WOLF CREEK
NUCLEAR OPERATING CORPORATION

Britt T. McKinney
Site Vice President

DEC 15 2003

WO 03-0059

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

Subject: Docket No. 50-482: Revision to Technical Specification 3.3.1, "Reactor Trip System Instrumentation," and Technical Specification 3.3.2, "Engineered Safety Feature Actuation System Instrumentation" (Common STARS License Amendment)

Gentlemen:

Wolf Creek Nuclear Generating Corporation (WCNOC) hereby transmits an application for amendment to Facility Operating License No. NPF-42 for the Wolf Creek Generating Station (WCGS) in accordance with the provisions of 10 CFR 50.90. The proposed amendment would revise Technical Specification (TS) 3.3.1, "Reactor Trip System (RTS) Instrumentation," and TS 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation" to adopt Completion Time, test bypass time, and Surveillance Frequency changes approved by NRC in WCAP-14333-P-A, Revision 1, "Probabilistic Risk Analysis of the RPS and ESFAS Test Times and Completion Times," October 1998 and WCAP-15376-P-A, Revision 1, "Risk-Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times," March 2003. As discussed in Attachment I, this amendment application is consistent with the following NRC-approved travelers: Industry/Technical Specification Task Force (TSTF) Standard TS (STS) Change Traveler 411, Revision 1, "Surveillance Test Interval Extensions for Components of the Reactor Protection System (WCAP-15376)"; and Industry/TSTF STS Change Traveler 418, Revision 2, "RPS and ESFAS Test Times and Completion Times (WCAP-14333)."

WCNOC is submitting this license amendment application in conjunction with an industry consortium of six plants as a result of a mutual agreement known as Strategic Teaming and Resource Sharing (STARS). The STARS group consists of the six plants operated by TXU Energy, AmerenUE, Wolf Creek Nuclear Operating Corporation, Pacific Gas and Electric Company, STP Nuclear Operating Company, and Arizona Public Service Company.

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AmerenUE's Callaway Plant is the lead plant for the proposed license amendment and other members of the STARS group can also be expected to submit a license amendment request similar to this one. The other license amendment requests will be submitted on a parallel basis within a short period of time of each other, with plant-specific information presented within brackets (i.e., within [ ]) in Attachment I (other than TS LCO numbers which vary between Standard Technical Specifications of NUREG-0452 and NUREG-1431). All other Attachments are plant-specific in nature.

Attachments I through VI provide the Evaluation, Markup of Technical Specifications, Retyped Technical Specifications, Proposed TS Bases Changes, List of Commitments, and Topical Report Applicability Determination, respectively, in support of this amendment request. Attachment IV contains the TS Bases changes (for information only) to assist the staff in its review of the proposed changes. Revision to the TS Bases will be implemented pursuant to the TS Bases Control Program, TS 5.5.14, *upon implementation of this license amendment.* Attachment V contains a list of commitments based on the Regulatory Guide 1.177 Tier 2 evaluation.

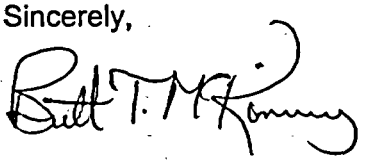
Westinghouse has determined that information contained in Attachment VIA is proprietary, and is thereby supported by an affidavit signed by Westinghouse, the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR 2.790. Accordingly, it is respectfully requested that the information that is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR 2.790. This letter transmits proprietary and non-proprietary copies of Attachment VIA.

Also enclosed are Westinghouse authorization letter CAW-03-1746, its accompanying affidavit, Proprietary Information Notice, and Copyright Notice. Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse affidavit should reference CAW-03-1746 and should be addressed to John Galembush, Acting Manager of Regulatory Compliance and Plant Licensing, Westinghouse Electric Company, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

This amendment application was reviewed by the Plant Safety Review Committee and the Nuclear Safety Review Committee. In accordance with 10 CFR 50.91, a copy of this amendment application, with attachments, is being provided to the designated Kansas State official.

WCNOC requests approval of the proposed amendment request by September 1, 2004. It is anticipated that the license amendment, as approved, will be effective upon issuance and will be implemented within 90 days from the date of issuance. Please contact me at (620) 364-4112 or Mr. Kevin Moles at (620) 364-4126 for any questions you may have regarding this application.

Sincerely,



Britt T. McKinney

BTM/rlg

Attachments:
- I - Evaluation
- II - Markup of Technical Specification pages
- III - Retyped Technical Specification pages
- IV - Proposed TS Bases Changes (for information only)
- V - Summary of Regulatory Commitments
- VIA - Topical Report Applicability Determination (Proprietary)
- VIB - Topical Report Applicability Determination (Non-Proprietary)
- VIC - Topical Report Applicability Determination – Proprietary Affidavit

cc: V. L. Cooper (KDHE), w/a
J. N. Donohew (NRC), w/a
D. N. Graves (NRC), w/a
B. S. Mallett (NRC), w/a
Senior Resident Inspector (NRC), w/a

STATE OF KANSAS)
) SS
COUNTY OF COFFEY)

Britt T. McKinney, of lawful age, being first duly sworn upon oath says that he is Site Vice President of Wolf Creek Nuclear Operating Corporation; that he has read the foregoing document and knows the contents thereof; that he has executed the same for and on behalf of said Corporation with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

By _____
Britt T. McKinney
Site Vice President

SUBSCRIBED and sworn to before me this 15TH day of Dec , 2003.

MARY E. GIFFORD
Notary Public - State of Kansas
My Appt. Expires 12/09/2007

Mary E. Gifford
Notary Public

Expiration Date 12/09/2007 .

EVALUATION

1.0 DESCRIPTION

The proposed amendment would revise Technical Specification (TS) 3.3.1, "Reactor Trip System (RTS) Instrumentation," and TS 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation" [ ] to adopt the Completion Time, test bypass time, and Surveillance Frequency changes approved by NRC in WCAP-14333-P-A, Revision 1, "Probabilistic Risk Analysis of the RPS and ESFAS Test Times and Completion Times," October 1998 (Reference 1) and WCAP-15376-P-A, Revision 1, "Risk-Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times," March 2003 (Reference 2). This amendment application is consistent with the following NRC-approved travelers: Industry/Technical Specification Task Force (TSTF) Standard TS (STS) Change Traveler 411, Revision 1, "Surveillance Test Interval Extensions for Components of the Reactor Protection System (WCAP-15376)"; and Industry/TSTF STS Change Traveler 418, Revision 2, "RPS and ESFAS Test Times and Completion Times (WCAP-14333)," References 3 and 4, respectively. All references cited in this Evaluation are listed in Section 7.0.

2.0 PROPOSED CHANGE

The following categories of changes are proposed for Technical Specifications 3.3.1 and 3.3.2 [ ]:

a) The allowed Completion Time to restore an inoperable RTS or ESFAS analog channel, before it must be placed in the tripped condition [bypassed condition for Containment Pressure High - 3 and RWST Level - Low Low], is increased from 6 hours to 72 hours;

b) The allowed time for an inoperable RTS or ESFAS analog channel to be bypassed [tripped for RWST Level - Low Low] for testing other analog channels is increased from 4 to 12 hours;

c) The allowed Completion Time to restore an inoperable train of Solid State Protection System (SSPS) logic (TS 3.3.1 and TS 3.3.2) or actuation relays (TS 3.3.2), before the plant must be shut down, is increased from 6 hours to 24 hours;

d) The allowed time for one reactor trip breaker (RTB) train to be bypassed for [ ] surveillance testing is increased from 2 hours to 4 hours;

e) The allowed Completion Time to restore an inoperable RTB train, before the plant must be shut down, is increased from 1 hour to 24 hours;

f) The surveillance test interval for the RTB TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT) is increased from 31 days on a STAGGERED TEST BASIS to 62 days on a STAGGERED TEST BASIS;

g) The surveillance test interval for the SSPS ACTUATION LOGIC TEST and MASTER RELAY TEST is increased from 31 days on a STAGGERED TEST BASIS to 92 days on a STAGGERED TEST BASIS; and

h) The CHANNEL OPERATIONAL TEST (COT) surveillance test interval in TS 3.3.1 and TS 3.3.2 [ ] is increased from 92 days to 184 days.

[ ]

Attachment II contains the Technical Specification mark-ups for the above changes. The following changes are included in Attachment II:

1) Modified bypass testing Note and extended Completion Times for TS 3.3.1 Required Actions D.1.1, D.1.2, D.2.1, and D.3

   Power Range Neutron Flux - High {RTS Function 2.a};

2) Modified bypass testing Note and extended Completion Times for TS 3.3.1 Condition D

   Power Range Neutron Flux - Low {RTS Function 2.b}, Power Range Neutron Flux - [High Positive Rate and High Negative Rate {RTS Functions 3.a and 3.b}], Overtemperature ΔT {RTS Function 6}, Overpower ΔT {RTS Function 7}, Pressurizer Pressure - High {RTS Function 8.b}, and Steam Generator Water Level Low-Low [{RTS Function 14}];

3) Modified bypass testing Note and extended Completion Times for TS 3.3.1 Required Actions M.1 and M.2

   Pressurizer Pressure - Low {RTS Function 8.a}, Pressurizer Water Level - High {RTS Function 9}, Reactor Coolant Flow - Low {RTS Function 10}, Undervoltage RCPs {RTS Function 12}, and Underfrequency RCPs {RTS Function 13};

4) Modified bypass testing Note and extended Completion Times for TS 3.3.1 Required Actions O.1 and O.2

   Turbine Trip Low Fluid Oil Pressure {RTS Function 16.a};

5) Extended Completion Times for TS 3.3.1 Required Actions P.1 and P.2

   Turbine Trip Turbine Stop Valve Closure {RTS Function 16.b};

6) Extended Completion Times for TS 3.3.1 Required Actions Q.1 and Q.2

   Safety Injection Input from ESFAS {RTS Function 17} and Automatic Trip Logic {RTS Function 21};

7) Modified bypass testing Note 1, [deleted bypass Note 2], and extended Completion Times for TS 3.3.1 Required Actions R.1 and R.2 {RTS Function 19};

[ ]

8) Extended SR 3.3.1.4, RTB TADOT;

9) Extended SR 3.3.1.5, SSPS ACTUATION LOGIC TEST;

10) Extended SR 3.3.1.7 and SR 3.3.1.8, RTS instrumentation COTs;

11) Extended Completion Times for TS 3.3.2 Required Actions C.2, C.3.1, and C.3.2

Automatic Actuation Logic and Actuation Relays (SSPS) for:

Safety Injection {ESFAS Function 1.b}, Containment Spray {ESFAS Function 2.b}, Containment Isolation - Phase A Isolation {ESFAS Function 3.a.(2)}, Containment Isolation - Phase B Isolation {ESFAS Function 3.b.(2)}, and Automatic Switchover to Containment Sump {ESFAS Function 7.a};

12) Modified bypass testing Note and extended Completion Times for TS 3.3.2 Required Actions D.1, D.2.1, and D.2.2

Safety Injection on Containment Pressure - High 1 {ESFAS Function 1.c}, Pressurizer Pressure - Low {ESFAS Function 1.d}, and Steam Line Pressure - Low {ESFAS Function 1.e}; Steam Line Isolation on Containment Pressure - High 2 {ESFAS Function 4.[c]}, Steam Line Pressure - Low {ESFAS Function 4.[d].(1), and Steam Line Pressure Negative Rate - High {ESFAS Function 4.[d].(2); Steam Generator Water Level Low-Low [ ] for [ ] Auxiliary Feedwater {ESFAS Function [6.d]}, [ ];

13) Modified bypass testing Note and extended Completion Times for TS 3.3.2 Required Actions E.1, E.2.1, and E.2.2

Containment Pressure - High 3 for Containment Spray {ESFAS Function 2.c} and for Containment Isolation - Phase B Isolation {ESFAS Function 3.b.(3)};

14) Extended Completion Times for TS 3.3.2 Required Actions G.1, G.2.1, and G.2.2

Automatic Actuation Logic and Actuation Relays (SSPS) for Steam Line Isolation {ESFAS Function 4.b} [ ] and Auxiliary Feedwater {ESFAS Function 6.b};

[15) Extended Completion Times for TS 3.3.2 Required Actions H.1 and H.2

Automatic Actuation Logic and Actuation Relays for Turbine Trip and Feedwater Isolation {ESFAS Function 5.a}];

[ ]

16) Modified bypass testing Note and extended Completion Times for TS 3.3.2 Required Action I.1 and I.2

Turbine Trip and Feedwater Isolation on SG Water Level - High High {ESFAS Function 5.[b]};

[17) Modified surveillance testing Note and extended Completion Times for TS 3.3.2 Required Actions K.1, K.2.1, and K.2.2]

Automatic Switchover to Containment Sump on Refueling Water Storage Tank Level Low - Low Coincident with Safety Injection {ESFAS Function 7.b};

[ ]

18) Extended SR 3.3.2.2 and SR 3.3.2.4, SSPS ACTUATION LOGIC TEST and MASTER RELAY TEST [ ]; and

19) Extended SR 3.3.2.5, ESFAS instrumentation COTs.

