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SOUTHERN COMPANY
Energy to Serve Your World™

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

Vogtle Electric Generating Plant
Request to Revise Technical Specifications
Regarding Mode Change Limitations Using
The Consolidated Line Item Improvement Process

Ladies and Gentlemen:

In accordance with the requirements of 10 CFR 50.90, Southern Nuclear Operating Company (SNC) proposes to revise the Vogtle Electric Generating Plant (VEGP) Unit 1 and Unit 2 Technical Specifications (TS). The proposed changes would revise TS Limiting Conditions for Operations (LCO) 3.0.4, Surveillance Requirement (SR) 3.0.4 and various TS requirements that reference LCO 3.0.4. The proposed changes are based on Industry/TSTF Standard Technical Specification Change Traveler TSTF-359, Revision 9, "Increased Flexibility in Mode Restraints." The availability of this TS improvement was announced in the Federal Register on April 4, 2003 (68 FR 16579) as part of the Consolidated Line Item Improvement Process (CLIIP).

The proposed changes and their basis are described in Enclosure 1. Marked-up TS and Bases pages are provided in Enclosure 2, and clean-typed pages are provided in Enclosure 3.

SNC requests approval of the proposed changes by November 2005, with the amendment being implemented within 60 days.

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

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

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

Don. E. Grissette

Sworn to and subscribed before me this 26th *day of* October, *2004.*

Notary Public

My commission expires: 11/10/06

DEG/TDH/daj

Enclosure 1: Basis for Proposed Changes
Enclosure 2: Marked-up TS and Bases Pages
Enclosure 3: Clean-typed TS and Bases Pages

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

Enclosure 1

Vogtle Electric Generating Plant
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Basis for Proposed Changes

Enclosure 1

Vogtle Electric Generating Plant
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1.0 DESCRIPTION

The proposed amendment would modify Technical Specification (TS) requirements for MODE change limitations in Limiting Condition for Operation (LCO) 3.0.4 and Surveillance Requirement (SR) 3.0.4. The changes are consistent with Nuclear Regulatory Commission (NRC) approved Industry/Technical Specification Task Force (TSTF) Standard TS (STS) change TSTF-359, Revision 8, as modified by the notice in the Federal Register published on April 4, 2003 (68 FR 16579). That Federal Register Notice (FRN) announced the availability of this TS improvement through the Consolidated Line Item Improvement Process (CLIIP).

TSTF-359, Revision 8 was subsequently revised to incorporate the modifications discussed in the April 4, 2003 FRN and other minor changes. TSTF-359, Revision 9 was subsequently submitted to the NRC on April 28, 2003 and was approved by the NRC on May 9, 2003.

2.0 PROPOSED CHANGES

Southern Nuclear Operating Company (SNC) proposes to revise the Vogtle Electric Generating Plant (VEGP) Unit 1 and Unit 2 Technical Specifications (TS). The proposed changes would revise TS Limiting Conditions for Operation (LCO) 3.0.4, Surveillance Requirements (SR) 3.0.4 and various TS requirements that reference LCO 3.0.4. The proposed changes are based on Industry/TSTF Standard Technical Specification Change Traveler TSTF-359, Revision 9, "Increased Flexibility in Mode Restraints." The following is a detailed description of the proposed changes.

- Section 1.4, Frequency, Example 1.4-1 is revised to be consistent with the proposed changes to SR 3.0.4 and LCO 3.0.4 as described below. As such, this change is administrative in nature.
- LCO 3.0.4 is revised to allow entry into a MODE or other specified condition in the Applicability (MOSCA) while relying on the associated ACTIONS, provided that (a) the ACTIONS to be entered permit continued operation in the MOSCA for an unlimited period of time, or (b) there is a risk assessment performed which justifies the use of LCO 3.0.4 for a MOSCA change, or (c) an NRC-approved allowance is provided in the Specification to be entered. The Applicability of LCO 3.0.4 is expanded to include transition into all MODES (including MODES 5 and 6) or other specified conditions in the Applicability, while retaining the exception that LCO 3.0.4 shall not prevent MOSCA changes that are required to comply with ACTIONS or that are part of a shutdown of the unit. The associated Bases are likewise being modified in accordance with TSTF-359, Revision 9.
- SR 3.0.4 is revised to reflect the concepts of the change to LCO 3.0.4. The Applicability of LCO 3.0.4 and SR 3.0.4 is expanded to include transition into all MODES or other specified conditions in the Applicability, except when required to comply with ACTIONS or that are part of a shutdown of the unit. The associated Bases likewise are being modified in accordance with TSTF-359, Revision 9.

