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Energy to Serve Your WorldSM

LCV-1364-A

June 1, 2000

Docket Nos. 50-424
50-425

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

Ladies and Gentlemen:

**VOGTLE ELECTRIC GENERATING PLANT
REQUEST TO REVISE TECHNICAL SPECIFICATIONS
REACTOR TRIP SYSTEM AND ENGINEERED SAFETY FEATURE ACTUATION
SYSTEM COMPLETION TIMES AND BYPASS TEST TIMES
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

By letter dated October 13, 1999, (LCV-1364) Southern Nuclear Operating Company (SNC) proposed to revise the Vogtle Electric Generating Plant (VEGP) Unit 1 and Unit 2 Technical Specifications (TS) to permit relaxation of allowed bypass test times and Completion Times for Limiting Conditions for Operation (LCOs) 3.3.1 and 3.3.2. In support of the NRC staff review of the proposed amendment, several telephone conversations between the NRC staff and SNC were held, and SNC agreed to provide the following additional information.

The Bases mark-up for LCO 3.3.1, Conditions Q.1 and Q.2 that was provided on October 13, 1999, contained the following statements:

“With one channel inoperable, 24 hours are allowed to restore the train to OPERABLE status or the unit must be placed in MODE 3 within the next 6 hours. The Completion Time of 6 hours is reasonable considering.....”

The proposed change to LCO 3.3.1, Condition Q, Required Action Q.1 was to relax the Completion Time from 6 hours to 24 hours. Therefore, the second sentence above needs to be revised to state, “The Completion Time of 24 hours is reasonable considering.....” A revised marked-up and a clean-typed page reflecting this change is provided with this letter.

In addition, unrelated to the proposed changes, the NRC staff noted an inconsistency in the use of “channel” versus “train” in the existing Bases for LCOs 3.3.1 and 3.3.2. This

A001

inconsistency occurs primarily when the LCO is addressing requirements for trains of components (such as actuation logic, for example) and the Bases refer to channels. SNC has reviewed the Bases for LCOs 3.3.1 and 3.3.2 and made the appropriate changes. These changes are included in the enclosed mark-ups and clean-typed pages.

Note that the clean-typed pages that were provided on October 13, 1999, did not reflect changes due to Amendments 108 and 86, which were issued on September 30, 1999. The enclosed clean-typed pages reflect the changes due to Amendments 108 and 86.

The NRC staff reviewer noted that the AMSAC (ATWS mitigation system actuation circuitry, where ATWS is defined as anticipated transients without scram) is credited in WCAP-14333, which forms the basis for the changes proposed in LCV-1364. In WCAP-14333, the AMSAC is credited for ATWS mitigation and as an additional method for actuating auxiliary feedwater for non-ATWS events. In the WCAP-14333 analysis, the AMSAC is assigned an unavailability of 0.01, which is significantly higher than the unavailability for the reactor protection system and engineered safety feature actuation signals. This information was provided to the NRC staff in more detail in the response to request for additional information (RAI) #12 attached to Westinghouse Owners Group letter OG-96-110, dated December 20, 1996.

Due to the credit assigned to the AMSAC in the WCAP-14333 analysis, the NRC staff reviewer questioned the maintenance practices at VEGP for the AMSAC. At VEGP, the AMSAC is covered by the Maintenance Rule implementation program. The performance criterion assigned to the AMSAC is no more than 130 hours of unavailability per rolling 18 months. This is based on an unavailability of 0.01, and is consistent with the unavailability assigned to the AMSAC in the WCAP-14333 analysis. In addition, the AMSAC at VEGP is subjected to testing/calibration at quarterly and refueling outage intervals, and it is equipped with an automatic self-check of the trip logic once every 12 hours.

The original NRC review and approval of WCAP-14333 did not address the calculation of incremental conditional large early release probability (ICLERP) values for all completion time and bypass test time changes proposed in the WCAP. The WCAP did address the incremental conditional core damage probabilities (ICCDP) and the impact on core damage frequency (CDF) and large early release frequency (LERF). In order to fully address the guidance of Regulatory Guide 1.177, ICLERP values corresponding to the requested changes were calculated. These ICLERP values are generically applicable to all Westinghouse Owners Group (WOG) plants. Their applicability to VEGP is addressed by Enclosure 5 to LCV-1364, dated October 13, 1999.

ICLERP is defined in Regulatory Guide 1.177 as:

$$\text{ICLERP} = [(\text{conditional LERF with the subject equipment out of service}) - (\text{baseline LERF with nominal expected equipment unavailabilities})] \times (\text{duration of single AOT under consideration})$$

The conditional LERF and baseline LERF values are obtained from the conditional and baseline core damage frequency quantification runs used to determine incremental conditional core damage frequencies in response to a previous RAI from the NRC on WCAP-14333. Included in the quantification output for the condition and baseline CDF

quantifications is a Damage State Report that indicates if the containment is isolated, not isolated, or bypassed. The not isolated and bypassed plant states are summed to determine the conditional and baseline large early release frequencies. It is conservatively assumed in this assessment that all not isolated and all bypassed plant states will lead to large early releases.

The ICLERP has been determined for the following cases:

- Analog channel (pressurizer pressure channel) - AOT of 72 + 6 hours
- Analog channel (pressurizer pressure channel) - bypass test time of 12 hours
- Analog channel (steam generator level channel) - AOT of 72 + 6 hours
- Analog channel (steam generator level channel) - bypass test time of 12 hours
- Logic cabinet - AOT of 24 + 6 hours
- Master relay - AOT of 24 + 6 hours
- Slave relay - AOT of 24 + 6 hours

Consistent with the ICCDP calculations, ICLERPs are only calculated for signals with a 2 of 3 logic. These bound the 2 of 4 logic signals.

The following is a summary of the results of the ICLERP calculations.

