperable channel cannot be restored to OPERABLE status or placed in trip within the specified Completion Time.

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

M.1 and M.2

Condition M applies to the following reactor trip Functions:

- Undervoltage RCPs; and
- Underfrequency RCPs.

TSTF-418, R2

REPLACE WITH

12

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

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

TSTF-169, R1

DELETE

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

N.1 and N.2

Condition N applies to the Reactor Coolant Flow - Low (Single Loop) reactor trip Function. With one channel inoperable, the inoperable channel must be placed in trip within 6 hours. If the channel cannot be restored to OPERABLE status or the channel placed in trip within the 6 hours, then THERMAL POWER must be reduced below the P-8 setpoint within the next 4 hours. This places the unit in a MODE where the LCO is no longer applicable. This trip Function does not have to be OPERABLE below the P-8 setpoint because

TSTF-418, R2

REPLACE WITH

72

(continued)

BASES

ACTIONS

N.1 and N.2 (continued)

Other RTS trip functions provide core protection below the P-8 setpoint. The 6 hours allowed to restore the channel to OPERABLE status or place in trip and the 4 additional hours allowed to reduce THERMAL POWER to below the P-8 setpoint are justified in Reference 7.

TSTF-169, R1

DELETE

TSTF-418, R2

REPLACE WITH

12

The Required Actions have been modified by a Note that allows placing an inoperable channel in the bypassed condition for up to 4 hours while performing routine surveillance testing of the other channels. The Note also allows a channel to be placed in bypass for up to 4 hours for testing of the bypassed channel. However, only one channel may be placed in bypass at any one time. The 4 hour time limit is justified in Reference 7.

TSTF-418, R2

REPLACE WITH

Reference 14

O.1 and O.2

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

TSTF-418, R2

DELETE

TSTF-418, R2

REPLACE WITH

Placing the channel

TSTF-418, R2

REPLACE WITH

72

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

P.1 and P.2

Condition P applies to the SI Input from ESFAS reactor trip and the RTS Automatic Trip Logic in MODES 1 and 2. These actions address the train orientation of the RTS for these Functions. With one train inoperable, 6 hours are allowed

TSTF-418, R2

REPLACE WITH

12

TSTF-418, R2

REPLACE WITH

24

TSTF-418, R2

REPLACE WITH

Reference 14

(continued)

BASES

TSTF-418, R2

REPLACE WITH

24

TSTF-418, R2

INSERT

The 24 hours allowed to restore the inoperable RTS Automatic Trip Logic train to OPERABLE status is justified in Reference 14.

P.1 and P.2 (continued)

to restore the train to OPERABLE status (Required Action P.1) or the plant must be placed in MODE 3 within the next 6 hours. The Completion Time of 6 hours (Required Action P.1) is reasonable considering that in this Condition, the remaining OPERABLE train is adequate to perform the safety function and given the low probability of an event during this interval. The Completion Time of 6 hours (Required Action P.2) is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging plant systems.

TSTF-411, R1

REPLACE WITH

24 hours are allowed for train corrective maintenance

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

Q.1 and Q.2

Condition Q applies to the RTBs in MODES 1 and 2. These actions address the train orientation of the RTS for the RTBs. With one train inoperable, 1 hour is allowed to restore the train to OPERABLE status or the plant must be placed in MODE 3 within the next 6 hours. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging plant systems. The 1 hour and 6 hour Completion Times are equal to the time allowed LCO 3.0.3 for shutdown actions in the event of a complete loss of RTS function. Placing the plant in MODE 3 removes the requirement for this particular Function.

TSTF-411, R1

INSERT

The 24 hour Completion Time is justified in Reference 15.

TSTF-411, R1

REPLACE WITH

Placing the unit in Mode 3 results in Condition C entry while RTB(s) are inoperable.

The Required Actions have been modified by a Note. The Note allows one train to be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE. The 4-hour time limit is justified in Reference 15.

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

R.1 and R.2

Condition R applies to the P-6 and P-10 interlocks. With one channel inoperable for one-out-of-two or two-out-of-four

(continued)

BASES

ACTIONS

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

The Completion Time of 6 hours is a reasonable time, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging plant systems. With the RTBs open and the plant in MODE 3, this trip Function is no longer required to be OPERABLE. The affected RTB shall not be bypassed while one of the diverse features is inoperable except for the time required to perform maintenance to one of the diverse features. The allowable time for performing maintenance of the diverse features is 2 hours for the reasons stated under Condition Q.

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

TSTF-418, R2

REPLACE WITH

72

U.1.1, U.1.2, and U.2

Condition U applies to the Steam Generator Water Level--Low-Low reactor trip Function.

A known inoperable channel must be restored to OPERABLE status or placed in the tripped condition within 6 hours. Placing the channel in the tripped condition requires only one out of two logic for actuation of the two out of three trips. The 6 hours allowed to place the inoperable channel in the tripped condition is justified in Reference 7.

If a channel fails, it is placed in the tripped condition and does not affect the TTD setpoint calculations for the remaining OPERABLE channels. It is then necessary for the operator to force the use of the shorter TTD time delay by adjustment of the single steam generator time delay calculation (T_S) to match the multiple steam generator time delay calculation (T_M) for the affected protection set, through the Man Machine Interface.

TSTF-418, R2

REPLACE WITH

14.

If the inoperable channel cannot be restored or placed in the tripped condition within the specified Completion Time, the plant must be placed in a MODE where these functions are not required OPERABLE. An additional 6 hours is allowed to

(continued)

BASES

ACTIONS

U.1.1, U.1.2, and U.2 (continued)

place the plant in MODE 3. Six hours is a reasonable time, based on operating experience, to place the plant in MODE 3 from MODE 1 from full power in an orderly manner and without challenging plant systems.

TSTF-418, R2

REPLACE WITH

14

The Required Actions have been modified by a Note that allows placing an inoperable channel in the bypassed condition for up to 4 hours while performing routine surveillance testing of the other channels. The Note also allows a channel to be placed in bypass for up to 4 hours for testing of the bypassed channel. However, only one channel may be placed in bypass at any one time. The 4 hour time limit is justified in Reference 7.

V.1 and V.2

TSTF-418, R2

REPLACE WITH

12

Condition V applies to the Vessel ΔT Equivalent to Power reactor trip Function.

Failure of the vessel ΔT channel input (failure of more than one T_H RTD or failure of both T_C RTDs) affects the TTD calculation for a protection set. This results in the requirement that the operator adjust the threshold power level for zero seconds time delay from 50% RTP to 0% RTP, through the Man Machine Interface.

If the inoperable channel cannot be restored or the threshold power level for zero seconds time delay adjusted within the specified Completion Time, the plant must be placed in a MODE where these functions are not required to be OPERABLE. An additional 6 hours is allowed to place the plant in MODE 3. Six hours is a reasonable time, based on operating experience, to place the plant in MODE 3 from MODE 1 from full power in an orderly manner and without challenging plant systems.

TSTF-418, R2

REPLACE WITH

12

TSTF-418, R2

REPLACE WITH

14

The Required Actions have been modified by a Note that allows placing an inoperable channel in the bypassed condition for up to 4 hours while performing routine surveillance testing of the other channels. The Note also allows a channel to be placed in bypass for up to 4 hours for testing of the bypassed channel. However, only one channel may be placed in bypass at any one time. The 4 hour time limit is justified in Reference 7.