[ ]

The corresponding TS Bases are also revised in Attachment IV to be consistent with the above changes.

3.0 BACKGROUND

Over the past several years the Westinghouse Owners Group (WOG) completed a series of topical reports that document the relaxation of RTS and ESFAS test times, Completion Times (CTs), and surveillance test intervals (STIs) for the protection system instrumentation. The relaxations were justified by an analysis of the protection system reliability and the impact of that reliability on the overall plant risk. The original study was identified by the acronym TOP (taken from Technical Specification Optimization Program) as documented in the WCAP-10271-P-A series of reports. Those changes were implemented at [Wolf Creek Generating Station (WCGS) via OL Amendment 12 for the RTS and OL Amendment 43 for the ESFAS, References 5 and 6, respectively. When reviewing risk metric results, WCGS's current licensing basis is that of a "TOP" plant.]

Fault tree models of the protection system instrumentation were used to calculate the unavailability sensitivity to test and maintenance time allowances and frequencies. The changes in RTS and ESFAS unavailability were then used in a risk model to predict changes in risk as the test and maintenance time allowances and frequencies were relaxed. Differences in analysis methods from the TOPS WCAP-10271-P-A (hereafter referred to as WCAP-10271) series of reports are discussed in Section 7.1 of WCAP-14333-P-A Revision 1 and in Section 8.3.5 of WCAP-15376-P-A Revision 1.

The approach used in WCAP-14333-P-A Revision 1 (hereafter referred to as WCAP-14333) and WCAP-15376-P-A Revision 1 (hereafter referred to as WCAP-15376) is consistent with the approach established in the TOP program. This includes the fault tree models, signals, component reliability database, and most of the test and maintenance assumptions. The

methodology used in the WCAP-10271 studies was applied to a representative set of RTS and ESFAS functions using the Vogtle Plant Probabilistic Risk Assessment (PRA) model and revised unavailability data. The work documented in WCAP-14333 uses a different common cause failure modeling approach for analog channels and includes more realistic assumptions related to the component unavailability due to maintenance activities based on a survey of WOG plants. Operator actions to either manually trip the reactor or initiate safety injection are also modeled in WCAP-14333. In addition, credit for auxiliary feedwater pump start from the ATWS mitigating system actuation circuitry (AMSAC) was taken. More discussion of these differences is contained in Sections 7 and 8 of WCAP-14333. The relaxations that are justified in WCAP-14333 are summarized below:

Summary of WCAP-14333 RTS and ESFAS Completion Time and Bypass Test Time Changes – Solid State Protection System		
Component	**Completion Time**	**Bypass Test Time**
Analog channels	6+6 hours to 72+6 hours	4 hours to 12 hours
Logic cabinet	6+6 hours to 24+6 hours	no relaxation*
Actuation relays	6+6 hours to 24+6 hours	no relaxation*
*no relaxation beyond TOP (WCAP-10271 and its supplements)		

WCAP-14333 was submitted for NRC review with WOG letter OG-95-51 dated June 20, 1995. The NRC issued a Safety Evaluation (SE) on July 15, 1998 approving WCAP-14333. These improvements will allow additional time to perform maintenance and test activities, enhance safety, provide additional operational flexibility, and reduce the potential for forced outages related to compliance with the RTS and ESFAS instrumentation Technical Specifications. Industry information has shown that a significant number of trips that have occurred are related to instrumentation test and maintenance activities, indicating that these activities should be completed with caution and sufficient time should be available to complete these activities in an orderly and effective manner.

Southern Nuclear Operating Company submitted a License Amendment Request on October 13, 1999 for Vogtle Unit 1 and 2 to adopt the relaxations that were generically approved in WCAP-14333. As a result of the NRC review of this application, incremental conditional large early release probability (ICLERP) values were developed generically for all WOG plants. See Reference 8 for the Vogtle amendment correspondence. Amendments 116 and 94 were issued for Vogtle approving the changes proposed in WCAP-14333.

WOG letter OG-00-112, dated November 8, 2000, transmitted WCAP-15376, Revision 0 to the NRC for review and approval. WCAP-15376 expanded upon the groundwork laid by WCAP-14333, but used updated component failure probability data (WCAP-15376 Section 8.2) and made some changes to the fault tree models (WCAP-15376 Section 8.3). Using these modifications, the changes previously approved in WCAP-14333 were quantified as the base case for WCAP-15376. Section 8.4 of WCAP-15376 provides the risk metrics for this change and demonstrates that the acceptance criteria of RG 1.174 and RG 1.177 are satisfied.

WCAP-15376 provides the technical justification for the following RTS Instrumentation (TS 3.3.1) and ESFAS Instrumentation (TS 3.3.2) [ ] Technical Specification changes:

Summary of WCAP-15376 RTS and ESFAS STI and CT Changes - Solid State Protection System		
Component	**Surveillance Test Intervals**	**Completion Times and Bypass Times**
Logic Train	2 months to 6 months	No changes
Master Relays	2 months to 6 months	No changes
Analog Channels	3 months to 6 months	No changes
Reactor Trip Breakers	2 months to 4 months	AOT: 1 hour to 24 hours Bypass Time: 2 hours to 4 hours

The NRC approved WCAP-15376 by letter dated December 20, 2002.

The AMSAC system is included in [Wolf Creek Nuclear Operating Corporation's (WCNOC) Maintenance Rule Program as a non-risk significant system with an assigned reliability performance criterion of no more than one maintenance preventable functional failures per operating cycle. AMSAC is not risk-significant under the WCNOC Maintenance Rule Program based primarily on its low risk achievement worth (1.0) and low risk reduction worth (1.0), which are well below the NUMARC 93-01 risk significance thresholds of 2.0 and 1.005, respectively. In the WCNOC Maintenance Rule Program, structures, systems, and components (SSCs) that are not risk significant, such as AMSAC, are monitored at the plant level and do not have SSC-specific performance criteria such as unavailability hours per cycle. AMSAC is calibrated every 18 months. More discussion on WCGS's AMSAC design may be found in USAR Section 7.7.1.11.]

4.0 TECHNICAL ANALYSIS

A survey was provided to all WOG members to determine their needs with respect to instrumentation test times, maintenance times, and maintenance frequencies, in addition to information regarding plant operation such as reactor trip and spurious safety injection events. From this information the Technical Specification changes that were evaluated were identified. The probabilistic risk analysis, benefits of the program and conclusions, and the relationship of

the Technical Specification changes to the analyses are discussed in WCAP-14333 and WCAP-15376.

In order to model the Completion Times in the fault trees to determine the impact of the changes on signal unavailabilities, several parameters were specified for component test and maintenance unavailabilities. These are the test frequencies and durations discussed in Section 5.1 of WCAP-14333, the maintenance frequencies and durations discussed in Section 5.2 of WCAP-14333, and the test and maintenance activities discussed in Section 7.2 of WCAP-15376.

The changes being considered in this analysis were evaluated consistent with the three-tiered approach currently defined in Regulatory Guide 1.177. The first tier addresses PRA insights and includes the risk analyses and sensitivity analyses to support the Completion Time and bypass test time changes. The second tier addresses avoidance of risk-significant plant configurations. The third tier addresses risk-informed plant configuration control and management.

Tier 1, PRA Capability and Insights

WCAP-14333

WCAP-14333 originally provided only the impact of the requested changes on core damage frequency (ΔCDF) for two-out-of-four (2/4) and two-out-of-three (2/3) actuation logic. In response to an NRC request for additional information (RAI) letter, RAI Questions #11 and #13 in WOG letter OG-96-110 (Reference 7), the WOG provided the impact of the requested changes on incremental conditional core damage probability (ICCDP) for various components in maintenance and the change in large early release frequency (ΔLERF) for 2/4 and 2/3 actuation logic. Also, in response to an NRC RAI during the review of Southern Nuclear's amendment request implementing these changes for Vogtle Units 1 and 2 (Reference 8), incremental conditional large early release probabilities (ICLERPs) for various components in maintenance were provided.

The impact of the proposed changes on CDF and LERF are provided in TSTF-418, Revision 2, Table 1.3 (which presents the same information as that contained in Table 8.4 of WCAP-14333) and Table 1.4 (which presents the same information as that contained in the response to RAI Question #13 in OG-96-110), respectively. The CDF and LERF values are provided for pre-TOP, TOP, and the WCAP-14333 proposed changes. The ΔCDF and ΔLERF values are also provided referenced to pre-TOP and TOP conditions. The results of a sensitivity analysis are also provided that credits a 0.5/year reduction in reactor trip frequency due to fewer analog channel operational tests (trip reduction originally postulated for the WCAP-10271 channel test interval increase from monthly to quarterly). The ΔCDF and ΔLERF values are provided for both 2/4 and 2/3 logic. The ICCDP and ICLERP values are provided on Table 1.5 of TSTF-418, Revision 2 (from RAI Question #11 in OG-96-110 and from Reference 8). The ICCDP and ICLERP values are provided only for 2/3 logic, but the results envelop the 2/4 logic.

WCAP-15376

Risk analysis results for WCAP-15376 are discussed in Section 8.4 of that topical report. Comparisons are presented in Tables 8.29 (ΔCDF) and 8.32 (ΔLERF) to a base case which represents the changes previously approved under WCAP-14333. In response to an NRC request for additional information letter, RAI Questions #4 and #11 in WOG letter OG-02-002

(Reference 9), the WOG provided the impact of the requested Completion Time change (24 hour Completion Time plus 6 hours to reach MODE 3, for a total of 30 hours) on ICCDP and ICLERP for a reactor trip breaker (RTB) in preventive maintenance (PM) or in corrective maintenance (CM), with the associated logic train inoperable, for the bounding 2/3 logic. Since these incremental risk metrics are met for a 30-hour maintenance time, they will also be met for a 4-hour bypass test time.

Combined Risk Metric Results

Risk Metric	Acceptance Criterion	Change from WCAP-10271 to WCAP-14333		Change from WCAP-14333 to WCAP-15376	
ΔCDF per year	< 1E-06	2/4 logic 3.5E-07	2/3 logic 6.1E-07	2/4 logic 8.0E-07	2/3 logic 8.5E-07
ICCDP	< 5E-07	Ranges from 4.4E-07 (logic train in maintenance) to 5.5E-10 (SG level channel in test)		RTB in PM - 3.20E-07 RTB in CM - 3.22E-07	
ΔLERF per year	< 1E-07	2/4 logic 2.0E-08	2/3 logic 2.2E-08	2/4 logic 3.09E-08	2/3 logic 5.68E-08
ICLERP	< 5E-08	Ranges from 3.0E-08 (logic train in maintenance) to 1.1E-11 (SG level channel in test)		RTB in PM - 2.41E-08 RTB in CM - 2.42E-08	

The ICCDP and ICLERP values are situational in nature, depending on the particular component under test or maintenance. The acceptance criteria for these incremental risk metrics are satisfied. The ΔCDF and ΔLERF values are cumulative from the current licensing basis (WCAP-10271) to the proposed state (WCAP-15376). The ΔLERF acceptance criterion is satisfied. From the above table, the ΔCDF acceptance criterion is slightly exceeded. To address this, Section 8.4.4 and Table 8.33 of WCAP-15376 discuss the cumulative ΔCDF from pre-TOP to WCAP-15376 conditions using the sensitivity analysis values from Table 8.4 of WCAP-14333 for 2/4 logic and 2/3 logic combined with the ΔCDF values from Table 8.29 of WCAP-15376 for 2/4 and 2/3 logic. The cumulative ΔCDF for the 2/4 logic in Table 8.33 of WCAP-15376 is 5.7E-07/year meeting the ΔCDF acceptance criterion. The cumulative ΔCDF for the 2/3 logic in Table 8.33 of WCAP-15376 is 1.1E-06/year slightly exceeding the ΔCDF acceptance criterion. However, that ΔCDF of 1.1E-06/year includes the cumulative impact of changing from the pre-TOP to WCAP-15376 conditions. Pre-TOP conditions are given in Table 1.1 of WCAP-15376. [Since WCGS is changing only from the TOP to WCAP-15376 conditions, the ΔCDF acceptance criterion is satisfied since we are currently licensed with quarterly COTs and 6-hour Completion Times, i.e., we are requesting less of a delta than the pre-TOP to WCAP-15376 change.] Another supplemental consideration supporting compliance with the ΔCDF acceptance criterion is the shutdown risk avoided with extended Completion Times discussed in Section 8.4 of WCAP-14333 and Section 8.7 of WCAP-15376.