Case	AOT or Test Time	ICLERP
Analog channel/pressurizer pressure channel in test	12 hrs	3.6E-09
Analog channel/pressurizer pressure channel in maintenance	72 + 6 hrs	2.3E-08
Analog channel/steam generator level channel in test	12 hrs	1.1E-11
Analog channel/steam generator level channel in maintenance	72 + 6 hrs	7.3E-11
Logic cabinet in maintenance	24 + 6 hrs	3.0E-08
Master relay in maintenance	24 + 6 hrs	3.8E-10
Slave relay in maintenance	24 + 6 hrs	2.0E-10

All ICLERP values meet the guideline provided in Regulatory Guide 1.177 that states acceptable ICLERP values are less than 5E-08. These calculations are conservative, since they assumed that all plant states with the containment not isolated or bypassed result in large early releases.

Finally, the NRC staff requested clarification for the evaluations provided with items 1 and 3 associated with the Significant Hazards Consideration Evaluation that accompanied our October 13, 1999, submittal. The following revised Significant Hazards Consideration Evaluation is provided to supplement our October 13, 1999, submittal. Note that item 2 is not revised from our previous submittal and is provided for completeness only.

1. The proposed license amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The reactor trip and engineered safety features functions are not initiators of any design basis accident or event, and therefore the proposed changes do not increase the probability of any accident previously evaluated. The proposed changes to the allowed Completion Times and bypass test times do not change the response of the plant to any accidents and have an insignificant impact on the reliability of the reactor trip system and engineered safety feature actuation system (RTS and ESFAS) signals. The RTS and ESFAS will remain highly reliable and the proposed changes will not result in a significant increase in the risk of plant operation. This is demonstrated by showing that the impact on plant safety as measured by core damage frequency (CDF) is less than $1.0E-06$ per year and the impact on large early release frequency (LERF) is less than $1.0E-07$ per year. In addition, the incremental conditional core damage probabilities (ICCDP) and incremental conditional large early release probabilities (ICLERP) are less than $5.0E-08$. These increases/ values meet the acceptance criteria in Regulatory Guide 1.174 and 1.177. Therefore, since the RTS and ESFAS will continue to perform their functions with high reliability as originally assumed, and the increase in risk as measured by CDF, LERF, ICCDP, ICLERP is within the acceptance criteria of existing regulatory guidance, there will not be a significant increase in the consequences of any accidents.

2. The proposed license amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

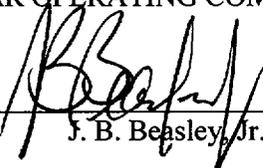
The proposed changes do not result in a change in the manner in which the RTS and ESFAS provide plant protection. The RTS and ESFAS will continue to have the same setpoints after the proposed changes are implemented. There are no design changes associated with the license amendment. The changes to Completion Times or increased bypass test times do not change any existing accident scenarios nor create any new or different accident scenarios. Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. The proposed license amendment does not involve a significant reduction in margin of safety.

The proposed changes do not alter the manner in which safety limits, limiting safety system settings or limiting conditions for operation are determined. Safety analysis acceptance criteria are not impacted. Redundant RTS and ESFAS trains are maintained, and diversity with regard to signals to provide reactor trip and engineered safety features actuation will be maintained. All signals credited as primary or secondary, and all operator action 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 in Regulatory Guide 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. Therefore, the proposed license amendment does not involve a significant reduction in margin of safety.

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

SOUTHERN NUCLEAR OPERATING COMPANY

By: 

J. B. Beasley, Jr.

Sworn to and subscribed before me this 26th day of May, 2000.



Notary Public

NOTARY PUBLIC STATE OF ALABAMA AT LARGE.
MY COMMISSION EXPIRES: Dec. 12, 2001.
BONDED THRU NOTARY PUBLIC UNDERWRITERS.

My commission expires: _____

JBB/NJS

Enclosure: Marked-up and clean-typed TS and Bases pages

xc: Southern Nuclear Operating Company
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State of Georgia
Mr. L. C. Barrett, Commissioner, Department of Natural Resources

BASES

ACTIONS

C.1 and C.2 (continued)

- Manual Reactor Trip;
- RTBs;
- RTB Undervoltage and Shunt Trip Mechanisms; and
- Automatic Trip Logic.

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, the RTBs must be opened within the next hour. The additional hour provides sufficient time to accomplish the action in an orderly manner. With the RTBs open, these Functions are no longer required.

The Completion Time is reasonable ^{channel or} 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.

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

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

INSERT 1 →

The NIS power range detectors provide input to the CRD System and the SG Water Level Control System and, therefore, have a two-out-of-four trip logic. A known inoperable channel must be placed in the tripped condition. This results in a partial trip condition requiring only one-out-of-three logic for actuation. The ~~72~~ ⁷² hours allowed to place the inoperable channel in the tripped condition is justified in WCAP-~~10211~~-P-A (Ref. ~~7~~ ¹⁴³³³).

In addition to placing the inoperable channel in the tripped condition, THERMAL POWER must be reduced to $\leq 75\%$ RTP within ~~12~~ ¹² hours. Reducing the power level prevents operation of

78

(continued)

INSERT 1

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

BASES

ACTIONS

P.1 and P.2 (continued)

the trip condition, then power must be reduced below the P-9 setpoint within the next 4 hours. The 4 hours allowed to place an inoperable channel in the tripped condition and the 4 hours allowed for reducing power are justified in Reference 7.

72
12

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

train 24
INSERT 1
24

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

train
INSERT 2

R.1 and R.2

Condition R applies to the P-6 interlock. With one or more channels inoperable for one-out-of-two coincidence logic, the associated interlock must be verified to be in its required state for the existing unit condition within 1 hour or the unit must be placed in MODE 3 within the next 6 hours. Verifying the interlock status manually accomplishes the interlock's Function. The Completion Time of 1 hour is based on operating experience and the minimum amount of time allowed for manual operator actions. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems. The 1 hour and 6 hour Completion Times are equal to the time allowed by

(continued)

INSERT 1

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

BASES

ACTIONS

R.1 and R.2 (continued)

LCO 3.0.3 for shutdown actions in the event of a complete loss of RTS Function.