(continued)

BASES

ACTIONS (continued)

W.1 and W.2

Condition W applies to the following reactor trip functions:

- Overtemperature ΔT;
- Overpower ΔT; and
- Pressurizer Pressure-High

TSTF-418, R2
REPLACE WITH
72

A known inoperable channel must be placed in the tripped condition within 6 hours. Placing the channel in the tripped condition results in a partial trip condition requiring only one-out-of-two logic for actuation of the two-out-of-three trips and one-out-of-three logic for actuation of the two-out-of-four trips. The 6 hours allowed to place the inoperable channel in the tripped condition is justified in Reference 7.

TSTF-418, R2
REPLACE WITH
14

If the operable channel cannot be restored or placed in the trip condition within the specified Completion Time, the plant must be placed in a MODE where these Functions are not required OPERABLE. An additional 6 hours is allowed to place the plant in MODE 3. Six hours is a reasonable time, based on operating experience, to place the plant in MODE 3 from full power in an orderly manner and without challenging plant systems.

TSTF-418, R2
REPLACE WITH
12

The Required Actions have been modified by a Note that allows placing an inoperable channel in the bypassed condition for up to 4 hours while performing routine surveillance testing of the other channels. The Note also allows a channel to be placed in bypass for up to 4 hours for testing of the bypassed channel. However, only one channel may be placed in bypass at any one time. The 4 hour time limit is justified in Reference 7.

X.1 and X.2

TSTF-418, R2
REPLACE WITH
14

Condition X applies to the following reactor trip functions:

- Pressurize Pressure-Low;
- Pressurizes Water Level-High; and

(continued)

TSTF-418, R2

DELETE

BASES

ACTIONS

X.1 and X.2 (continued)

~~• Reactor Coolant Flow-Low (Two Loops).~~

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

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

The Required Actions have been modified by a Note that allows placing an inoperable channel in the bypassed condition for up to 4 hours while performing routine surveillance testing of the other channels. The Note also allows a channel to be placed in bypass for up to 4 hours for testing of the bypassed channel. However, only one channel may be placed in bypass at any one time. The 4 hour time limit is justified in Reference 7.

Y.1 and Y.2

Condition Y applies to the Turbine Trip on Stop Valve Closure. With one, two or three channels inoperable, the inoperable channels must be placed in the trip condition within 6 hours. Since all the valves must be tripped (not fully open), in order for the reactor trip signal to be generated, it is acceptable to place more than one Turbine Stop Valve Closure channel in the trip condition. With one or more channels in the trip condition, a partial reactor trip condition exists. All of the remaining Turbine Stop Valve channels are required to actuate in order to initiate a reactor trip. If a channel cannot be restored to OPERABLE status or placed in the trip condition, the THERMAL POWER must be reduced to below the P-9 setpoint within 6 hours. The 6 hours allowed to place an inoperable channel in the trip condition and the 4 hours allowed for bypass testing are justified in Reference 7.

(continued)

TSTF-418, R2

REPLACE WITH

With one channel inoperable, the inoperable channel must be placed in the tripped condition within 72 hours. Placing the channel in the tripped condition when above the P-7 setpoint results in a partial trip condition requiring only one additional channel to initiate a reactor trip. These Functions do not have to be OPERABLE below the P-7 setpoint since there is insufficient heat production to generate DNB conditions below the P-7 setpoint. The 72 hours allowed to place the channel in the tripped condition is justified in Reference 14. An additional 6 hours is allowed to reduce THERMAL POWER to below P-7 if the inoperable channel cannot be restored to OPERABLE status or placed in trip within the specified Completion Time.

TSTF-418, R2

REPLACE WITH

12

TSTF-418, R2

REPLACE WITH

72

TSTF-418, R2

REPLACE WITH

14

TSTF-418, R2

REPLACE WITH

14

BASES

SURVEILLANCE REQUIREMENTS (continued)

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. 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 96 hours is allowed for performing the first Surveillance after reaching 15% RTP. This surveillance is typically performed at 50% RTP to ensure the results of the evaluation are more accurate and the adjustments more reliable. Ninety-six (96) hours are allowed to ensure Xenon stability and allow for instrumentation alignments.

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.

TSTF-411, R1

REPLACE WITH

62

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.

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 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.

(continued)

TSTF-411, R1

REPLACE WITH

92

TSTF-411, R1

REPLACE WITH

62

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.4 (continued)

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.

TSTF-411, R1

REPLACE WITH

justified in Reference 15.

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.

TSTF-411, R1

REPLACE WITH

92

TSTF-411, R1

REPLACE WITH

justified in Reference 15.

SR 3.3.1.6

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

A Note modifies SR 3.3.1.6. The Note states that this Surveillance is required only if reactor power is $\geq$ 50% RTP and that 6 days 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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

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

TSTF-411, R1
REPLACE WITH
184

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.

TSTF-411, R1
REPLACE WITH
15

The "as found" and "as left" values must also be recorded and reviewed for consistency with the assumptions of References 6 and 7.

SR 3.3.1.7 is modified by a Note that this test shall include verification that the P-10 interlock is in the required state for the existing unit condition.

TSTF-411, R1
REPLACE WITH
184

The Frequency of 92 days is justified in Reference 7, except for Function 13. The justification for Function 13 is provided in Reference 9.

TSTF-411, R1
REPLACE WITH
References 9 and 15.

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 two Notes. Note 1 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 3.3.1.8 is no longer required to be performed. If the unit is to be in MODE 3 with the RTBs closed for greater than 4 hours, this Surveillance must be performed within 4 hours after entry into MODE 3. Note 2 states that this test shall include verification that the P-6 interlock is in the required state for the existing unit condition. The Frequency is modified by a Note that allows this surveillance to be satisfied if it has been performed within 31 days prior to reactor startup and 4 hours after reducing power below P-10 and P-6. The Frequency of "prior to startup" ensures this surveillance is performed prior to

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.8 (continued)

critical operations and applies to the source and intermediate range instrument channels. The Frequency of "4 hours after reducing power below P-10" (applicable to intermediate 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 31 days thereafter applies if the plant remains in the MODE of Applicability after the initial performances of prior to reactor startup and four hours after reducing power below P-10 or P-6. The MODE of Applicability for this surveillance is < P-10 for the power range low and intermediate range channels and < P-6 for the source range channels. Once the unit is in MODE 3, this surveillance is no longer required. If power is to be maintained < P-10 or < P-6 for more than 4 hours, then the testing required by this surveillance must be performed prior to the expiration of the 4 hour limit. Four hours is 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.

DELETE

REPLACE WITH

source and intermediate range channels are OPERABLE channels

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.

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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.11 (continued)

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 COT of RTS interlocks every 18 months.

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

SR 3.3.1.13

SR 3.3.1.13 is the performance of a TADOT of the Manual Reactor Trip, Reactor Trip from Manual SI, and the Reactor Trip from Automatic SI Input from ESFAS. This TADOT is performed every 18 months. The test shall independently verify the OPERABILITY of the undervoltage and shunt trip mechanisms for these Reactor Trip Functions for the Reactor Trip Breakers. The test shall also verify OPERABILITY of the Reactor Trip Bypass Breakers for these Functions. Independent verification of the Reactor Trip Bypass Breakers undervoltage and shunt trip mechanisms is not required.

