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NL-03-2451

January 27, 2005

Docket Nos.: 50-424  
50-425

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

**Vogtle Electric Generating Plant  
Request for Surveillance Test Interval Extensions  
For Components of the Reactor Protection System**

Ladies and Gentlemen:

In accordance with the requirements of 10 CFR 50.90, Southern Nuclear Operating Company (SNC) proposes to revise Vogtle Electric Generating Plant (VEGP) Unit 1 and Unit 2 Technical Specifications (TS) by extending the Surveillance Test Intervals (STI) for components of the Reactor Protection System. The proposed changes will revise TS Limiting Conditions for Operation (LCOs) 3.3.1, 3.3.2, 3.3.6, and 3.3.8. Specifically, the Reactor Trip Breaker (RTB) bypass test time is relaxed from 2 hours to 4 hours, the completion time from 1 hour to 24 hours, and the Surveillance Frequency from 2 months to 4 months in TS LCO 3.3.1. The Surveillance Frequencies for the Logic Cabinet are relaxed from 2 months to 6 months, the Master Relays are relaxed from 2 months to 6 months, and the Analog Channels from 3 months to 6 months in TS LCOs 3.3.1, 3.3.2, 3.3.6, and 3.3.8.

By NRC letter dated December 20, 2002, the staff approved Westinghouse topical report (TR) WCAP-15376-P, "Risk-Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times." The TR proposed changes adopt the staff's approved Technical Specification Task Force (TSTF) Traveler TSTF-411, Revision 1, "Surveillance Test Interval Extension for Components of the Reactor Protection System," as approved by the NRC on August 30, 2002. As permitted by the staff in their December 20, 2002 letter, SNC is filing this license amendment application for VEGP based upon the NRC staff's approval of WCAP-15376-P.

Enclosures 1A (proprietary) and 1B (non-proprietary) provide the basis for the proposed changes. Pursuant to 10 CFR 50.92, Enclosure 2 demonstrates that the proposed change does not involve a significant hazards consideration and provides the justification for the categorical exclusion from performing an environmental assessment. Enclosure 3 contains a mark-up of the affected pages from the current VEGP Technical Specifications and Bases. Enclosure 4 contains the typed version of the revised affected Technical Specification and Bases pages. Enclosure 5 provides the basis for the withholding of proprietary information.

APO1

As discussed above, Enclosure 1 contains both a proprietary and a non-proprietary version. In support of this submittal, SNC is including Enclosure 5 which contains a Westinghouse authorization letter, CAW-04-1763, accompanying affidavit, Proprietary Information Notice, and Copyright Notice.

As Enclosure 1A contains information proprietary to Westinghouse Electric Company, it is supported by an affidavit signed by Westinghouse, the owner of the information. 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 Section 2.790 of the Commission's regulations.

Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR Section 2.790 of the Commission's regulations.

Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse Affidavit should reference CAW-04-1763 and should be addressed to J. S. Galembush, Acting Manager of Regulatory Compliance and Plant Licensing, Westinghouse Electric Company, P. O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

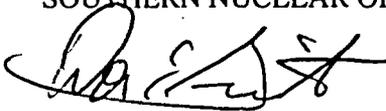
SNC requests that this amendment be approved by February 1, 2006.

Mr. D. E. Grissette states he is a Vice President of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company, and to the best of his knowledge and belief, the facts set forth in this letter are true.

This letter contains no NRC commitments. If you have any questions, please advise.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY



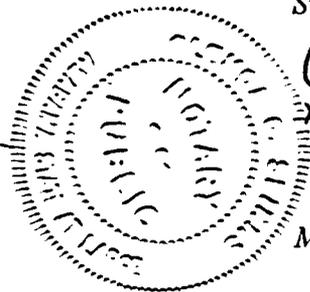
Don E. Grissette

Sworn to and subscribed before me this 27<sup>th</sup> day of January, 2005.

  
Notary Public

My commission expires: 11/10/06

DEG/DWM/daj



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Enclosures: 1. Basis for Proposed Changes

1A. Basis for Proposed Changes – Proprietary

1B. Basis for Proposed Changes – Non-Proprietary

2. 10 CFR 50.92 Significant Hazards Evaluation

3. Marked-Up Technical Specification and Bases Pages

4. Typed Revised Technical Specification and Bases Pages

5. Application for Withholding Proprietary Information from Public Disclosure

cc: Southern Nuclear Operating Company

Mr. J. T. Gasser, Executive Vice President

Mr. W. F. Kitchens, General Manager – Plant Vogtle

RType: CVC7000

U. S. Nuclear Regulatory Commission

Dr. W. D. Travers, Regional Administrator

Mr. C. Gratton, NRR Project Manager – Vogtle

Mr. G. J. McCoy, Senior Resident Inspector – Vogtle

State of Georgia

Mr. L. C. Barrett, Commissioner – Department of Natural Resources

**Enclosure 1B**  
**Basis for Proposed Changes**  
**Vogtle Electric Generating Plant**  
**Request to Revise Technical Specifications RTS and ESFAS Surveillance**  
**Test Intervals and Reactor Trip Breaker Test and Completion Times**

**(NON-PROPRIETARY)**

**Enclosure 1B (NON-PROPRIETARY)**  
**Basis for Proposed Changes**  
**Vogtle Electric Generating Plant**  
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Proposed Changes

Southern Nuclear Operating Company (SNC) proposes to revise the Vogtle Electric Generating Plant (VEGP) Unit 1 and Unit 2 Technical Specifications (TS). The proposed changes would revise Limiting Conditions for Operation (LCO) 3.3.1, "Reactor Trip System (RTS) Instrumentation;" LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation;" LCO 3.3.6, "Containment Ventilation Isolation Instrumentation;" and LCO 3.3.8, "High Flux at Shutdown Alarm." Specifically, LCO 3.3.1 is revised such that the Reactor Trip Breaker bypass test time is relaxed from 2 hours to 4 hours, the completion time from 1 hour to 24 hours, and the surveillance test interval (STI) from 2 months to 4 months. In addition, LCOs 3.3.1, 3.3.2, 3.3.6, and 3.3.8 are revised such that test interval STIs for logic cabinets are relaxed from 2 months to 6 months, the master relays from 2 months to 6 months, and analog channels from 3 months to 6 months. Associated Bases changes are provided commensurate with the proposed changes to the LCOs.

Background

By letter dated November 8, 2000, and its supplemental letters dated June 8, June 25, and September 28, 2001, and January 8, 2002, the Westinghouse Owners Group (WOG) submitted WCAP-15376-P, "Risk-Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times." WCAP-15376-P provides justification for increasing the completion time (CT) and bypass times for the reactor trip breaker (RTB), as well as the STI for the RTB, master relays, logic cabinets, and analog channels.

The proposed changes are based on the Nuclear Energy Institute (NEI) Technical Specifications Task Force (TSTF) Traveler TSTF-411, Rev. 1, "Surveillance Test Interval Extension for Components of the Reactor Protection System," as approved by the NRC on August 30, 2002.

The topical report, WCAP-15376-P, and the associated traveler, TSTF-411, Rev. 1, were approved by the NRC by letters dated December 20, 2002, and August 30, 2002, respectively. Publication of the approved WCAP-15376-P permits the VEGP to submit a license amendment to adopt the approved TS changes.

The proposed increases in STIs, CTs, and bypass times for the Solid State Protection System (SSPS) and associated Engineered Safety Features Actuation System (ESFAS) are summarized as follows:

- Surveillance Test Intervals (Staggered Test Basis)
  - Logic Cabinet: From 2 months to 6 months
  - Master Relay: From 2 months to 6 months
  - Analog Channels: From 3 months to 6 months
  - Reactor Trip Breaker: From 2 months to 4 months
  
- Completion Time
  - Reactor Trip Breakers: From 1 hour to 24 hours
  
- Bypass Times
  - Reactor Trip Breakers: From 2 hours to 4 hours

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The purpose of the program documented in WCAP-15376-P was to provide the technical justification for extending the STI for components of the RTS. The components specifically included are analog channels, logic cabinets, master relays, and reactor trip breakers. This program also provided the technical justification for extending the RTB completion time (allowed outage time) for one RTB inoperable to 24 hours from 1 hour and the bypass time for an RTB to 4 hours from 2 hours. An extension of the STI reduces the required testing on the RTS components without significantly impacting its reliability, and reduces the potential for reactor trips and actuations of engineered safety features associated with the testing of these components. An extension of the CT increases the unavailability of a component due to the increased time the component is down for maintenance. The CT risk is reflected in the core damage frequency (CDF) and the large early release frequency (LERF) by adjusting the component unavailability due to maintenance. The CT extensions for the RTB will provide the VEGP additional time to complete test and maintenance activities while at power, potentially reducing the number of forced outages related to compliance with reactor trip breaker CTs, and provide consistency with the CTs for the logic cabinets. By contrast, STIs are intervals for surveillance tests scheduled periodically as required by the TS. Such tests are performed to ensure that safety-related equipment continues to be operable and failures are detectable, thereby limiting the fault exposure time. The primary risk contribution attributed to increasing an STI comes from the increased probability of a component failure between scheduled STIs and, therefore, the probability that the component will be inoperable during the surveillance interval. The extension of an STI affects the yearly risk, which is represented by the CDF and LERF. An STI extension can affect the yearly risk in several ways:

- Reduce the risk by decreasing the number of test-caused reactor trips by limiting the opportunity for test-caused errors. This occurs simply because increasing the STI decreases the amount of testing for a given time.
- Reduce the risk by decreasing the unavailability of the RTS component by reducing the test frequency.
- Increase the risk by increasing the fault exposure time as described above. This is attributable to the fact that the increased STI increases the interval during which the equipment is subject to failure during standby. As the fault exposure time increases, there is a greater probability that failures during standby will not be detected for RTS components involved with the STI extension.

For an STI, the idea is to strike a balance between more frequent testing (which can adversely impact safety either through errors during testing, spurious actuations, misconfiguration, or equipment wearout) and extended intervals (which can increase fault exposure times). The designated CTs may not provide adequate time for repair, but longer CTs may incur a relatively larger risk. A risk-informed approach to CTs and STIs in conjunction with engineering evaluations provide insights that allow CTs and STIs to be optimized without significantly increasing plant risk.

The NRC's policy statement on the use of probabilistic risk assessment (PRA) methods in nuclear regulatory activities encourages the use of PRA to improve safety-related decision-making and regulatory efficiency. Under this policy, the NRC staff may use traditional engineering analysis, as well as risk-informed approaches, to evaluate licensee-initiated licensing changes that go beyond current staff positions. In WCAP-15376-P, the WOG stated that the proposed changes to the STIs will reduce the required testing on RTS components without significantly impacting the reliability of the RTS, while

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reducing the potential for reactor trips and actuation of engineered safety features associated with the testing of these components. The WOG also stated that extending the CTs for the RTBs will provide additional time to complete test and maintenance activities while at power, and provide consistency with the CT for the logic cabinets.

The actuation logic and master relays associated with the containment ventilation isolation instrumentation (LCO 3.3.6) are processed through the solid state protection system. Since the STIs for the actuation logic and master relays of the ESFAS Instrumentation were justified to be relaxed in WCAP-15376-P, these STI relaxations are also applicable to the actuation logic and master relays for all signals processed through the SSPS.

The STI for the source range neutron flux channel operational test (COT) in the RTS instrumentation (LCO 3.3.1) TS was justified to be relaxed in this report. Since this source range neutron flux channel is also used for the high flux at shutdown alarm (LCO 3.3.8), the STI relaxation is also applicable to that STI.

The approach used in this program was consistent with the NRC's approach for using PRA in risk-informed decisions on plant-specific changes to the current licensing basis as presented in Regulatory Guides (RGs) 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 Decision Making: Technical Specification." The approach addresses the impact on defense-in-depth and the impact on safety margins, as well as an evaluation of the impact on risk. The risk evaluation considers the three-tiered approach as presented in RG 1.177 for the extension to the RTB CT. Tier 1, PRA Capability and Insights, assesses the impact of the proposed CT change on CDF, incremental conditional core damage probability (ICCDP), LERF, and incremental conditional large early release probability (ICLERP). Tier 2, Avoidance of Risk-Significant Plant Configurations, considers potential risk-significant plant operating configurations. Tier 3, Risk-Informed Plant Configuration Control and Management, will be addressed on a plant-specific basis when the TS CT change is implemented by the VEGP.

The staff review of the proposed changes found that WCAP-15376-P was consistent with acceptance guidelines of RG 1.174, RG 1.177, and staff guidance as outlined in NUREG-0800, "Standard Review Plan." From traditional engineering insights, including the defense-in-depth philosophy and the safety margins, the staff found that the proposed changes have no impact on the defense-in-depth philosophy and safety margin. The staff further determined that the implementation of the proposed changes for CT and STI for RTS and ESFAS, including signals processed through the SSPS, should result in only a minimal quantitative impact on plant risk.