S.1 and S.2

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

T.1 and T.2

Condition T applies to the RTBs in MODES 1 and 2. These actions address the ^{train} orientation of the RTS for the RTBs. With one ~~channel~~ 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 removes the requirement for this particular Function.

The Required Actions have been modified by ^{train} two Notes. Note 1 allows one ~~channel~~ to be bypassed for up to 2 hours for surveillance testing, provided the other ~~channel~~ is ^{train} OPERABLE. Note 2 allows one RTB to be bypassed for up to 2 hours for maintenance on undervoltage or shunt trip

INSERT 3

(continued)

INSERT 3

Note 1 applies to RTB testing that is performed independently from the corresponding Logic train testing. For simultaneous testing of the Logic and RTBs, the 4 hour test time limit of Condition Q applies.

BASES

ACTIONS
(continued)

B.1, B.2.1, and B.2.2

Condition B applies to manual initiation of:

- SI;
- Containment Spray; and
- Phase A Isolation.

This action addresses the ~~train~~ ^{handswitches} orientation of the SSPS for the functions listed above. If a channel is inoperable, 48 hours is allowed to return it to an OPERABLE status. Note that for containment spray, failure of one or both ~~channels~~ ^{channel} in one ~~train~~ renders the ~~train~~ ^{channel} inoperable. Condition B, therefore, encompasses both situations.

The specified Completion Time is reasonable considering that there are two automatic actuation trains and another manual initiation ~~train~~ ^{channel} OPERABLE for each Function, and the low probability of an event occurring during this interval. If the channel 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 (54 hours total time) and in MODE 5 within an additional 30 hours (84 hours total time). The allowable Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

C.1, C.2.1, and C.2.2

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

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

INSERT 1 →

(continued)

INSERT 1

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

BASES

ACTIONS

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

INSERT 5

train
This action addresses the *train* orientation of the SSPS and the master and slave relays. If one ~~channel~~ *train* is inoperable, 24 hours are allowed to restore the ~~channel~~ *train* to OPERABLE status. The specified Completion Time is reasonable considering that there is another ~~channel~~ *train* OPERABLE, and the low probability of an event occurring during this interval. If the ~~channel~~ *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 hours total time) and in MODE 5 within an additional 30 hours (42 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.

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

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

Condition D applies to:

- Containment Pressure — High 1;
- Pressurizer Pressure — Low;
- Steam Line Pressure — Low;
- Containment Pressure — High 2;
- Steam Line Pressure — Negative Rate — High; and
- SG Water level — Low Low.

INSERT 1

72
If one channel is inoperable, 72 hours are allowed to restore the channel to OPERABLE status or to place it in the tripped

(continued)

INSERT 5

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

INSERT 1

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

BASES

ACTIONS

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

a channel is inoperable, 48 hours is allowed to return it to OPERABLE status. The specified Completion Time is reasonable considering the nature of this Function, the available redundancy, and the low probability of an event occurring during this interval. If the channel cannot be returned to OPERABLE status, the unit must be placed in MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power in an orderly manner and without challenging unit systems. In MODE 4, the unit does not have any analyzed transients or conditions that require the explicit use of the protection function noted above.

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

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

INSERT 1 →

24

The action addresses the train orientation of the SSPS and the master and slave relays for these functions. If one ~~channel~~ is inoperable, 24 hours are allowed to restore the ~~channel~~ to OPERABLE status. The Completion Time for restoring a ~~channel~~ to OPERABLE status is reasonable considering that there is another ~~channel~~ OPERABLE, and the low probability of an event occurring during this interval. If the ~~channel~~ 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 8

train

~~channel~~ OPERABLE, and the low probability of an event occurring during this interval. If the ~~channel~~ cannot be returned to OPERABLE status, the unit must be brought to MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. Placing the unit in MODE 4 removes all requirements for OPERABILITY of the protection channels and actuation functions. In this MODE, the unit does not have analyzed transients or conditions that require the explicit use of the protection functions noted above.

The Required Actions are modified by a Note that allows one ~~channel~~ to be bypassed for up to 4 hours for surveillance

train

(continued)

INSERT 1

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

INSERT 8

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

BASES

ACTIONS

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

INSERT 5

train

train

24

This action addresses the train orientation of the SSPS and the master and slave relays. If one ~~channel~~ is inoperable, 24 hours are allowed to restore the ~~channel~~ to OPERABLE status. The specified Completion Time is reasonable considering that there is another ~~channel~~ OPERABLE, and the low probability of an event occurring during this interval. If the ~~channel~~ 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 hours total time) and in MODE 5 within an additional 30 hours (42 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.

30

60

train

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

train

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.

INSERT 1

72

If one channel is inoperable, 72 hours are allowed to restore the channel to OPERABLE status or to place it in the tripped

(continued)

INSERT 5

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

INSERT 1

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

BASES

ACTIONS

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

a channel is inoperable, 48 hours is allowed to return it to OPERABLE status. The specified Completion Time is reasonable considering the nature of this Function, the available redundancy, and the low probability of an event occurring during this interval. If the channel cannot be returned to OPERABLE status, the unit must be placed in MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power in an orderly manner and without challenging unit systems. In MODE 4, the unit does not have any analyzed transients or conditions that require the explicit use of the protection function noted above.

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

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

INSERT 1 →

The action addresses the train orientation of the SSPS and the master and slave relays for these functions. If one ~~channel~~²⁴ is inoperable, 8 hours are allowed to restore the ~~channel~~^{train} to OPERABLE status.

INSERT 8

train

The Completion Time for restoring a ~~channel~~^{train} to OPERABLE status is reasonable considering that there is another ~~channel~~^{train} OPERABLE, and the low probability of an event occurring during this interval. If the ~~channel~~^{train} cannot be returned to OPERABLE status, the unit must be brought to MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. Placing the unit in MODE 4 removes all requirements for OPERABILITY of the protection channels and actuation functions. In this MODE, the unit does not have analyzed transients or conditions that require the explicit use of the protection functions noted above.