Tier 2, Avoidance of Risk-Significant Plant Configurations

Tier 2 requires an examination of the need to impose additional restrictions when operating under the proposed Completion Times in order to avoid risk-significant equipment outage configurations. Not surprisingly, the resulting Tier 2 restrictions to be imposed for the two topical reports are very similar.

WCAP-14333

Consistent with the guidance in Regulatory Position C.2.3 in RG 1.177, Westinghouse performed an evaluation of equipment according to its contribution to plant risk while the equipment covered by the proposed Completion Time changes is out of service for maintenance or testing. This evaluation was documented in the response to RAI Question 18 in Westinghouse letter OG-96-110 (Reference 7). Westinghouse performed an importance analysis for 25 top events in the event trees for each of the test or maintenance configurations associated with the proposed TS changes. This analysis determined the system importances for plant configurations with no ongoing test and maintenance activities (all components available) and for plant configurations with ongoing test or maintenance activities individually on the analog channels, logic trains, master relays, and slave relays. With test or maintenance activities in progress, it is assumed that the corresponding component or train will be unavailable. The system importances for these configurations are provided in Table Q18.1 of the response to RAI Question 18. The importances were compared between the cases with individual components unavailable and all components available. For the cases of the analog channels, master relays, and slave relays, the importance rankings among the systems involved did not change. For the case of an SSPS logic train in maintenance, several systems had a relatively significant increase in their importance ranking. Those systems were auxiliary feedwater (AFW), reactor trip, high pressure injection, low pressure injection, and containment cooling.

In addition, as discussed previously, the response to RAI Question 11 in Reference 7 documented ICCDP values for the various test and maintenance configurations that the plant may enter for the subject Completion Time extensions. This information is provided in Table Q11.1 of the response to RAI Question 11. The same conclusion is drawn from the information presented on Table Q 11.1, i.e., the only configuration that significantly impacts core damage frequency is that with a logic train inoperable.

Based on the information provided in RAI response Tables Q11.1 and Q18.1, it is concluded that the only plant configuration with an appreciable impact on CDF or a significant impact on the relative importance of other systems is the configuration with one logic train inoperable. Therefore, the Tier 2 limitations are appropriate only when a logic train is inoperable. There are no Tier 2 limitations when a slave relay, master relay, or analog channel is inoperable.

Consistent with the WCAP-14333 SE requirement to include Tier 2 insights into the decision-making process before taking equipment out of service, restrictions on concurrent removal of certain equipment when a logic train is inoperable for maintenance will be included (note that these restrictions do not apply when a logic train is being tested under the 4-hour bypass Note of TS 3.3.1 Condition Q, TS 3.3.2 Condition C, or TS 3.3.2 Condition G). Entry into these Conditions is not a typical, pre-planned evolution during power operation, other than for surveillance testing. Since these Conditions are typically entered due to equipment failure, it follows that some of the following Tier 2 restrictions may not be met at the time of Condition

entry. If this situation were to occur during the extended 24-hour Completion Time, the Tier 3 Configuration Risk Management Program discussed below will assess the emergent condition and direct activities to restore the inoperable logic train and exit the Condition or fully implement the Tier 2 restrictions or perform a plant shutdown, as appropriate from a risk management perspective. The following restrictions will be put into place (see also Attachment V):

- To preserve ATWS mitigation capability, 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 logic train is inoperable for maintenance.

- To preserve LOCA mitigation capability, one complete ECCS train that can be actuated automatically must be maintained when a logic train is inoperable for maintenance.

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

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

Note that the containment cooling system was shown to have a relatively significant increase in importance ranking in Table Q18.I when a logic train is inoperable. However, in the [WCNOC] PRA, containment cooling has no bearing whatsoever on core damage frequency. As discussed in Enclosure 6 of the October 13, 1999 Vogtle amendment request (Reference 8), increasing the availability of the containment cooling system will not offset or counter the inoperable logic train and no Tier 2 limitations are appropriate for this system.

WCAP-15376

Recommended Tier 2 restrictions for WCAP-15376 are provided in Section 8.5 of that topical report when a RTB train is inoperable for maintenance (note that these restrictions do not apply when a RTB train is being tested under the 4-hour bypass Note for TS 3.3.1 Condition R). Entry into this Condition is not a typical, pre-planned evolution during power operation, other than for surveillance testing. Since this Condition is typically entered due to equipment failure, it follows that some of the following Tier 2 restrictions may not be met at the time of Condition entry. If this situation were to occur during the extended 24-hour Completion Time, the Tier 3 Configuration Risk Management Program discussed below will assess the emergent condition and direct activities to restore the inoperable RTB train and exit the Condition or fully implement the Tier 2 restrictions or perform a plant shutdown, as appropriate from a risk management perspective. The following restrictions will be put in place (see also Attachment V):

- The probability of failing to trip the reactor on demand will increase when a RTB train is removed from service, therefore, systems designed for mitigating an ATWS event should be maintained available. RCS pressure relief (pressurizer PORVs and safeties), 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 train is inoperable for maintenance.

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

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

Tier 3, Risk-Informed Configuration Risk Management

Tier 3 requires a proceduralized process to assess the risk associated with both planned and unplanned work activities. The objective of the third tier is to ensure that the risk impact of out-of-service equipment is evaluated prior to performing any maintenance activity. As stated in Section 23 of Regulatory Guide 1.177, "a viable program would be one that is able to uncover risk-significant plant equipment outage configurations in a timely manner during normal plant operation." The third-tier requirement is an extension of the second-tier requirement, but addresses the limitation of not being able to identify all possible risk-significant plant configurations in the second-tier evaluation. Programs and procedures are in place at [WCGS] which serve to address this objective.

[In particular, the risk impact associated with performance of maintenance and testing activities is evaluated in accordance with the WCGS Operational Risk Assessment Program (administrative procedure AP 22C-003). An Operational Risk Assessment is performed for activities within a weekly schedule. Compensatory measures are addressed for activities deemed to be risk significant. The weekly scheduled activities and associated Operational Risk Assessment are reviewed by the WCGS Probabilistic Safety Assessment Group and approved by the Plant Manager or designee. The Operational Risk Assessment Program also addresses the impact on the Operational Risk Assessment due to added or emergent activities and activities which have slipped from the scheduled completion time.]

SE Conditions

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

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

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

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

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

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

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

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

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

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

<u>WCAP-14333 and WCAP-15376 SE Condition 1, Topical Report Applicability Determination</u>

In order to address SE Condition 1 for both WCAPs, Westinghouse issued implementation guidelines for licensees to confirm the analyses are applicable to their plant. See Attachment VIA.

<u>WCAP-14333 and WCAP-15376 SE Condition 2</u>

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

<u>WCAP-15376 SE Condition 3</u>

The response to NRC RAI Question # 4 in Reference 9 provided the ICCDP for this configuration (both the logic train and associated RTB train out of service) for preventive maintenance for a total time of 30 hours, which is comprised of a Completion Time of 24 hours plus 6 hours to reach Mode 3. The ICCDP for 30 hours of unavailability for this configuration is 3.2E-07, which meets the Regulatory Guide 1.177 acceptance criteria of less than 5E-07. Since this ICCDP

value is based on the logic train and reactor trip breaker being out of service for 30 hours at the same time, bypassing one logic train and associated RTB train for 4 hours for testing will also meet the Regulatory Guide 1.177 ICCDP guideline.

SE Condition 3 is addressed by demonstrating that the WCAP-15376 analysis is applicable. Demonstrating the applicability of the WCAP-15376 analysis is discussed in detail in the response to SE Condition 1 (see Attachment VIA).

WCAP-15376 SE Condition 4

See Attachment VIA.

WCAP-15376 SE Condition 5

This condition does not apply to [WCGS] at this time. Future digital upgrades will require separate evaluation.

WCAP-15376 RAI Question # 18 Commitment

The response to this RAI in Reference 10 noted that plant-specific RTS and ESFAS setpoint uncertainty calculations and assumptions, including instrument drift, will be reviewed to determine the impact of extending the Surveillance Frequency of the COT from 92 days to 184 days.

The drift term used in the WCGS setpoint study was originally based on a 30 day surveillance interval for COTs. From historical experience, instrument drift is expected to remain within the assumptions of the existing setpoint study with the proposed change to a COT Frequency of 184 days. However, this expectation will be validated using future surveillance results subsequent to changing the COT Frequency to a 184 day interval.

Plant-Specific Evaluations for Functions not Evaluated Generically

[Insert 7 of TSTF-411 Revision 1 and Insert 14 of TSTF-418 Revision 2 note that ESFAS Function 7.b, Refueling Water Storage Tank (RWST) Level - Low Low Coincident with Safety Injection (SI), was not included in the generic analyses approved in WCAP-10271 (as supplemented), WCAP-14333, or WCAP-15376.

Several utilities completed plant-specific evaluations to demonstrate that the changes in WCAP-10271 and its supplements are applicable to functions not generically evaluated. The analyses performed in WCAP-14333 and WCAP-15376 covered representative RTS and ESFAS trip functions, a subset of the comprehensive set of trip functions included in WCAP-10271 and its supplements. Therefore, the changes approved in WCAP-14333 and WCAP-15376 are also applicable to those plant-specific functions with NRC-approved evaluations performed to apply the changes in WCAP-10271 and its supplements. As recognized in Section 11.0 of both WCAP-14333 and WCAP-15376, as well as in NRC-approved traveler TSTF-418 Revision 2, additional plant-specific evaluations should not be required.

WCNOC performed a plant-specific evaluation of the RWST level function that was not analyzed generically. NRC approved the plant-specific evaluation in Reference 6, WCGS Amendment 43 dated March 29, 1991 (item 11 on pages 6-7 of the NRC Safety Evaluation). As

such, additional evaluations should not be required. Pertinent excerpts from the original evaluation included in the license amendment request (Reference 11) leading to the NRC issuance of Reference 6 are reprinted below. This information is presented here for completeness only. This evaluation has already been reviewed and approved by NRC for the WCAP-10271 changes and its applicability to the changes presented in WCAP-14333 and WCAP-15376 has been established as discussed above.

> "Increased AOT for surveillance testing and increased STI for the ACOT of analog channels of Functional Unit 7.b (RWST Level Low-Low Coincident With Safety Injection for Automatic Switchover to Containment Sump) was not included in the generic Technical Specification Optimization Program as discussed in WCAP-10271, Supplement 2, Revision 1. Therefore, a separate, qualitative evaluation has been performed for this item. This evaluation demonstrates that the unavailability and risks associated with increased AOT and STIs for this functional unit is equivalent to, or less than, those of other functional units included in WCAP-10271. This evaluation is summarized below.
>
> Actuation of the automatic switchover from the Refueling Water Storage Tank (RWST) to containment sump occurs when the RWST Level Low-Low signal is received coincident with a Safety Injection Signal (SIS). By comparison of circuit design, it can be concluded that the unavailability of the two-of-four logic circuit for the RWST Level Low-Low signal is similar to that of the reactor trip signals developed by either the Overpower Delta-Temperature (OPDT) or Overtemperature Delta-Temperature (OTDT) signal. As demonstrated in WCAP-10271, Supplement 2, Revision 1, the unavailability of the OPDT and OTDT trip signals (and, by comparison, the unavailability of the RWST Level Low-Low signal) is generally an order of magnitude less than the unavailability calculated for the SIS. Since automatic switchover from the RWST to containment sump occurs only on RWST Level Low-Low coincident with an SIS, the unavailability calculated for the SIS dominates the unavailability for this function. Use of the proposed optimized ESFAS technical specifications has been shown not to result in any significant increase in SIS unavailability and to cause no significant increase in risk to the public. Therefore, any increase in unavailability of the automatic switchover from the RWST to containment sump resulting from implementation of the proposed technical specifications is acceptable, since it is clearly dominated by the previously reviewed and approved SIS unavailability."
>
> [ ]

Based on the above, the 72-hour maintenance Completion Time and 12-hour surveillance test allowance from WCAP-14333 are applied to TS 3.3.2 Condition K.]