The staff also concluded that TSTF-411, Rev. 1 proposed generic TS changes are consistent with the approved allowances for RTB testing with an instrument channel in bypass, for RTB repair completion times and for surveillance frequency changes to logic cabinets for the SSPS plant designs, for master relays for SSPS plants, and analog channels accepted by the staff based on WCAP-15376-P. In addition, the proposed TS Bases provide an adequate basis or reason for the STS changes and editorial guidelines of the STS "Writer's Guide" were followed for preparing STS changes. Thus, TSTF-411, Rev. 1 preserves the human factors principles used throughout the development of NUREG-1431 and can be appropriately applied to licensee specific TS changes.

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VEGP Specific Evaluation

The implementation of WCAP-15376-P requires VEGP to address the SER Conditions and Limitations by demonstrating the applicability of the generic analysis performed to support the changes on a plant-specific basis. Specifically:

**Condition 1:** A licensee is expected to confirm the applicability of the topical report to their plant and to perform a plant-specific assessment of containment failures and address any design or performance differences that may affect the proposed changes.

Confirm Applicability: [

] <sup>ac</sup>

**VEGP Response:** The requested information to confirm the applicability of the WCAP-15376 analysis to VEGP is provided in Tables 1, 2, and 3.

[

] <sup>ac</sup>

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**VEGP Response:**

a.c

**Containment Failure Assessment:**

[

] a.c

**VEGP Response: [**

] a.c

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**Table 1**  
**WCAP-15376 Implementation Guidelines:**  
**Applicability of the Analysis General Parameters**

a,c

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Notes for Table 1

a,c

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**Table 2**  
**WCAP-15376 Implementation Guidelines:**  
**Applicability of Analysis Reactor Trip Actuation Signals**

a.c

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Notes for Table 2

a.c

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**Table 3**  
**WCAP-15376 Implementation Guidelines:**  
**Applicability of Analysis Engineered Safety Features Actuation Signals**

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a,c

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Notes for Table 3

a,c

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**Condition 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.

**Tier 2 Requirements:** Recommended Tier 2 requirements, or restrictions, are provided in Section 8.5 of the WCAP. The following is provided:

- The probability of failing to trip the reactor on demand will increase when a RTB is removed from service; therefore, systems designed for mitigating an ATWS event should be maintained available. RCS pressure relief, auxiliary feedwater flow (for RCS heat removal), AMSAC, and turbine trip are important to alternate ATWS mitigation. Therefore, activities that degrade the availability of the auxiliary feedwater system, RCS pressure relief system (pressurizer PORVs and safety valves), AMSAC, or turbine trip should not be scheduled when a RTB is out of service.
- Due to the increased dependence on the available reactor trip train when one logic cabinet is removed from service, activities that degrade other components of the RPS, including master relays or slave relays, and activities that cause analog channels to be unavailable should not be scheduled when a logic cabinet is unavailable.
- Activities on electrical systems (e.g., AC and DC power) that support the systems or functions listed in the first two bullets should not be scheduled when a RTB is unavailable.

**Tier 3 Requirements:** As noted in Section 8.6 of the WCAP, Tier 3 analysis is outside the scope of the WOG program and must be addressed on a plant-specific basis. It is stated in this section of the WCAP that Tier 3 will be addressed through the plant's Maintenance Rule Program (10CFR50.65(a)(4) requirement).

**VEGP Response:** The recommended Tier 2 restrictions will be incorporated into the work planning procedures for Vogtle Electric Generating Plant. The Tier 3 requirements are addressed through the normal work planning process consistent with the requirements of 10CFR50.65(a)(4). Therefore, this condition is satisfied.

**Condition 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.

**VEGP Response:** As discussed in the VEGP response to Condition 1 and further documented in Tables 1, 2, and 3, the generic WCAP analysis is applicable to VEGP. Therefore, this condition is considered to be satisfied.

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**Condition 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.

**Table 4**  
**WCAP-15376 Implementation Guidelines:**

**Applicability of the Human Reliability Analysis**

a,c

The difference noted in Tables 1 and 4 above with respect to no operator action taken to achieve reactor trip by interrupting power to the motor-generator sets does not have a significant effect on the WCAP analysis. As compared to the WCAP analysis, the VEGP case has a higher probability of recovery failure when automatic reactor trip fails. However, VEGP has a lower frequency for transients that could be initiators for ATWT events. Considering the combined effect of these two facts, it was determined that the WCAP analysis would still bound the VEGP cases. Therefore, it can be concluded that VEGP cases are bounded by the WCAP analyses even though the operator action to trip the MG sets is not credited in the VEGP PRA. In addition, VEGP would dispatch an operator to locally open the RTBs in the event of an ATWT. Therefore, Condition 4 is satisfied.

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**Condition 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 to future digital systems not clear and should be considered on a plant-specific basis.

**VEGP Response:** There are presently no plans to implement digital upgrades to the SSPS for VEGP.

**Additional Condition:** NRC RAI 18 stated “Page 6-3 of WCAP-15376 states that the limiting safety system settings and response times are not impacted by the proposed changes. The channel operational test includes rack components (signal conditioning, bistable, etc.). There does not appear to be a provision in WCAP-15376 to review uncertainty assumptions for the included instrumentation to accommodate an extended surveillance interval. Additionally, how have time-related effects on these components (drift and aging) and the projection of these effects to an extended surveillance interval been addressed?”

**VEGP Response:** Plant Vogtle has in place a process for trending Technical Specification instruments performance. The trending information is obtained from the calibration data sheet(s). The recorded “as found” and “as left” values are placed into a trending database and evaluated by the system engineer. This assures that the values remain within the drift allowances used in the setpoint methodology. If pre-determined limits are exceeded, the condition is reported in the plant Condition Reporting and Tracking System. The pre-determined limits are set within the Allowable Values specified in Tables 3.3.1-1 and 3.3.2-1. A review of COT trending data has indicated that the instrument loops will remain within existing Technical Specification and uncertainty calculation limits should the COT frequency change to 184 days.

**Conclusion**

Based on the above discussion, the NRC SER Conditions and Limitations are met for VEGP, and WCAP-15376 is applicable as a basis for the proposed changes.

**Enclosure 2**

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**10 CFR 50.92 Significant Hazards Evaluations**

**Enclosure 2**  
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**10 CFR 50.92 Significant Hazards Evaluations**

**PROPOSED CHANGE**

Southern Nuclear Operating Company (SNC) proposes to revise the Vogtle Electric Generating Plant (VEGP) Unit 1 and Unit 2 Technical Specifications (TS). The proposed changes would revise Limiting Conditions for Operation (LCO) 3.3.1, "Reactor Trip System (RTS) Instrumentation;" LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation;" LCO 3.3.6, "Containment Ventilation Isolation Instrumentation;" and LCO 3.3.8, "High Flux at Shutdown Alarm." Specifically, LCO 3.3.1 is revised such that the Reactor Trip Breaker bypass test time is relaxed from 2 hours to 4 hours, the completion time from 1 hour to 24 hours, and the Surveillance Frequency from 2 months to 4 months. In addition, LCOs 3.3.1, 3.3.2, 3.3.6, and 3.3.8 are revised such that Surveillance Frequencies for Logic Cabinets are relaxed from 2 months to 6 months, the Master Relays from 2 months to 6 months, and analog channels from 3 months to 6 months. Associated Bases changes are provided commensurate with the proposed changes to the LCOs.

**Evaluation**

**1. Does the Proposed Change Involve a Significant Increase in the Probability or Consequences of an Accident Previously Evaluated?**

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 reactor trip system and engineered safety feature actuation system (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 (CDF) is less than  $1.0E-06$  per year and the impact on large early release frequency (LERF) is less than  $1.0E-07$  per year. In addition, for the Completion Time change, the incremental conditional core damage probabilities (ICCDP) and incremental conditional large early release probabilities (ICLERP) are less than  $5.0E-08$ . 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 (SSCs) 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, it is concluded that this change does not increase the probability of occurrence of a malfunction of equipment important to safety.

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**2. Does the Proposed Change Create the Possibility of a New or Different Kind of Accident from any Previously Evaluated?**

The proposed changes do not result in a change in the manner in which the RTS and ESFAS provide plant protection. The RTS and ESFAS will continue to have the same setpoints after the proposed changes are implemented. There are no design changes associated with the license amendment. The changes to Completion Time, bypass test time, and Surveillance Frequency do not change any existing accident scenarios, nor create any new or different accident scenarios. The changes do not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. In addition, the changes do not impose any new or different requirements or eliminate any existing requirements. The changes do not alter assumptions made in the safety analysis. The proposed changes are consistent with the safety analysis assumptions and current plant operating practice. Therefore, the possibility of a new or different malfunction of safety related equipment is not created.

**3. Does the Proposed Change Involve a Significant Reduction in the 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 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.

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**Vogtle Electric Generating Plant**  
**Request to Revise Technical Specifications RTS and ESFAS Surveillance**  
**Test Intervals and Reactor Trip Breaker Test and Completion Times**  
**10 CFR 50.92 Significant Hazards Evaluations**

**Conclusion**

Based on the preceding evaluation, Southern Nuclear has determined that the proposed changes meet the requirements of 10 CFR 50.92(c) and do not involve a significant hazards consideration.

**Environmental Evaluation**

Southern Nuclear has evaluated the proposed changes and determined that the changes do not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in the individual or cumulative occupational radiation exposure. Accordingly, the proposed changes meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental assessment of the proposed changes is not required.

**Enclosure 3**

**Vogtle Electric Generating Plant  
Request to Revise Technical Specifications RTS and ESFAS Surveillance  
Test Intervals and Reactor Trip Breaker Test and Completion Times**

**Marked-up Technical Specification and Bases Pages**

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>R. One or more channels inoperable.</p>	<p>R.1 Verify interlock is in required state for existing unit conditions.</p>	<p>1 hour</p>
	<p><u>OR</u></p> <p>R.2 Be in MODE 3.</p>	<p>7 hours</p>
<p>S. One or more channels inoperable.</p>	<p>S.1 Verify interlock is in required state for existing unit conditions.</p>	<p>1 hour</p>
	<p><u>OR</u></p> <p>S.2 Be in MODE 2.</p>	<p>7 hours</p>
<p>T. One RTB train inoperable.</p>	<p>-----NOTES-----</p> <p>4. One train may be bypassed for up to 24 hours for surveillance testing, provided the other train is OPERABLE.</p> <p>2. One RTB may be bypassed for up to 2 hours for maintenance on undervoltage or shunt trip mechanisms, provided the other train is OPERABLE.</p> <p>3. One RTB train may be bypassed for up to 4 hours for concurrent surveillance testing of the RTB and automatic trip logic, provided the other train is OPERABLE.</p> <p>-----</p>	
	<p>T.1 Restore train to OPERABLE status.</p>	<p><u>24</u> hours</p>
	<p><u>OR</u></p>	
	<p>T.2 Be in MODE 3.</p>	<p><u>30</u> hours</p>

(continued)

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>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.</p>	<p>31-62 days on a STAGGERED TEST BASIS</p>
<p>SR 3.3.1.5 Perform ACTUATION LOGIC TEST.</p>	<p>31-92 days on a STAGGERED TEST BASIS</p>
<p>SR 3.3.1.6 -----NOTES----- 1. Not required to be performed until 7 days after THERMAL POWER is <math>\geq</math> 75% RTP.  2. Neutron detectors are excluded from CHANNEL CALIBRATION. ----- Calibrate excore channels to agree with incore detector measurements.</p>	<p>92 EFPD</p>
<p>SR 3.3.1.7 -----NOTES----- 1. For the Source Range Instrumentation this surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions.  2. Not required to be performed for Source Range Instrumentation prior to entering MODE 3 from MODE 2 until 4 hours after entry into MODE 3. ----- Perform COT.</p>	<p>92-184 days</p>

(continued)

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p><del>SR 3.3.1.4</del> <del>NOTE</del></p> <p><del>This Surveillance must be performed on the reactor trip bypass breaker prior to placing the bypass breaker in service.</del></p> <hr/> <p><del>Perform TADOT.</del></p>	<p><del>31 days on a STAGGERED TEST BASIS</del></p>
<p><del>SR 3.3.1.5</del> <del>NOTE</del></p> <p><del>The surveillance interval for the Memories Test portion of the ACTUATION LOGIC TEST and the test of the Power Range Block of the Source Range Neutron Flux Trip Block for the Unit 2 Train B SPS can be extended to the Unit 2 end-of-cycle 10 refueling outage or the next Unit 2 shutdown to MODE 5, whichever comes first.</del></p> <hr/> <p><del>Perform ACTUATION LOGIC TEST.</del></p>	<p><del>31 days on a STAGGERED TEST BASIS</del></p>
<p><del>SR 3.3.1.6</del> <del>NOTES</del></p> <p><del>1. Not required to be performed until 7 days after THERMAL POWER is <math>\geq</math> 75% RTP.</del></p> <p><del>2. Neutron detectors are excluded from CHANNEL CALIBRATION.</del></p> <hr/> <p><del>Calibrate excore channels to agree with incore detector measurements.</del></p>	<p><del>92 EFPD</del></p>

(continued)

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.7</p> <p style="text-align: center;"><u>NOTES</u></p> <p>1. For the Source Range Instrumentation this surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions.</p> <p>2. 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.</p> <hr/> <p>Perform COT.</p>	<p>92 days</p>