- TS 3.1.1, "Shutdown Margin (SDM)," the ACTIONS Note is revised to delete reference to entry into Mode 5 from Mode 6.
- TS 3.3.1, "RTS Instrumentation," the Note in Condition C is revised to include MODES 3 and 4.
- TS 3.3.3, "Post Accident Monitoring (PAM) Instrumentation," the Note "LCO 3.0.4 is not applicable," is deleted.
- TS 3.3.4, "Remote Shutdown System," the Note "LCO 3.0.4 is not applicable," is deleted.
- TS 3.3.8, "High Flux at Shutdown Alarm," the Note in Required Action A.1 is revised to state that LCO 3.0.4c is applicable provided that Required Actions B.1 and B.2 are met.
- TS 3.4.8, "RCS Loops – MODE 5, Loops Not Filled," the Action Note is deleted.
- TS 3.4.11, "Pressurizer Power Operated Relief Valves (PORVs)," the Note "LCO 3.0.4 is not applicable," is deleted.
- TS 3.4.12, "Cold Overpressure Protection System (COPS)," Actions Note 1 is revised to indicate that the new LCO 3.0.4b provision is not applicable when entering MODE 4 in addition to the existing restrictions on entering MODE 6 with the reactor vessel head on from MODE 6, and entering MODE 5 from MODE 6 with the reactor vessel head on.
- TS 3.4.15, "RCS Leakage Detection Instrumentation," the Notes in Required Actions for Conditions A, B, and C stating "LCO 3.0.4 is not applicable," are deleted.
- TS 3.4.16, "RCS Specific Activity," an Actions Note permitting the use of the new LCO 3.0.4c provision is substituted for the existing LCO 3.0.4 non-applicability Note.
- TS 3.5.3, "Emergency Core Cooling Systems (ECCS)," an Actions Note is added to indicate that the new LCO 3.0.4b is not applicable to ECCS centrifugal charging pump subsystem.
- TS 3.6.7, "Hydrogen Recombiners," the Note in Required Action A.1, "LCO 3.0.4 is not applicable," is deleted.
- TS 3.7.4, "Atmospheric Relief Vales (ARVs)," the Note in Required Action A.1, "LCO 3.0.4 is not applicable," is deleted.
- TS 3.7.5, "Auxiliary Feedwater (AFW) System," an Actions Note is added to indicate that the new LCO 3.0.4b provision is not applicable when entering MODE 1.
- TS 3.7.9, "Ultimate Heat Sink," the Note in Required Action Condition C, "LCO 3.0.4 is not applicable," is deleted.
- TS 3.7.10, "Control Room Emergency Filtration System (CREFS)-Both Units Operating," the Notes in the Required Actions for Conditions E and F, "LCO 3.0.4 is not applicable," are deleted.
- TS 3.7.11, "Control Room Emergency Filtration System (CREFS)-One Unit Operating," the Note in Required Action Condition G, "LCO 3.0.4 is not applicable," is deleted.

- TS 3.7.12, "Control Room Emergency Filtration System (CREFS)-Both Units Shutdown," the Note in Required Action Condition F, "LCO 3.0.4 is not applicable," is deleted.
- TS 3.8.1, "AC Sources – Operating," an Actions Note is added to indicate that the new LCO 3.0.4b provision is not applicable to diesel generators.
- TS 3.9.1, "Boron Concentration," the Actions Note is deleted.
- TS 3.9.6, "Residual Heat Removal (RHR) and Coolant Circulation-Low Water Level," the Actions Note is deleted.

3.0 BACKGROUND

The early standard Technical Specifications contained Specifications 3.0.4 and 4.0.4 that prohibited entering the Applicability of an LCO with the LCO or Surveillances not met unless a specific exception was provided. NRC Generic Letter 87-09, "Sections 3.0 and 4.0 of the Standard Technical Specifications (STS) on the Applicability of Limiting Conditions For Operation and Surveillance Requirements," June 4, 1987, modified Specifications 3.0.4 and 4.0.4 to allow entering the Applicability of a Specification with the LCO not met when the Actions to be entered would allow operation within the Applicability for an unlimited period of time. It stated, in part:

> "With respect to unnecessary MODE changes, Specification 3.0.4 unduly restricts facility operation when conformance with Action Requirements provides an acceptable level of safety for continued operation. For an LCO that has Action Requirements permitting continued operation for an unlimited period of time, entry into an operation mode or other specified condition of operation should be permitted in accordance with the Action Requirements. The solution also resolves the problem of inconsistent application of exceptions to Specification 3.0.4: (a) which delays startup under conditions in which conformance to the Action Requirements establishes an acceptable level of safety for unlimited continued operation of the facility; and (b) which delays a return to power operation when the facility is required to be in a lower mode of operation as a consequence of other Action Requirements."