Deviations from approved TSTF-411 Revision 1 and TSTF-418 Revision 2

[TS 3.3.1 Condition D is restructured to avoid confusion as to when a flux map for QPTR is required. The version of Condition D approved in TSTF-418 Revision 2 could incorrectly lead an operator to believe that he could pursue just the option of Required Actions D.1.1 and D.1.2, potentially overlooking the requirement to do a flux map for QPTR within 12 hours per the Note above SR 3.2.4.2. In addition, Required Actions with shorter Completion Times (12 hours) are supposed to appear before Required Actions with longer Completion Times (72 hours) in the D.2.1 and D.2.2 option. The revised Condition D captures the approved changes (bypass time

of 12 hours, maintenance time before tripping of 72 hours), while eliminating the QPTR and formatting confusions.

WCGS does not have installed bypass test capability for analog channels, with the exception of Containment Pressure High-3. The bypass test Notes for plants with that design are not used in the WCGS TS.

No changes are made regarding the RCP Breaker Position RTS trip function since that function is not used at WCGS.

The changes in TSTF-418 Revision 2 regarding the TS 3.3.1 Condition for RTBs are superseded by the changes in TSTF-411 Revision 1. Option 3 of Insert 6 in TSTF-411 Revision 1 is followed.

The changes to TS 3.3.2 Condition K are based on the plant-specific evaluation discussed above.

The actuation logic and master relays associated with the Containment Purge Isolation Instrumentation (TS 3.3.6) and Control Room Emergency Ventilation System (CREVS) Actuation Instrumentation (TS 3.3.7) are processed through the Solid State Protection System. The STIs for the actuation logic and master relays of the SSPS were relaxed in WCAP-15376. However, during the review and approval of Reference 14, the only SSPS-related entries contained in TS Tables 3.3.6-1 and 3.3.7-1 were for Containment Isolation - Phase A, ESFAS Function 3.a in TS 3.3.2. Therefore, the TSTF-411 Revision 1 changes to STS 3.3.6 and STS 3.3.7 are not required for WCGS's TS.]

5.0 REGULATORY ANALYSIS

This section addresses the standards of 10 CFR 50.92 as well as the applicable regulatory requirements and acceptance criteria.

5.1 NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC)

The proposed amendment would revise Technical Specification (TS) 3.3.1, "Reactor Trip System (RTS) Instrumentation," and TS 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation," [ ] to adopt the Completion Times, test bypass times, and Surveillance Frequency changes approved by NRC in WCAP-14333-P-A, Revision 1, October 1998 and WCAP-15376-P-A, Revision 1, March 2003. This amendment application is consistent with NRC-approved travelers TSTF-411 Revision 1, "Surveillance Test Interval Extensions for Components of the Reactor Protection System (WCAP-15376)," and TSTF-418 Revision 2, "RPS and ESFAS Test Times and Completion Times (WCAP-14333)." The proposed changes do not involve a significant hazards consideration based on the three standards set forth in 10 CFR 50.92(c) as discussed below:

(1) Do the proposed changes involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

Overall protection system performance will remain within the bounds of the previously performed accident analyses since no hardware changes are proposed. The same reactor trip system (RTS) and engineered safety feature actuation system (ESFAS) instrumentation will continue to be used. The protection systems will continue to function in a manner consistent with the plant design basis. These changes to the Technical Specifications do not result in a condition where the design, material, and construction standards that were applicable prior to the change are altered.

The proposed changes will not modify any system interface. The proposed changes will not affect the probability of any event initiators. There will be no degradation in the performance of or an increase in the number of challenges imposed on safety-related equipment assumed to function during an accident situation. There will be no change to normal plant operating parameters or accident mitigation performance. The proposed changes will not alter any assumptions or change any mitigation actions in the radiological consequence evaluations in the USAR.

The determination that the results of the proposed changes are acceptable was established in the NRC Safety Evaluations prepared for WCAP-14333-P-A (issued by letter dated July 15, 1998) and for WCAP-15376-P-A (issued by letter dated December 20, 2002). Implementation of the proposed changes will result in an insignificant risk impact. Applicability of these conclusions has been verified through plant-specific reviews and implementation of the generic analysis results in accordance with the respective NRC Safety Evaluation conditions.

The proposed changes to the Completion Times, test bypass times, and Surveillance Frequencies reduce the potential for inadvertent reactor trips and spurious ESF actuations, and therefore do not increase the probability of any accident previously evaluated. The proposed changes do not change the response of the plant to any accidents and have an insignificant impact on the reliability of the RTS and ESFAS signals. The RTS and ESFAS will remain highly reliable and the proposed changes will not result in a significant increase in the risk of plant operation. This is demonstrated by showing that the impact on plant safety as measured by the increase in core damage frequency (CDF) is less than 1.0E-06 per year and the increase in large early release frequency (LERF) is less than 1.0E-07 per year. In addition, for the Completion Time changes, the incremental conditional core damage probabilities (ICCDP) and incremental conditional large early release probabilities (ICLERP) are less than 5.0E-07 and 5.0E-08, respectively. These changes meet the acceptance criteria in Regulatory Guides 1.174 and 1.177. Therefore, since the RTS and ESFAS will continue to perform their functions with high reliability as originally assumed, and the increase in risk as measured by ΔCDF, ΔLERF, ICCDP, ICLERP risk metrics 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. The proposed changes are consistent with safety analysis assumptions and resultant consequences.

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

(2) Do the proposed changes create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

There are no hardware changes nor are there any changes in the method by which any safety-related plant system performs its safety function. The proposed changes will not affect the normal method of plant operation. No performance requirements will be affected or eliminated. The proposed changes will not result in physical alteration to any plant system nor will there be any change in the method by which any safety-related plant system performs its safety function. There will be no setpoint changes or changes to accident analysis assumptions.

No new accident scenarios, transient precursors, failure mechanisms, or limiting single failures are introduced as a result of these changes. There will be no adverse effect or challenges imposed on any safety-related system as a result of these changes.

Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

(3) Do the proposed changes involve a significant reduction in a margin of safety?

Response: No

The proposed changes do not affect the acceptance criteria for any analyzed event nor is there a change to any Safety Analysis Limit (SAL). There will be no effect on the manner in which safety limits, limiting safety system settings, or limiting conditions for operation are determined nor will there be any effect on those plant systems necessary to assure the accomplishment of protection functions. There will be no impact on the overpower limit, DNBR limits, F_Q, $F\Delta H$, LOCA PCT, peak local power density, or any other margin of safety. The radiological dose consequence acceptance criteria listed in the Standard Review Plan will continue to be met.

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 Times and bypass test times, it is expected that there would be a net benefit due to a reduced potential for spurious reactor trips and actuations associated with testing.

Implementation of the proposed changes is expected to result in an overall improvement in safety, as follows:

a) Reduced testing will result in fewer inadvertent reactor trips, less frequent actuation of ESFAS components, less frequent distraction of operations personnel without significantly affecting RTS and ESFAS reliability.

b) Improvements in the effectiveness of the operating staff in monitoring and controlling plant operation will be realized. This is due to less frequent distraction of the operators and shift supervisor to attend to instrumentation Required Actions with short Completion Times.

c) Longer repair times associated with increased Completion Times will lead to higher quality repairs and improved reliability.

d) The Completion Time extensions for the reactor trip breakers will provide the utilities 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 Completion Times, and provide consistency with the Completion Times for the logic trains.

Therefore, the proposed changes do not involve a significant reduction in the margin of safety.

Conclusion

Based on the above, it is concluded that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c) and, accordingly, a finding of "no significant hazards consideration" is justified.

5.2 APPLICABLE REGULATORY REQUIREMENTS/CRITERIA

The regulatory bases and guidance documents associated with the systems discussed in this amendment application include:

GDC-2 requires that structures, systems, and components important to safety be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without the loss of the capability to perform their safety functions.

GDC-4 requires that structures, systems, and components important to safety be designed to accommodate the effects of, and to be compatible with, the environmental conditions associated with the normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. These structures, systems, and components shall be appropriately protected against dynamic effects, including the effects of missiles, pipe whipping, discharging fluids that may result from equipment failures, and from events and conditions outside the nuclear power unit. However, dynamic effects associated with postulated pipe ruptures in nuclear power units may be excluded from the design basis when analyses reviewed and approved by the Commission demonstrate that the probability of fluid system piping rupture is extremely low under conditions consistent with the design basis for the piping.

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

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

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

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

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

10 CFR 50.55a(h) requires that the protection systems meet IEEE 279-1971. Section 4.2 of IEEE 279-1971 discusses the general functional requirement for protection systems to assure they satisfy the single failure criterion.

There will be no changes to the RTS or ESFAS instrumentation design such that compliance with any of the regulatory requirements and guidance documents above would come into question. The above evaluations confirm that the plant will continue to comply with all applicable regulatory requirements.

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

6.0 ENVIRONMENTAL CONSIDERATION

[WCNOC] has determined that the proposed amendment would change requirements with respect to the installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, [WCNOC] has evaluated the proposed amendment and has determined that the amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amount of effluent that may be released offsite, or (iii) a significant increase in the individual or cumulative occupational radiation exposure. Accordingly, the

proposed amendment meets the eligibility criterion 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 amendment is not required.

7.0 REFERENCES

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

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

3. Industry/TSTF Standard Technical Specification Change Traveler TSTF-411, Revision 1, "Surveillance Test Interval Extensions for Components of the Reactor Protection System (WCAP-15376)."

4. Industry/TSTF Standard Technical Specification Change Traveler TSTF-418, Revision 2, "RPS and ESFAS Test Times and Completion Times (WCAP-14333)."

[ ]

[5. WCGS License Amendment 12, "WCAP-10271-P-A and WCAP-10271 Supplement 1-P-A for the Reactor Trip System," dated November 2, 1987.

6. WCGS License Amendment 43, "WCAP-10271-P-A Supplement 2, Revision 1 for the ESFAS," dated March 29, 1991.]

7. Westinghouse Owners Group letter OG-96-110 dated December 20, 1996 (copy included in the back of the approved version of Reference 1 above).

8. Southern Nuclear Operating Company letters LCV-1364 dated October 13, 1999 and LCV-1364-A dated June 1, 2000, Docket Numbers 50-424 and 50-425.

9. Westinghouse Owners Group letter OG-02-002 dated January 8, 2002 (copy included in Appendix D of the approved version of Reference 2 above).

10. Westinghouse Owners Group letter OG-01-058 dated September 28, 2001 (copy included in Appendix D of the approved version of Reference 2 above).

[11. ET 91-0047, "WCAP-10271-P-A Supplement 2, Revision 1 for the ESFAS," dated March 1, 1991.]

12. WCAP-10271-P-A Supplement 2, Revision 1, "Evaluation of Surveillance Frequencies and Out of Service Times for the Engineered Safety Features Actuation System," June 1990.

13. WCAP-10271-P-A and Supplement 1-P-A, "Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System," May 1986.

14. WCGS License Amendment 123, "Conversion to Improved Technical Specifications for Wolf Creek Generating Station," dated March 31, 1999.