The Required Actions are modified by a Note that allows one ~~channel~~^{train} to be bypassed for up to 4 hours for surveillance

(continued)

INSERT 1

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

INSERT 8

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. One Power Range Neutron Flux — High channel inoperable.</p>	<p>-----NOTE----- A channel may be bypassed for up to 12 hours for surveillance testing and setpoint adjustment. -----</p>	
	<p>D.1.1 Place channel in trip.</p>	72 hours
	<p><u>AND</u></p>	
	<p>D.1.2 Reduce THERMAL POWER to \leq 75% RTP.</p>	78 hours
	<p><u>OR</u></p>	
	<p>D.2.1 Place channel in trip.</p>	72 hours
	<p><u>AND</u></p>	
	<p>-----NOTE----- Only required to be performed when the Power Range Neutron Flux input to QPTR is inoperable and THERMAL POWER \geq 75% RTP. -----</p>	
	<p>D.2.2 Perform SR 3.2.4.2.</p>	Once per 12 hours
	<p><u>OR</u></p>	
<p>D.3 Be in MODE 3.</p>	78 hours	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One channel inoperable.	-----NOTE----- A channel may be bypassed for up to 12 hours for surveillance testing. -----	
	E.1 Place channel in trip.	72 hours
	<u>OR</u> E.2 Be in MODE 3.	78 hours
F. THERMAL POWER > P-6 and < P-10, one Intermediate Range Neutron Flux channel inoperable.	F.1 Reduce THERMAL POWER to < P-6.	24 hours
	<u>OR</u> F.2 Increase THERMAL POWER to > P-10.	24 hours
G. THERMAL POWER > P-6 and < P-10, two Intermediate Range Neutron Flux channels inoperable.	G.1 Suspend operations involving positive reactivity additions.	Immediately
	<u>AND</u> G.2 Reduce THERMAL POWER to < P-6.	2 hours
H. THERMAL POWER < P-6, one or two Intermediate Range Neutron Flux channels inoperable.	H.1 Restore channel(s) to OPERABLE status.	Prior to increasing THERMAL POWER to > P-6

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>M. One channel inoperable.</p>	<p>-----NOTES-----</p> <p>1. For RCP bus undervoltage or underfrequency instrument functions; the inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels.</p> <p>2. For other instrument functions; a channel may be bypassed for up to 12 hours for surveillance testing.</p> <p>-----</p> <p>M.1 Place channel in trip.</p> <p><u>OR</u></p> <p>M.2 Reduce THERMAL POWER to < P-7.</p>	<p>72 hours</p> <p>78 hours</p>
<p>N. One Reactor Coolant Flow-Low (single loop) channel inoperable.</p>	<p>-----NOTE-----</p> <p>A channel may be bypassed for up to 12 hours for surveillance testing.</p> <p>-----</p> <p>N.1 Place channel in trip.</p> <p><u>OR</u></p> <p>N.2 Reduce THERMAL POWER to < P-8.</p>	<p>72 hours</p> <p>76 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>O. One Low Fluid oil pressure Turbine Trip channel inoperable.</p>	<p>-----NOTE----- A channel may be bypassed for up to 12 hours for surveillance testing. -----</p> <p>O.1 Place channel in trip.</p> <p><u>OR</u></p> <p>O.2 Reduce THERMAL POWER to < P-9.</p>	<p>72 hours</p> <p>76 hours</p>
<p>P. One or more Turbine stop valve Closure Turbine Trip channels inoperable.</p>	<p>P.1 Place channel(s) in trip.</p> <p><u>OR</u></p> <p>P.2 Reduce THERMAL POWER to < P-9.</p>	<p>72 hours</p> <p>76 hours</p>
<p>Q. One train inoperable.</p>	<p>-----NOTE----- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. -----</p> <p>Q.1 Restore train to OPERABLE status.</p> <p><u>OR</u></p> <p>Q.2 Be in MODE 3.</p>	<p>24 hours</p> <p>30 hours</p>

(continued)

ACTIONS (continued)

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>U. One trip mechanism inoperable for one RTB.</p>	<p>U.1 Restore inoperable trip mechanism to OPERABLE status.</p>	<p>48 hours</p>
	<p><u>OR</u></p> <p>U.2 Be in MODE 3.</p>	<p>54 hours</p>
<p>V. An inoperable trip mechanism, RTB, or Automatic Trip Logic occurs on opposite trains concurrently.</p>	<p>V.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. One train inoperable.</p>	<p>-----NOTE----- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE.</p>	
	<p>C.1 Restore train to OPERABLE status.</p>	24 hours
	<p><u>OR</u></p>	
	<p>C.2.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2.2 Be in MODE 5.</p>	30 hours 60 hours
<p>D. One channel inoperable.</p>	<p>-----NOTE----- A channel may be bypassed for up to 12 hours for surveillance testing.</p>	
	<p>D.1 Place channel in trip.</p>	72 hours
	<p><u>OR</u></p>	
	<p>D.2.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>D.2.2 Be in MODE 4.</p>	78 hours 84 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME	
<p>E. One Containment Pressure High-3 channel inoperable.</p>	<p>-----NOTE----- One additional channel may be bypassed for up to 12 hours for surveillance testing. -----</p>		
	<p>E.1 Place channel in bypass.</p>		72 hours
	<p><u>OR</u></p>		
	<p>E.2.1 Be in MODE 3.</p>		78 hours
<p>F. One channel inoperable.</p>	<p><u>AND</u></p>		
	<p>E.2.2 Be in MODE 4.</p>	84 hours	
	<p>F.1 Restore channel to OPERABLE status.</p>	48 hours	
	<p><u>OR</u></p>		
	<p>F.2.1 Be in MODE 3.</p>	54 hours	
	<p><u>AND</u></p>		
	<p>F.2.2 Be in MODE 4.</p>	60 hours	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME	
<p>G. One train inoperable.</p>	<p>-----NOTE----- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. -----</p>		
	<p>G.1 Restore train to OPERABLE status.</p>		24 hours
	<p><u>OR</u></p>		
	<p>G.2.1 Be in MODE 3. <u>AND</u> G.2.2 Be in MODE 4.</p>		30 hours 36 hours
<p>H. One train inoperable.</p>	<p>-----NOTE----- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. -----</p>		
	<p>H.1 Restore train to OPERABLE status.</p>		24 hours
	<p><u>OR</u> H.2 Be in MODE 3.</p>		30 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>I. One channel inoperable.</p>	<p>-----NOTE----- A channel may be bypassed for up to 12 hours for surveillance testing. -----</p> <p>I.1 Place channel in trip.</p> <p><u>OR</u></p> <p>I.2 Be in MODE 3.</p>	<p>72 hours</p> <p>78 hours</p>
<p>J. One Main Feedwater Pumps trip channel inoperable.</p>	<p>J.1 Restore channel to OPERABLE status.</p> <p><u>OR</u></p> <p>J.2 Be in MODE 3.</p>	<p>48 hours</p> <p>54 hours</p>
<p>K. One RWST Level - Low Low channel inoperable.</p>	<p>-----NOTE----- One additional channel may be bypassed for up to 12 hours for surveillance testing. -----</p> <p>K.1 Place channel in bypass.</p> <p><u>OR</u></p> <p>K.2.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>K.2.2 Be in MODE 5.</p>	<p>72 hours</p> <p>78 hours</p> <p>108 hours</p>