In the development of Improved Standard Technical Specifications (ISTS), many improvements were made to Specifications 3.0.4 and 4.0.4 (editorially becoming LCO 3.0.4 and SR 3.0.4) including clarification of its applicability regarding normal shutdown and Required Action shutdowns, and MODE changes during Cold Shutdown (MODE 5) and Refueling Operations (MODE 6). Despite these changes, ISTS LCO 3.0.4 and SR 3.0.4 were still overly restrictive. The startup of a unit may be unnecessarily delayed due to the current restrictions of LCO 3.0.4. For example, a single maintenance activity that is almost complete can cause significant delays and changes in the previously well thought out plans for returning the unit to service. In such situations, allowing the unit to enter the MOSCA would allow the work to be completed while reducing the likelihood of human error caused by expediting the completion of required Surveillances and maintenance activities.

While the inoperabilities permitted by the Completion Times of Technical Specification Required Actions take into consideration the safety significance and redundancy of the system or components within the scope of an LCO, the Completion Times generally do not address or consider concurrent system or component inoperabilities in multiple LCOs. Therefore, the performance of the 10 CFR 50.65(a)(4) risk assessment which looks at the entire plant configuration is essential (and required) prior to changing operational MODE.

The 10 CFR 50.65(a)(4) risk assessment will be used to confirm (or reject) the appropriateness of transitioning up in MODE, or other change in the specified condition in the Applicability, given the actual status of plant safety equipment. TSTF-359, Revision 8 was approved by the NRC, with changes, and a Notice of Availability was published in the Federal Register on April 4, 2003 (68 FR 16579). TSTF-359, Revision 9 was created to incorporate those changes and was approved by the NRC on May 9, 2003.

4.0 TECHNICAL ANALYSES

4.1 Applicability of Published Safety Evaluation

SNC has reviewed the NRC safety evaluation dated April 4, 2003 as part of the CLIIP. This review included the NRC staff's evaluation, as well as the supporting information provided for TSTF-359, Revision 8, and included the consideration of the updates made in TSTF-359, Revision 9. SNC has concluded that the justifications presented in the approved TSTF and the safety evaluation prepared by the NRC staff are applicable to VEGP and justify this amendment for the incorporation of the changes to the VEGP TS.

4.2 Optional Changes and Variations

SNC is not proposing any variations or deviations from the model TS and TS Bases changes for LCO 3.0.4 and SR 3.0.4 described in the modified TSTF-359, Revision 8 (as reflected in final form by Revision 9).

However, due to differences between the VEGP TS and TS Bases and the model STS in NUREG-1431, Revision 2, "Standard Technical Specifications, Westinghouse Plants," variations from the TSTF mark-ups are required in some cases. These variations are discussed below, but they do not invalidate the NRC staff's model safety evaluation supporting the adoption of TSTF-359, Revision 9.

Special LCO 3.0.4 Notes Added During ITS Conversion

Prior to the approval of TSTF-359, Revision 9, ISTS LCO 3.0.4 and SR 3.0.4 contained a Reviewer's Note which required a plant-specific evaluation and, if necessary, application of specific restrictions on MODE changes or Required Actions in individual LCOs. The Federal Register Notice of Availability (68 FR 16586 dated 4/4/2003) states:

> "The notes limiting the applicability of LCO 3.0.4 and SR 3.0.4 are no longer needed and are removed by TSTF-359, Revision 8. The industry owners group analyses would subsequently support adding notes to various TS, as defined by

the tables of higher-risk systems, precluding entry into Modes 5 and 6 for PWRs, and Modes 4 and 5 for BWRs. However, the addition of notes in these cases is made unnecessary by action statements that require immediate completion times, which means that entry into the Mode or other specified condition in the Applicability is not allowed and the notes would be superfluous."

The Federal Register Notice (68 FR 16588) further states:

> "In addition, mode transitions for Modes 5 and 6 for PWRs, and Modes 4 and 5 for BWRs, will be addressed by administrative controls."

NEI 03-10, "Risk-Informed Technical Specifications Initiative 3, Increased Flexibility in Mode Restraints (TSTF-359), Industry Implementation Guidance," August 2003 (page A-9) and TSTF-359 Revision 9 (Proposed Change section of the traveler justification) both indicate that any plant-specific Notes restricting MODE changes added as a result of the evaluation required by the STS 3.0.4 Reviewer's Note are to be deleted.

SNC added the following special LCO 3.0.4 Notes to the TS during the ITS conversion. The following discussions provide additional justification for deleting these Notes:

- In TS 3.1.1, "SHUTDOWN MARGIN (SDM)," the Action Note requires that while the LCO is not met, transition to a lower MODE in the Applicability, and entry into MODE 5 from MODE 6 is not permitted. This Note addresses both transition to a lower MODE in the Applicability (e.g., shutting down) as well as moving up from MODE 6 to MODE 5. With regard to moving up from MODE 6 to MODE 5, the following considerations apply. The NRC's model safety evaluation (68 FR 16586) states that "LCO 3.0.4 allowances related to values and parameters of TS are not typically addressed by LCO 3.0.4(b) risk assessments, and are therefore addressed by a new LCO 3.0.4(c)." In addition NEI 03-10 (page 5) states "....unless a note is provided specifically exempting an individual value and parameter specification, the LCO 3.0.4c guidance is not applicable."