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**SURVEILLANCE REQUIREMENTS**

-----~~NOTE~~-----  
 Refer to Table 3.3.2-1 to determine which SRs apply for each ESFAS Function.  
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SURVEILLANCE		FREQUENCY
SR 3.3.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.2.2	Perform ACTUATION LOGIC TEST.	31-92 days on a STAGGERED TEST BASIS
SR 3.3.2.3	Perform MASTER RELAY TEST.	31-92 days on a STAGGERED TEST BASIS
SR 3.3.2.4	Perform COT.	92-184 days
SR 3.3.2.5	Perform SLAVE RELAY TEST.	18 months
SR 3.3.2.6	----- <del>NOTE</del> ----- Verification of setpoint not required for manual initiation functions. ----- Perform TADOT.	18 months

(continued)

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SURVEILLANCE REQUIREMENTS

NOTE

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

SURVEILLANCE	FREQUENCY
SR 3.3.2.1 Perform CHANNEL CHECK.	12 hours
<p>SR 3.3.2.2</p> <p style="text-align: center;">NOTE</p> <p>The surveillance interval for the Memories Test portion of the ACTUATION LOGIC TEST and the portions of the ACTUATION LOGIC TEST for Feedwater Isolation on P14 or SI that pass through the memories circuits for the Unit 2 Train B SSPS can be extended to the Unit 2 end-of-cycle 10 refueling outage or the next Unit 2 shutdown to MODE 5, whichever comes first.</p> <hr/> <p>Perform ACTUATION LOGIC TEST.</p>	31 days on a STAGGERED TEST BASIS
SR 3.3.2.3 Perform MASTER RELAY TEST.	31 days on a STAGGERED TEST BASIS
SR 3.3.2.4 Perform COT.	92 days
SR 3.3.2.5 Perform SLAVE RELAY TEST.	18 months
<p>SR 3.3.2.6</p> <p style="text-align: center;">NOTE</p> <p>Verification of setpoint not required for manual initiation functions.</p> <hr/> <p>Perform TADOT.</p>	18 months

(continued)

**SURVEILLANCE REQUIREMENTS**

-----NOTE-----

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

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SURVEILLANCE	FREQUENCY
SR 3.3.6.1      Perform CHANNEL CHECK.	12 hours
SR 3.3.6.2      Perform ACTUATION LOGIC TEST.	<del>31</del> 92 days on a STAGGERED TEST BASIS
SR 3.3.6.3      Perform MASTER RELAY TEST.	<del>31</del> 92 days on a STAGGERED TEST BASIS
SR 3.3.6.4      Perform COT.	92 days
SR 3.3.6.5      Perform SLAVE RELAY TEST.	18 months
SR 3.3.6.6      -----NOTE----- Verification of setpoint not required. ----- Perform TADOT.	18 months
SR 3.3.6.7      Perform CHANNEL CALIBRATION.	18 months
SR 3.3.6.8      Verify RESPONSE TIMES are within limits.	18 months on a STAGGERED TEST BASIS

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
<p>-----NOTE-----                      Not required to be performed prior to entering                      MODE 3 from MODE 2 until 4 hours after entry                      into MODE 3.                      -----</p>		
SR 3.3.8.1	Perform COT.	92-184 days
SR 3.3.8.2	Perform CHANNEL CALIBRATION.	18 months

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**BASES**

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APPLICABLE  
SAFETY ANALYSES,  
LCO, and  
APPLICABILITY

6. Overtemperature  $\Delta T$  (continued)

as close as possible to 588.4° F. The instrument uncertainty calculations and safety analyses, in combination, have accounted for loop variation in loop specific, full power, indicated  $\Delta T$  and  $T_{avg}$ . With respect to  $T_{avg}$ , a value for  $T'$  common to all four loops is permissible within the limits identified in the uncertainty calculations. Outside of those limits, the value of  $T'$  will be set appropriately to reflect indicated, loop specific, full power values. In the case of decreasing temperature, the compensated temperature difference shall be no more negative than 3 °F to limit the increase in the setpoint during cooldown transients. The engineering scaling calculations use each of the referenced parameters as an exact gain or reference value. Tolerances are not applied to the individual gain or reference parameters. Tolerances are applied to each calibration module and the overall string calibration. In order to ensure that the Overtemperature  $\Delta T$  instrument channel is performing in a manner consistent with the assumptions of the safety analyses, it is necessary to verify during the CHANNEL OPERATIONAL TEST that the magnitude of instrument drift from the as-left condition is within limits, and that the input parameters to the trip function are within the appropriate calibration tolerances for the defined calibration conditions (Ref.-97).

The LCO requires all four channels of the Overtemperature  $\Delta T$  trip Function to be OPERABLE. Note that the Overtemperature  $\Delta T$  Function receives input from channels shared with other RTS Functions. Failures that affect multiple Functions require entry into the Conditions applicable to all affected Functions.

In MODE 1 or 2, the Overtemperature  $\Delta T$  trip must be OPERABLE to prevent DNB. In MODE 3, 4, 5, or 6, this trip Function does not have to be OPERABLE because the reactor is not operating and there is insufficient heat production to be concerned about DNB.

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**BASES**

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APPLICABLE  
SAFETY ANALYSES,  
LCO, and  
APPLICABILITY

7. Overpower  $\Delta T$  (continued)

Delta- $T_0$ , as used in the overtemperature and overpower  $\Delta T$  trips, represents the 100% RTP value as measured for each loop. This normalizes each loop's  $\Delta T$  trips to the actual operating conditions existing at the time of measurement, thus forcing the trip to reflect the equivalent full power conditions as assumed in the accident analyses. These differences in RCS loop  $\Delta T$  can be due to several factors, e.g., difference in RCS loop flows and slightly asymmetric power distributions between quadrants. While RCS loop flows are not expected to change with cycle life, radial power redistribution between quadrants may occur, resulting in small changes in loop specific  $\Delta T$  values. Therefore, loop specific  $\Delta T_0$  values are measured as needed to ensure they represent actual core conditions.

The value for  $T^*$  is a key reference parameter corresponding directly to plant safety analyses initial conditions assumptions for the Overpower  $\Delta T$  function. For the purposes of performing a CHANNEL CALIBRATION, the values for  $K_4$ ,  $K_5$ ,  $K_6$ , and  $T^*$  are utilized in the safety analyses without explicit tolerances, but should be considered as nominal values for instrument settings. That is, while an exact setting is not expected, a setting as close as reasonably possible is desired. Note that for  $T^*$ , the value for the hottest RCS loop will be set as close as possible to 588.4° F. The instrument uncertainty calculations and safety analyses, in combination, have accounted for loop variation in loop specific, full power, indicated  $\Delta T$  and  $T_{avg}$ . With respect to  $T_{avg}$ , a value for  $T^*$  common to all four loops is permissible within the limits identified in the uncertainty calculations. Outside of those limits, the value of  $T^*$  will be set appropriately to reflect indicated, loop specific, full power values. The engineering scaling calculations use each of the referenced parameters as an exact gain or reference value. Tolerances are not applied to the individual gain or reference parameters. Tolerances are applied to each calibration module and the overall string calibration. In order to ensure that the Overpower  $\Delta T$  instrument channel is performing in a manner consistent with the assumptions of the safety analyses, it is necessary to verify during the CHANNEL OPERATIONAL TEST that the magnitude of instrument drift from the as-left condition is within limits, and that the input parameters to the trip function are within the appropriate calibration tolerances for defined calibration conditions (Ref. 97). Note that for the parameter  $K_5$ , in the case of

(continued)

BASES

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ACTIONS

D.1.1, D.1.2, D.2.1, D.2.2, and D.3 (continued)

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 72 hours allowed to place the inoperable channel in the tripped condition is justified in WCAP-14333-P-A (Ref. 428).

In addition to placing the inoperable channel in the tripped condition, THERMAL POWER must be reduced to  $\leq 75\%$  RTP within 78 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.

As an alternative to the above actions, the inoperable channel can be placed in the tripped condition within 72 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  $\leq 75\%$  RTP. The 12 hour Frequency is consistent with LCO 3.2.4, "QUADRANT POWER TILT RATIO (QPTR)."

If the Required Actions described above cannot be met within the specified Completion Times, the unit must be placed in a MODE where this Function is no longer required OPERABLE. An additional 6 hours beyond the Completion Time for Required Action D.1.1 and Required Action D.2.1 are allowed to place the unit in MODE 3. Six hours is a reasonable time, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems. If Required Actions D.2.2 cannot be completed within their allowed Completion Times, LCO 3.0.3 must be entered.

The Required Actions have been modified by a Note that allows placing a channel in the bypass condition for up to 12 hours while performing routine surveillance testing. With one channel inoperable, the Note also allows routine surveillance testing of another channel with a channel in bypass. The Note also allows placing a channel in the bypass condition to allow setpoint adjustments when required to reduce the Power Range Neutron

(continued)

BASES

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ACTIONS

D.1.1, D.1.2, D.2.1, D.2.2, and D.3 (continued)

Flux — High setpoint in accordance with other Technical Specifications. The 12 hour time limit is justified in Reference 128.

Required Action D.2.2 has been modified by a Note which only requires SR 3.2.4.1 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.

E.1 and E.2

Condition E applies to the following reactor trip Functions:

- Power Range Neutron Flux — Low;
- Overtemperature  $\Delta T$ ;
- Overpower  $\Delta T$ ;
- Power Range Neutron Flux — High Positive Rate;
- Pressurizer Pressure — High; and
- SG Water Level — Low Low.

This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition.

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BASES

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ACTIONS

E.1 and E.2 (continued)

A known inoperable channel must be placed in the tripped condition within 72 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 72 hours allowed to place the inoperable channel in the tripped condition is justified in Reference 428.

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

The Required Actions have been modified by a Note that allows placing a channel in the bypassed condition for up to 12 hours while performing routine surveillance testing. With one channel inoperable, the Note also allows routine surveillance testing of another channel with a channel in bypass. The 12 hour time limit is justified in Reference 428.

F.1 and F.2

Condition F applies to the Intermediate Range Neutron Flux trip when THERMAL POWER is above the P-6 setpoint and below the P-10 setpoint and one channel is inoperable. Above the P-6 setpoint and below the P-10 setpoint, the NIS intermediate range detector performs the monitoring Functions. If THERMAL POWER is greater than the P-6 setpoint but less than the P-10 setpoint, 24 hours are allowed to reduce THERMAL POWER below the P-6 setpoint or increase to THERMAL POWER above the P-10 setpoint. The NIS Intermediate Range Neutron Flux channels must be OPERABLE when the power level is above the capability of the source range, P-6, and below the capability of the power range, P-10. If THERMAL POWER is greater than the P-10 setpoint, the NIS power range detectors perform the monitoring and protection functions and the intermediate range is not required. The Completion Times allow for a slow and controlled power adjustment above P-10 or below P-6 and take

(continued)

BASES

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ACTIONS  
(continued)

I.1

Condition I applies to one inoperable Source Range Neutron Flux trip channel when in MODE 2, below the P-6 setpoint, and performing a reactor startup. With the unit in this Condition, below P-6, the NIS source range performs the monitoring and protection functions. With one of the two channels inoperable, operations involving positive reactivity additions shall be suspended immediately.

This will preclude any power escalation. With only one source range channel OPERABLE, core protection is severely reduced and any actions that add positive reactivity to the core must be suspended immediately. However, this does not preclude actions to maintain or place the unit in a safe conservative condition provided the required SDM is maintained.

J.1

Condition J applies to two inoperable Source Range Neutron Flux trip channels when in MODE 2, below the P-6 setpoint, and performing a reactor startup, or in MODE 3, 4, or 5 with the RTBs closed and the CRD System capable of rod withdrawal. With the unit in this Condition, below P-6, the NIS source range performs the monitoring and protection functions. With both source range channels inoperable, the RTBs must be opened immediately. With the RTBs open, the core is in a more stable condition and the unit enters Condition L.

K.1 and K.2

Condition K applies to one inoperable source range channel in MODE 3, 4, or 5 with the RTBs closed and the CRD System capable of rod withdrawal. With the unit in this Condition, below P-6, the NIS source range performs the monitoring and protection functions. With one of the source range channels inoperable, 48 hours is allowed to restore it to an OPERABLE status. If the channel cannot be returned to an OPERABLE status, 1 additional hour is allowed to open the RTBs. Once the RTBs are open, the core is in a more stable condition and the unit enters Condition L. The allowance of 48 hours to restore the channel to OPERABLE status, and the additional hour to open the RTBs, are justified in Reference 79.

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BASES

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ACTIONS

M.1 and M.2 (continued)

function). These Functions do not have to be OPERABLE below the P-7 setpoint because for the Pressurizer Water Level — High transients are slow enough for manual action, and for the other functions DNB is not as serious a concern due to the Low Power Level. The 72 hours allowed to place the channel in the tripped condition is justified in Reference 428. 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.

The Required Actions have been modified by two Notes. Note 1 applies only to the RCP undervoltage and underfrequency instrument functions. These functions do not have installed bypass capability. Therefore, the allowance to place these instrument channels in bypass is more limited. Note 1 allows the inoperable undervoltage or underfrequency instrument channel to be bypassed for up to 12 hours for surveillance testing of other channels.