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

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

TSTF-311

REPLACE WITH

exceeding the P-9 interlock whenever the unit has been in MODE 3. This

SR 3.3.1.14

SR 3.3.1.14 is the performance of a TADOT of Turbine Trip Functions. This TADOT is as described in SR 3.3.1.4, except that this test is performed prior to reactor startup. A Note states that this Surveillance is not required if it has been performed within the previous 31 days. Verification

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.14 (continued)

of the Trip Setpoint does not have to be performed for this Surveillance. Performance of this test will ensure that the turbine trip Function is OPERABLE prior to taking the reactor critical. This test cannot be performed with the reactor at power and must therefore be performed prior to reactor startup.

TSTF-311

REPLACE WITH

exceeding the P-9 interlock.

SR 3.3.1.15

SR 3.3.1.15 verifies that the individual channel/train actuation response times are less than or equal to the maximum values assumed in the accident analysis. Response time testing acceptance criteria are included in Technical Requirements Manual, Section 3.3.1 (Ref. 8). Individual component response times are not modeled in the analyses. The analyses model the overall or total elapsed time, from the point at which the parameter exceeds the trip setpoint value at the sensor to the point at which the equipment reaches the required functional state (i.e., control and shutdown rods fully inserted in the reactor core).

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

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

TSTF-411, R1

INSERT

(Ref. 11),

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.15 (continued)

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

TSTF-411, R1

INSERT

(Ref. 12),

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

SR 3.3.1.15 is modified by a Note stating that neutron detectors are excluded from RTS RESPONSE TIME testing. This Note is necessary because of the difficulty in generating an appropriate detector input signal. Excluding the detectors is acceptable because the principles of detector operation ensure a virtually instantaneous response.

(continued)

BASES

REFERENCES

1. Watts Bar FSAR, Section 6.0, "Engineered Safety Features."

2. Watts Bar FSAR, Section 7.0, "Instrumentation and Controls."

3. Watts Bar FSAR, Section 15.0, "Accident Analysis."

4. Institute of Electrical and Electronic Engineers, IEEE-279-1971, "Criteria for Protection Systems for Nuclear Power Generating Stations," April 5, 1972.

TSTF-418, R2

INSERT

14. WCAP-14333 P-A, Revision 1, "Probabilistic Risk Analysis of the RPS and ESFAS Test Times and Completion Times," October 1998.

15. WCAP-15376-P-A, Revision 1, "Risk-Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times," March 2003.

3.3.4, "Reactor Trip System Response Times."

9. Evaluation of the applicability of WCAP-10271-P-A, Supplement 1, and Supplement 2, Revision 1, to Watts Bar.

10. ISA-S67.04, 1982, "Setpoint for Nuclear Safety Related Instrumentation Used in Nuclear Power Plants."

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

12. WCAP-14036-P-A, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," October 1998.

13. WCAP-16067-P, Rev. 0, "RCS Flow Measurement Using Elbow Tap Methodology at Watts Bar Unit 1," April 2003.

INSERT

, Westinghouse Letter WAT-D-10128.

BASES

ACTIONS

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

isolation, failure of one or both channels in one train renders the train inoperable. Condition B, therefore, encompasses both situations. The specified Completion Time is reasonable considering that there are two automatic actuation trains and another manual initiation train OPERABLE for each Function, and the low probability of an event occurring during this interval. If the train cannot be restored to OPERABLE status, the plant must be placed in a MODE in which the LCO does not apply. This is done by placing the plant in at least MODE 3 within an additional 6 hours (54 hours total time) and in MODE 5 within an additional 30 hours (84 hours total time). The allowable Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems. The allowance of 48 hours is justified in Reference 7.

TSTF-418, R2

INSERT

The 24 hours allowed for restoring the inoperable train to OPERABLE status are justified in Reference 17.

C.1, C.2.1 and C.2.2

Condition C applies to the automatic actuation logic and actuation relays for the following functions:

- SI;
- Containment Spray;
- Phase A Isolation;
- Phase B Isolation; and
- Automatic Switchover to Containment Sump.

TSTF-418, R2

REPLACE WITH

30

This action addresses the train orientation of the SSPS and the master and slave relays. If one train is inoperable, 6 hours are allowed to restore the train to OPERABLE status. The specified Completion Time is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval. If the train cannot be restored to OPERABLE status, the plant must be placed in a MODE in which the LCO does not apply. This is done by placing the plant in at least MODE 3 within an additional 6 hours (12 hours total time) and in MODE 5

TSTF-418, R2

REPLACE WITH

24

(continued)

BASES

ACTIONS

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

within an additional 30 hours (42 hours total time). The Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

TSTF-418, R2

REPLACE WITH

60

The Required Actions are modified by a Note that allows one train to be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE. This allowance is based on the reliability analysis assumption of WCAP-10271-P-A (Ref. 7) that 4 hours is the average time required to perform channel surveillance.

TSTF-418, R2

REPLACE WITH

train

D.1, D.2.1, and D.2.2

Condition D applies to:

- Containment Pressure-High;
- Pressurizer Pressure-Low;
- Steam Line Pressure-Low; and
- Steam Line Pressure-Negative Rate-High.

TSTF-418, R2

REPLACE WITH

72

If one channel is inoperable, 6 hours are allowed to restore the channel to OPERABLE status or to place it in the tripped condition. Generally this Condition applies to functions that operate on two-out-of-three logic. Therefore, failure of one channel places the Function in a two-out-of-two configuration. One channel must be tripped to place the Function in a one-out-of-three configuration that satisfies redundancy requirements.

TSTF-418, R2

INSERT

The 72 hours allowed to restore the channel to OPERABLE status or to place it in the tripped condition are justified in Reference 17.

(continued)

BASES

TSTF-418, R2
REPLACE WITH
72

ACTIONS

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

Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 6 hours requires the plant be placed in MODE 3 within the following 6 hours and MODE 4 within the next 6 hours.

The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems. In MODE 4, these Functions are no longer required OPERABLE.

TSTF-418, R2
REPLACE WITH
12

TSTF-418, R2
DELETE

The Required Actions have been modified by a Note that allows placing an inoperable channel in the bypassed condition for up to 4 hours while performing routine surveillance testing of other channels. The Note also allows a channel to be placed in bypass for up to 4 hours for testing of the bypassed channel. However, only one channel may be placed in bypass at any one time. The 6 hours allowed to restore the channel to OPERABLE status or to place the inoperable channel in the tripped condition, and the 4 hours allowed for testing, are justified in Reference 7.

TSTF-418, R2
DELETE

TSTF-418, R2
REPLACE WITH
12

TSTF-418, R2
REPLACE WITH
17

E.1, E.2.1, and E.2.2

Condition E applies to:

- Containment Spray Containment Pressure-High High;
- Steam Line Isolation Containment Pressure-High High; and
- Containment Phase B Isolation Containment Pressure-High High.

None of these signals has input to a control function. Thus, two-out-of-three logic is necessary to meet acceptable protective requirements. However, a two-out-of-three design would require tripping a failed channel. This is undesirable because a single failure would then cause spurious containment spray initiation. Spurious spray actuation is undesirable because of the cleanup problems presented. Therefore, these channels are designed with

(continued)

BASES

ACTIONS

E.1, E.2.1, and F.2.2 (continued)

two-out-of-four logic so that a failed channel may be bypassed rather than tripped. Note that one channel may be bypassed and still satisfy the single failure criterion. Furthermore, with one channel bypassed, a single instrumentation channel failure will not spuriously initiate containment spray.