  NEI 03-10 further states (pages 5 and 6) that LCO 3.0.4a and LCO 3.0.4b may be applicable for value or parameters used to demonstrate system or component operability. However, since SDM does not demonstrate system or component operability, LCO 3.0.4a and LCO 3.0.4b are not applicable in this case.

  Therefore, since SDM is a parameter that is not used to demonstrate system or component operability, and SNC does not propose to add an LCO 3.0.4c note for the purpose of transitioning from MODE 6 to MODE 5, the portion of the Action Note prohibiting entry into MODE 5 from MODE 6 is superfluous and is therefore deleted.

  On the other hand, LCO 3.0.4 does not preclude a unit shutdown while not meeting a LCO. Therefore, in the absence of a prohibition, LCO 3.0.4 would allow transition to a lower MODE within the applicability of LCO 3.1.1 without

the required SDM. Since the boron dilution analysis in MODES 3 and 4, and MODE 5 with the loops filled, relies on the boration requirements specified in the COLR, transition to a lower MODE within the requisite SDM may not be prudent, and this portion of the existing Actions Note is retained.

- In TS 3.4.8, "RCS Loops – MODE 5, Loops Not Filled," the Actions Note is deleted. This Note requires that while the LCO is not met, entry into MODE 5 Loops Not Filled from MODE 5 Loops Filled is not permitted. The intent of this Note is to retain the heat removal path afforded by the steam generators when the Residual Heat Removal system is degraded. Since LCO 3.4.8 contains Required Actions with immediate Completion Times, this plant-specific Note is unnecessary given that entry into the LCO is not allowed with the LCO requirements not met. This plant-specific Applicability Note is superfluous and is therefore deleted.

- In TS 3.9.1, "Boron Concentration," the Actions Note is deleted. This Note requires that while the LCO is not met, entry into MODE 6 from MODE 5 is not permitted. However, since LCO 3.9.1 contains Required Actions with immediate Completion Times, this plant-specific Note is unnecessary since entry into the LCO is not allowed with the LCO requirements not met. This will assure that core reactivity is maintained within limits during fuel handling operations. This plant-specific Note is superfluous and is therefore deleted.

- In TS 3.9.6, "Residual Heat Removal (RHR) and Coolant Circulation – Low Water Level," the Actions Note is deleted. This Note requires that while the LCO is not met, entry into this LCO is not permitted. Since LCO 3.9.6 contains Required Actions with immediate Completion Times related to the restoration of the degraded decay heat removal function, this plant-specific Note is unnecessary since entry into the LCO is not allowed with the LCO requirements not met. This plant-specific Note is superfluous and is therefore deleted.

Mark-ups Required for Consistency with VEGP TS

In addition to the deletion of the special LCO 3.0.4 Notes discussed above, the following changes are required to the VEGP TS in order to fully satisfy the intent of the TSTF-359, Revision 9 changes:

- In TS 3.3.1, Condition C is currently modified by a Note which is applicable in Mode 5 only because the current version of LCO 3.0.4 would prevent Mode ascension in Modes 3 and 4. However, because the proposed revision to LCO 3.0.4 would make the provisions of proposed LCO 3.0.4b applicable in Modes 3 and 4 as well as Mode 5, the proposed change would revise this Note so that it is applicable in Modes 3 and 4 as well as Mode 5.

- In TS 3.3.8, "High Flux at Shutdown Alarm (HFASA)," Required Action A.1 is currently modified by a Note that permits MODE changes only when Required

Action B.1 and B.2 are met. The proposed change would revise this Note to state that LCO 3.0.4c is applicable provided that Required Actions B.1 and B.2 are met. The purpose of the HFASA is to mitigate the design basis boron dilution event. Required Action B.1 is a periodic verification of shutdown margin, and Required Action B.2 ensures that the unborated water source isolation valves are shut, thereby precluding the design basis boron dilution event. Therefore, Required Actions B.1 and B.2 provide an acceptable level of safety to facilitate mode changes with one channel of HFASA inoperable.

- In the TSTF mark-ups, STS 3.5.3, "ECCS – Shutdown," an Actions Note is added to indicate that the new LCO 3.0.4b provision is not applicable to the ECCS high head subsystem. In the VEGP TS, the same Actions Note is added but the Note uses the VEGP-specific terminology of "ECCS centrifugal charging pump subsystem." This is strictly an editorial change reflecting plant-specific terminology.