ATTACHMENT II
MARKUP OF TECHNICAL SPECIFICATION PAGES

ACTIONS (continued)

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

INSERT 3.3.1.D

(continued)

INSERT 3.3.1.D

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One Power Range Neutron Flux - High channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 12 hours for surveillance testing and setpoint adjustment of other channels. ----------		
	D.1.1	----------NOTE---------- Only required to be performed when the Power Range Neutron Flux input to QPTR is inoperable with THERMAL POWER > 75% RTP. ----------	
		Perform SR 3.2.4.2.	Once per 12 hours
	AND		
	D.1.2	Place channel in trip.	72 hours
	OR		
	D.2	Be in MODE 3.	78 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. One channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to ~~2~~ 12 hours for surveillance testing of other channels. ----------		
	E.1	Place channel in trip.	~~2~~ 72 hours
	OR		
	E.2	Be in MODE 3.	~~12~~ 78 hours
F. One Intermediate Range Neutron Flux channel inoperable.	F.1	Reduce THERMAL POWER to < P-6.	24 hours
	OR		
	F.2	Increase THERMAL POWER to > P-10.	24 hours
G. Two Intermediate Range Neutron Flux channels inoperable.	G.1	----------NOTE---------- Limited boron concentration changes associated with RCS inventory control or limited plant temperature changes are allowed. ----------	
		Suspend operations involving positive reactivity additions.	Immediately
	AND		
	G.2	Reduce THERMAL POWER to < P-6.	2 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
L. Not Used.		
M. One channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to ~~6~~ 12 hours for surveillance testing of other channels. ---------- M.1 Place channel in trip. OR M.2 Reduce THERMAL POWER to < P-7.	~~6~~ 72 hours ~~6~~ 78 hours
N. Not Used.		
O. One Low Fluid Oil Pressure Turbine Trip channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to ~~6~~ 12 hours for surveillance testing of other channels. ---------- O.1 Place channel in trip. OR O.2 Reduce THERMAL POWER to < P-9.	~~6~~ 72 hours ~~6~~ 76 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
P. One or more Turbine Stop Valve Closure Turbine Trip channel(s) inoperable.	P.1 Place channel(s) in trip. OR P.2 Reduce THERMAL POWER to < P-9.	8 hours 72 12 hours 76
Q. One train inoperable.	----------NOTE---------- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. ---------- Q.1 Restore train to OPERABLE status. OR Q.2 Be in MODE 3.	8 hours 24 12 hours 30

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
R. One RTB train inoperable.	NOTE 1. One train may be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE. 2. One RTB may be bypassed only for the time required for performing maintenance on the undervoltage or shunt trip mechanisms per Condition U, provided the other train is OPERABLE.	
	R.1 Restore train to OPERABLE status.	24 hours
	OR	
	R.2 Be in MODE 3.	30 hours
S. One or more required channel(s) inoperable.	S.1 Verify interlock is in required state for existing unit conditions.	1 hour
	OR	
	S.2 Be in MODE 3.	7 hours

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2	----------NOTES---------- Not required to be performed until 24 hours after THERMAL POWER is ≥ 15% RTP. --- Compare results of calorimetric heat balance calculation to power range channel output. Adjust power range channel output if calorimetric heat balance calculation results exceed power range channel output by more than + 2% RTP.	24 hours
SR 3.3.1.3	----------NOTES---------- Not required to be performed until 24 hours after THERMAL POWER is ≥ 50% RTP. --- Compare results of the incore detector measurements to NIS AFD. Adjust NIS channel if absolute difference is ≥ 3%.	31 effective full power days (EFPD)
SR 3.3.1.4	----------NOTE---------- This Surveillance must be performed on the reactor trip bypass breaker for the local manual shunt trip only prior to placing the bypass breaker in service. --- Perform TADOT.	62 days on a STAGGERED TEST BASIS

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.5	Perform ACTUATION LOGIC TEST.	~~30~~ 92 days on a STAGGERED TEST BASIS
SR 3.3.1.6	----------NOTE---------- Not required to be performed until 72 hours after achieving equilibrium conditions with THERMAL POWER ≥ 75 % RTP. ---------- Calibrate excore channels to agree with incore detector measurements.	92 EFPD
SR 3.3.1.7	----------NOTES---------- 1. Not required to be performed for source range instrumentation prior to entering MODE 3 from MODE 2 until 4 hours after entry into MODE 3. 2. Source range instrumentation shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions. ---------- Perform COT.	~~92~~ 184 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.8	----------NOTE---------- This Surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions. ----------	
	Perform COT.	-------NOTE------- Only required when not performed within previous ⊗ days ---------- 184 Prior to reactor startup AND Twelve hours after reducing power below P-10 for power and intermediate instrumentation AND Four hours after reducing power below P-6 for source range instrumentation AND 184 Every ⊗ days thereafter

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One train inoperable.	----------NOTE---------- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. ----------	
	C.1 ----------NOTE---------- Only required if Function 3.a.(2) is inoperable. ---------- Place and maintain containment purge supply and exhaust valves in closed position.	Immediately
	AND	
	C.2 Restore train to OPERABLE status.	24 hours
	OR	
	C.3.1 Be in MODE 3.	30 hours
	AND	
	C.3.2 Be in MODE 5.	60 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 6 hours for surveillance testing of other channels. ----------	12
	D.1 Place channel in trip.	8 hours 72
	OR	
	D.2.1 Be in MODE 3.	12 hours 78
	AND	
	D.2.2 Be in MODE 4.	18 hours 84
E. One Containment Pressure channel inoperable.	----------NOTE---------- One additional channel may be bypassed for up to 6 hours for surveillance testing. ----------	12
	E.1 Place channel in bypass.	8 hours 72
	OR	
	E.2.1 Be in MODE 3.	12 hours 78
	AND	
	E.2.2 Be in MODE 4.	18 hours 84

(continued)

ACTIONS *(continued)*

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One channel or train inoperable.	F.1 Restore channel or train to OPERABLE status.	48 hours
	OR	
	F.2.1 Be in MODE 3.	54 hours
	AND	
	F.2.2 Be in MODE 4.	60 hours
G. One train inoperable.	----------NOTE---------- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. ----------	
	G.1 Restore train to OPERABLE status	hours 24
	OR	
	G.2.1 Be in MODE 3.	hours 30
	AND	
	G.2.2 Be in MODE 4.	hours 36

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. One train inoperable.	----------NOTE---------- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. ----------	
	H.1 Restore train to OPERABLE status.	~~6~~ 24 hours
	OR	
	H.2 Be in MODE 3.	~~6~~ 30 hours
I. One channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to ~~4~~ 12 hours for surveillance testing of other channels. ----------	
	I.1 Place channel in trip.	~~6~~ 72 hours
	OR	
	I.2 Be in MODE 3.	~~6~~ 78 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
J. One Main Feedwater Pump trip channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 2 hours for surveillance testing of other channels. ----------	
	J.1 Place channel in trip.	1 hour
	OR	
	J.2 Be in MODE 3.	7 hours
K. One channel inoperable.	----------NOTE---------- One additional channel may be tripped for up to ~~2~~ 12 hours for surveillance testing. ----------	
	K.1 Place channel in bypass.	~~6~~ hours 72
	OR	
	K.2.1 Be in MODE 3.	~~12~~ hours 78
	AND	
	K.2.2 Be in MODE 5.	~~42~~ hours 108

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
O. One or more channels inoperable.	O.1 Declare associated auxiliary feedwater pump(s) inoperable.	Immediately
P. One or both train(s) inoperable.	P.1 Restore train(s) to OPERABLE status. OR P.2.1 Be in MODE 3. AND P.2.2 Be in MODE 4.	48 hours 54 hours 60 hours

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
SR 3.3.2.2	Perform ACTUATION LOGIC TEST.	~~31~~ 92 days on a STAGGERED TEST BASIS

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.3	----------NOTE---------- The continuity check may be excluded. ---------- Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS
SR 3.3.2.4	Perform MASTER RELAY TEST.	~~92~~ 92 days on a STAGGERED TEST BASIS
SR 3.3.2.5	Perform COT.	~~92~~ 184 days
SR 3.3.2.6	----------NOTE---------- Not applicable to slave relays K602, K620, K622, K624, K630, K740, and K741. ---------- Perform SLAVE RELAY TEST.	92 days
SR 3.3.2.7	----------NOTE---------- Verification of relay setpoints not required. ---------- Perform TADOT.	18 months

(continued)

ATTACHMENT III
RETYPED TECHNICAL SPECIFICATION PAGES

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One Power Range Neutron Flux - High channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 12 hours for surveillance testing and setpoint adjustment of other channels. ----------	
	D.1.1 ----------NOTE---------- Only required to be performed when the Power Range Neutron Flux input to QPTR is inoperable with THERMAL POWER > 75% RTP. ---------- Perform SR 3.2.4.2.	Once per 12 hours
	AND	
	D.1.2 Place channel in trip.	72 hours
	OR	
	D.2. Be in MODE 3.	78 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. One channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. ----------		
	E.1	Place channel in trip.	72 hours
	OR		
	E.2	Be in MODE 3.	78 hours
F. One Intermediate Range Neutron Flux channel inoperable.	F.1	Reduce THERMAL POWER to < P-6.	24 hours
	OR		
	F.2	Increase THERMAL POWER to > P-10.	24 hours
G. Two Intermediate Range Neutron Flux channels inoperable.	G.1	----------NOTE---------- Limited boron concentration changes associated with RCS inventory control or limited plant temperature changes are allowed. ----------	
		Suspend operations involving positive reactivity additions.	Immediately
	AND		
	G.2	Reduce THERMAL POWER to < P-6.	2 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
L. Not Used.		
M. One channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. ---------- M.1 Place channel in trip. OR M.2 Reduce THERMAL POWER to < P-7.	 72 hours 78 hours
N. Not Used.		
O. One Low Fluid Oil Pressure Turbine Trip channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. ---------- O.1 Place channel in trip. OR O.2 Reduce THERMAL POWER to < P-9.	 72 hours 76 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
P. One or more Turbine Stop Valve Closure Turbine Trip channel(s) inoperable.	P.1 Place channel(s) in trip. OR P.2 Reduce THERMAL POWER to < P-9.	72 hours 76 hours
Q. One train inoperable.	----------NOTE---------- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. ---------- Q.1 Restore train to OPERABLE status. OR Q.2 Be in MODE 3.	 24 hours 30 hours

(continued)

ACTIONS (continued)

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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.2	----------NOTES---------- Not required to be performed until 24 hours after THERMAL POWER is ≥ 15% RTP. ---------- Compare results of calorimetric heat balance calculation to power range channel output. Adjust power range channel output if calorimetric heat balance calculation results exceed power range channel output by more than + 2% RTP.	24 hours
SR 3.3.1.3	----------NOTES---------- Not required to be performed until 24 hours after THERMAL POWER is ≥ 50% RTP. ---------- Compare results of the incore detector measurements to NIS AFD. Adjust NIS channel if absolute difference is ≥ 3%.	31 effective full power days (EFPD)
SR 3.3.1.4	----------NOTE---------- This Surveillance must be performed on the reactor trip bypass breaker for the local manual shunt trip only prior to placing the bypass breaker in service. ---------- Perform TADOT.	62 days on a STAGGERED TEST BASIS

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.5	Perform ACTUATION LOGIC TEST.	92 days on a STAGGERED TEST BASIS
SR 3.3.1.6	----------NOTE---------- Not required to be performed until 72 hours after achieving equilibrium conditions with THERMAL POWER ≥ 75 % RTP. ----------	
	Calibrate excore channels to agree with incore detector measurements.	92 EFPD
SR 3.3.1.7	----------NOTES---------- 1. Not required to be performed for source range instrumentation prior to entering MODE 3 from MODE 2 until 4 hours after entry into MODE 3. 2. Source range instrumentation shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions. ----------	
	Perform COT.	184 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.8	----------NOTE---------- This Surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions. ----------	
	Perform COT.	--------NOTE-------- Only required when not performed within previous 184 days ---------- Prior to reactor startup AND Twelve hours after reducing power below P-10 for power and intermediate instrumentation AND Four hours after reducing power below P-6 for source range instrumentation AND Every 184 days thereafter

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One train inoperable.	----------NOTE---------- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. ----------	
	C.1 ----------NOTE---------- Only required if Function 3.a.(2) is inoperable. ---------- Place and maintain containment purge supply and exhaust valves in closed position.	Immediately
	AND	
	C.2 Restore train to OPERABLE status.	24 hours
	OR	
	C.3.1 Be in MODE 3.	30 hours
	AND	
	C.3.2 Be in MODE 5.	60 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. ----------	
	D.1 Place channel in trip.	72 hours
	OR	
	D.2.1 Be in MODE 3.	78 hours
	AND	
	D.2.2 Be in MODE 4.	84 hours
E. One Containment Pressure channel inoperable.	----------NOTE---------- One additional channel may be bypassed for up to 12 hours for surveillance testing. ----------	
	E.1 Place channel in bypass.	72 hours
	OR	
	E.2.1 Be in MODE 3.	78 hours
	AND	
	E.2.2 Be in MODE 4.	84 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One channel or train inoperable.	F.1 Restore channel or train to OPERABLE status. OR F.2.1 Be in MODE 3. AND F.2.2 Be in MODE 4.	48 hours 54 hours 60 hours
G. One train inoperable.	----------NOTE---------- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. ---------- G.1 Restore train to OPERABLE status OR G.2.1 Be in MODE 3. AND G.2.2 Be in MODE 4.	 24 hours 30 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. One train inoperable.	----------NOTE---------- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. ----------	
	H.1 Restore train to OPERABLE status.	24 hours
	OR	
	H.2 Be in MODE 3.	30 hours
I. One channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. ----------	
	I.1 Place channel in trip.	72 hours
	OR	
	I.2 Be in MODE 3.	78 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
J. One Main Feedwater Pump trip channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 2 hours for surveillance testing of other channels. ----------	
	J.1 Place channel in trip.	1 hour
	OR	
	J.2 Be in MODE 3.	7 hours
K. One channel inoperable.	----------NOTE---------- One additional channel may be tripped for up to 12 hours for surveillance testing. ----------	
	K.1 Place channel in bypass.	72 hours
	OR	
	K.2.1 Be in MODE 3.	78 hours
	AND	
	K.2.2 Be in MODE 5.	108 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
O. One or more channels inoperable.	O.1 Declare associated auxiliary feedwater pump(s) inoperable.	Immediately
P. One or both train(s) inoperable.	P.1 Restore train(s) to OPERABLE status. OR P.2.1 Be in MODE 3. AND P.2.2 Be in MODE 4.	48 hours 54 hours 60 hours

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
SR 3.3.2.2	Perform ACTUATION LOGIC TEST.	92 days on a STAGGERED TEST BASIS

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.3	----------NOTE---------- The continuity check may be excluded. ---------- Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS
SR 3.3.2.4	Perform MASTER RELAY TEST.	92 days on a STAGGERED TEST BASIS
SR 3.3.2.5	Perform COT.	184 days
SR 3.3.2.6	----------NOTE---------- Not applicable to slave relays K602, K620, K622, K624, K630, K740, and K741. ---------- Perform SLAVE RELAY TEST.	92 days
SR 3.3.2.7	----------NOTE---------- Verification of relay setpoints not required. ---------- Perform TADOT.	18 months

(continued)

ATTACHMENT IV
PROPOSED TECHNICAL SPECIFICATION BASES CHANGES
(for information only)

BASES

ACTIONS

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

This action addresses the train orientation of the SSPS for these Functions. With one channel or train inoperable, the inoperable channel or train must be restored to OPERABLE status within 48 hours. If the affected Function(s) cannot be restored to OPERABLE status within the allowed 48 hour Completion Time, the unit must be placed in a MODE in which the requirement does not apply. To achieve this status, action must be initiated within the same 48 hours to fully insert all rods and the Rod Control System must be rendered incapable of rod withdrawal within the next hour (e.g., by de-energizing all CRDMs, by opening the RTBs, or de-energizing the motor generator (MG) sets). The additional hour for the latter provides sufficient time to accomplish the action in an orderly manner. With the rods fully inserted and Rod Control System incapable of rod withdrawal, these Functions are no longer required.