Note 2 allows placing a channel in the bypassed condition for up to 12 hours while performing routine surveillance testing. Note 2 applies to all Condition M instrument functions except RCP undervoltage and underfrequency. With one channel inoperable, Note 2 also allows routine surveillance testing of another channel with a channel in bypass. The 12 hour time limit of both Notes is justified in Reference 428.

N.1 and N.2

Condition N applies to the Reactor Coolant Flow — Low (Single Loop) reactor trip Function. This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from

(continued)

BASES

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ACTIONS

N.1 and N.2 (continued)

applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition. With one channel inoperable, the inoperable channel must be placed in trip within 72 hours. If the channel cannot be restored to OPERABLE status or the channel placed in trip within the 72 hours, then THERMAL POWER must be reduced below the P-8 setpoint within the next 4 hours. This places the unit in a MODE where the LCO is no longer applicable. This trip Function does not have to be OPERABLE below the P-8 setpoint because other RTS trip Functions provide core protection below the P-8 setpoint. The 72 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 428.

The Required Actions have been modified by a Note that allows placing a channel in the bypassed condition for up to 12 hours while performing routine surveillance testing. With one channel inoperable, the Note allows routine surveillance testing of another channel with a channel in bypass. The 12 hour time limit is justified in Reference 428.

O.1 and O.2

Condition O applies to Turbine Trip on Low Fluid Oil Pressure. This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition. With one channel inoperable, the inoperable channel must be placed in the trip

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BASES

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ACTIONS

O.1 and O.2 (continued)

condition within 72 hours. If placed in the tripped condition, this results in a partial trip condition requiring only one additional channel to initiate a reactor trip. If the channel cannot be restored to OPERABLE status or placed in the trip condition, then power must be reduced below the P-9 setpoint within the next 4 hours. The 72 hours allowed to place the inoperable channel in the tripped condition and the 4 hours allowed for reducing power are justified in Reference 428.

The Required Actions have been modified by a Note that allows placing a channel in the bypassed condition for up to 12 hours while performing routine surveillance testing. With one channel inoperable, the Note also allows routine surveillance testing of another channel with a channel in bypass. The 12 hour time limit is justified in Reference 428.

P.1 and P.2

Condition P applies to the Turbine Trip on Stop Valve Closure. This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition. With one or more channels inoperable, the inoperable channels must be placed in the trip condition within 72 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 tripped condition. If a channel cannot be restored to OPERABLE status or placed in the trip condition, then power must be reduced below the P-9 setpoint within the next 4 hours. The 72 hours allowed to place an inoperable channel in the tripped condition and the 4 hours allowed for reducing power are justified in Reference 428.

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**BASES**

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**ACTIONS**  
(continued)

Q.1 and Q.2

Condition Q 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. This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition. With one train inoperable, 24 hours are allowed to restore the train to OPERABLE status or the unit must be placed in MODE 3 within the next 6 hours. The Completion Time of 24 hours 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 is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems.

The Required Actions have been modified by a Note that allows bypassing one train up to 4 hours for surveillance testing, provided the other train is OPERABLE. The 4 hour time limit for testing the RTS Automatic Trip Logic train may include testing the RTB also, if both the Logic test and RTB test are conducted within the 4 hour time limit. The 4 hour time limit is justified in Reference 428.

The 4 hour time limit for the RTS Automatic Trip Logic train testing is greater than the 2 hour time limit for the RTBs, which the Logic train supports. The longer time limit for the Logic train (4 hours) is acceptable based on Reference 4310.

R.1 and R.2

Condition R applies to the P-6 interlock. With one or more channels inoperable for one-out-of-two coincidence logic, the associated interlock must be verified to be in its required state for the existing unit condition within 1 hour or the unit must be placed

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BASES

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ACTIONS

R.1 and R.2 (continued)

in MODE 3 within the next 6 hours. Verifying the interlock status manually accomplishes the interlock's Function. The Completion Time of 1 hour is based on operating experience and the minimum amount of time allowed for manual operator actions. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems. The 1 hour and 6 hour Completion Times are equal to the time allowed by LCO 3.0.3 for shutdown actions in the event of a complete loss of RTS Function.

S.1 and S.2

Condition S applies to the P-7, P-8, P-9, P-10, and P-13 interlocks. With one or more channels inoperable for one-out-of-two or two-out-of-four coincidence logic, the associated interlock must be verified to be in its required state for the existing unit condition within 1 hour or THERMAL POWER must be reduced to less than the affected interlock setpoint within the next 6 hours. These actions are conservative for the case where power level is being raised. Verifying the interlock status manually accomplishes the interlock's Function. The Completion Time of 1 hour is based on operating experience and the minimum amount of time allowed for manual operator actions. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 2 from full power in an orderly manner and without challenging unit systems.

T.1 and T.2

Condition T 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, ± 24 hours is allowed for train corrective maintenance to restore the train to OPERABLE status or the unit must be placed in MODE 3 within the next 6 hours. The 24 hour Completion Time is justified in Reference 11. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems. ~~The 1-hour and 6-hour Completion Times are equal to the time allowed by LCO 3.0.3 for shutdown actions in the event of a complete loss of RTS Function.~~ Placing the unit in MODE 3 results in Condition C entry while RTBs are inoperable, ~~removes the requirement for this particular Function.~~

(continued)

BASES

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ACTIONS

T.1 and T.2 (continued)

The Required Actions have been modified by a three Notes. ~~The Note 4 allows one train to be bypassed for up to 2.4 hours for surveillance testing, provided the other train is OPERABLE. Note 1 applies to RTB testing that is performed independently from the corresponding Logic train testing. For simultaneous testing of the Logic and RTBs, the 4 hour test time limit of Condition Q applies. Note 2 allows one RTB to be bypassed for up to 2 hours for maintenance on undervoltage or shunt trip mechanisms if the other RTB train is OPERABLE. The 2.4 hour time limit is justified in Reference 711. Note 3 applies to RTB testing that is performed concurrently with the corresponding Logic train testing. For concurrent testing of the Logic and RTB, the 4 hour test time limit of Condition Q applies. The 4 hour time limit is justified in Reference 12.~~

U.1 and U.2

Condition U applies to the RTB Undervoltage and Shunt Trip Mechanisms, or diverse trip features, in MODES 1 and 2. With one of the diverse trip features inoperable, it must be restored to an OPERABLE status within 48 hours or the unit must be placed in a MODE where Condition U is no longer applicable. This is accomplished by placing the unit in MODE 3 within the next 6 hours (54 hours total time). The Completion Time of 6 hours is a reasonable time, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems. With the unit in MODE 3, Condition C applies to this trip function. 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 T.

If two diverse trip features become inoperable in the same RTB, that RTB becomes inoperable upon discovery of the second inoperable trip feature.

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

(continued)

BASES

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SURVEILLANCE  
REQUIREMENTS

SR 3.3.1.3 (continued)

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.

SR 3.3.1.4

SR 3.3.1.4 is the performance of a TADOT every 31-62 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 independence test for bypass breakers is included in SR 3.3.1.13. 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.

The Frequency of every 31-62 days on a STAGGERED TEST BASIS is justified in Reference 11, adequate. ~~It is based on industry operating experience, considering instrument reliability and operating history data.~~

SR 3.3.1.5

SR 3.3.1.5 is the performance of an ACTUATION LOGIC TEST. The SSPS is tested every 31-92 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 31-92 days on a STAGGERED TEST BASIS is justified in Reference 11, adequate. ~~It is based on industry operating experience, considering instrument reliability and operating history data.~~

(continued)

BASES

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SURVEILLANCE  
REQUIREMENTS  
(continued)

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 primarily performed to verify the f(AFD) input to the overtemperature  $\Delta T$  function.

Two Notes modify SR 3.3.1.6. Note 1 states that this Surveillance is required only if reactor power is > 75% RTP and that 7 days is allowed for performing the first surveillance after reaching 75% RTP. Note 2 states that neutron detectors are excluded from the calibration.

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

SR 3.3.1.7

SR 3.3.1.7 is the performance of a COT every ~~92~~184 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.

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

The "as found" and "as left" values must also be recorded and reviewed for consistency with the assumptions of Reference 76.

This Surveillance Requirement is modified by two Notes that apply only to the Source Range instrument channels. Note 1 requires that the COT include verification that interlocks P-6 and P-10 are in the required state for the existing unit

(continued)

**BASES**

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**SURVEILLANCE  
REQUIREMENTS**

SR 3.3.1.7 (continued)

conditions. Note 2 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 delay for the performance of this SR to meet the applicability requirements in Mode 3. This delay allows time to open the RTBs in Mode 3 after which this SR 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 completed prior to the expiration of the 4 hours.

The Frequency of ~~92-184~~ days is justified in Reference 7 11.

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 the frequency is prior to reactor startup. This SR is not required to be met when reactor power is decreased below P-10 (10% RTP) or when MODE 2 is entered from MODE 1 during controlled shutdowns. The Surveillance is modified by a Note that specifies this surveillance can be satisfied by the performance of a COT within 31 days prior to reactor startup. This test ensures that the NIS source range, intermediate range, and power range low setpoint channels are OPERABLE prior to taking the reactor critical.

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 79.

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**

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**SURVEILLANCE  
REQUIREMENTS**

**SR 3.3.1.13** (continued)

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

**SR 3.3.1.14**

SR 3.3.1.14 is the performance of a TADOT of the turbine stop valve closure Turbine Trip Functions. This TADOT is as described in SR 3.3.1.4, except that this test is performed after each entry into MODE 3 for a unit shutdown and prior to exceeding the P-9 interlock trip setpoint. Note 1 states that this Surveillance is not required if it has been performed within the previous 31 days. Note 2 states that verification of the Trip Setpoint does not have to be performed for this Surveillance. Performance of this test ensures that the reactor trip on turbine trip Function is OPERABLE prior to entering the Mode of Applicability (above the P-9 power range neutron flux interlock) for this instrument function. The frequency is based on the known reliability of the instrumentation that generates a reactor trip after the turbine trips, and has been shown to be acceptable through operating experience.

**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 FSAR, Chapter 16 (Ref. 812). 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 or with the time constants set to their nominal value. The results must be compared to properly defined acceptance criteria. The response time may be measured by a series of overlapping tests such that the entire response time is measured.

(continued)

BASES

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SURVEILLANCE  
REQUIREMENTS

SR 3.3.1.15 (continued)

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 allocation 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) using vendor engineering specifications. WCAP-13632-P-A Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," (Ref. ~~4013~~), 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.

WCAP-14036-P Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," (Ref. ~~4414~~), 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.

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

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~~THIS PAGE APPLICABLE TO UNIT 1 ONLY.~~

**BASES**

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**REFERENCES**  
(continued)

2. FSAR, Chapter 6.
  3. FSAR, Chapter 15.
  4. IEEE-279-1971.
  5. 10 CFR 50.49.
  6. WCAP-11269, Westinghouse Setpoint Methodology for Protection Systems; as supplemented by:
    - Amendments 34 (Unit 1) and 14 (Unit 2), RTS Steam Generator Water Level – Low Low, ESFAS Turbine Trip and Feedwater Isolation SG Water Level – High High, and ESFAS AFW SG Water Level – Low Low.
    - Amendments 48 and 49 (Unit 1) and Amendments 27 and 28 (Unit 2), deletion of RTS Power Range Neutron Flux High Negative Rate Trip.
    - Amendments 60 (Unit 1) and 39 (Unit 2), RTS Overtemperature  $\Delta T$  setpoint revision.
    - Amendments 57 (Unit 1) and 36 (Unit 2), RTS Overtemperature and Overpower  $\Delta T$  time constants and Overtemperature  $\Delta T$  setpoint.
    - Amendments 43 and 44 (Unit 1) and 23 and 24 (Unit 2), revised Overtemperature and Overpower  $\Delta T$  trip setpoints and allowable values.
    - Amendments 104 (Unit 1) and 82 (Unit 2), revised RTS Intermediate Range Neutron Flux, Source Range Neutron Flux, and P-6 trip setpoints and allowable values.
    - Amendments 127 (Unit 1) and 105 (Unit 2), revised Overtemperature  $\Delta T$  trip setpoint to limit value of the compensated temperature difference and revised the modifier for axial flux difference.
    - Amendments 128 (Unit 1) and 106 (Unit 2), revised Overtemperature  $\Delta T$  and Overpower  $\Delta T$  trip setpoints to increase the fundamental setpoints  $K_1$  and  $K_4$ , and to modify coefficients and dynamic compensation terms.
- 9.7 Westinghouse Letter GP-16696, November 5, 1997.
- 12.8 WCAP-14333-P-A, Rev. 1, October 1998.

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THIS PAGE APPLICABLE TO UNIT 1 ONLY.