- In the TSTF mark-ups, STS 3.6.9, "Hydrogen Mixing System (HMS)," is modified. The VEGP TS do not have this LCO, so no changes are needed.

- In the TSTF mark-ups, STS 3.7.4, "Atmospheric Dump Valves (ADVs)," is revised to delete the Note in Required Action A.1. The equivalent VEGP TS is titled "Atmospheric Relief Valves (ARVs)," and the same change is made to delete the Note in Required Action A.1. Future MODE changes with one or more ARVs inoperable because of excessive seat leakage will be evaluated pursuant to the new LCO 3.0.4b.

5.0 REGULATORY ANALYSIS

5.1 No Significant Hazards Consideration

SNC has reviewed the proposed no significant hazards consideration determination (NSHCD) published in the Federal Register as part of the CLIIP. SNC has concluded that the NSHCD presented in the Federal Register notice is applicable to VEGP and is, hereby, incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

5.2 Verification And Commitments

As discussed in the notice of availability published in the Federal Register on April 4, 2003 (68 FR 16593), plant-specific verifications were performed as discussed below.

SNC has established TS Bases for LCO 3.0.4 and SR 3.0.4 which state that use of the TS MODE change limitation flexibility established by LCO 3.0.4 and SR 3.0.4 is not to be interpreted as endorsing the failure to exercise the good practice of restoring systems or components to OPERABLE status before entering an associated MODE or other specified condition in the TS Applicability.

The modification also includes changes to the Bases for LCO 3.0.4 and SR 3.0.4 that provide details on how to implement the new requirements. The Bases changes provide guidance for changing MODES or other specified conditions in the Applicability when an LCO is not met. The Bases changes describe in detail how:

> LCO 3.0.4a allows entry into a MODE or other specified condition in the Applicability with the LCO not met when the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time;
>
> LCO 3.0.4b allows entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate; and
>
> LCO 3.0.4c allows entry into a MODE or other specified condition in the Applicability with the LCO not met based on a Note in the Specification, which is typically applied to Specifications which describe values and parameters (e.g. Containment Air Temperature, Containment Pressure, Moderator Temperature Coefficient), though it may be applied to other Specifications based on NRC plant-specific approval.

The Bases also state that any risk impact should be managed through the program in place to implement 10 CFR 50.65(a)(4) and its implementation guidance, NRC Regulatory Guide 1.182, "Assessing and Managing Risks Before Maintenance Activities at Nuclear Power Plants," and that the results of the risk assessment shall be considered in determining the acceptability of entering the MODE or other specified condition in the Applicability, and any corresponding risk management actions. In addition, the Bases state that upon entry into a MODE or other specified condition in the Applicability with the LCO not met, LCO 3.0.1 and LCO 3.0.2 require entry into the applicable Conditions and Required Actions until the Condition is resolved, until the LCO is met, or until the unit is not within the Applicability of the TS. The Bases also state that SR 3.0.4 does not restrict changing MODES or other specified conditions of the Applicability when a Surveillance has not been performed within the specified Frequency, provided the requirement to declare the LCO not met has been delayed in accordance with SR 3.0.3.

The TS Bases will be revised to reflect the changes to the affected TS and will be implemented in accordance with TS 5.5.14, "Technical Specification (TS) Bases Control Program," as part of the implementation of this amendment, upon NRC approval of this amendment application.

6.0 ENVIRONMENTAL CONSIDERATION

SNC has reviewed the environmental evaluation included in the model safety evaluation dated April 4, 2003 as part of the CLIIP. SNC has concluded that the staff's findings presented in that evaluation are applicable to VEGP and the evaluation is hereby incorporated by reference for this application.

Enclosure 2

Vogtle Electric Generating Plant
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Marked-up TS and Bases Pages

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-1 SINGLE FREQUENCY

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Perform CHANNEL CHECK.	12 hours

Example 1.4-1 contains the type of SR most often encountered in the Technical Specifications (TS). The Frequency specifies an interval (12 hours) during which the associated Surveillance must be performed at least one time. Performance of the Surveillance initiates the subsequent interval. Although the Frequency is stated as 12 hours, an extension of the time interval to 1.25 times the stated Frequency is allowed by SR 3.0.2 for operational flexibility. The measurement of this interval continues at all times, even when the SR is not required to be met per SR 3.0.1 (such as when the equipment is inoperable, a variable is outside specified limits, or the unit is outside the Applicability of the LCO). If the interval specified by SR 3.0.2 is exceeded while the unit is in a MODE or other specified condition in the Applicability of the LCO, and the performance of the Surveillance is not otherwise modified (refer to Example 1.4-3), then SR 3.0.3 becomes applicable.