The Completion Time 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 occurring during this interval.

Condition C is modified by a Note stating that while this LCO is not met for Function 19, 20, or 21 in MODE 5, making the Rod Control System capable of rod withdrawal is not permitted. This Note specifies an exception to LCO 3.0.4 for this MODE 5 transition and avoids placing the plant in a condition where control rods can be a withdrawn or not fully inserted while the Reactor Trip System is degraded.

D.1.1, D.1.2, ~~D.2.1, D.2.2 and D.3~~ and D.2

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

INSERT 1

The NIS power range detectors provide input to the Rod 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 ~~6~~ hours allowed to place the inoperable channel in the tripped condition is justified in ~~WCAP-10271-P-A (Ref. 6)~~ Reference 12.

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

INSERT 1

With one of the NIS power range detectors inoperable, 1/4 of the radial power distribution monitoring capability is lost. Therefore, QPTR must be monitored once every 12 hours as per SR 3.2.4.2 (including the SR 3.2.4.2 Note), QPTR verification. Calculating QPTR every 12 hours compensates for the lost monitoring capability due to the inoperable NIS power range channel. The 12 hour Frequency is consistent with LCO 3.2.4, "QUADRANT POWER TILT RATIO (QPTR)."

Required Action D.1.1 has been modified by a Note which only requires SR 3.2.4.2 to be performed if the Power Range Neutron Flux input to QPTR becomes inoperable and the THERMAL POWER is > 75% RTP. 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. At power levels less than or equal to 75% RTP, operation of the core with radial power distributions beyond the design limits, at a power level where DNB conditions may exist, is prevented.

BASES

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

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

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

INSERT 1B

The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypass condition for up to 12 hours while performing routine surveillance testing of other channels. The Note also allows placing the inoperable channel in the bypass condition to allow setpoint adjustments of other channels when required to reduce the setpoint in accordance with other Technical Specifications. The 12 hour time limit is justified in Reference 12.

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

E.1 and E.2

Condition E applies to the following reactor trip Functions:

- Power Range Neutron Flux - Low;
- Overtemperature ΔT;
- Overpower ΔT;

INSERT 1B

The 78-hour Completion Time includes 72 hours for channel corrective maintenance, and an additional 6 hours for the MODE reduction as required by Required Action D.2.

BASES

ACTIONS

E.1 and E.2 (continued)

- Power Range Neutron Flux - High Positive Rate;
- Power Range Neutron Flux - High Negative Rate;
- Pressurizer Pressure - High; and
- SG Water Level - Low Low.

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-three logic for actuation of the two-out-of-four trip logic. The 72 hours allowed to place the inoperable channel in the tripped condition is justified in Reference 12.

If the inoperable 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 the inoperable channel in the bypassed condition for up to 12 hours while performing routine surveillance testing of the other channels. The 12 hour time limit is justified in Reference 12.

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 is allowed to reduce THERMAL POWER below the P-6 setpoint or to increase 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

BASES

ACTIONS

I.1 (continued)

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.

Required Action I.1 is modified by a Note to indicate that normal plant control operations that individually add limited positive reactivity (i.e., temperature or boron concentration fluctuations associated with RCS inventory management or temperature control) are not precluded by this Action, provided the SDM limits of LCOs 3.1.1, 3.1.5, 3.1.6, and 3.4.2 are met.

J.1

Condition J applies to two inoperable Source Range Neutron Flux trip channels when in MODE 2, below the P-6 setpoint, or in MODE 3, 4, or 5 with the Rod Control System capable of rod withdrawal or one or more rods not fully inserted. 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.

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

Condition K applies to one inoperable source range channel in MODE 3, 4, or 5 with the Rod Control System capable of rod withdrawal or one or more rods not fully inserted. 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 action must be initiated within the same 48 hours to fully insert all rods, 1 additional hour is allowed to place the Rod Control System in a condition incapable of rod withdrawal (e.g., by de-energizing all CRDMs, by opening the RTBs, or de-energizing the motor generator (MG) sets). Once the ACTIONS are completed, the core is in a more stable condition and outside the Applicability of the Condition. The allowance of 48 hours to restore the channel to OPERABLE status or fully insert all rods, and the additional hour to place the Rod Control System in a condition incapable of rod withdrawal are ~~justified in Reference 6.~~ INSERT 1A

INSERT 1A

reasonable considering the other source range channel remains OPERABLE to perform the safety function and given the low probability of an event occurring during this interval.

BASES

ACTIONS (continued)

L.1, L.2, and L.3

Not Used.

M.1 and M.2

Condition M applies to the following reactor trip Functions:

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

With one channel inoperable, the inoperable channel must be placed in the tripped condition within 72 hours.

For the Pressurizer Pressure - Low and Pressurizer Water level - High Functions, placing the channel in the tripped condition, with reactor power above the P-7 setpoint, results in a partial trip condition requiring only one additional channel to initiate a reactor trip.

For the Reactor Coolant Flow - Low function, placing the channel in the tripped condition, when above the P-8 setpoint, results in a partial tripped condition requiring only one additional channel in the same loop to initiate a reactor trip.

Two tripped channels in two RCS loops are required to initiate a reactor trip when below the P-8 setpoint and above the P-7 setpoint. These Functions do not have to be OPERABLE below the P-7 setpoint because there are no loss of flow trips below the P-7 setpoint. There is insufficient heat production to generate DNB conditions below the P-7 setpoint.

The 72 hours allowed to place the channel in the tripped condition is justified in Reference 12. 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

BASES

ACTIONS

M.1 and M.2 (continued)

require the protection afforded by the Functions associated with Condition M.

The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 6 hours while performing routine surveillance testing of the other channels. The 6 hour time limit is justified in Reference 12.

N.1 and N.2

Not Used.

O.1 and O.2

Condition O applies to Turbine Trip on Low Fluid Oil Pressure. With one channel inoperable, the inoperable channel must be placed in the trip condition within 72 hours. If placed in the tripped condition, this results in a partial trip condition requiring only one additional channel to initiate a reactor trip. If the channel cannot be restored to OPERABLE status or placed in the trip condition, then power must be reduced below the P-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 12.

The Required Actions have been modified by a Note that allows placing an inoperable channel in the bypassed condition for up to 6 hours while performing routine surveillance testing of the other channels. The 6 hour time limit is justified in Reference 12.

P.1 and P.2

Condition P applies to Turbine Trip on Turbine Stop Valve Closure. With one or more channel(s) inoperable, the inoperable channel(s) must be placed in the trip condition within 72 hours. For the Turbine Trip on Turbine Stop Valve Closure function, four of four channels are required to initiate a reactor trip; hence, more than one channel may be placed in trip. If the channel(s) 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(s) in the tripped condition and the 4 hours allowed for reducing power are justified in Reference 12.

BASES

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. With one train inoperable, 24 hours are allowed to restore the train to OPERABLE status (Required Action Q.1) or the unit must be placed in MODE 3 within the next 6 hours. The Completion Time of 24 hours (Required Action Q.1) is reasonable considering that in this Condition, the remaining OPERABLE train is adequate to perform the safety function and given the low probability of an event during this interval. The Completion Time of 6 hours (Required Action Q.2) is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems.

INSERT 2

INSERT 2A

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.

R.1 and R.2

{24 hours are allowed for train corrective maintenance

INSERT 3

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

shutdown

INSERT 3A

~~The Required~~ Actions have been modified by two Notes. ~~Note 1 allows~~ one train to be ~~bypassed for up to~~ 2 hours for ~~surveillance~~ testing, provided the other train is OPERABLE. ~~Note 2 allows~~ one RTB to be bypassed for the time ~~required~~ for maintenance on ~~undervoltage~~ or shunt trip ~~mechanisms up~~ to the limit of time allowed in the Completion ~~Time~~ of ~~Condition~~ U provided the other train is OPERABLE.

INSERT 4

S.1 and S.2

Condition S applies to the P-6 and P-10 interlocks. With one or more required channel(s) inoperable, the associated interlock must be verified

INSERT 2

The 24 hours allowed to restore the inoperable train to OPERABLE status is justified in Reference 12.

INSERT 2A

Consistent with the requirement in Reference 17 to include Tier 2 insights into the decision-making process before taking equipment out of service, restrictions on concurrent removal of certain equipment when a logic train is inoperable for maintenance are included (note that these restrictions do not apply when a logic train is being tested under the 4-hour bypass Note of Condition Q). Entry into Condition Q is not a typical, pre-planned evolution during power operation, other than for surveillance testing. Since Condition Q is typically entered due to equipment failure, it follows that some of the following restrictions may not be met at the time of Condition Q entry. If this situation were to occur during the 24-hour Completion Time of Required Action Q.1, the Configuration Risk Management Program will assess the emergent condition and direct activities to restore the inoperable logic train and exit Condition Q or fully implement these restrictions or perform a plant shutdown, as appropriate from a risk management perspective. The following restrictions will be observed:

- To preserve ATWS mitigation capability, 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 logic train is inoperable for maintenance.

- To preserve LOCA mitigation capability, one complete ECCS train that can be actuated automatically must be maintained when a logic train is inoperable for maintenance.

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

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

INSERT 3

The 24-hour Completion Time is justified in Reference 13.

INSERT 3A

and the Rod Control System is capable of rod withdrawal or one or more rods are not fully inserted.

INSERT 4

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 13.

Consistent with the requirement in Reference 13 to include Tier 2 insights into the decision-making process before taking equipment out of service, restrictions on concurrent removal of certain equipment when a RTB train is inoperable for maintenance are included (note that these restrictions do not apply when a RTB train is being tested under the 4-hour bypass Note of Condition R). Entry into Condition R is not a typical, pre-planned evolution during power operation, other than for surveillance testing. Since Condition R is typically entered due to equipment failure, it follows that some of the following restrictions may not be met at the time of Condition R entry. If this situation were to occur during the 24-hour Completion Time of Required Action R.1, the Configuration Risk Management Program will assess the emergent condition and direct activities to restore the inoperable RTB train and exit Condition R or fully implement these restrictions or perform a plant shutdown, as appropriate from a risk management perspective. The following restrictions will be observed:

- The probability of failing to trip the reactor on demand will increase when a RTB train is removed from service, therefore, systems designed for mitigating an ATWS event should be maintained available. RCS pressure relief (pressurizer PORVs and safeties), 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 train is inoperable for maintenance.

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

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

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.3 (continued)

reasonable time frame to limit operation above 50% RTP while completing the procedural steps associated with the surveillance in an orderly manner.

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

62

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

The RTB test shall include separate verification of the undervoltage and shunt trip mechanisms. Independent verification of RTB undervoltage and shunt trip Function is not required for the bypass breakers. No capability is provided for performing such a test at power. The independent test for bypass breakers is included in SR 3.3.1.14. The bypass breaker test shall include a local manual 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.

62

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

justified in Reference 13.

SR 3.3.1.5

92

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

92

justified in Reference 13.