**BASES**

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**REFERENCES**  
(continued)

- ~~7~~9. WCAP-10271-P-A, Supplement 1, May 1986.
  - ~~13~~10 WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990.
  - ~~14~~11 WCAP-15376, Rev. 0, October 2000.
  - ~~8~~12. FSAR, Chapter 16.
  - ~~10~~13 WCAP-13632-P-A Revision 2, "Elimination of Periodic Sensor Response Time Testing Requirements," January 1996.
  - ~~11~~14 WCAP-14036-P-A Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," October 1998.
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BASES

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ACTIONS

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

the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition.

This action addresses the train orientation of the SSPS and the master and slave relays. If one train is inoperable, 24 hours are allowed to restore the train to OPERABLE status. The 24 hours allowed for restoring the inoperable train to OPERABLE status is justified in Reference 157. 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 unit must be placed in a MODE in which the LCO does not apply. This is done by placing the unit in at least MODE 3 within an additional 6 hours (30 hours total time) and in MODE 5 within an additional 30 hours (60 hours total time). The Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

The Required Actions are modified by a Note that allows one train to be bypassed for up to 4 hours for surveillance testing or maintenance, provided the other train is OPERABLE. This allowance is based on the reliability analysis assumption of WCAP-10271-P-A (Ref. 78) that 4 hours is the average time required to perform train surveillance.

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

Condition D applies to:

- Containment Pressure — High 1;
- Pressurizer Pressure — Low;
- Steam Line Pressure — Low;
- Containment Pressure — High 2;

(continued)

BASES

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ACTIONS

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

- Steam Line Pressure — Negative Rate — High; and
- SG Water level — Low Low.

This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition.

If one channel is inoperable, 72 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. The 72 hours allowed to restore the channel to OPERABLE status or to place it in the tripped condition is justified in Reference 15.

Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 72 hours requires the unit 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 unit conditions from full power conditions in an orderly manner and without challenging unit systems. In MODE 4, these Functions are no longer required OPERABLE.

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 12 hour time limit is justified in Reference 15.

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

Condition E applies to:

(continued)

**BASES**

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**ACTIONS**

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

The Required Actions are modified by a Note that, with one channel inoperable, allows routine surveillance testing of another channel with a channel in bypass for up to 12 hours. Placing a second channel in the bypass condition for up to 12 hours for testing purposes is acceptable based on the results of Reference 457.

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

Condition F applies to:

- Manual Initiation of Steam Line Isolation; and
- P-4 Interlock.

For the Manual Initiation and the P-4 Interlock Functions, this action addresses the train orientation of the SSPS. If a channel is inoperable, 48 hours is allowed to return it to OPERABLE status. The specified Completion Time is reasonable considering the nature of this Function, the available redundancy, and the low probability of an event occurring during this interval. If the channel cannot be returned to OPERABLE status, the unit 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 unit conditions from full power in an orderly manner and without challenging unit systems. In MODE 4, the unit does not have any analyzed transients or conditions that require the explicit use of the protection function noted above.

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.

This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of

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(continued)

BASES

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**ACTIONS**

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

service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition.

The action addresses the train orientation of the SSPS and the master and slave relays for these functions. If one train is inoperable, 24 hours are allowed to restore the train to OPERABLE status. The 24 hours allowed for restoring the inoperable train to OPERABLE status is justified in Reference 457. 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 unit 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 required unit conditions from full power conditions in an orderly manner and without challenging unit systems. Placing the unit in MODE 4 removes all requirements for OPERABILITY of the protection channels and actuation functions. In this MODE, the unit 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 channel is OPERABLE. This allowance is based on the reliability analysis (Ref. 78) assumption that 4 hours is the average time required to perform channel surveillance.

H.1 and H.2

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

This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in

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(continued)

BASES

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ACTIONS

H.1 and H.2 (continued)

the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition.

This action addresses the train orientation of the SSPS and the master and slave relays for this Function. If one train is inoperable, 24 hours are allowed to restore the train to OPERABLE status or the unit must be placed in MODE 3 within the following 6 hours. The 24 hours allowed for restoring the inoperable train to OPERABLE status is justified in Reference 457. 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 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 unit systems. These Functions are no longer required in MODE 3. Placing the unit in MODE 3 removes all requirements for OPERABILITY of the protection channels and actuation functions. In this MODE, the unit 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 or maintenance provided the other train is OPERABLE. This allowance is based on the reliability analysis (Ref. 78) assumption that 4 hours is the average time required to perform channel surveillances.

I.1 and I.2

Condition I applies to:

- SG Water Level — High High (P-14).

This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in

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BASES

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ACTIONS

I.1 and I.2 (continued)

the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition.

If one channel is inoperable, 72 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-three logic will result in actuation. The 72 hours allowed to restore one channel to OPERABLE status or to place it in the tripped condition is justified in Reference 45Z. Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 72 hours requires the unit to be placed in MODE 3 within the following 6 hours. 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 unit systems. In MODE 3, this Function is no longer required OPERABLE.

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 12 hour time limit is justified in Reference 45Z.

J.1 and J.2

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

This action addresses the train orientation for the auto start function of the AFW System on loss 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 an OPERABLE status. If the function cannot be returned to an OPERABLE status, 6 hours are allowed to place the unit 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 unit systems. In MODE 3, the unit does not have any analyzed

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(continued)

BASES

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ACTIONS

J.1 and J.2 (continued)

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 78.

K.1, K.2.1, and K.2.2

Condition K applies to:

- RWST Level — Low Low Coincident with Safety Injection.

This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition.

RWST Level — Low Low Coincident With SI provides actuation of switchover to the containment sump. Note that this Function requires the bistables to energize to perform their required action. The failure of up to two channels will not prevent the operation of this Function. However, placing a failed channel in the tripped condition could result in a premature switchover to the sump, prior to the injection of the minimum volume from the RWST. Placing the inoperable channel in bypass results in a two-out-of-three logic configuration, which satisfies the requirement to allow another failure without disabling actuation of the switchover when required. Restoring the channel to OPERABLE status or placing the inoperable channel in the bypass condition within 72 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 72 hour Completion Time is justified in Reference 157. If the channel cannot be returned to OPERABLE status or placed in the bypass condition within 72 hours, the unit must be brought to MODE 3 within the following 6 hours and MODE 5 within the next 30 hours.

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(continued)

**BASES**

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**ACTIONS**

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

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. In MODE 5, the unit does not have any analyzed transients or conditions that require the explicit use of the protection functions noted above.

The Required Actions are modified by a Note that allows placing 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 12 hour time limit is justified in Reference 467.

L.1, L.2.1, and L.2.2

Condition L applies to the P-11 interlock.

With one or more channels 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 unit condition, the unit 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 unit conditions from full power conditions in an orderly manner and without challenging unit systems. Placing the unit in MODE 4 removes all requirements for OPERABILITY of this interlock.

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**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.

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

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SURVEILLANCE  
REQUIREMENTS

SR 3.3.2.1 (continued)

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.

SR 3.3.2.2

SR 3.3.2.2 is the performance of an ACTUATION LOGIC TEST. The SSPS is tested every 31-92 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. 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 31-92 days on a STAGGERED TEST BASIS is justified in Reference 9, adequate. ~~It is based on industry operating experience, considering instrument reliability and operating history data.~~

(continued)

BASES

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SURVEILLANCE  
REQUIREMENTS  
(continued)

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~~92 days on a STAGGERED TEST BASIS. The time allowed for the testing (4 hours) and ~~the surveillance interval are~~ is justified in Reference ~~7,8~~. The frequency of 92 days is justified in Reference 9.

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.

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.~~ Reference 6.

The Frequency of ~~92~~184 days is justified in Reference ~~7~~9.

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

(continued)

**BASES**

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**SURVEILLANCE  
REQUIREMENTS**

SR 3.3.2.7 (continued)

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

This SR is modified by a Note stating that this test should include verification that the time constants are adjusted to the prescribed values where applicable. The steam line pressure-low and steam line pressure negative rate-high functions have time constants specified in their setpoints.

SR 3.3.2.8

This SR ensures the individual channel ESF RESPONSE TIMES are less than or equal to the maximum values assumed in the accident analysis. Response Time testing acceptance criteria are included in the FSAR, Chapter 16 (Ref. 810). 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 in both trains reaches the required functional state (e.g., pumps at rated discharge pressure, valves in full open or closed position).

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 functions set to one or with the time constants set to their nominal value. The results must be compared to properly defined acceptance criteria. The response time may be measured by a series of overlapping 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:

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(continued)

**BASES**

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**SURVEILLANCE  
REQUIREMENTS**

**SR 3.3.2.8 (continued)**

(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) using vendor engineering specifications. WCAP-13632-P-A Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements" (Reference 11), 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.

WCAP-14036-P Revision 1, "Elimination of Periodic Protection Channel Response Time Tests" (Reference 12), 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.

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

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(continued)

**BASES**

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**REFERENCES**  
(continued)

- Amendments 43 and 44 (Unit 1) and 23 and 24 (Unit 2), revised ESFAS Interlocks Pressurizer P-11 trip setpoint and allowable value.
  - ~~45~~ 7. WCAP-14333-P-A, Rev. 1, October 1998.
  - ~~7~~ 8. WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990.
  - ~~9~~ 9. WCAP-15376, Rev. 0, October 2000.
  - ~~8~~ 10. FSAR, Chapter 16.
  - ~~10~~ 11. WCAP-13632-P-A Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," January 1996.
  - ~~11~~ 12. WCAP-14036-P-A Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," October 1998.
  - ~~9~~ 13. Westinghouse Letter GP-16696, November 5, 1997.
  - ~~12~~ 14. WCAP-13878-P-A Revision 2, "Reliability Assessment of Potter & Brumfield MDR Series Relays," April 1996.
  - ~~13~~ 15. WCAP-13900 Revision 0, "Extension of Slave Relay Surveillance Test Intervals," April 1994.
  - ~~14~~ 16. WCAP-14129 Revision 1, "Reliability Assessment of Westinghouse Type AR Relays Used as SSPS Slave Relays," January 1999.
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BASES

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SURVEILLANCE  
REQUIREMENTS

SR 3.3.6.1 (continued)

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.

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 31-92 days on a STAGGERED TEST BASIS. The Surveillance interval is justified in Reference 2, ~~acceptable based on instrument reliability and industry operating experience.~~

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 31-92 days on a STAGGERED TEST BASIS. The Surveillance interval is justified in Reference 2, ~~acceptable based on instrument reliability and industry operating experience.~~

(continued)

BASES

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REFERENCES

1. 10 CFR 100.11.
  2. WCAP-15376, Rev. 0, October 2000. |
  - 2.3. NUREG-1366. |
  - 3.4. WCAP-13878-P-A, Rev. 2, August 2000. |
  - 4.5. WCAP-13900, Rev. 0, April 1994. |
  - 5.6. WCAP-14129, Rev. 1, January 1999. |
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**BASES**

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**ACTIONS**

B.1 and B.2 (continued)

SR 3.9.2.1. This places the unit in a condition that precludes an unplanned dilution event. The Completion Times of 1 hour and once per 12 hours thereafter for verifying SDM provide timely assurance that no unintended dilution occurred while the HFASA was inoperable and that SDM is maintained. The Completion Times of 4 hours and once per 14 days thereafter for verifying that the unborated source is isolated provide timely assurance that an unplanned dilution event cannot occur while the HFASA is inoperable and that this protection is maintained until the HFASA is restored.

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**SURVEILLANCE  
REQUIREMENTS**

The HFASA channels are subject to a COT and a CHANNEL CALIBRATION.

SR 3.3.8.1

SR 3.3.8.1 requires the performance of a COT every ~~92-184~~ days to ensure that each channel of the HFASA and its setpoint are OPERABLE. This test shall include verification that the HFASA setpoint is less than or equal to 2.3 times background. The frequency of ~~92-184~~ days is consistent with the requirements for the source range channels. This Surveillance Requirement is modified by a Note that provides a 4-hour delay in the requirement to perform this surveillance for the HFASA instrumentation upon entering MODE 3 from MODE 2. This Note allows a normal shutdown to proceed without delay for the performance of the surveillance to meet the applicability requirements in MODE 3.

SR 3.3.8.2

SR 3.3.8.2 requires the performance of a CHANNEL CALIBRATION every 18 months. This test verifies that each channel responds to a measured parameter within the necessary range and accuracy. It encompasses the HFASA portion of the instrument loop. The frequency is based on operating experience and consistency with the typical industry refueling cycle.