If the interval as specified by SR 3.0.2 is exceeded while the unit is not in a MODE or other specified condition in the Applicability of the LCO for which performance of the SR is required, ~~the Surveillance must be performed within the Frequency requirements of SR 3.0.2 prior to entry into the MODE or other specified condition. Failure to do so would result in a violation of SR 3.0.4.~~

then SR 3.0.4 becomes applicable. The Surveillance must be performed within the Frequency requirements of SR 3.0.2, as modified by SR 3.0.3, prior to entry into the MODE or other specified condition or the LCO is considered not met (in accordance with SR 3.0.1) and LCO 3.0.4 becomes applicable.

(continued)

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1

LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2.

LCO 3.0.2

Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6.

If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required unless otherwise stated.

LCO 3.0.3

When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable. Action shall be initiated within 1 hour to place the unit, as applicable, in:

a. MODE 3 within 7 hours;

b. MODE 4 within 13 hours; and

c. MODE 5 within 37 hours.

Exceptions to this Specification are stated in the individual Specifications.

Where corrective measures are completed that permit operation in accordance with the LCO or ACTIONS, completion of the actions required by LCO 3.0.3 is not required.

LCO 3.0.3 is only applicable in MODES 1, 2, 3, and 4.

LCO 3.0.4

INSERT 1

~~When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall not be made except when the associated ACTIONS to be entered permit continued~~

(continued)

3.0 LCO APPLICABILITY

LCO 3.0.4 (continued)

~~operation in the MODE or other specified condition in the Applicability for an unlimited period of time. This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.~~

~~Exceptions to this Specification are stated in the individual Specifications. These exceptions allow entry into MODES or other specified conditions in the Applicability when the associated ACTIONS to be entered allow unit operation in the MODE or other specified condition in the Applicability only for a limited period of time.~~

~~LCO 3.0.4 is only applicable for entry into a MODE or other specified Condition in the Applicability in MODES 1, 2, 3, and 4.~~

LCO 3.0.5

Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

LCO 3.0.6

When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, additional evaluations and limitations may be required in accordance with Specification 5.5.15, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

(continued)

INSERT 1

When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall only be made:

a. When the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time; or

b. After performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate; exceptions to this Specification are stated in the individual Specifications; or

c. When an allowance is stated in the individual value, parameter, or other Specification.

This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

3.0 SR APPLICABILITY

SR 3.0.3 (continued)

When the Surveillance is performed within the delay period and the Surveillance is not met, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.

SR 3.0.4

INSERT 2

~~Entry into a MODE or other specified condition in the Applicability of an LCO shall not be made unless the LCO's Surveillances have been met within their specified Frequency. This provision shall not prevent entry into MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.~~

~~SR 3.0.4 is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, 3, and 4.~~

INSERT 2

Entry into a MODE or other specified condition in the Applicability of an LCO shall only be made when the LCO's Surveillances have been met within their specified Frequency, except as provided by SR 3.0.3. When an LCO is not met due to Surveillances not having been met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with LCO 3.0.4.

This provision shall not prevent entry into MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

3.1 REACTIVITY CONTROL SYSTEMS

3.1.1 SHUTDOWN MARGIN (SDM)

LCO 3.1.1 SDM shall be ≥ the limit specified in the COLR.

APPLICABILITY: MODES 3, 4, and 5.

ACTIONS

----------NOTE----------
While this LCO is not met, transition to a lower MODE within the Applicability ~~, and entry into MODE 5 from MODE 6~~ is not permitted.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SDM not within limit.	A.1 Initiate boration to restore SDM to within limit.	15 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.1.1	Verify SDM is ≥ the limit specified in the COLR.	24 hours

3.3 INSTRUMENTATION

3.3.1 Reactor Trip System (RTS) Instrumentation

LCO 3.3.1 The RTS instrumentation for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more Functions with one or more required channels inoperable.	A.1	Enter the Condition referenced in Table 3.3.1-1 for the channel(s).	Immediately
B. One Manual Reactor Trip channel inoperable.	B.1	Restore channel to OPERABLE status.	48 hours
	OR		
MODES 3, 4, or 5	B.2	Be in MODE 3.	54 hours
C. ----------NOTE---------- While this LCO is not met for Functions 1, 17, 18, or 19 in ~~MODE 5~~, closing the reactor trip breakers is not permitted. ----------	C.1	Restore channel or train to OPERABLE status.	48 hours
	OR		
One channel or train inoperable.	C.2	Open RTBs.	49 hours

(continued)

3.3 INSTRUMENTATION

3.3.3 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.3 The PAM instrumentation for each Function in Table 3.3.3-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

----------NOTES----------

~~1. LCO 3.0.4 is not applicable.~~

2. Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more functions with one or more required channels inoperable.	A.1 Enter the applicable Condition referenced in Table 3.3.3-1 for the channels.	Immediately
B. ----------NOTE---------- For containment isolation valve position indication, separate Condition entry is allowed for each penetration flow path. ---------- One required channel inoperable.	B.1 Restore the channel to OPERABLE status.	30 days

(continued)

3.3 INSTRUMENTATION

3.3.4 Remote Shutdown System

LCO 3.3.4 The Remote Shutdown System Functions in Table 3.3.4-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

----------NOTES----------

~~1. LCO 3.0.4 is not applicable.~~

2. Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required Functions inoperable.	A.1	Restore required Function to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 4.	12 hours

3.3 INSTRUMENTATION

3.3.8 High Flux at Shutdown Alarm (HFASA)

LCO 3.3.8 Two channels of HFASA shall be OPERABLE.