TSTF-418, R2

REPLACE WITH

72

To avoid the inadvertent actuation of containment spray and Phase B containment isolation, the inoperable channel should not be placed in the tripped condition. Instead it is bypassed. Restoring the channel to OPERABLE status, or placing the inoperable channel in the bypass condition within 6 hours, is sufficient to assure that the Function remains OPERABLE and minimizes the time that the Function may be in a partial trip condition (assuming the inoperable channel has failed high). The Completion Time is further justified based on the low probability of an event occurring during this interval. Failure to restore the inoperable channel to OPERABLE status, or place it in the bypassed condition within 6 hours, requires the plant be placed in MODE 3 within the following 6 hours and MODE 4 within the next 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems. In MODE 4, these Functions are no longer required OPERABLE.

REPLACE WITH

The Required Actions are modified by a Note that allows placing one channel in bypass for up to 12 hours while performing routine surveillance testing. The channel to be tested can be tested in bypass with the inoperable channel also in bypass. The time limit is justified in Reference 17.

The Required Actions are modified by a Note that allows one additional channel to be bypassed for up to 4 hours for surveillance testing. Placing a second channel in the bypass condition for up to 4 hours for testing purposes is acceptable based on the results of Reference 7.

F.1, F.2.1, and F.2.2

Condition F applies to:

- Manual Initiation of Steam Line Isolation;
- Loss of Offsite Power;
- Auxiliary Feedwater Pump Suction Transfer on Suction Pressure—Low; and

(continued)

BASES

ACTIONS

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

- P-4 Interlock.

For the Manual Initiation and the P-4 Interlock Functions, this action addresses the train orientation of the SSPS. For the Loss of Offsite Power Function, this action recognizes the lack of manual trip provision for a failed channel. For the AFW System pump suction transfer channels, this action recognizes that placing a failed channel in trip during operation is not necessarily a conservative action. Spurious trip of this function could align the AFW System to a source that is not immediately capable of supporting pump suction. If a train or channel is inoperable, 48 hours is allowed to return it to OPERABLE status. The specified Completion Time is reasonable considering the nature of these Functions, the available redundancy, and the low probability of an event occurring during this interval. If the Function cannot be returned to OPERABLE status, the plant must be placed in MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power in an orderly manner and without challenging plant systems. In MODE 4, the plant does not have any analyzed transients or conditions that require the explicit use of the protection functions noted above.

TSTF-418, R2

INSERT

The 24 hours allowed for restoring the channel to OPERABLE status or to place it in the tripped condition are justified in Reference 17.

G.1, G.2.1 and G.2.2

Condition G applies to the automatic actuation logic and actuation relays for the Steam Line Isolation and AFW actuation Functions.

TSTF-418, R2

REPLACE WITH

24

The action addresses the train orientation of the SSPS and the master and slave relays for these functions. If one train is inoperable, 6 hours are allowed to restore the train to OPERABLE status. The Completion Time for restoring a train to OPERABLE status is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval. If the train cannot be returned to OPERABLE status, the plant must be brought to MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the

(continued)

BASES

ACTIONS

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

required plant conditions from full power conditions in an orderly manner and without challenging plant systems. Placing the unit in MODE 4 removes all requirements for OPERABILITY of the protection channels and actuation functions. In this MODE, the plant does not have analyzed transients or conditions that require the explicit use of the protection functions noted above.

The Required Actions are modified by a Note that allows one train to be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. This allowance is based on the reliability analysis (Ref. 7) assumption that 4 hours is the average time required to perform channel surveillance.

TSTF-418, R2

INSERT

The 24 hours allowed for restoring the channel to OPERABLE status or to place it in the tripped condition are justified in Reference 17.

H.1, H.2.1 and H.2.2

Condition H applies to the automatic actuation logic and actuation relays for the Turbine Trip and Feedwater Isolation Function.

This action addresses the train orientation of the SSPS and the master and slave relays for this Function. If one train is inoperable, 6 hours are allowed to restore the train to OPERABLE status or the plant must be placed in MODE 3 within 6 hours and in MODE 4 in the following 6 hours. The Completion Time for restoring a train to OPERABLE status is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval. The allowed Completion Times are reasonable, based on operating experience, to reach MODE 4 from full power conditions in an orderly manner and without challenging plant systems. These Functions are no longer required in MODE 4. Placing the plant in MODE 4 removes all requirements for OPERABILITY of the protection channels and actuation functions. In this MODE, the plant does not have analyzed transients or conditions that require the explicit use of the protection functions noted above.

TSTF-418, R2

REPLACE WITH

24

The Required Actions are modified by a Note that allows one train to be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. This allowance is based on the reliability analysis (Ref. 7)

(continued)

BASES

ACTIONS

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

assumption that 4 hours is the average time required to perform channel surveillance.

I.1, I.2.1 and I.2.2

Condition I applies to SG Water Level--High High (P-14).

If one channel is inoperable, 6 hours are allowed to restore one channel to OPERABLE status or to place it in the tripped condition. If placed in the tripped condition, the Function is then in a partial trip condition where one out of two logic will result in actuation. The 6 hour Completion Time is justified in Reference 7. Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 6 hours requires the plant to be placed in MODE 3 in 6 hours and in MODE 4 in the following 6 hours. The allowed Completion Times are rea on operating experience, to reach MODE 4 fro conditions in an orderly manner and without plant systems. In MODE 4, these Functions a required OPERABLE.

The Required Actions have been modified by a Note that allows placing an inoperable channel in bypassed condition for up to 4 hours while performing routine surveillance testing of other channels. The Note also allows a channel to be placed in bypass for up to 4 hours for testing of the bypassed channel. However, only one channel may be placed in bypass at any one time. The 6 hours allowed to place the inoperable channel in the tripped condition, and the 4 hours allowed for a second channel to be in the bypassed condition for testing, are justified in Reference 7.

J.1 and J.2

Condition J applies to the AFW pump start on trip of all MFW pumps.

The OPERABILITY of the AFW System must be assured by allowing automatic start of the AFW System pumps. If a channel is inoperable, 48 hours are allowed to return it to

(continued)

TSTF-418, R2

REPLACE WITH

72

TSTF-418, R2

REPLACE WITH

The 72 hours allowed to restore the channel to OPERABLE status or to place it in the tripped condition are justified in Reference 17.

TSTF-418, R2

REPLACE WITH

72

TSTF-418, R2

REPLACE WITH

12

TSTF-418, R2

REPLACE WITH

The 12 hours allowed for testing are justified by Reference 17.

BASES

ACTIONS

J.1 and J.2 (continued)

an OPERABLE status. If the function cannot be returned to an OPERABLE status, 6 hours are allowed to place the plant in MODE 3. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems. In MODE 3, the plant does not have any analyzed transients or conditions that require the explicit use of the protection function noted above. The allowance of 48 hours to return the train to an OPERABLE status is justified in Reference 7.

K.1, K.2.1 and K.2.2

Condition K applies to RWST Level – Low Coincident with Safety Injection and Coincident with Containment Sump Level – High.