BASES

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 performed to verify the f(ΔI) input to the Overtemperature ΔT Function.

A Note modifies SR 3.3.1.6. The Note states that this Surveillance is not required to be performed until 72 hours after achieving equilibrium conditions with THERMAL POWER ≥ 75% RTP. Equilibrium conditions are achieved when the core is sufficiently stable at intended operating conditions to perform flux mapping. The SR is deferred until a scheduled testing plateau above 75% RTP is attained during a power ascension. During a typical power ascension, it is usually necessary to control the axial flux difference at lower power levels through control rod insertion. After equilibrium conditions are achieved at the specified power plateau, a flux map must be taken and the required data collected. The data is typically analyzed and the appropriate excore calibrations completed within 48 hours after achieving equilibrium conditions. An additional time allowance of 24 hours is provided during which the effects of equipment failures may be remedied and any required re-testing may be performed.

The allowance of 72 hours after equilibrium conditions are attained at the testing plateau provides sufficient time to allow power ascensions and associated testing to be conducted in a controlled and orderly manner at conditions that provide acceptable results and without introducing the potential for extended operation at high power levels with instrumentation that has not been verified to be OPERABLE for subsequent use.

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 channel will perform the intended Function.

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

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.7 (continued)

SR 3.3.1.7 is modified by a Note that provides a 4 hour delay in the requirement to perform this Surveillance for source range instrumentation when entering MODE 3 from MODE 2. This Note allows a normal shutdown to proceed without a delay for testing in MODE 2 and for a short time in MODE 3 until the RTBs are open and SR 3.3.1.7 is no longer required to be performed. If the unit is to be in MODE 3 with the RTBs closed for > 4 hours this Surveillance must be performed prior to 4 hours after entry into MODE 3. Note 2 requires that the quarterly COT for the source range instrumentation shall include verification by observation of the associated permissive annunciator window that the P-6 and P-10 interlocks are in their required state for the existing conditions.

The Frequency of ~~92~~ 184 days is justified in Reference ~~8~~ 13.

SR 3.3.1.8

SR 3.3.1.8 is the performance of a COT as described in SR 3.3.1.7, and it is modified by a Note that this test shall include verification that the P-6 and P-10 interlocks are in their required state for the existing unit conditions. The Frequency is modified by a Note that allows this surveillance to be satisfied if it has been performed, e.g., by observation of the associated permissive annunciator window, within ~~92~~ 184 days of the Frequencies prior to reactor startup, 12 hours after reducing power below P-10, and four hours after reducing power below P-6. The Frequency of "prior to startup" ensures this surveillance is performed prior to critical operations and applies to the source, intermediate and power range low instrument channels. The Frequency of "12 hours after reducing power below P-10" (applicable to intermediate and power range low channels) and "4 hours after reducing power below P-6" (applicable to source range channels) allows a normal shutdown to be completed and the unit removed from the MODE of Applicability for this surveillance without a delay to perform the testing required by this surveillance. The Frequency of every ~~92~~ 184 days thereafter applies if the plant remains in the MODE of Applicability after the initial performances of prior to reactor startup, 12 hours after reducing power below P-10, and four hours after reducing power below P-6. The MODE of Applicability for this surveillance is < P-10 for the power range low and intermediate range channels and < P-6 for the source range channels. Once the unit is in MODE 3, this surveillance is no longer required. If power is to be maintained < P-10 for more than 12 hours or < P-6 for more than 4 hours, then the testing required by this surveillance must be performed prior to the expiration of the 12 hour or the 4 hour limit. These time limits are reasonable, based

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.8 (continued)

on operating experience to complete the required testing or place the unit in a MODE where this surveillance is no longer required. This test ensures that the NIS source, intermediate, and power range channels are OPERABLE prior to taking the reactor critical and after reducing power into the applicable MODE (< P-10 or < P-6) for the periods discussed above. The Frequency of 184 days is justified in Reference 13.

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 6.

This 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.

SR 3.3.1.10

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

CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the setpoint methodology.

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

SR 3.3.1.10 is modified by a Note stating that this test shall include verification that the time constants are adjusted to the prescribed values where applicable. This does not include verification of time delay relays. These are verified by response time testing per SR 3.3.1.16. Whenever an RTD is replaced in Functions 6 or 7, the next required CHANNEL CALIBRATION of the RTDs is accomplished by an inplace cross calibration that compares the other sensing elements with the recently installed sensing element.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.16 (continued)

surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

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

REFERENCES

1. USAR, Chapter 7.

2. USAR, Chapter 15.

3. IEEE-279-1971.

4. 10 CFR 50.49.

5. WCNOC Nuclear Safety Analysis Setpoint Methodology for the Reactor Protection System, (TR-89-0001).

~~6. WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990.~~ INSERT 5

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

8. WCAP-9226, "Reactor Core Response to Excessive Secondary Steam Releases," Revision 1, January 1978.

9. IE Information Notice 79-22, "Qualification of Control Systems," September 14, 1979.

10. "Wolf Creek Setpoint Methodology Report," SNP(KG)-492, August 29, 1984.

11. USAR, Table 15.0-4.

INSERT 5A

INSERT 5

6. WCAP-10271-P-A and Supplement 1-P-A, "Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System," May 1986.

INSERT 5A

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

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

BASES

ACTIONS C.1, C.2, C.3.1, and C.3.2 (continued)

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

This action addresses the train orientation of the SSPS and the master and slave relays. This action also addresses the effect on containment purge when Phase A is inoperable. Phase A is the primary signal to ensure closing of the containment purge supply and exhaust valves in MODES 1 - 4. If one Phase A train is inoperable, operation may continued as long as the Required Action to place and maintain containment purge supply and exhaust valves in their closed position is met. Required Action C.1 is modified by a Note that this Action is only required if Containment Phase A Isolation (Function 3.a.(2)) is inoperable.

INSERT 6

If one train is inoperable, ~~6~~ 24 hours are allowed to restore the train to OPERABLE status. The specified Completion Time is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval. If the train cannot be restored to OPERABLE status, the 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 (~~12~~ 30 hours total time) and in MODE 5 within an additional 30 hours (~~60~~ 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, provided the other train is OPERABLE. This allowance is based on the reliability analysis assumption of Ref. 7 that 4 hours is the average time required to perform ~~channel~~ train surveillance.

INSERT 6A

INSERT 6

The 24 hours allowed for restoring the inoperable train to OPERABLE status is justified in Reference 12.

INSERT 6A

Consistent with the requirement in Reference 12 to include Tier 2 insights into the decision-making process before taking equipment out of service, restrictions on concurrent removal of certain equipment when a logic train is inoperable for maintenance are included (note that these restrictions do not apply when a logic train is being tested under the 4-hour bypass Note of Condition C). Entry into Condition C is not a typical, pre-planned evolution during power operation, other than for surveillance testing. Since Condition C is typically entered due to equipment failure, it follows that some of the following restrictions may not be met at the time of Condition C entry. If this situation were to occur during the 24-hour Completion Time of Required Action C.2, the Configuration Risk Management Program will assess the emergent condition and direct activities to restore the inoperable logic train and exit Condition C or fully implement these restrictions or perform a plant shutdown, as appropriate from a risk management perspective. The following restrictions will be observed:

- To preserve ATWS mitigation capability, 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 logic train is inoperable for maintenance.

- To preserve LOCA mitigation capability, one complete ECCS train that can be actuated automatically must be maintained when a logic train is inoperable for maintenance.

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

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

BASES

ACTIONS (continued)

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

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 (excluding Pressurizer Pressure - Low and SG Water Level - Low Low). Therefore, failure of one channel (i.e., with the bistable not tripped) places the Function in a two-out-of-two configuration. The inoperable channel must be tripped to place the Function in a one-out-of- two configuration that satisfies redundancy requirements. INSERT 7

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 the inoperable channel to be bypassed for up to 12 hours for surveillance testing of other channels. The 6 hours allowed to restore the channel to OPERABLE status or to place the inoperable channel in the tripped condition, and the 4 hours allowed for testing, are justified in Reference 12.

The 12

INSERT 7

The 72 hours allowed to restore the channel to OPERABLE status or to place it in the tripped condition is justified in Reference 12.

BASES

ACTIONS (continued)

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

Condition E applies to:

- Containment Spray Containment Pressure - High 3; and
- Containment Phase B Isolation Containment Pressure - High 3.

None of these signals has input to a control function. Thus, two-out-of-three logic is necessary to meet acceptable protective requirements. However, a two-out-of-three design would require tripping a failed channel. This is undesirable because a single failure would then cause spurious containment spray initiation. Spurious spray actuation is undesirable because of the cleanup problems presented. Therefore, these channels are designed with two-out-of-four logic so that a failed channel may be bypassed rather than tripped. Note that one channel may be bypassed and still satisfy the single failure criterion. Furthermore, with one channel bypassed, a single instrumentation channel failure will not spuriously initiate containment spray.

To avoid the inadvertent actuation of containment spray and Phase B containment isolation, the inoperable channel should not be placed in the tripped condition. Instead it is bypassed. Restoring the channel to OPERABLE status, or placing the inoperable channel in the bypass condition within 72 hours, is sufficient to assure that the Function remains OPERABLE and minimizes the time that the Function may be in a partial trip condition (assuming the inoperable channel has failed high). The Completion Time is further justified based on the low probability of an event occurring during this interval. Failure to restore the inoperable channel to OPERABLE status, or place it in the bypassed condition within 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 one additional channel to be bypassed for up to 12 hours for surveillance testing. Placing a second channel in the bypass condition for up to 12 hours for testing purposes is acceptable based on the results of Reference 12.

BASES

ACTIONS (continued)

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

Condition F applies to:

- Manual Initiation of Steam Line (fast close) 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 train or channel is inoperable, 48 hours is allowed to return it to OPERABLE status. The specified Completion Time is reasonable considering the nature of these Functions, the available redundancy, and the low probability of an event occurring during this interval. If the Function cannot be returned to OPERABLE status, the 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 functions noted above.

G.1, G.2.1, and G.2.2

INSERT 6

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

24

The action addresses the train orientation of the SSPS and the master and slave relays for these functions. If one train is inoperable, 6 hours are allowed to restore the train to OPERABLE status. The Completion Time for restoring a train to OPERABLE status is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval. If the train cannot be returned to OPERABLE status, the 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.

INSERT 6

The 24 hours allowed for restoring the inoperable train to OPERABLE status is justified in Reference 12.

BASES

ACTIONS

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

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

INSERT 6B

H.1 and H.2

INSERT 6

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

This action addresses the train orientation of the SSPS and the master and slave relays for this Function. If one train is inoperable, 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 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 provided the other train is OPERABLE. This allowance is based on the reliability analysis (Ref. 7) assumption that 4 hours is the average time required to perform ~~channel~~ train surveillance.

I.1 and I.2

Condition I applies to:

- SG Water Level - High High (P-14);

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

INSERT 6

The 24 hours allowed for restoring the inoperable train to OPERABLE status is justified in Reference 12.

INSERT 6B

Consistent with the requirement in Reference 12 to include Tier 2 insights into the decision-making process before taking equipment out of service, restrictions on concurrent removal of certain equipment when a logic train is inoperable for maintenance are included (note that these restrictions do not apply when a logic train is being tested under the 4-hour bypass Note of Condition G). Entry into Condition G is not a typical, pre-planned evolution during power operation, other than for surveillance testing. Since Condition G is typically entered due to equipment failure, it follows that some of the following restrictions may not be met at the time of Condition G entry. If this situation were to occur during the 24-hour Completion Time of Required Action G.1, the Configuration Risk Management Program will assess the emergent condition and direct activities to restore the inoperable logic train and exit Condition G or fully implement these restrictions or perform a plant shutdown, as appropriate from a risk management perspective. The following restrictions will be observed:

- To preserve ATWS mitigation capability, 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 logic train is inoperable for maintenance.

- To preserve LOCA mitigation capability, one complete ECCS train that can be actuated automatically must be maintained when a logic train is inoperable for maintenance.

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

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

BASES

ACTIONS

I.1 and I.2 (continued)

tripped condition, the Function is then in a partial trip condition where one-out-of-three logic will result in actuation. The 6 hour Completion Time is justified in Reference 8. Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 6 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, these Functions are no longer required OPERABLE.

The Required Actions are modified by a Note that allows the inoperable channel to be bypassed for up to 6 hours for surveillance testing of other channels. The 6 hours allowed to place the inoperable channel in the tripped condition, and the 6 hours allowed for a second channel to be in the bypassed condition for testing, are justified in Reference 8.