APPLICABILITY: MODES 3, 4, and 5

----------NOTE----------
The HFASA may be blocked in MODE 3 during reactor startup.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel of HFASA inoperable.	A.1 ----------NOTE---------- ~~Exception to LCO 3.0.4: MODE changes are only permitted when Required Actions B.1 and B.2 are met~~ ---------- LCO 3.0.4c is applicable provided Required Actions B.1 and B.2 are met.	
	Restore channel to OPERABLE status.	48 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Perform SR 3.1.1.1 (verify SDM).	1 hour AND Once per 12 hours thereafter
OR		
Two channels of HFASA inoperable.	AND	
	B.2 Perform SR 3.9.2.1 (verify unborated water source isolated).	4 hours AND Once per 14 days thereafter

ACTIONS ~~(continued)~~

~~NOTE~~
~~While this LCO is not met, entry into MODE 5 with RCS loops not filled is not permitted.~~

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR loop inoperable.	A.1 Initiate action to restore RHR loop to OPERABLE status.	Immediately
B. Required RHR loops inoperable. OR No RHR loop in operation.	B.1 Suspend all operations involving reduction in RCS boron concentration. AND B.2 Initiate action to restore one RHR loop to OPERABLE status and to operation.	Immediately Immediately
C. One or more valves used to isolate unborated water sources not secured in closed position.	C.1 Initiate action to secure valve(s) in closed position.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Verify one RHR loop is in operation.	12 hours
SR 3.4.8.2	Verify correct breaker alignment and indicated power are available to the required RHR pump that is not in operation.	7 days
SR 3.4.8.3	Verify each valve that isolates unborated water sources is secured in the closed position.	31 days

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.11 Pressurizer Power Operated Relief Valves (PORVs)

LCO 3.4.11 Each PORV and associated block valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

----------NOTES----------

1. Separate Condition entry is allowed for each PORV.

~~2. LCO 3.0.4 is not applicable.~~

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more PORVs inoperable and capable of being manually cycled.	A.1	Close and maintain power to associated block valve.	1 hour
B. One PORV inoperable and not capable of being manually cycled.	B.1	Close associated block valve.	1 hour
	AND		
	B.2	Remove power from associated block valve.	1 hour
	AND		
	B.3	Restore PORV to OPERABLE status.	72 hours

(continued)

LCO 3.0.4b is not applicable for entry into MODE 4, entry into MODE 6 with the reactor vessel head on from MODE 6, and entry into MODE 5 from MODE 6 with the reactor vessel head on.

ACTIONS

S

NOTE

1. ~~While this LCO is not met, entry into MODE 6 with the reactor vessel head on from MODE 6, and entry into MODE 5 from MODE 6 with the reactor vessel head on is not permitted.~~

2. With one required PORV inoperable for the purpose of cold overpressure protection, entry into MODE 4 from MODE 3 is permitted provided that RCS temperature is maintained above 275°F, and, within 36 hours, either: the PORV is restored to OPERABLE status; or, an RHR suction relief valve is placed in service so that the requirements of LCO 3.4.12 are met. Otherwise, the reactor vessel must be depressurized and vented in accordance with Required Action F.1.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more safety injection pumps capable of injecting into the RCS.	A.1 Render all safety injection pumps incapable of injecting into the RCS.	4 hours
B. An accumulator not isolated when the accumulator pressure is greater than or equal to the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	B.1 Isolate affected accumulator.	1 hour
C. Required Action and associated Completion Time of Condition B not met.	C.1 Increase RCS cold leg temperature to > 350°F.	12 hours
	OR	
	C.2 Depressurize affected accumulator to less than the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	12 hours
D. One required RCS relief valve inoperable in MODE 4.	D.1 Restore required RCS relief valve to OPERABLE status.	7 days