RWST Level – Low Coincident With SI and Coincident With Containment Sump Level – High provides actuation of switchover to the containment sump. Note that this Function requires the comparators to energize to perform their required action. The failure of up to two channels will not prevent the operation of this Function. However, placing a failed channel in the tripped condition could result in a premature switchover to the sump, prior to the injection of the minimum volume from the RWST. Placing the inoperable channel in bypass results in a two-out-of-three logic configuration, which satisfies the requirement to allow another failure without disabling actuation of the switchover when required. Restoring the channel to OPERABLE status or placing the inoperable channel in the bypass condition within 6 hours is sufficient to ensure that the Function remains OPERABLE, and minimizes the time that the Function may be in a partial trip condition (assuming the inoperable channel has failed high). The 6 hour Completion Time is justified in Reference 7. If the channel cannot be returned to OPERABLE status or placed in the bypass condition within 6 hours, the plant must be brought to MODE 3 within the following 6 hours and MODE 5 within the next 30 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems. In MODE 5, the plant

TSTF-418, R2

REPLACE WITH

72

TSTF-418, R2

REPLACE WITH

References 10, 17, and 19.

(continued)

BASES

ACTIONS

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

does not have any analyzed transients or conditions that require the explicit use of the protection functions noted above.

The Required Actions are modified by a Note that allows placing a second channel in the bypass condition for up to 4 hours for surveillance testing. The total of 12 hours to reach MODE 3 and 4 hours for a second channel to be bypassed is acceptable based on the results of Reference 7.

REPLACE WITH

The Required Actions are modified by a Note that allows placing one channel in bypass for up to 12 hours while performing routine surveillance testing. The channel to be tested can be tested in bypass with the inoperable channel also in bypass. The time limit is justified in Reference 17.

L.1, L.2.1 and L.2.2

Condition L applies to the P-11 interlock.

With one channel inoperable, the operator must verify that the interlock is in the required state for the existing unit condition. This action manually accomplishes the function of the interlock. Determination must be made within 1 hour. The 1 hour Completion Time is equal to the time allowed by LCO 3.0.3 to initiate shutdown actions in the event of a complete loss of ESFAS function. If the interlock is not in the required state (or placed in the required state) for the existing plant condition, the plant must be placed in MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems. Placing the plant in MODE 4 removes all requirements for OPERABILITY of these interlocks.

(continued)

BASES

TSTF-418, R2
REPLACE WITH
72

ACTIONS (continued)

M.1.1, M.1.2 and M.2

Condition M is applicable to the SG Water Level Low-Low Function.

TSTF-418, R2
REPLACE WITH
to restore the channel to OPERABLE status or to place it

A known channel inoperable, must be restored to OPERABLE status, or placed in the tripped condition within 6 hours. Placing the channel in the tripped condition results in a partial trip condition requiring only one out of two logic for actuation of the two out of three trip. The 6 hours allowed to place the inoperable channel in the tripped condition is justified in Reference 7.

TSTF-418, R2
REPLACE WITH
are

If a channel fails, it is placed in the tripped condition and does not affect the TTD setpoint calculations for the remaining OPERABLE channels. It is then necessary for the operator to force the use of the shorter TTD Time Delay by adjustment of the single SG time delay calculation (T_S) to match the multiple SG time delay calculation (T_M) for the affected protection set, through the Man-Machine Interface.

TSTF-418, R2
REPLACE WITH
17

If the inoperable channel cannot be restored or placed in the tripped condition within the specified Completion Time, the plant must be placed in MODE 3 within the following 6 hours and MODE 4 within the next 6 hours. The allowed Completion Times are reasonable, based on operating experience, to place the plant in MODE 3 from MODE 1 full power conditions in an orderly manner and without challenging plant systems.

TSTF-418, R2
REPLACE WITH
12

The Required Actions have been modified by a Note that allows placing an inoperable channel in the bypassed condition for up to 4 hours while performing routine surveillance testing of other channels. The Note also allows a channel to be placed in bypass for up to 4 hours for testing of the bypassed channel. However, only one channel may be placed in bypass at any one time. The 4-hour time limit is justified in Reference 7.

TSTF-418, R2
REPLACE WITH
17

(continued)

BASES

ACTIONS (continued)

N.1 and N.2

Condition N applies to the Vessel ΔT Equivalent to Power Function.

Failure of the vessel ΔT channel input (failure of more than one T_H RTD or failure of both T_C RTDs) will affect the TTD calculation for a protection set. This results in the requirement that the operator adjust the threshold power level for zero seconds time delay from 50% RTP to 0% RTP, through the Man-Machine Interface.

If the inoperable channel cannot be restored or the threshold power level for zero seconds time delay adjusted within the specified Completion Time, the plant must be placed in a MODE where this Function is not required to be OPERABLE. An additional 6 hours is allowed to place the plant in MODE 3. Six hours is a reasonable time based on operating experience, to place the plant in MODE 3 from MODE 1 full power conditions in an orderly manner and without challenging plant systems.

The Required Actions have been modified by a Note that allows placing an inoperable channel in the bypassed condition for up to 4 hours while performing routine surveillance testing of the other channels. The Note also allows a channel to be placed in bypass for up to 4 hours for testing of the bypassed channel. However, only one channel may be placed in bypass at any one time. The 4 hour time limit is justified in Reference 7.

TSTF-418, R2
REPLACE WITH
12

TSTF-418, R2
REPLACE WITH
17

TSTF-418, R2
REPLACE WITH
72

O.1 and O.2

Condition O applies to North or South MSVV Room Water Level - High.

If one channel is inoperable, 6 hours are allowed to restore that channel to OPERABLE status or place it in the tripped condition. If placed in the tripped condition, the Function is then in a partial trip condition where one-out-of-two logic will result in actuation. The 6 hours allowed to place the inoperable channel in the tripped condition is justified in Reference 11.

TSTF-418, R2
REPLACE WITH
References 10 and 17

(continued)

BASES

TSTF-418, R2

REPLACE WITH

72

ACTIONS

0.1 and 0.2 (continued)

INSERT

hours

Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 6 hours requires the plant to be placed in MODE 3 within the following 6 hours. The allowed Completion Time of 6 is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems. In MODE 3, these functions are no longer required OPERABLE.

TSTF-418, R2

REPLACE WITH

12

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

SURVEILLANCE REQUIREMENTS

The SRs for each ESFAS Function are identified by the SRs column of Table 3.3.2-1.

A Note has been added to the SR Table to clarify that Table 3.3.2-1 determines which SRs apply to which ESFAS Functions.

TSTF-418, R2

REPLACE WITH

References 10 and 17.

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

The protection functions associated with the EAGLE-21™ Process Protection System have an installed bypass capability, and may be tested in either the trip or bypass mode, as approved in Reference 7. When testing is performed in the bypass mode, the SSPS input relays are not operated, as justified in Reference 10. The input relays are checked during the CHANNEL CALIBRATION every 18 months.

SR 3.3.2.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

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

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

TSTF-411, R1

REPLACE WITH

92

SR 3.3.2.2

SR 3.3.2.2 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,

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.2 (continued)

are tested for each protection function. In addition, the master relay coil is pulse tested for continuity. This verifies that the logic modules are OPERABLE and that there is an intact voltage signal path to the master relay coils. The Frequency of every 31 days on a STAGGERED TEST BASIS is adequate. It is based on industry operating experience, considering instrument reliability and operating history data.