(continued)

BASES

ACTIONS

C.1 and C.2 (continued)

- Manual Reactor Trip;
- RTBs;
- RTB Undervoltage and Shunt Trip Mechanisms; and
- Automatic Trip Logic.

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, the RTBs must be opened within the next hour. The additional hour provides sufficient time to accomplish the action in an orderly manner. With the RTBs open, these Functions are no longer required. This Condition is modified by a Note that prohibits closing the RTBs in MODE 5 if any of the above Functions (Function 1, 17, 18, or 19 of Table 3.3.1-1) are not met. Closing the RTBs in MODES 3 or 4 with any of these Functions not met is prohibited by LCO 3.0.4.

The Completion Time is reasonable considering that in this Condition, the remaining OPERABLE channel or train is adequate to perform the safety function, and given the low probability of an event occurring during this interval.

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

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

(continued)

BASES

ACTIONS

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

The NIS power range detectors provide input to the CRD System and the SG Water Level Control System and, therefore, have a two-out-of-four trip logic. A known inoperable channel must be placed in the tripped condition. This results in a partial trip condition requiring only one-out-of-three logic for actuation. The 72 hours allowed to place the inoperable channel in the tripped condition is justified in WCAP-14333-P-A (Ref. 12).

In addition to placing the inoperable channel in the tripped condition, THERMAL POWER must be reduced to $\leq 75\%$ RTP within 78 hours. Reducing the power level prevents operation of the core with radial power distributions beyond the design limits. With one of the NIS power range detectors inoperable, 1/4 of the radial power distribution monitoring capability is lost.

As an alternative to the above actions, the inoperable channel can be placed in the tripped condition within 72 hours and the QPTR monitored once every 12 hours as per SR 3.2.4.2, QPTR verification. Calculating QPTR every 12 hours compensates for the lost monitoring capability due to the inoperable NIS power range channel and allows continued unit operation at power levels $\leq 75\%$ RTP. The 12 hour Frequency is consistent with LCO 3.2.4, "QUADRANT POWER TILT RATIO (QPTR)."

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

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

(continued)

BASES

ACTIONS

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

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

Required Action D.2.2 has been modified by a Note which only requires SR 3.2.4.1 to be performed if the Power Range Neutron Flux input to QPTR becomes inoperable. Failure of a component in the Power Range Neutron Flux channel which renders the High Flux Trip function inoperable may not affect the capability to monitor QPTR. As such, determining QPTR using the movable incore detectors once per 12 hours may not be necessary.

E.1 and E.2

Condition E applies to the following reactor trip Functions:

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

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

(continued)

BASES

ACTIONS

E.1 and E.2 (continued)

A known inoperable channel must be placed in the tripped condition within 72 hours. Placing the channel in the tripped condition results in a partial trip condition requiring only one-out-of-two logic for actuation of the two-out-of-three trips and one-out-of-three logic for actuation of the two-out-of-four trips. The 72 hours allowed to place the inoperable channel in the tripped condition is justified in Reference 12.

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

The Required Actions have been modified by a Note that allows placing a channel in the bypassed condition for up to 12 hours while performing routine surveillance testing. With one channel inoperable, the Note also allows routine surveillance testing of another channel with a channel in bypass. The 12 hour time limit is justified in Reference 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 are allowed to reduce THERMAL POWER below the P-6 setpoint or increase to THERMAL POWER above the P-10 setpoint. The NIS Intermediate Range Neutron Flux channels must be OPERABLE when the power level is above the capability of the source range, P-6, and below the capability of the power range, P-10. If THERMAL POWER is greater than the P-10 setpoint, the NIS power range detectors perform the monitoring and protection functions and the intermediate range is not required. The Completion Times allow for a slow and controlled power adjustment above P-10 or below P-6 and take

(continued)

BASES

ACTIONS

F.1 and F.2 (continued)

into account the redundant capability afforded by the redundant OPERABLE channel, and the low probability of its failure during this period. This action does not require the inoperable channel to be tripped because the Function uses one-out-of-two logic. Tripping one channel would trip the reactor. Thus, the Required Actions specified in this Condition are only applicable when channel failure does not result in reactor trip.