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**REFERENCES**

1. FSAR, Subsection 15.4.6.
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**Enclosure 4**

**Vogtle Electric Generating Plant  
Request to Revise Technical Specifications RTS and ESFAS Surveillance  
Test Intervals and Reactor Trip Breaker Test and Completion Times**

**Typed Revised Technical Specification and Bases Pages**

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
R. One or more channels inoperable.	R.1 Verify interlock is in required state for existing unit conditions.	1 hour
	<u>OR</u> R.2 Be in MODE 3.	7 hours
S. One or more channels inoperable.	S.1 Verify interlock is in required state for existing unit conditions.	1 hour
	<u>OR</u> S.2 Be in MODE 2.	7 hours
T. One RTB train inoperable.	-----NOTE----- One train may be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE. -----	
	T.1 Restore train to OPERABLE status.	24 hours
	<u>OR</u> T.2 Be in MODE 3.	30 hours

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.4	<p>-----NOTE----- This Surveillance must be performed on the reactor trip bypass breaker prior to placing the bypass breaker in service. -----</p> <p>Perform TADOT.</p>	62 days on a STAGGERED TEST BASIS
SR 3.3.1.5	Perform ACTUATION LOGIC TEST.	92 days on a STAGGERED TEST BASIS
SR 3.3.1.6	<p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Not required to be performed until 7 days after THERMAL POWER is <math>\geq</math> 75% RTP.</li> <li>2. Neutron detectors are excluded from CHANNEL CALIBRATION.</li> </ol> <p>-----</p> <p>Calibrate excore channels to agree with incore detector measurements.</p>	92 EFPD
SR 3.3.1.7	<p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. For the Source Range Instrumentation this surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions.</li> <li>2. 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.</li> </ol> <p>-----</p> <p>Perform COT.</p>	184 days

(continued)

**SURVEILLANCE REQUIREMENTS**

-----NOTE-----  
Refer to Table 3.3.2-1 to determine which SRs apply for each ESFAS Function.  
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SURVEILLANCE	FREQUENCY
SR 3.3.2.1      Perform CHANNEL CHECK.	12 hours
SR 3.3.2.2      Perform ACTUATION LOGIC TEST.	92 days on a STAGGERED TEST BASIS
SR 3.3.2.3      Perform MASTER RELAY TEST.	92 days on a STAGGERED TEST BASIS
SR 3.3.2.4      Perform COT.	184 days
SR 3.3.2.5      Perform SLAVE RELAY TEST.	18 months
SR 3.3.2.6      -----NOTE----- Verification of setpoint not required for manual initiation functions. -----  Perform TADOT.	18 months

(continued)

**SURVEILLANCE REQUIREMENTS**

-----NOTE-----  
Refer to Table 3.3.6-1 to determine which SRs apply for each Containment Purge and Exhaust Isolation Function.  
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SURVEILLANCE		FREQUENCY
SR 3.3.6.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.6.2	Perform ACTUATION LOGIC TEST.	92 days on a STAGGERED TEST BASIS
SR 3.3.6.3	Perform MASTER RELAY TEST.	92 days on a STAGGERED TEST BASIS
SR 3.3.6.4	Perform COT.	92 days
SR 3.3.6.5	Perform SLAVE RELAY TEST.	18 months
SR 3.3.6.6	-----NOTE----- Verification of setpoint not required. -----  Perform TADOT.	18 months
SR 3.3.6.7	Perform CHANNEL CALIBRATION.	18 months
SR 3.3.6.8	Verify RESPONSE TIMES are within limits.	18 months on a STAGGERED TEST BASIS

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
<p>-----NOTE-----                      Not required to be performed prior to entering                      MODE 3 from MODE 2 until 4 hours after entry                      into MODE 3.                      -----</p>		
SR 3.3.8.1	Perform COT.	184 days
SR 3.3.8.2	Perform CHANNEL CALIBRATION.	18 months

BASES

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APPLICABLE  
SAFETY ANALYSES,  
LCO, and  
APPLICABILITY

6. Overtemperature  $\Delta T$  (continued)

as close as possible to 588.4° F. The instrument uncertainty calculations and safety analyses, in combination, have accounted for loop variation in loop specific, full power, indicated  $\Delta T$  and  $T_{avg}$ . With respect to  $T_{avg}$ , a value for  $T$  common to all four loops is permissible within the limits identified in the uncertainty calculations. Outside of those limits, the value of  $T$  will be set appropriately to reflect indicated, loop specific, full power values. In the case of decreasing temperature, the compensated temperature difference shall be no more negative than 3 °F to limit the increase in the setpoint during cooldown transients. The engineering scaling calculations use each of the referenced parameters as an exact gain or reference value. Tolerances are not applied to the individual gain or reference parameters. Tolerances are applied to each calibration module and the overall string calibration. In order to ensure that the Overtemperature  $\Delta T$  instrument channel is performing in a manner consistent with the assumptions of the safety analyses, it is necessary to verify during the CHANNEL OPERATIONAL TEST that the magnitude of instrument drift from the as-left condition is within limits, and that the input parameters to the trip function are within the appropriate calibration tolerances for the defined calibration conditions (Ref. 7).

The LCO requires all four channels of the Overtemperature  $\Delta T$  trip Function to be OPERABLE. Note that the Overtemperature  $\Delta T$  Function receives input from channels shared with other RTS Functions. Failures that affect multiple Functions require entry into the Conditions applicable to all affected Functions.

In MODE 1 or 2, the Overtemperature  $\Delta T$  trip must be OPERABLE to prevent DNB. In MODE 3, 4, 5, or 6, this trip Function does not have to be OPERABLE because the reactor is not operating and there is insufficient heat production to be concerned about DNB.

(continued)

BASES

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APPLICABLE  
SAFETY ANALYSES,  
LCO, and  
APPLICABILITY

7. Overpower  $\Delta T$  (continued)

Delta- $T_0$ , as used in the overtemperature and overpower  $\Delta T$  trips, represents the 100% RTP value as measured for each loop. This normalizes each loop's  $\Delta T$  trips to the actual operating conditions existing at the time of measurement, thus forcing the trip to reflect the equivalent full power conditions as assumed in the accident analyses. These differences in RCS loop  $\Delta T$  can be due to several factors, e.g., difference in RCS loop flows and slightly asymmetric power distributions between quadrants. While RCS loop flows are not expected to change with cycle life, radial power redistribution between quadrants may occur, resulting in small changes in loop specific  $\Delta T$  values. Therefore, loop specific  $\Delta T_0$  values are measured as needed to ensure they represent actual core conditions.

The value for  $T^*$  is a key reference parameter corresponding directly to plant safety analyses initial conditions assumptions for the Overpower  $\Delta T$  function. For the purposes of performing a CHANNEL CALIBRATION, the values for  $K_4$ ,  $K_5$ ,  $K_6$ , and  $T^*$  are utilized in the safety analyses without explicit tolerances, but should be considered as nominal values for instrument settings. That is, while an exact setting is not expected, a setting as close as reasonably possible is desired. Note that for  $T^*$ , the value for the hottest RCS loop will be set as close as possible to 588.4° F. The instrument uncertainty calculations and safety analyses, in combination, have accounted for loop variation in loop specific, full power, indicated  $\Delta T$  and  $T_{avg}$ . With respect to  $T_{avg}$ , a value for  $T^*$  common to all four loops is permissible within the limits identified in the uncertainty calculations. Outside of those limits, the value of  $T^*$  will be set appropriately to reflect indicated, loop specific, full power values. The engineering scaling calculations use each of the referenced parameters as an exact gain or reference value. Tolerances are not applied to the individual gain or reference parameters. Tolerances are applied to each calibration module and the overall string calibration. In order to ensure that the Overpower  $\Delta T$  instrument channel is performing in a manner consistent with the assumptions of the safety analyses, it is necessary to verify during the CHANNEL OPERATIONAL TEST that the magnitude of instrument drift from the as-left condition is within limits, and that the input parameters to the trip function are within the appropriate calibration tolerances for defined calibration conditions (Ref. 7). Note that for the parameter  $K_5$ , in the case of

(continued)

**BASES**

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**ACTIONS**

D.1.1, D.1.2, D.2.1, D.2.2, and D.3 (continued)

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 72 hours allowed to place the inoperable channel in the tripped condition is justified in WCAP-14333-P-A (Ref. 8).

In addition to placing the inoperable channel in the tripped condition, THERMAL POWER must be reduced to  $\leq 75\%$  RTP within 78 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.

As an alternative to the above actions, the inoperable channel can be placed in the tripped condition within 72 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  $\leq 75\%$  RTP. The 12 hour Frequency is consistent with LCO 3.2.4, "QUADRANT POWER TILT RATIO (QPTR)."

If the Required Actions described above cannot be met within the specified Completion Times, the unit must be placed in a MODE where this Function is no longer required OPERABLE. An additional 6 hours beyond the Completion Time for Required Action D.1.1 and Required Action D.2.1 are allowed to place the unit in MODE 3. Six hours is a reasonable time, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems. If Required Actions D.2.2 cannot be completed within their allowed Completion Times, LCO 3.0.3 must be entered.

The Required Actions have been modified by a Note that allows placing a channel in the bypass condition for up to 12 hours while performing routine surveillance testing. With one channel inoperable, the Note also allows routine surveillance testing of another channel with a channel in bypass. The Note also allows placing a channel in the bypass condition to allow setpoint adjustments when required to reduce the Power Range Neutron

(continued)

BASES

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ACTIONS

D.1.1, D.1.2, D.2.1, D.2.2, and D.3 (continued)

Flux— High setpoint in accordance with other Technical Specifications. The 12 hour time limit is justified in Reference 8.

Required Action D.2.2 has been modified by a Note which only requires SR 3.2.4.1 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.

E.1 and E.2

Condition E applies to the following reactor trip Functions:

- Power Range Neutron Flux— Low;
- Overtemperature  $\Delta T$ ;
- Overpower  $\Delta T$ ;
- Power Range Neutron Flux — High Positive Rate;
- Pressurizer Pressure — High; and
- SG Water Level — Low Low.

This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition.

(continued)

**BASES**

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**ACTIONS**

E.1 and E.2 (continued)

A known inoperable channel must be placed in the tripped condition within 72 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 72 hours allowed to place the inoperable channel in the tripped condition is justified in Reference 8.

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

The Required Actions have been modified by a Note that allows placing a channel in the bypassed condition for up to 12 hours while performing routine surveillance testing. With one channel inoperable, the Note also allows routine surveillance testing of another channel with a channel in bypass. The 12 hour time limit is justified in Reference 8.

F.1 and F.2

Condition F applies to the Intermediate Range Neutron Flux trip when THERMAL POWER is above the P-6 setpoint and below the P-10 setpoint and one channel is inoperable. Above the P-6 setpoint and below the P-10 setpoint, the NIS intermediate range detector performs the monitoring Functions. If THERMAL POWER is greater than the P-6 setpoint but less than the P-10 setpoint, 24 hours are allowed to reduce THERMAL POWER below the P-6 setpoint or increase to THERMAL POWER above the P-10 setpoint. The NIS Intermediate Range Neutron Flux channels must be OPERABLE when the power level is above the capability of the source range, P-6, and below the capability of the power range, P-10. If THERMAL POWER is greater than the P-10 setpoint, the NIS power range detectors perform the monitoring and protection functions and the intermediate range is not required. The Completion Times allow for a slow and controlled power adjustment above P-10 or below P-6 and take

(continued)

**BASES**

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**ACTIONS**  
(continued)

I.1

Condition I applies to one inoperable Source Range Neutron Flux trip channel when in MODE 2, below the P-6 setpoint, and performing a reactor startup. With the unit in this Condition, below P-6, the NIS source range performs the monitoring and protection functions. With one of the two channels inoperable, operations involving positive reactivity additions shall be suspended immediately.

This will preclude any power escalation. With only one source range channel OPERABLE, core protection is severely reduced and any actions that add positive reactivity to the core must be suspended immediately. However, this does not preclude actions to maintain or place the unit in a safe conservative condition provided the required SDM is maintained.

J.1

Condition J applies to two inoperable Source Range Neutron Flux trip channels when in MODE 2, below the P-6 setpoint, and performing a reactor startup, or in MODE 3, 4, or 5 with the RTBs closed and the CRD System capable of rod withdrawal. With the unit in this Condition, below P-6, the NIS source range performs the monitoring and protection functions. With both source range channels inoperable, the RTBs must be opened immediately. With the RTBs open, the core is in a more stable condition and the unit enters Condition L.

K.1 and K.2

Condition K applies to one inoperable source range channel in MODE 3, 4, or 5 with the RTBs closed and the CRD System capable of rod withdrawal. With the unit in this Condition, below P-6, the NIS source range performs the monitoring and protection functions. With one of the source range channels inoperable, 48 hours is allowed to restore it to an OPERABLE status. If the channel cannot be returned to an OPERABLE status, 1 additional hour is allowed to open the RTBs. Once the RTBs are open, the core is in a more stable condition and the unit enters Condition L. The allowance of 48 hours to restore the channel to OPERABLE status, and the additional hour to open the RTBs, are justified in Reference 9.

(continued)

**BASES**

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**ACTIONS**

M.1 and M.2 (continued)

function). These Functions do not have to be OPERABLE below the P-7 setpoint because for the Pressurizer Water Level — High transients are slow enough for manual action, and for the other functions DNB is not as serious a concern due to the Low Power Level. The 72 hours allowed to place the channel in the tripped condition is justified in Reference 8. 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.

The Required Actions have been modified by two Notes. Note 1 applies only to the RCP undervoltage and underfrequency instrument functions. These functions do not have installed bypass capability. Therefore, the allowance to place these instrument channels in bypass is more limited. Note 1 allows the inoperable undervoltage or underfrequency instrument channel to be bypassed for up to 12 hours for surveillance testing of other channels.

Note 2 allows placing a channel in the bypassed condition for up to 12 hours while performing routine surveillance testing. Note 2 applies to all Condition M instrument functions except RCP undervoltage and underfrequency. With one channel inoperable, Note 2 also allows routine surveillance testing of another channel with a channel in bypass. The 12 hour time limit of both Notes is justified in Reference 8.