TSTF-411, R1

REPLACE WITH

92

SR 3.3.2.3

SR 3.3.2.3 is the performance of a MASTER RELAY TEST. The MASTER RELAY TEST is the energizing of the master relay, verifying contact operation and a low voltage continuity check of the slave relay coil. Upon master relay contact operation, a low voltage is injected to the slave relay coil. This voltage is insufficient to pick up the slave relay, but large enough to demonstrate signal path continuity. This test is performed every 31 days on a STAGGERED TEST BASIS. The Frequency is adequate based on industry operating experience, considering instrument reliability and operating history data.

TSTF-411, R1

REPLACE WITH

justified in Reference 18.

TSTF-411, R1

REPLACE WITH

92

SR 3.3.2.4

SR 3.3.2.4 is the performance of a COT.

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

TSTF-411, R1

REPLACE WITH

The Frequency of 92 days is justified in Reference 18.

TSTF-411, R1

REPLACE WITH

Reference 6.

The "as found" and "as left" values must also be recorded and reviewed for consistency with the assumptions of the Surveillance Interval extension analysis (Ref. 7) when applicable, and the setpoint methodology (Ref. 6).

(continued)

TSTF-411, R1

REPLACE WITH

184

TSTF-411, R1

REPLACE WITH

18

SURVEILLANCE REQUIREMENTS

SR 3.3.2.4 (continued)

The Frequency of 92 days is justified in Reference 7, except for Function 7. The Frequency for Function 7 is justified in Reference 10.

TSTF-411, R1

REPLACE WITH

References 10 and 18.

SR 3.3.2.5

SR 3.3.2.5 is the performance of a SLAVE RELAY TEST. The SLAVE RELAY TEST is the energizing of the slave relays. Contact operation is verified in one of two ways. Actuation equipment that may be operated in the design mitigation MODE is either allowed to function, or is placed in a condition where the relay contact operation can be verified without operation of the equipment. Actuation equipment that may not be operated in the design mitigation MODE is prevented from operation by the SLAVE RELAY TEST circuit. For this latter case, contact operation is verified by a continuity check of the circuit containing the slave relay. This test is performed every 92 days. The Frequency is adequate, based on industry operating experience, considering instrument reliability and operating history data.

For ESFAS slave relays which are Westinghouse type AR relays, the SLAVE RELAY TEST is performed every 18 months. The frequency is based on the relay reliability assessment presented in Reference 13. This reliability assessment is relay specific and applies only to Westinghouse type AR relays with AC coils. Note that, for normally energized applications, the relays may require periodic replacement in accordance with the guidance given in Reference 13.

This SR is modified by a Note, which states that performance of this test is not required for those relays tested by SR 3.3.2.7.

SR 3.3.2.6

SR 3.3.2.6 is the performance of a TADOT every 92 days. This test is a check of the Loss of Offsite Power (Function 6.d), AFW Pump Suction Transfer on Suction Pressure-Low for motor driven and turbine driven pumps (Functions 6.f and 6.g respectively), and Turbine Trip and Feedwater Isolation - Main Steam Valve Vault Rooms Water Level - High (Function 5.d).

The SR is modified by a Note that excludes verification of setpoints for relays. Relay setpoints require elaborate bench calibration and are verified during CHANNEL CALIBRATION. The Frequency is adequate. It is based on industry operating experience, considering instrument reliability and operating history data.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.10 (continued)

tests (hydraulic, noise, or power interrupt tests), (2) in place, onsite, or offsite (e.g., vendor) test measurements, or (3) utilizing vendor engineering specifications. WCAP-13632-P-A Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the WCAP. Response time verification for other sensor types must be demonstrated by test.

TSTF-411, R1

INSERT

(Reference 15),

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

TSTF-411, R1

INSERT

(Reference 16),

ESF RESPONSE TIME tests are conducted on an 18 month STAGGERED TEST BASIS. Testing of the final actuation devices, which make up the bulk of the response time, is included in the testing of each channel. The final actuation device in one train is tested with each channel.

Therefore, staggered testing results in response time verification of these devices every 18 months. The 18 month Frequency is consistent with the typical refueling cycle and is based on unit operating experience, which shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences.

(continued)

BASES

REFERENCES (continued)

5. Code of Federal Regulations, Title 10, Part 50.49, "Environmental Qualification of Electrical Equipment Important to Safety for Nuclear Power Plants."

6. WCAP-12096, Rev. 7, "Westinghouse Setpoint Methodology for Protection System, Watts Bar 1 and 2," March 1997.

7. WCAP-10271-P-A, Supplement 1 and Supplement 2, Rev. 1, "Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System," and "Evaluation of Surveillance Frequencies and Out of Service Times for the Engineered Safety Features Actuation System," May 1986 and June 1990.

8. Watts Bar Technical Requirements Manual, Section 3.3.2, "Engineered Safety Feature Response Times."

9. TVA Letter to NRC, November 9, 1984, "Request for Exemption of Quarterly Slave Relay Testing. (L44 841109 808)."

10. Evaluation of the applicability of WCAP-10271-P-A, Supplement 1, and Supplement 2, Revision 1, to Watts Bar.

11. Westinghouse letter to TVA (WAT-D-8347), September 25, 1990, "Charging/Letdown Isolation Transients" (T33 911231 810).

12. Design Change Notice W-38238 associated documentation.

13. WCAP-13877, Rev. 1, "Reliability Assessment of Westinghouse Type AR Relays Used As SSPS Slave Relays," August 1998.

14. TVA's Letter to NRC dated February 25, 2000, "WBN Unit 1 Request for TS Amendment for TS 3.3.2 - ESFAS Instrumentation."

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

16. WCAP-14036-P-A, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," October 1998.

TSTF-411, R1; TSTF-418, R2

INSERT

17. **WCAP-14333-P-A, Revision 1, "Probabilistic Risk Analysis of the RPS and ESFAS Test Times and Completion Times," October 1998.**

18. **WCAP-15376-P-A, Revision 1, "Risk-Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times," March 2003.**

19. **Westinghouse letter to TVA, WAT-D-11248, "Revised Justification for Applicability of Instrumentation Technical Specification Improvements to the Automatic Switchover to Containment Sump Signal," June 2004**

INSERT

, Westinghouse letter to TVA WAT-D-10128

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.6.1 (continued)

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

TSTF-411, R1

REPLACE WITH

justified in Reference 4.

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

TSTF-411, R1

REPLACE WITH

92

SR 3.3.6.2

SR 3.3.6.2 is the performance of an ACTUATION LOGIC TEST. The train being tested is placed in the bypass condition, thus preventing inadvertent actuation. Through the semiautomatic tester, all possible logic combinations, with and without applicable permissives, are tested for each protection function. In addition, the master relay coil is pulse tested for continuity. This verifies that the logic modules are OPERABLE and there is an intact voltage signal path to the master relay coils. This test is performed every 31 days on a STAGGERED TEST BASIS. The Surveillance interval is acceptable based on instrument reliability and industry operating experience.

TSTF-411, R1

INSERT

The SR is modified by a Note stating that the surveillance is only applicable to the actuation logic of the ESFAS instrumentation.

SR 3.3.6.3

SR 3.3.6.3 is the performance of a MASTER RELAY TEST. The MASTER RELAY TEST is the energizing of the master relay, verifying contact operation and a low voltage continuity check of the slave relay coil. Upon master relay contact operation, a low voltage is injected to the slave relay coil. This voltage is insufficient to pick up the slave relay, but large enough to demonstrate signal path continuity. This test is performed every 31 days on a STAGGERED TEST BASIS. The Surveillance interval is acceptable based on instrument reliability and industry operating experience.