G.1 and G.2

Condition G applies to two inoperable Intermediate Range Neutron Flux trip channels when THERMAL POWER is above the P-6 setpoint and below the P-10 setpoint. Required Actions specified in this Condition are only applicable when channel failures do not result in reactor trip. Above the P-6 setpoint and below the P-10 setpoint, the NIS intermediate range detector performs the monitoring Functions. With no intermediate range channels OPERABLE, the Required Actions are to suspend operations involving positive reactivity additions immediately. However, this does not preclude actions to maintain or increase reactor vessel inventory or place the unit in a safe conservative condition provided the required SDM is maintained. The suspension of positive reactivity additions will preclude any power level increase since there are no OPERABLE Intermediate Range Neutron Flux channels. The operator must also reduce THERMAL POWER below the P-6 setpoint within two hours. Below P-6, the Source Range Neutron Flux channels will be able to monitor the core power level. The Completion Time of 2 hours will allow a slow and controlled power reduction to less than the P-6 setpoint and takes into account the low probability of occurrence of an event during this period that may require the protection afforded by the NIS Intermediate Range Neutron Flux trip.

H.1

Condition H applies to the Intermediate Range Neutron Flux trip when THERMAL POWER is below the P-6 setpoint and one or two channels are inoperable. Below the P-6 setpoint, the NIS source range performs the monitoring and protection functions. The inoperable NIS intermediate range channel(s) must be returned to OPERABLE status prior to increasing power above the P-6 setpoint. The NIS intermediate range 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.

(continued)

BASES

ACTIONS

I.1

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

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

J.1

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

K.1 and K.2

Condition K applies to one inoperable source range channel in MODE 3, 4, or 5 with the RTBs closed and the CRD System capable of rod withdrawal. With the unit in this Condition, below P-6, the NIS source range performs the monitoring and protection functions. With one of the source range channels inoperable, 48 hours is allowed to restore it to an OPERABLE status. If the channel cannot be returned to an OPERABLE status, 1 additional hour is allowed to open the RTBs. Once the RTBs are open, the core is in a more stable condition and the unit enters Condition L. The allowance of 48 hours to restore the channel to OPERABLE status, and the additional hour to open the RTBs, are justified in Reference 7.

(continued)

BASES

ACTIONS
(continued)

L.1

Condition L applies when the required number of OPERABLE Source Range Neutron Flux channels is not met in MODE 3, 4, or 5 with the RTBs open. With the unit in this Condition, the NIS source range performs the monitoring and protection functions. With less than the required number of source range channels OPERABLE, operations involving positive reactivity additions shall be suspended immediately. This will preclude any power escalation. However, this does not preclude actions to maintain or increase reactor vessel inventory or place the unit in a safe conservative condition provided the required SDM is maintained. Note that the source range also continues to provide input to the high flux at shutdown alarm (HFASA - LCO 3.3.8). LCO 3.3.8 requires that the HFASA receive input from two source range channels for the HFASA to be OPERABLE.

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 (Two Loops);
- Undervoltage RCPs; and
- Underfrequency RCPs.

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

With one channel inoperable, the inoperable channel must be placed in the tripped condition within 72 hours. Placing the channel in the tripped condition results in a partial trip condition requiring only one additional channel to initiate a reactor trip above the P-7 setpoint (and below the P-8 setpoint for the Reactor Coolant Flow — Low — Two Loops

(continued)

BASES

ACTIONS

M.1 and M.2 (continued)

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

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

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

N.1 and N.2

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

(continued)

BASES

ACTIONS

N.1 and N.2 (continued)

applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition. With one channel inoperable, the inoperable channel must be placed in trip within 72 hours. If the channel cannot be restored to OPERABLE status or the channel placed in trip within the 72 hours, then THERMAL POWER must be reduced below the P-8 setpoint within the next 4 hours. This places the unit in a MODE where the LCO is no longer applicable. This trip Function does not have to be OPERABLE below the P-8 setpoint because other RTS trip Functions provide core protection below the P-8 setpoint. The 72 hours allowed to restore the channel to OPERABLE status or place in trip and the 4 additional hours allowed to reduce THERMAL POWER to below the P-8 setpoint are justified in Reference 12.

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

O.1 and O.2

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

(continued)

BASES

ACTIONS

O.1 and O.2 (continued)

condition within 72 hours. If placed in the tripped condition, this results in a partial trip condition requiring only one additional channel to initiate a reactor trip. If the channel cannot be restored to OPERABLE status or placed in the trip condition, then power must be reduced below the P-9 setpoint within the next 4 hours. The 72 hours allowed to place the inoperable channel in the tripped condition and the 4 hours allowed for reducing power are justified in Reference 12.

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

P.1 and P.2

Condition P applies to the Turbine Trip on Stop Valve Closure. This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition. With one or more channels inoperable, the inoperable channels must be placed in the trip condition within 72 hours. Since all the valves must be tripped (not fully open) in order for the reactor trip signal to be generated, it is acceptable to place more than one Turbine Stop Valve Closure channel in the tripped condition. If a channel cannot be restored to OPERABLE status or placed in the trip condition, then power must be reduced below the P-9 setpoint within the next 4 hours. The 72 hours allowed to place an inoperable channel in the tripped condition and the 4 hours allowed for reducing power are justified in Reference 12.

(continued)

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

The Required Actions have been modified by a Note that allows bypassing one train up to 4 hours for surveillance testing, provided the other train is OPERABLE. The 4 hour time limit for testing the RTS Automatic Trip Logic train may include testing the RTB also, if both the Logic test and RTB test are conducted within the 4 hour time limit. The 4 hour time limit is justified in Reference 12.

The 4 hour time limit for the RTS Automatic Trip Logic train testing is greater than the 2 hour time limit for the RTBs, which the Logic train supports. The longer time limit for the Logic train (4 hours) is acceptable based on Reference 13.