N.1 and N.2

Condition N applies to the Reactor Coolant Flow — Low (Single Loop) reactor trip Function. This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from

(continued)

**BASES**

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**ACTIONS**

N.1 and N.2 (continued)

applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition. With one channel inoperable, the inoperable channel must be placed in trip within 72 hours. If the channel cannot be restored to OPERABLE status or the channel placed in trip within the 72 hours, then THERMAL POWER must be reduced below the P-8 setpoint within the next 4 hours. This places the unit in a MODE where the LCO is no longer applicable. This trip Function does not have to be OPERABLE below the P-8 setpoint because other RTS trip Functions provide core protection below the P-8 setpoint. The 72 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 8.

The Required Actions have been modified by a Note that allows placing a channel in the bypassed condition for up to 12 hours while performing routine surveillance testing. With one channel inoperable, the Note allows routine surveillance testing of another channel with a channel in bypass. The 12 hour time limit is justified in Reference 8.

O.1 and O.2

Condition O applies to Turbine Trip on Low Fluid Oil Pressure. This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition. With one channel inoperable, the inoperable channel must be placed in the trip

(continued)

**BASES**

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**ACTIONS**

O.1 and O.2 (continued)

condition within 72 hours. If placed in the tripped condition, this results in a partial trip condition requiring only one additional channel to initiate a reactor trip. If the channel cannot be restored to OPERABLE status or placed in the trip condition, then power must be reduced below the P-9 setpoint within the next 4 hours. The 72 hours allowed to place the inoperable channel in the tripped condition and the 4 hours allowed for reducing power are justified in Reference 8.

The Required Actions have been modified by a Note that allows placing a channel in the bypassed condition for up to 12 hours while performing routine surveillance testing. With one channel inoperable, the Note also allows routine surveillance testing of another channel with a channel in bypass. The 12 hour time limit is justified in Reference 8.

P.1 and P.2

Condition P applies to the Turbine Trip on Stop Valve Closure. This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition. With one or more channels inoperable, the inoperable channels must be placed in the trip condition within 72 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 tripped condition. If a channel cannot be restored to OPERABLE status or placed in the trip condition, then power must be reduced below the P-9 setpoint within the next 4 hours. The 72 hours allowed to place an inoperable channel in the tripped condition and the 4 hours allowed for reducing power are justified in Reference 8.

(continued)

BASES

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ACTIONS  
(continued)

Q.1 and Q.2

Condition Q 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. This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition. With one train inoperable, 24 hours are allowed to restore the train to OPERABLE status or the unit must be placed in MODE 3 within the next 6 hours. The Completion Time of 24 hours 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 is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems.

The Required Actions have been modified by a Note that allows bypassing one train up to 4 hours for surveillance testing, provided the other train is OPERABLE. The 4 hour time limit for testing the RTS Automatic Trip Logic train may include testing the RTB also, if both the Logic test and RTB test are conducted within the 4 hour time limit. The 4 hour time limit is justified in Reference 8.

The 4 hour time limit for the RTS Automatic Trip Logic train testing is greater than the 2 hour time limit for the RTBs, which the Logic train supports. The longer time limit for the Logic train (4 hours) is acceptable based on Reference 10.

R.1 and R.2

Condition R applies to the P-6 interlock. With one or more channels inoperable for one-out-of-two coincidence logic, the associated interlock must be verified to be in its required state for the existing unit condition within 1 hour or the unit must be placed

(continued)

BASES

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ACTIONS

R.1 and R.2 (continued)

in MODE 3 within the next 6 hours. Verifying the interlock status manually accomplishes the interlock's Function. The Completion Time of 1 hour is based on operating experience and the minimum amount of time allowed for manual operator actions. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems. The 1 hour and 6 hour Completion Times are equal to the time allowed by LCO 3.0.3 for shutdown actions in the event of a complete loss of RTS Function.

S.1 and S.2

Condition S applies to the P-7, P-8, P-9, P-10, and P-13 interlocks. With one or more channels inoperable for one-out-of-two or two-out-of-four coincidence logic, the associated interlock must be verified to be in its required state for the existing unit condition within 1 hour or THERMAL POWER must be reduced to less than the affected interlock setpoint within the next 6 hours. These actions are conservative for the case where power level is being raised. Verifying the interlock status manually accomplishes the interlock's Function. The Completion Time of 1 hour is based on operating experience and the minimum amount of time allowed for manual operator actions. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 2 from full power in an orderly manner and without challenging unit systems.

T.1 and T.2

Condition T 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, 24 hours are allowed for train corrective maintenance to restore the train to OPERABLE status or the unit must be placed in MODE 3 within the next 6 hours. The 24 hour Completion Time is justified in Reference 11. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems. Placing the unit in MODE 3 results in Condition C entry while RTBs are inoperable.

(continued)

**BASES**

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**ACTIONS**

T.1 and T.2 (continued)

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 11.

U.1 and U.2

Condition U applies to the RTB Undervoltage and Shunt Trip Mechanisms, or diverse trip features, in MODES 1 and 2. With one of the diverse trip features inoperable, it must be restored to an OPERABLE status within 48 hours or the unit must be placed in a MODE where Condition U is no longer applicable. This is accomplished by placing the unit in MODE 3 within the next 6 hours (54 hours total time). The Completion Time of 6 hours is a reasonable time, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems. With the unit in MODE 3, Condition C applies to this trip function. 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 T.

If two diverse trip features become inoperable in the same RTB, that RTB becomes inoperable upon discovery of the second inoperable trip feature.

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

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**BASES**

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**SURVEILLANCE  
REQUIREMENTS**

SR 3.3.1.3 (continued)

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.

SR 3.3.1.4

SR 3.3.1.4 is the performance of a TADOT every 62 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 independence test for bypass breakers is included in SR 3.3.1.13. 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.

The Frequency of every 62 days on a STAGGERED TEST BASIS is justified in Reference 11.

SR 3.3.1.5

SR 3.3.1.5 is the performance of an ACTUATION LOGIC TEST. The SSPS is tested every 92 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 92 days on a STAGGERED TEST BASIS is justified in Reference 11.

(continued)

BASES

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SURVEILLANCE  
REQUIREMENTS  
(continued)

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 primarily performed to verify the f(AFD) input to the overtemperature  $\Delta T$  function.

Two Notes modify SR 3.3.1.6. Note 1 states that this Surveillance is required only if reactor power is > 75% RTP and that 7 days is allowed for performing the first surveillance after reaching 75% RTP. Note 2 states that neutron detectors are excluded from the calibration.

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

SR 3.3.1.7

SR 3.3.1.7 is the performance of a COT every 184 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.

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

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

This Surveillance Requirement is modified by two Notes that apply only to the Source Range instrument channels. Note 1 requires that the COT include verification that interlocks P-6 and P-10 are in the required state for the existing unit

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**BASES**

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**SURVEILLANCE  
REQUIREMENTS**

**SR 3.3.1.7** (continued)

conditions. Note 2 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 delay for the performance of this SR to meet the applicability requirements in Mode 3. This delay allows time to open the RTBs in Mode 3 after which this SR 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 completed prior to the expiration of the 4 hours.

The Frequency of 184 days is justified in Reference 11.

**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 the frequency is prior to reactor startup. This SR is not required to be met when reactor power is decreased below P-10 (10% RTP) or when MODE 2 is entered from MODE 1 during controlled shutdowns. The Surveillance is modified by a Note that specifies this surveillance can be satisfied by the performance of a COT within 31 days prior to reactor startup. This test ensures that the NIS source range, intermediate range, and power range low setpoint channels are OPERABLE prior to taking the reactor critical.

**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 9.

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.

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(continued)

**BASES**

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**SURVEILLANCE  
REQUIREMENTS**

SR 3.3.1.13 (continued)

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

SR 3.3.1.14

SR 3.3.1.14 is the performance of a TADOT of the turbine stop valve closure Turbine Trip Functions. This TADOT is as described in SR 3.3.1.4, except that this test is performed after each entry into MODE 3 for a unit shutdown and prior to exceeding the P-9 interlock trip setpoint. Note 1 states that this Surveillance is not required if it has been performed within the previous 31 days. Note 2 states that verification of the Trip Setpoint does not have to be performed for this Surveillance. Performance of this test ensures that the reactor trip on turbine trip Function is OPERABLE prior to entering the Mode of Applicability (above the P-9 power range neutron flux interlock) for this instrument function. The frequency is based on the known reliability of the instrumentation that generates a reactor trip after the turbine trips, and has been shown to be acceptable through operating experience.

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 FSAR, Chapter 16 (Ref. 12). 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 or with the time constants set to their nominal value. The results must be compared to properly defined acceptance criteria. The response time may be measured by a series of overlapping tests such that the entire response time is measured.

(continued)

BASES

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SURVEILLANCE  
REQUIREMENTS

SR 3.3.1.15 (continued)

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 allocation 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) using vendor engineering specifications. WCAP-13632-P-A Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," (Ref. 13), 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.

WCAP-14036-P Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," (Ref. 14), 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.

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

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BASES

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REFERENCES  
(continued)

2. FSAR, Chapter 6.
3. FSAR, Chapter 15.
4. IEEE-279-1971.
5. 10 CFR 50.49.
6. WCAP-11269, Westinghouse Setpoint Methodology for Protection Systems; as supplemented by:
  - Amendments 34 (Unit 1) and 14 (Unit 2), RTS Steam Generator Water Level – Low Low, ESFAS Turbine Trip and Feedwater Isolation SG Water Level – High High, and ESFAS AFW SG Water Level – Low Low.
  - Amendments 48 and 49 (Unit 1) and Amendments 27 and 28 (Unit 2), deletion of RTS Power Range Neutron Flux High Negative Rate Trip.
  - Amendments 60 (Unit 1) and 39 (Unit 2), RTS Overtemperature  $\Delta T$  setpoint revision.
  - Amendments 57 (Unit 1) and 36 (Unit 2), RTS Overtemperature and Overpower  $\Delta T$  time constants and Overtemperature  $\Delta T$  setpoint.
  - Amendments 43 and 44 (Unit 1) and 23 and 24 (Unit 2), revised Overtemperature and Overpower  $\Delta T$  trip setpoints and allowable values.
  - Amendments 104 (Unit 1) and 82 (Unit 2), revised RTS Intermediate Range Neutron Flux, Source Range Neutron Flux, and P-6 trip setpoints and allowable values.
  - Amendments 127 (Unit 1) and 105 (Unit 2), revised Overtemperature  $\Delta T$  trip setpoint to limit value of the compensated temperature difference and revised the modifier for axial flux difference.
  - Amendments 128 (Unit 1) and 106 (Unit 2), revised Overtemperature  $\Delta T$  and Overpower  $\Delta T$  trip setpoints to increase the fundamental setpoints  $K_1$  and  $K_4$ , and to modify coefficients and dynamic compensation terms.
7. Westinghouse Letter GP-16696, November 5, 1997.
8. WCAP-14333-P-A, Rev. 1, October 1998.

(continued)

BASES

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REFERENCES  
(continued)

9. WCAP-10271-P-A, Supplement 1, May 1986. |
  10. WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990. |
  11. WCAP-15376, Rev. 0, October 2000. |
  12. FSAR, Chapter 16. |
  13. WCAP-13632-P-A Revision 2, "Elimination of Periodic Sensor Response Time Testing Requirements," January 1996. |
  14. WCAP-14036-P-A Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," October 1998. |
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**BASES**

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**ACTIONS**

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

the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition.

This action addresses the train orientation of the SSPS and the master and slave relays. If one train is inoperable, 24 hours are allowed to restore the train to OPERABLE status. The 24 hours allowed for restoring the inoperable train to OPERABLE status is justified in Reference 7. 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 unit must be placed in a MODE in which the LCO does not apply. This is done by placing the unit in at least MODE 3 within an additional 6 hours (30 hours total time) and in MODE 5 within an additional 30 hours (60 hours total time). The Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

The Required Actions are modified by a Note that allows one train to be bypassed for up to 4 hours for surveillance testing or maintenance, provided the other train is OPERABLE. This allowance is based on the reliability analysis assumption of WCAP-10271-P-A (Ref. 8) that 4 hours is the average time required to perform train surveillance.

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

Condition D applies to:

- Containment Pressure — High 1;
- Pressurizer Pressure — Low;
- Steam Line Pressure — Low;
- Containment Pressure — High 2;

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(continued)

**BASES**

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**ACTIONS**

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

- Steam Line Pressure — Negative Rate — High; and
- SG Water level — Low Low.

This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition.

If one channel is inoperable, 72 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. The 72 hours allowed to restore the channel to OPERABLE status or to place it in the tripped condition is justified in Reference 15.

Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 72 hours requires the unit 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 unit conditions from full power conditions in an orderly manner and without challenging unit systems. In MODE 4, these Functions are no longer required OPERABLE.

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 12 hour time limit is justified in Reference 7.