TSTF-411, R1

INSERT

The SR is modified by a Note stating that the surveillance is only applicable to the actuation logic of the ESFAS instrumentation.

TSTF-411, R1

REPLACE WITH

justified in Reference 4.

TSTF-411, R1

REPLACE WITH

92

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.6

SR 3.3.6.6 is the performance of a TADOT. This test is a check of the Manual Actuation Functions and is performed every 18 months. Each Manual Actuation Function is tested up to, and including, the master relay coils. In some instances, the test includes actuation of the end device (i.e., pump starts, valve cycles, etc.).

For these tests, the relay trip setpoints are verified and adjusted as necessary. The Frequency is based on the known reliability of the Function and the redundancy available, and has been shown to be acceptable through operating experience.

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

SR 3.3.6.7

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.

The Frequency is based on operating experience and is consistent with the typical industry refueling cycle.

REFERENCES

1. Title 10, Code of Federal Regulations, Part 100.11, "Determination of Exclusion Area, Low Population Zone, and Population Center Distance."

2. NUREG-1366, "Improvement to Technical Specification Surveillance Requirements," December 1992.

3. WCAP-13877, Rev. 1, "Reliability Assessment of Westinghouse Type AR Relays Used as SSPS Slave Relays," August 1998.

INSERT

4. WCAP-15376-P-A, Revision 1, "Risk-Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times," March 2003.

ENCLOSURE 5
Non-Proprietary Version

Safety Evaluation Condition 1 for WCAP-14333 and WCAP-15376

Condition 1 of the Safety Evaluations for both WCAPs requires confirmation that the analyses and component failure probabilities are applicable to the plant and a plant-specific assessment of containment failures. This evaluation follows the implementation guidelines issued by Westinghouse to address this condition.

Applicability Evaluation

[

] (a,c) The information provided confirms the applicability to WBN of the generic analyses of WCAP-14333 and WCAP-15376.

WBN component failure data was not included in the reports since the data was collected prior to commencement of commercial operation. A review of maintenance records for approximately four recent operating cycles shows that the component failure data and corrective maintenance intervals reported in WCAP-14333 and WCAP-15376 are representative of WBN and, therefore, the analyses are considered to be applicable to WBN.

Containment Failure Assessment

[

] (a,c)

The WBN PSA includes all credible containment failure modes for an ice condenser containment. Thus, the PSA provides the means to assess the impact of the proposed technical specification changes upon LERF. The appropriate risk measure to evaluate the impact on LERF is the Conditional Large Early Release Probability (CLERP). CLERP is defined as the conditional probability, given a core damage accident that the containment fails in such a manner as to result in a large early release. By comparing CLERP due to Anticipated Transient Without Scram (ATWS) scenarios to the CLERP due to all initiating events, it can be determined whether ATWS scenarios pose a significant threat to the containment.

Calculations of CLERP are provided in the table below. It can be seen that the CLERP for ATWS-related core damage events is less than the CLERP for all core damage events. It can therefore be concluded that ATWS events do not pose a significant threat to the containment. This finding supports the conclusion that the proposed Technical Specification changes do not adversely affect defense in depth.

	CDF	LERF	CLERP
ATWS	1.34E-6	2.28E-8	0.0170
All Initiators	1.41E-5	1.16E-6	0.0823

Safety Evaluation Condition 4 for WCAP-15376

Table 5 lists the operator actions credited in the WCAP-15376 analysis. [

]$^{(a,c)}$

ENCLOSURE 5
Non-Proprietary Version

Table 1
WCAP-14333 Implementation Guidelines:
Applicability of the Analysis General Parameters

Parameter	WCAP-14333 Analysis Assumptions	Plant-Specific Parameter
Logic Cabinet Type [1]	SSPS or Relay	SSPS
Component Test Intervals [2]		
• Analog channels	3 months	3 months
• Logic cabinets (SSPS)	2 months	2 months
• Logic cabinets (Relay)	1 month	NA
• Master Relays (SSPS)	2 months	2 months
• Master Relays (Relay)	1 month	NA
• Slave Relays	3 months	3 months [10]
• Reactor trip breakers	2 months	2 months
Analog Channel Calibrations [3]		
• Done at-power	Yes	No [3]
• Interval	18 months	18 months [3]
Typical At-Power Maintenance Intervals [4]		
• Analog channels	24 months	> 24 months [4]
• Logic cabinets (SSPS)	18 months	> 18 months [4]
• Logic cabinets (Relay)	12 months	NA
• Master relays (SSPS)	Infrequent [5]	Infrequent
• Master relays (Relay)	Infrequent [5]	NA
• Slave relays	Infrequent [5]	Infrequent
• Reactor trip breakers	12 months	> 12 months [4]
AMSAC [6]	Credited for AFW pump start	Credited for AFW pump start
Total Transient Event Frequency [7]	3.6/year	2.56/year
ATWS Contribution to CDF (current PRA model) [8]	8.4E-06/year	1.34E-6/year

Table 1 (continued)
WCAP-14333 Implementation Guidelines:
Applicability of the Analysis General Parameters

Parameter	WCAP-14333 Analysis Assumptions	Plant Specific Parameter
Total CDF from Internal Events (current PRA model)[9]	5.8E-05/year	1.41E-5/year
Total CDF from Internal Events (IPE)[9]	Not Applicable	3.3E-4/year

NOTES FOR TABLE 1

11. SSPS logic cabinets are included in WCAP-14333. Therefore, the analysis is applicable to WBN.
12. Since the WBN test intervals are equal to or greater than those used in WCAP-14333, the analysis is applicable to WBN.
13. Since the WBN analog channel calibration interval is equal to or greater than that used in WCAP-14333, the analysis is applicable to WBN. Note that analog channel calibrations are performed at-power when feasible, but, otherwise, are performed during refueling outages.
14. Since WBN maintenance intervals are equal to or greater than those used in WCAP-14333, the analysis is applicable to WBN. Note that the analysis applies to maintenance at power (i.e., maintenance activities which cause an analog channel, logic train, or RTB to be unavailable). WBN typically performs preventive maintenance on the analog channels, logic trains, and RTBs while shutdown.
15. Only corrective maintenance is done on the master and slave relays. The maintenance interval on typical relays is relatively long, that is, experience has shown they do not typically fail completely. Failure of these relays usually involves failure of individual contacts. Since WBN experience is that slave relay failures are infrequent, the WCAP-14333 analysis is applicable to WBN.
16. AMSAC will initiate AFW pump start at WBN. Therefore, the WCAP-14333 analysis is applicable to WBN.
17. Total frequency for initiators requiring a reactor trip signal to be generated for event mitigation, not including events initiated by a reactor trip.