R.1 and R.2

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

(continued)

BASES

ACTIONS

R.1 and R.2 (continued)

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

S.1 and S.2

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

T.1 and T.2

Condition T applies to the RTBs in MODES 1 and 2. These actions address the train orientation of the RTS for the RTBs. With one train inoperable, 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 removes the requirement for this particular Function.

(continued)

BASES

ACTIONS

T.1 and T.2 (continued)

The Required Actions have been modified by three Notes. Note 1 allows one train to be bypassed for up to 2 hours for surveillance testing, provided the other train is OPERABLE. Note 1 applies to RTB testing that is performed independently from the corresponding Logic train testing. For simultaneous testing of the Logic and RTBs, the 4 hour test time limit of Condition Q applies. Note 2 allows one RTB to be bypassed for up to 2 hours for maintenance on undervoltage or shunt trip mechanisms if the other RTB train is OPERABLE. The 2 hour time limit is justified in Reference 7. Note 3 applies to RTB testing that is performed concurrently with the corresponding Logic train testing. For concurrent testing of the Logic and RTB, the 4 hour test time limit of Condition Q applies. The 4 hour time limit is justified in Reference 12.

U.1 and U.2

Condition U applies to the RTB Undervoltage and Shunt Trip Mechanisms, or diverse trip features, in MODES 1 and 2. With one of the diverse trip features inoperable, it must be restored to an OPERABLE status within 48 hours or the unit must be placed in a MODE where Condition U is no longer applicable. This is accomplished by placing the unit in MODE 3 within the next 6 hours (54 hours total time). The Completion Time of 6 hours is a reasonable time, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems. With the unit in MODE 3, Condition C applies to this trip function. The affected RTB shall not be bypassed while one of the diverse features is inoperable except for the time required to perform maintenance to one of the diverse features. The allowable time for performing maintenance of the diverse features is 2 hours for the reasons stated under Condition T.

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

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

(continued)

BASES

ACTIONS
(continued)

V.1

Condition V corresponds to a level of degradation in the RTS that causes a required safety function to be lost. When more than one Condition of this LCO is entered, and this results in the loss of automatic reactor trip capability, the unit is in a condition outside the accident analysis.

(continued)

BASES

REFERENCES
(continued)

2. FSAR, Chapter 6.
3. FSAR, Chapter 15.
4. IEEE-279-1971.
5. 10 CFR 50.49.
6. WCAP-11269, Westinghouse Setpoint Methodology for Protection Systems; as supplemented by:
 - Amendments 34 (Unit 1) and 14 (Unit 2), RTS Steam Generator Water Level – Low Low, ESFAS Turbine Trip and Feedwater Isolation SG Water Level – High High, and ESFAS AFW SG Water Level – Low Low.
 - Amendments 48 and 49 (Unit 1) and Amendments 27 and 28 (Unit 2), deletion of RTS Power Range Neutron Flux High Negative Rate Trip.
 - Amendments 60 (Unit 1) and 39 (Unit 2), RTS Overtemperature ΔT setpoint revision.
 - Amendments 57 (Unit 1) and 36 (Unit 2), RTS Overtemperature and Overpower ΔT time constants and Overtemperature ΔT setpoint.
 - Amendments 43 and 44 (Unit 1) and 23 and 24 (Unit 2), revised Overtemperature and Overpower ΔT trip setpoints and allowable values.
 - Amendments 104 (Unit 1) and 82 (Unit 2), revised RTS Intermediate Range Neutron Flux, Source Range Neutron Flux, and P-6 trip setpoints and allowable values.
7. WCAP-10271-P-A, Supplement 1, May 1986.
8. FSAR, Chapter 16.
9. Westinghouse Letter GP-16696, November 5, 1997.
10. WCAP-13632-P-A Revision 1, "Elimination of Periodic Sensor Response Time Testing Requirements," January 1996.
11. WCAP-14036-P-A Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," October 1998.
12. WCAP-14333-P-A, Rev. 1, October 1998.
13. WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990.

BASES

ACTIONS
(continued)

B.1, B.2.1, and B.2.2

Condition B applies to manual initiation of:

- SI;
- Containment Spray; and
- Phase A Isolation.

This action addresses the channel orientation of the SSPS for the functions listed above. If a channel is inoperable, 48 hours is allowed to return it to an OPERABLE status. Note that for containment spray, failure of one or both handswitches in one channel renders the channel inoperable. Condition B, therefore, encompasses both situations. The specified Completion Time is reasonable considering that there are two automatic actuation trains and another manual initiation channel OPERABLE for each Function, and the low probability of an event occurring during this interval. If the channel 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 (54 hours total time) and in MODE 5 within an additional 30 hours (84 hours total time). The allowable Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

C.1, C.2.1, and C.2.2

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

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

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

(continued)

BASES

ACTIONS

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

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

This action addresses the train orientation of the SSPS and the master and slave relays. If one train is inoperable, 24 hours are allowed to restore the train to OPERABLE status. The 24 hours allowed for restoring the inoperable train to OPERABLE status is justified in Reference 12. The specified Completion Time is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval. If the train cannot be restored to OPERABLE status, the unit must be placed in a MODE in which the LCO does not apply. This is done by placing the unit in at least MODE 3 within an additional 6 hours (30 hours total time) and in MODE 5 within an additional 30 hours (60 hours total time). The Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

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

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

Condition D applies to:

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

(continued)

BASES

ACTIONS

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

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

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

If one channel is inoperable, 72 hours are allowed to restore the channel to OPERABLE status or to place it in the tripped condition. Generally this Condition applies to functions that operate on two-out-of-three logic. Therefore, failure of one channel places the Function in a two-out-of-two configuration. One channel must be tripped to place the Function in a one-out-of-three configuration that satisfies redundancy requirements. The 72 hours allowed to restore the channel to OPERABLE status or to place it in the tripped condition is justified in Reference 12.

Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 72 hours requires the unit be placed in MODE 3 within the following 6 hours and MODE 4 within the next 6 hours.