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 of the BOP ESFAS 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, 1 hour is allowed to place the channel in the tripped condition. If the channel cannot be tripped in 1 hour, 6 additional 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 transients or conditions that require the explicit use of the protection function noted above. The Required Actions are modified by a Note that allows the inoperable channel to be bypassed for up to 2 hours for surveillance testing of other channels.

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

Condition K applies to the RWST Level - Low Low Coincident with Safety Injection Function.

BASES

ACTIONS

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

RWST Level - Low Low Coincident with SI provides actuation of switchover to the containment recirculation sumps. 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 6 hours is sufficient to ensure that the Function remains OPERABLE, and minimizes the time that the Function may be in a partial trip condition (assuming the inoperable channel has failed high). The 6 hour Completion Time is justified in Reference 8. If the channel cannot be returned to OPERABLE status or placed in the bypass condition within 6 hours the unit must be brought to MODE 3 within the following 6 hours and MODE 5 within the next 30 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required 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 a second channel in the tripped condition for up to 6 hours for surveillance testing. Placing a channel in the tripped condition for up to 6 hours for testing purposes is acceptable based on Reference 11.

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

Condition L applies to the P-11, interlock. With one or more required channel(s) inoperable, the operator must verify that the interlock is in the required state for the existing unit condition by observation of the associated permissive annunciator window. 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

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1 (continued)

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 3.2.2.2

92

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

INSERT 8

SR 3.3.2.3

SR 3.3.2.3 is the performance of an ACTUATION LOGIC TEST using the BOP ESFAS automatic tester. The continuity check does not have to be performed, as explained in the Note. This SR is applied to the balance of plant actuation logic. This test is required every 31 days on a STAGGERED TEST BASIS. The Frequency is adequate based on industry operating experience, considering instrument reliability and operating history data.

SR 3.3.2.4

SR 3.3.2.4 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

INSERT 8

The Frequency of every 92 days on a STAGGERED TEST BASIS is justified in Reference 13.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.4 (continued) 92

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) ~~and the surveillance interval are~~ is justified in Reference 7. INSERT 8

SR 3.3.2.5

SR 3.3.2.5 is the performance of a COT.

A COT is performed on each required channel to ensure the channel will perform the intended Function. Setpoints must be found within the Allowable Values specified in Table 3.3.2-1.

The setpoint shall be left set consistent with the assumptions of the current unit specific setpoint methodology.

The Frequency of 92 (184) days is justified in Reference 13.

SR 3.3.2.6

SR 3.3.2.6 is the performance of a SLAVE RELAY TEST. The SLAVE RELAY TEST is the energizing of the slave relays. Contact operation is verified in one of two ways. Actuation equipment that may be operated in the design mitigation MODE is either allowed to function, or is placed in a condition where the relay contact operation can be verified without operation of the equipment. Actuation equipment that may not be operated in the design mitigation MODE is prevented from operation by the slave relay blocking circuit. For this latter case, contact operation is verified by a continuity check of the circuit containing the slave relay. This test is performed every 92 days. The Frequency is adequate, based on industry operating experience, considering instrument reliability and operating history data. The SR is modified by a Note that excludes slave relays K602, K620, K622, K624, K630, K740, and K741 which are included in testing required by SR 3.3.2.13 and SR 3.3.2.14.

SR 3.3.2.7

SR 3.3.2.7 is the performance of a TADOT every 18 months. This test is a check of the Loss of Offsite Power function. The trip actuating devices tested within the scope of SR 3.3.2.7 are the LSELS output relays and

INSERT 8

The Frequency of every 92 days on a STAGGERED TEST BASIS is justified in Reference 13.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.14

SR 3.3.2.14 is the performance of a SLAVE RELAY TEST as described in SR 3.3.2.6, except that SR 3.3.2.14 has a Note specifying that it applies only to slave relay K620. The SLAVE RELAY TEST of relay K620 does not include the circuitry associated with the main feedwater pump trip solenoids since that circuitry serves no required safety function. This slave relay is tested with a Frequency of 18 months and prior to entering MODE 2 for Function 5.a whenever the unit has been in MODE 5 or 6 for > 24 hours, if not performed within the previous 92 days (Reference 9). The 18 month Frequency for this slave relay is based on the need to perform this Surveillance under the conditions that apply during a unit outage to avoid the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

REFERENCES

1. USAR, Chapter 6.
2. USAR, Chapter 7.
3. USAR, Chapter 15.
4. IEEE-279-1971.
5. 10 CFR 50.49.
6. WCNOC Nuclear Safety Analysis Setpoint Methodology for the Reactor Protection System, TR-89-0001.
7. ~~WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990.~~ INSERT 9
8. WCAP-13632-P-A Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," January 1996.
9. SLNRC 84-0038 dated February 27, 1984.
10. "Wolf Creek Setpoint Methodology Report," SNP (KG)-492, August 29, 1984.
11. Amendment No. 43 to Facility Operating License No. NPF-42, March 29, 1991.

INSERT 9A

INSERT 9

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

INSERT 9A

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

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

SUMMARY OF REGULATORY COMMITMENTS

The following table identifies those actions committed to by WCNOC in this document. Any other statements in this submittal are provided for information purposes and are not considered to be commitments. Please direct questions regarding these commitments to Mr. Kevin Moles at (620) 364-4126.

COMMITMENT	Due Date/Event
The proposed changes to the WCGS Technical Specifications will be implemented within 90 days of NRC approval.	Within 90 days of NRC approval.
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 logic train or RTB train is inoperable for maintenance.	Administrative controls in place within 90 days of NRC approval.
One complete ECCS train that can be actuated automatically must be maintained when a logic train is inoperable for maintenance.	Administrative controls in place within 90 days of NRC approval.
Activities that cause master relays or slave relays in the available train to be unavailable and activities that cause analog channels to be unavailable should not be scheduled when a logic train or RTB train is inoperable for maintenance.	Administrative controls in place within 90 days of NRC approval.
Activities on electrical systems (e.g., AC and DC power) and cooling systems (e.g., essential service water and component cooling water (CCW only for an inoperable logic train)) that support the systems or functions listed above should not be scheduled when a logic train or RTB train is inoperable for maintenance. That is, one complete train of a function that supports a complete train of a function noted above must be available.	Administrative controls in place within 90 days of NRC approval.
The drift term used in the WCGS setpoint study was originally based on a 30 day surveillance interval for COTs. From historical experience, instrument drift is expected to remain within the assumptions of the existing setpoint study with the proposed change to a COT Frequency of 184 days. However, this expectation will be validated using future surveillance results subsequent to changing the COT Frequency to a 184 day interval.	Administrative controls in place within 90 days of NRC approval

ATTACHMENT VIB
TOPICAL REPORT APPLICABILITY DETERMINATION
(NON-PROPRIETARY)

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

In order to address Safety Evaluation (SE) Condition 1 for both WCAPs, Westinghouse issued implementation guidelines for licensees to confirm the analyses are applicable to their plant.

Confirm Applicability

[

]a,c

Containment Failure Assessment

[

]a,c

Safety Evaluation Condition 4 for WCAP-15376-P-A

[

]a,c

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

Parameter	WCAP-14333 Analysis Assumptions	Plant Specific Parameter
Logic Cabinet Type [1]	SSPS or Relay	SSPS
Component Test Intervals [2]		
• Analog channels	3 months	3 months
• Logic cabinets (SSPS)	2 months	2 months
• Logic cabinets (Relay)	1 month	NA
• Master Relays (SSPS)	2 months	2 months
• Master Relays (Relay)	1 month	NA
• Slave Relays	3 months	3 months [11]
• Reactor trip breakers	2 months	2 months
Analog Channel Calibrations [3]		
• Done at-power	Yes	No [12]
• Interval	18 months	18 months
Typical At-Power Maintenance Intervals [4]		
• Analog channels	24 months	> 24 months [13]
• Logic cabinets (SSPS)	18 months	> 18 months [13]
• Logic cabinets (Relay)	12 months	NA
• Master relays (SSPS)	Infrequent [5]	Infrequent
• Master relays (Relay)	Infrequent [5]	NA
• Slave relays	Infrequent [5]	Infrequent
• Reactor trip breakers	12 months	18 months

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

Parameter	WCAP-14333 Analysis Assumptions	Plant Specific Parameter
AMSAC [6]	Credited for AFW pump start	Credited for AFW pump start
Total Transient Event Frequency [7]	3.6/year	1.4/year
ATWS Contribution to CDF (current PRA model) [8]	8.4E-06/year	1.25E-6/year
Total CDF from Internal Events (current PRA model) [9]	5.8E-05/year	5.7E-5/year
Total CDF from Internal Events (IPE) [10]	Not Applicable	6.3E-5/year [14]

Notes for Table 1:

1. Both types of logic cabinets, SSPS and Relay are included in WCAP-14333 and the analysis is applicable to WCGS.
2. Since our test intervals are equal to or greater than those used in WCAP-14333, the analysis is applicable WCGS.
3. Since channel calibrations are not typically done at-power (see Note 12) and the calibration interval is equal to or greater than that used in WCAP-14333, the analysis is applicable to WCGS.
4. Since our maintenance intervals are equal to or greater than those used in WCAP-14333, the analysis is applicable to WCGS.
5. Only corrective maintenance is done on the master and slave relays. The typical maintenance interval is relatively long; that is, experience has shown they do not typically completely fail. Failure of these relays usually involves failure of individual contacts. Since "infrequent" slave relay failures are the norm, then the WCAP-14333-P-A analysis is applicable to WCGS.
6. Since AMSAC will initiate AFW pump start, the WCAP-14333-P-A analysis is applicable to WCGS.
7. This entry includes total frequency for initiators requiring a reactor trip signal to be generated for event mitigation to assess the importance of ATWS events to CDF. Events initiated by a reactor trip are not included.
8. This entry indicates the ATWS contribution to core damage frequency (from at-power, internal events) to determine if the ATWS event is a large contributor to CDF.
9. This entry indicates the total CDF from internal events (including internal flooding) for the most recent PRA model update for comparison to the NRC's risk-informed CDF acceptance guidelines.

Notes for Table 1:

10. This entry indicates the total CDF from internal events from the IPE model (submitted to the NRC in response to Generic Letter 88-20). See Note 14 for differences between the most recent PRA model update and that included in the GL 88-20 response.
11. Except slave relays K602, K620, K622, K624, K630, K740, and K741 which are tested every 18 months per SR 3.3.2.13 and SR 3.3.2.14.
12. Analog channel calibrations are typically performed during refueling outages, but there is no requirement for that and they are sometimes performed at power.
13. Note 4 says WCAP-14333 applies if the maintenance intervals are greater than or equal to those assumed. Per Westinghouse, the note only applies to maintenance at power. Since we typically perform preventive maintenance on the analog channels, logic cabinets, and RTBs while shutdown, WCGS is covered.
14. Note 10 requires reconciliation between the current CDF and that reported to NRC in response to GL 88-20. The 9.5% reduction between the current PRA model CDF and that reported in the IPE (i.e., IPE reported CDF minus current CDF divided by IPE reported CDF) is primarily due to: (1) changes in plant specific transient initiating event frequency values, (2) changes in plant specific component failure rates and system/train test and maintenance unavailability values; (3) incorporation of design and procedure changes made since the time of the IPE into the PRA model; and (4) update of Interfacing Systems LOCA sequence modeling.

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

a,c

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

a,c

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

a,c

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

a,c

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

a,c

Attachment VIC to WO 03-0059

TOPICAL REPORT APPLICABILITY DETERMINATION
PROPRIETARY AFFIDAVIT

Westinghouse

Westinghouse Electric Company
Nuclear Services
P.O. Box 355
Pittsburgh, Pennsylvania 15230-0355
USA

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Direct tel: (412) 374-5036
Direct fax: (412) 374-4011
e-mail: galem1js@westinghouse.com

Our ref: CAW-03-1746

December 3, 2003

APPLICATION FOR WITHHOLDING PROPRIETARY INFORMATION FROM PUBLIC DISCLOSURE

Subject: WCAP-15376 Implementation Guidelines 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-03-1746 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 Wolf Creek Nuclear Operating Corporation.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-03-1746, and should be addressed to the undersigned.

Very truly yours,

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)

CAW-03-1746

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 4th day
of December, 2003

Sharon L. Fiori

Notary Public

SHARON L. FIORI
COMMONWEALTH OF PENNSYLVANIA
NOTARY PUBLIC

Notarial Seal
Sharon L. Fiori, Notary Public
Monroeville Boro, Allegheny County
My Commission Expires January 29, 2007
Member, Pennsylvania Association Of Notaries

(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 Guidelines Approach to Address the Conditions and Limitations in the NRC's Safety Evaluation 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).

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