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

Condition E applies to:

(continued)

**BASES**

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**ACTIONS**

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

The Required Actions are modified by a Note that, with one channel inoperable, allows routine surveillance testing of another channel with a channel in bypass for up to 12 hours. Placing a second channel in the bypass condition for up to 12 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; and
- P-4 Interlock.

For the Manual Initiation and the P-4 Interlock Functions, this action addresses the train orientation of the SSPS. If a channel is inoperable, 48 hours is allowed to return it to OPERABLE status. The specified Completion Time is reasonable considering the nature of this Function, the available redundancy, and the low probability of an event occurring during this interval. If the channel cannot be returned to OPERABLE status, the unit 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 unit conditions from full power in an orderly manner and without challenging unit systems. In MODE 4, the unit does not have any analyzed transients or conditions that require the explicit use of the protection function noted above.

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.

This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of

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(continued)

**BASES**

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**ACTIONS**

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

service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition.

The action addresses the train orientation of the SSPS and the master and slave relays for these functions. If one train is inoperable, 24 hours are allowed to restore the train to OPERABLE status. The 24 hours allowed for restoring the inoperable train to OPERABLE status is justified in Reference 7. 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 unit 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 required unit conditions from full power conditions in an orderly manner and without challenging unit systems. Placing the unit in MODE 4 removes all requirements for OPERABILITY of the protection channels and actuation functions. In this MODE, the unit 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 channel is OPERABLE. This allowance is based on the reliability analysis (Ref. 8) assumption that 4 hours is the average time required to perform channel surveillance.

H.1 and H.2

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

This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in

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(continued)

BASES

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**ACTIONS**

H.1 and H.2 (continued)

the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition.

This action addresses the train orientation of the SSPS and the master and slave relays for this Function. If one train is inoperable, 24 hours are allowed to restore the train to OPERABLE status or the unit must be placed in MODE 3 within the following 6 hours. The 24 hours allowed for restoring the inoperable train to OPERABLE status is justified in Reference 7. 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 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 unit systems. These Functions are no longer required in MODE 3. Placing the unit in MODE 3 removes all requirements for OPERABILITY of the protection channels and actuation functions. In this MODE, the unit 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 or maintenance provided the other train is OPERABLE. This allowance is based on the reliability analysis (Ref. 8) assumption that 4 hours is the average time required to perform channel surveillances.

I.1 and I.2

Condition I applies to:

- SG Water Level — High High (P-14).

This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in

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(continued)

BASES

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ACTIONS

I.1 and I.2 (continued)

the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition.

If one channel is inoperable, 72 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-three logic will result in actuation. The 72 hours allowed to restore one channel to OPERABLE status or to place it in the tripped condition is justified in Reference 7. Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 72 hours requires the unit to be placed in MODE 3 within the following 6 hours. 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 unit systems. In MODE 3, this Function is no longer required OPERABLE.

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 12 hour time limit is justified in Reference 7.

J.1 and J.2

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

This action addresses the train orientation for the auto start function of the AFW System on loss 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 an OPERABLE status. If the function cannot be returned to an OPERABLE status, 6 hours are allowed to place the unit 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 unit systems. In MODE 3, the unit does not have any analyzed

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BASES

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ACTIONS

J.1 and J.2 (continued)

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 8.

K.1, K.2.1, and K.2.2

Condition K applies to:

- RWST Level — Low Low Coincident with Safety Injection.

This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition.

RWST Level — Low Low Coincident With SI provides actuation of switchover to the containment sump. Note that this Function requires the bistables to energize to perform their required action. The failure of up to two channels will not prevent the operation of this Function. However, placing a failed channel in the tripped condition could result in a premature switchover to the sump, prior to the injection of the minimum volume from the RWST. Placing the inoperable channel in bypass results in a two-out-of-three logic configuration, which satisfies the requirement to allow another failure without disabling actuation of the switchover when required. Restoring the channel to OPERABLE status or placing the inoperable channel in the bypass condition within 72 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 72 hour Completion Time is justified in Reference 7. If the channel cannot be returned to OPERABLE status or placed in the bypass condition within 72 hours, the unit must be brought to MODE 3 within the following 6 hours and MODE 5 within the next 30 hours.

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(continued)

**BASES**

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**ACTIONS**

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

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. In MODE 5, the unit does not have any analyzed transients or conditions that require the explicit use of the protection functions noted above.

The Required Actions are modified by a Note that allows placing 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 12 hour time limit is justified in Reference 7.

L.1, L.2.1, and L.2.2

Condition L applies to the P-11 interlock.

With one or more channels 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 unit condition, the unit 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 unit conditions from full power conditions in an orderly manner and without challenging unit systems. Placing the unit in MODE 4 removes all requirements for OPERABILITY of this interlock.

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**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.

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

(continued)

**BASES**

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**SURVEILLANCE  
REQUIREMENTS**

**SR 3.3.2.1** (continued)

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.

**SR 3.3.2.2**

SR 3.3.2.2 is the performance of an ACTUATION LOGIC TEST. The SSPS is tested every 92 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. 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 92 days on a STAGGERED TEST BASIS is justified in Reference 9.

(continued)

**BASES**

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**SURVEILLANCE  
REQUIREMENTS  
(continued)**

**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 92 days on a STAGGERED TEST BASIS. The time allowed for the testing (4 hours) is justified in Reference 8. The frequency of 92 days is justified in Reference 9.

**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.

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

The Frequency of 184 days is justified in Reference 9.

**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

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(continued)

**BASES**

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**SURVEILLANCE  
REQUIREMENTS**

SR 3.3.2.7 (continued)

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

This SR is modified by a Note stating that this test should include verification that the time constants are adjusted to the prescribed values where applicable. The steam line pressure-low and steam line pressure negative rate-high functions have time constants specified in their setpoints.

SR 3.3.2.8

This SR ensures the individual channel ESF RESPONSE TIMES are less than or equal to the maximum values assumed in the accident analysis. Response Time testing acceptance criteria are included in the FSAR, Chapter 16 (Ref. 10). 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 in both trains reaches the required functional state (e.g., pumps at rated discharge pressure, valves in full open or closed position).

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 functions set to one or with the time constants set to their nominal value. The results must be compared to properly defined acceptance criteria. The response time may be measured by a series of overlapping 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:

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(continued)

BASES

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SURVEILLANCE  
REQUIREMENTS

SR 3.3.2.8 (continued)

(1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), (2) inplace, onsite, or offsite (e.g., vendor) test measurements, or (3) using vendor engineering specifications. WCAP-13632-P-A Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements" (Reference 11), 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.

WCAP-14036-P Revision 1, "Elimination of Periodic Protection Channel Response Time Tests" (Reference 12), 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.

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 actuated device in one train is tested with each channel. Therefore, staggered testing results in response time

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(continued)

BASES

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REFERENCES  
(continued)

- Amendments 43 and 44 (Unit 1) and 23 and 24 (Unit 2), revised ESFAS Interlocks Pressurizer P-11 trip setpoint and allowable value.
  - 7. WCAP-14333-P-A, Rev. 1, October 1998.
  - 8. WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990.
  - 9. WCAP-15376, Rev. 0, October 2000.
  - 10. FSAR, Chapter 16.
  - 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. Westinghouse Letter GP-16696, November 5, 1997.
  - 14. WCAP-13878-P-A Revision 2, "Reliability Assessment of Potter & Brumfield MDR Series Relays," April 1996.
  - 15. WCAP-13900 Revision 0, "Extension of Slave Relay Surveillance Test Intervals," April 1994.
  - 16. WCAP-14129 Revision 1, "Reliability Assessment of Westinghouse Type AR Relays Used as SSPS Slave Relays," January 1999.
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**BASES**

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**SURVEILLANCE  
REQUIREMENTS**

SR 3.3.6.1 (continued)

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.

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 92 days on a STAGGERED TEST BASIS. The Surveillance interval is justified in Reference 2.

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 92 days on a STAGGERED TEST BASIS. The Surveillance interval is justified in Reference 2.

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(continued)

BASES

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REFERENCES

1. 10 CFR 100.11.
  2. WCAP-15376, Rev. 0, October 2000.
  3. NUREG-1366.
  4. WCAP-13878-P-A, Rev. 2, August 2000.
  5. WCAP-13900, Rev. 0, April 1994.
  6. WCAP-14129, Rev. 1, January 1999.
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**BASES**

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**ACTIONS**

B.1 and B.2 (continued)

SR 3.9.2.1. This places the unit in a condition that precludes an unplanned dilution event. The Completion Times of 1 hour and once per 12 hours thereafter for verifying SDM provide timely assurance that no unintended dilution occurred while the HFASA was inoperable and that SDM is maintained. The Completion Times of 4 hours and once per 14 days thereafter for verifying that the unborated source is isolated provide timely assurance that an unplanned dilution event cannot occur while the HFASA is inoperable and that this protection is maintained until the HFASA is restored.

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**SURVEILLANCE  
REQUIREMENTS**

The HFASA channels are subject to a COT and a CHANNEL CALIBRATION.

SR 3.3.8.1

SR 3.3.8.1 requires the performance of a COT every 184 days to ensure that each channel of the HFASA and its setpoint are OPERABLE. This test shall include verification that the HFASA setpoint is less than or equal to 2.3 times background. The frequency of 184 days is consistent with the requirements for the source range channels. This Surveillance Requirement is modified by a Note that provides a 4-hour delay in the requirement to perform this surveillance for the HFASA instrumentation upon entering MODE 3 from MODE 2. This Note allows a normal shutdown to proceed without delay for the performance of the surveillance to meet the applicability requirements in MODE 3.

SR 3.3.8.2

SR 3.3.8.2 requires the performance of a CHANNEL CALIBRATION every 18 months. This test verifies that each channel responds to a measured parameter within the necessary range and accuracy. It encompasses the HFASA portion of the instrument loop. The frequency is based on operating experience and consistency with the typical industry refueling cycle.

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**REFERENCES**

1. FSAR, Subsection 15.4.6.
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**Enclosure 5**  
**Application for Withholding Proprietary**  
**Information from Public Disclosure**  
**Vogtle Electric Generating Plant**  
**Request to Revise Technical Specifications RTS and ESFAS Surveillance**  
**Test Intervals and Reactor Trip Breaker Test and Completion Times**



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Our ref: CAW-04-1763

January 6, 2004

**APPLICATION FOR WITHHOLDING PROPRIETARY  
INFORMATION FROM PUBLIC DISCLOSURE**

Subject: WCAP-15376 Implementation Guideline 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-04-1763 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 2.790 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying affidavit by Southern Nuclear Operating Company.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-04-1763, and should be addressed to the undersigned.

Very truly yours,

A handwritten signature in black ink, appearing to read "J. S. Galembush".

J. S. Galembush, Acting Manager  
Regulatory Compliance and Plant Licensing

Enclosures

cc: D. Holland  
B. Benney  
E. Peyton

bcc: J. S. Galembush (ECE 4-7A) 1L  
R. Bastien, 1L, 1A (Nivelles, Belgium)  
C. Brinkman, 1L, 1A (Westinghouse Electric Co., 12300 Twinbrook Parkway, Suite 330, Rockville, MD 20852)  
RCPL Administrative Aide (ECE 4-7A) (letter and affidavit only)

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

SS

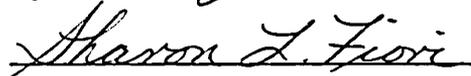
COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared J. S. Galembush, 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:

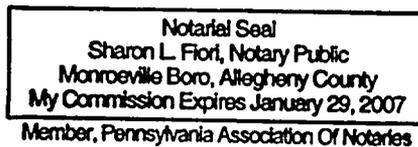


J. S. Galembush, Acting Manager  
Regulatory Compliance and Plant Licensing

Sworn to and subscribed  
before me this 6<sup>th</sup> day  
of January, 2004



Notary Public



- (1) I am Acting 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 2.790 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 2.790 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.
  - (e) 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 2.790, 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 Approach to Address the Conditions and Limitations in the NRC's Safety Evaluation" (Proprietary) on behalf of the Westinghouse Owners Group by Westinghouse, being transmitted by the Westinghouse Owners Group letter and Application for Withholding Proprietary Information from Public Disclosure to the Document Control Desk. The proprietary information as submitted for use by the Westinghouse Owners Group is applicable to 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 2.790 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 2.790(b)(1).

## **COPYRIGHT NOTICE**

The reports transmitted herewith each bear a Westinghouse copyright notice. The NRC is permitted to make the number of copies of the information contained in these reports which are necessary for its internal use in connection with generic and plant-specific reviews and approvals as well as the issuance, denial, amendment, transfer, renewal, modification, suspension, revocation, or violation of a license, permit, order, or regulation subject to the requirements of 10 CFR 2.790 regarding restrictions on public disclosure to the extent such information has been identified as proprietary by Westinghouse, copyright protection notwithstanding. With respect to the non-proprietary versions of these reports, the NRC is permitted to make the number of copies beyond those necessary for its internal use which are necessary in order to have one copy available for public viewing in the appropriate docket files in the public document room in Washington, DC and in local public document rooms as may be required by NRC regulations if the number of copies submitted is insufficient for this purpose. Copies made by the NRC must include the copyright notice in all instances and the proprietary notice if the original was identified as proprietary.