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

The Required Actions are modified by a Note that allows placing one channel in bypass for up to 12 hours while performing routine surveillance testing. The 12 hour time limit is justified in Reference 12.

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

Condition E applies to:

(continued)

BASES

ACTIONS

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

- Containment Spray Containment Pressure — High 3.

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

This signal does not 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, 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, this Function is no longer required OPERABLE.

(continued)

BASES

ACTIONS

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

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

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

Condition F applies to:

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

For the Manual Initiation and the P-4 Interlock Functions, this action addresses the train orientation of the SSPS. If a channel is inoperable, 48 hours is allowed to return it to OPERABLE status. The specified Completion Time is reasonable considering the nature of this Function, the available redundancy, and the low probability of an event occurring during this interval. If the channel cannot be returned to OPERABLE status, the unit must be placed in MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power in an orderly manner and without challenging unit systems. In MODE 4, the unit does not have any analyzed transients or conditions that require the explicit use of the protection function noted above.

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

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

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

(continued)

BASES

ACTIONS

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

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

The action addresses the train orientation of the SSPS and the master and slave relays for these functions. If one train is inoperable, 24 hours are allowed to restore the train to OPERABLE status. The 24 hours allowed for restoring the inoperable train to OPERABLE status is justified in Reference 12. The Completion Time for restoring a train to OPERABLE status is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval.

If the train cannot be returned to OPERABLE status, the unit must be brought to MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. Placing the unit in MODE 4 removes all requirements for OPERABILITY of the protection channels and actuation functions. In this MODE, the unit does not have analyzed transients or conditions that require the explicit use of the protection functions noted above.

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

H.1 and H.2

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

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

(continued)

BASES

ACTIONS

H.1 and H.2 (continued)

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

This action addresses the train orientation of the SSPS and the master and slave relays for these functions. If one train is inoperable, 24 hours are allowed to restore the train to OPERABLE status or the unit must be placed in MODE 3 within the following 6 hours. The 24 hours allowed for restoring the inoperable train to OPERABLE status is justified in Reference 12. The Completion Time for restoring a train to OPERABLE status is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. These Functions are no longer required in MODE 3. Placing the unit in MODE 3 removes all requirements for OPERABILITY of the protection channels and actuation functions. In this MODE, the unit does not have analyzed transients or conditions that require the explicit use of the protection functions noted above.

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

I.1 and I.2

Condition I applies to:

- SG Water Level — High High (P-14).

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

(continued)

BASES

ACTIONS

I.1 and I.2 (continued)

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

If one channel is inoperable, 72 hours are allowed to restore one channel to OPERABLE status or to place it in the tripped condition. If placed in the tripped condition, the Function is then in a partial trip condition where one-out-of-three logic will result in actuation. The 72 hours allowed to restore one channel to OPERABLE status or to place it in the tripped condition is justified in Reference 12. Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 72 hours requires the unit to be placed in MODE 3 within the following 6 hours. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. In MODE 3, this Function is no longer required OPERABLE.

The Required Actions are modified by a Note that allows placing one channel in bypass for up to 12 hours while performing routine surveillance testing. The 12 hour time limit is justified in Reference 12.

J.1 and J.2

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

This action addresses the train orientation for the auto start function of the AFW System on loss of all MFW pumps. The OPERABILITY of the AFW System must be assured by allowing automatic start of the AFW System pumps. If a channel is inoperable, 48 hours are allowed to return it to an OPERABLE status. If the function cannot be returned to an OPERABLE status, 6 hours are allowed to place the unit in MODE 3. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. In MODE 3, the unit does not have any analyzed

(continued)

BASES

ACTIONS

J.1 and J.2 (continued)

transients or conditions that require the explicit use of the protection function noted above. The allowance of 48 hours to return the train to an OPERABLE status is justified in Reference 7.

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

Condition K applies to:

- RWST Level — Low Low Coincident with Safety Injection.

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

RWST Level — Low Low Coincident With SI provides actuation of switchover to the containment sump. Note that this Function requires the bistables to energize to perform their required action. The failure of up to two channels will not prevent the operation of this Function. However, placing a failed channel in the tripped condition could result in a premature switchover to the sump, prior to the injection of the minimum volume from the RWST. Placing the inoperable channel in bypass results in a two-out-of-three logic configuration, which satisfies the requirement to allow another failure without disabling actuation of the switchover when required. Restoring the channel to OPERABLE status or placing the inoperable channel in the bypass condition within 72 hours is sufficient to ensure that the Function remains OPERABLE, and minimizes the time that the Function may be in a partial trip condition (assuming the inoperable channel has failed high). The 72 hour Completion Time is justified in Reference 12. If the channel cannot be returned to OPERABLE status or placed in the bypass condition within 72 hours, the unit must be brought to MODE 3 within the following 6 hours and MODE 5 within the next 30 hours.

(continued)

BASES

ACTIONS

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

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

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

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

Condition L applies to the P-11 interlock.

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

**SURVEILLANCE
REQUIREMENTS**

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

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

Note that each channel of process protection supplies both trains of the ESFAS. When testing channel I, train A and train B must be examined. Similarly, train A and train B must be examined when

(continued)

BASES

**SURVEILLANCE
REQUIREMENTS**
(continued)

testing channel II, channel III, and channel IV (if applicable). The CHANNEL CALIBRATION and COTs are performed in a manner that is consistent with the assumptions used in analytically calculating the required channel accuracies.

SR 3.3.2.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other

(continued)

BASES

REFERENCES
(continued)

- Amendments 43 and 44 (Unit 1) and 23 and 24 (Unit 2), revised ESFAS Interlocks Pressurizer P-11 trip setpoint and allowable value.
 - 7. WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990.
 - 8. FSAR, Chapter 16.
 - 9. Westinghouse Letter GP-16696, November 5, 1997.
 - 10. WCAP-13632-P-A Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," January 1996.
 - 11. WCAP-14036-P-A Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," October 1998.
 - 12. WCAP-14333-P-A, Rev.1, October 1998.
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