Table 1 (continued)
WCAP-14333 Implementation Guidelines:
Applicability of the Analysis General Parameters

18. Anticipated Transient Without Scram (ATWS) is not modeled as an initiating event in the WBN PSA. Because it is a significant event, the accident sequences that involve ATWS have been pulled out of the individual initiating event groups and presented as a group. This was performed by grouping all sequences that have either Top Event RT (Reactor Trip) or RODS (Control Rods Fail to Insert) in the failed state and an end state of either LERF or NOLERF (the two possible core damage end states).
19. The current WBN PSA model is revision 3 (Reference 14). The IPE submittal was made in September 1992 and was based on the plant design, procedures, and training in place in 1991. Since the original IPE submittal, the Watts Bar PSA model has undergone four update cycles:

- Revision 1 of the IPE Submittal (April 1994) addressed numerous design changes, procedure upgrades and enhanced operator training.
- Revision 2 of the PSA Model (November 1999) included plant design changes as a result of the Severe Accident Mitigation Design Alternatives (SAMDA) study.
- Revision 2A of the PSA Model (May 2000) integrated the Level 2 model with the Level 1 model to allow calculation of the LERF. This modeling feature was incorporated with the model developed for an EDG AOT extension.
- Revision 3 (June 2005) is the model of record. The WOG PSA peer review team reviewed a draft revision 3. Major changes in this revision were to update plant-specific data and initiating events, incorporate the Westinghouse seal-LOCA model, revise the main and auxiliary feedwater models to include all four steam generators, and eliminate the loss of shutdown boards as initiating events.

  The WOG PSA peer review team rated the WBN PSA elements at a minimum of grade 2, with most elements at grade 3C or 3. Of significance to this proposed technical specification change, the systems analysis element, the dependency analysis element, and the containment performance element were all rated grade 3. There were no A or B level findings related to reactor trip or ESFAS signals.

20. Some slave relays are tested quarterly, but most are tested on a refueling frequency.

ENCLOSURE 5
Non-Proprietary Version

Table 2
WCAP-15376 Implementation Guidelines:
Applicability of the Analysis General Parameters

[

Parameter	WCAP-15376 Analysis Assumption	Plant Specific Parameter

ENCLOSURE 5
Non-Proprietary Version

Table 2 (continued)
WCAP-15376 Implementation Guidelines:
Applicability of the Analysis General Parameters

Parameter	WCAP-15376 Analysis Assumption	Plant Specific Parameter

]$^{(a,c)}$

Notes for Table 2

[

]$^{(a,c)}$

ENCLOSURE 5
Non-Proprietary Version

Table 3
WCAP-14333 and WCAP-15376 Implementation Guidelines:
Applicability of Analysis Reactor Trip Actuation Signals

[

Event	WCAP-14333 and WCAP-15376 Analysis Assumption	Plant-Specific Parameter[1]

ENCLOSURE 5
Non-Proprietary Version

Table 3 (continued)
WCAP-14333 and WCAP-15376 Implementation Guidelines:
Applicability of Analysis Reactor Trip Actuation Signals

Event	WCAP-14333 and WCAP-15376 Analysis Assumption	Plant-Specific Parameter1

]$^{(a,c)}$

Notes for Table 3
[

]$^{(a,c)}$

ENCLOSURE 5
Non-Proprietary Version

Table 4
WCAP-14333 and WCAP-15376 Implementation Guidelines:
Applicability of Analysis Engineered Safety Features Actuation Signals

[

Safety Function	Event	WCAP-14333 and WCAP-15376 Analysis Assumptions	Plant Specific Parameter[1]

](a,c)

ENCLOSURE 5
Non-Proprietary Version

Table 4 (continued)
WCAP-14333 and WCAP-15376 Implementation Guidelines:
Applicability of Analysis Engineered Safety Features Actuation Signals

[

Safety Function	Event	WCAP-14333 and WCAP-15376 Analysis Assumptions	Plant-Specific Parameter[1]

]$^{(a,c)}$

Notes for Table 4

[

]$^{(a,c)}$

ENCLOSURE 5
Non-Proprietary Version

Table 5
WCAP-15376 Implementation Guidelines:
Applicability of the Human Reliability Analysis

[

Operator Action	Are plant procedures in place that provide for operator action that results in a success path prior to the action becoming ineffective to mitigate the event?[1]

]$^{(a,c)}$

Note for Table 5

[

]$^{(a,c)}$

ENCLOSURE 6

Westinghouse Affidavit
Proprietary Information Notice
Copyright Notice

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Our ref: CAW-07-2275

June 7, 2007

APPLICATION FOR WITHHOLDING PROPRIETARY INFORMATION FROM PUBLIC DISCLOSURE

Subject: WCAP-15376 Implementation Guideline for WCAP-15376-P-A, Rev. 1, "Approach to Address the Conditions and Limitations in the NRC's Safety Evaluation" (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-07-2275 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying affidavit by TVA Watts Bar Nuclear Power Plant Unit 1.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-07-2275, and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Very truly yours,

J. A. Gresham, Manager
Regulatory Compliance and Plant Licensing

Enclosures

cc: Jon Thompson (NRC O-7E1A)

CAW-07-2275

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared J. A. Gresham, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:

J. A. Gresham, Manager
Regulatory Compliance and Plant Licensing

Sworn to and subscribed before me
this 7th day of June, 2007

Notary Public

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Sharon L. Markle, Notary Public
Monroeville Boro, Allegheny County
My Commission Expires Jan. 29, 2011
Member, Pennsylvania Association of Notaries

(1) I am Manager, Regulatory Compliance and Plant Licensing, in Nuclear Services, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.

(2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse "Application for Withholding" accompanying this Affidavit.

(3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.

(4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.

(i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.

(ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

(a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

(b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.

(c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.

(d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.

(e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.

(f) It contains patentable ideas, for which patent protection may be desirable.

There are sound policy reasons behind the Westinghouse system which include the following:

(a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.

(b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.

(c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

(d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.

(c) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.

(f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.

(iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390, it is to be received in confidence by the Commission.

(iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.

(v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in WCAP-15376 Implementation Guideline for WCAP-15376-P-A, Rev. 1, "Approach to Address the Conditions and Limitations in the NRC's Safety Evaluation" (Proprietary) on behalf of the Pressurized Water Reactor Owners Group (PWROG), being transmitted by TVA Watts Bar Nuclear Power Plant Unit 1 letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted for use by the Pressurized Water Reactor Owners Group for TVA Watts Bar Nuclear Power Plant Unit 1 is expected to be applicable for other licensee submittals.

This information is part of that which will enable Westinghouse to:

(a) Provide risk-informed assessment of the RTS and ESFAS to extend the interval for surveillance testing.

(b) Provide licensing defense services.

Further this information has substantial commercial value as follows:

(a) Westinghouse plans to sell the use of similar information to its customers for purposes of extending surveillance testing intervals.

(b) Westinghouse can sell support and defense of extending surveillance testing intervals.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar assessments and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

PROPRIETARY INFORMATION NOTICE

Transmitted herewith are proprietary and/or non-proprietary versions of documents furnished to the NRC in connection with requests for generic and/or plant-specific review and approval.

In order to conform to the requirements of 10 CFR 2.390 of the Commission's regulations concerning the protection of proprietary information so submitted to the NRC, the information which is proprietary in the proprietary versions is contained within brackets, and where the proprietary information has been deleted in the non-proprietary versions, only the brackets remain (the information that was contained within the brackets in the proprietary versions having been deleted). The justification for claiming the information so designated as proprietary is indicated in both versions by means of lower case letters (a) through (f) located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (4)(ii)(a) through (4)(ii)(f) of the affidavit accompanying this transmittal pursuant to 10 CFR 2.390(b)(1).

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