(continued)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

LCO 3.4.15 The following RCS leakage detection instrumentation shall be OPERABLE:

a. The containment normal sumps level and reactor cavity sump monitors;

b. One containment atmosphere radioactivity monitor (gaseous or particulate); and

c. Either the containment air cooler condensate flow rate or a containment atmosphere gaseous or particulate radioactivity monitoring system not taken credit for in item b.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One containment sump monitor inoperable.	~~NOTE~~ ~~LCO 3.0.4 is not applicable.~~	
	A.1 Perform SR 3.4.13.1.	Once per 24 hours
B. Two or more containment sump monitors inoperable	~~NOTE~~ ~~LCO 3.0.4 is not applicable.~~	
	B.1 Perform SR 3.4.13.1	Once per 24 hours
	AND	
	B.2 Restore at least two containment sump monitors to OPERABLE status.	30 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required containment atmosphere radioactivity monitor(s) inoperable.	~~NOTE~~ ~~LCO 3.0.4 is not applicable.~~	
	C.1.1 Analyze grab samples of the containment atmosphere.	Once per 24 hours
	OR	
	C.1.2 Perform SR 3.4.13.1.	Once per 24 hours
	AND	
	C.2.1 Restore required containment atmosphere radioactivity monitor(s) to OPERABLE status.	30 days
	OR	
	C.2.2 Verify containment air cooler condensate flow rate monitor is OPERABLE.	30 days
D. Required containment air cooler condensate flow rate monitor inoperable.	D.1 Perform SR 3.4.15.2.	Once per 8 hours
	OR	
	D.2 Perform SR 3.4.13.1.	Once per 24 hours

(continued)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.16 RCS Specific Activity

LCO 3.4.16 The specific activity of the reactor coolant shall be within limits.

APPLICABILITY: MODES 1 and 2,
MODE 3 with RCS average temperature (T_{avg}) ≥ 500°F.

ACTIONS

C

----------Note----------
LCO 3.0.4 is ~~not~~ applicable.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. DOSE EQUIVALENT I-131 > 1.0 μCi/gm.	A.1	Verify DOSE EQUIVALENT I-131 within the acceptable region of Figure 3.4.16-1.	Once per 4 hours
	AND		
	A.2	Restore DOSE EQUIVALENT I-131 to within limit.	48 hours
B. Gross specific activity of the reactor coolant not within limit.	B.1	Perform SR 3.4.16.2.	4 hours
	AND		
	B.2	Be in MODE 3 with T_{avg} < 500°F.	6 hours

(continued)

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.3 ECCS - Shutdown

LCO 3.5.3 One ECCS train shall be OPERABLE.

APPLICABILITY: MODE 4.

ACTIONS

----------NOTE----------
LCO 3.0.4b is not applicable to ECCS centrifugal charging pump subsystem.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required ECCS residual heat removal (RHR) subsystem inoperable.	A.1 Initiate action to restore required ECCS RHR subsystem to OPERABLE status.	Immediately
B. Required ECCS centrifugal charging subsystem inoperable. AND At least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available.	B.1 Restore required ECCS centrifugal charging subsystem to OPERABLE status.	72 hours
C. Required ECCS centrifugal charging subsystem inoperable.	C.1 Restore required ECCS centrifugal charging subsystem to OPERABLE status.	1 hour
D. Required Actions and associated Completion Times of Conditions B or C not met.	D.1 Be in MODE 5.	24 hours

3.6 CONTAINMENT SYSTEMS

3.6.7 Hydrogen Recombiners

LCO 3.6.7 Two hydrogen recombiners shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One hydrogen recombiner inoperable.	A.1	~~NOTE LCO 3.0.4 is not applicable.~~	
		Restore hydrogen recombiner to OPERABLE status.	30 days
B. Two hydrogen recombiners inoperable.	B.1	Verify by administrative means that the hydrogen control function is maintained.	1 hour AND Once per 12 hours thereafter
	AND		
	B.2	Restore one hydrogen recombiner to OPERABLE status.	7 days
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	6 hours

3.7 PLANT SYSTEMS

3.7.4 Atmospheric Relief Valves (ARVs)

LCO 3.7.4 Three ARV lines shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required ARV line inoperable.	A.1	~~NOTE~~ ~~LCO 3.0.4 is not applicable.~~ Restore required ARV line to OPERABLE status.	30 days
B. Two or more required ARV lines inoperable.	B.1	Restore at least two ARV lines to OPERABLE status.	24 hours
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	6 hours
	AND		
	C.2	Be in MODE 4	18 hours

3.7 PLANT SYSTEMS

3.7.5 Auxiliary Feedwater (AFW) System

LCO 3.7.5 Three AFW trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

----------NOTE----------
LCO 3.0.4b is not applicable when entering MODE 1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One steam supply to turbine driven AFW pump inoperable.	A.1 Restore steam supply to OPERABLE status.	7 days AND 10 days from discovery of failure to meet the LCO
B. One AFW train inoperable for reasons other than Condition A.	B.1 Restore AFW train to OPERABLE status.	72 hours AND 10 days from discovery of failure to meet the LCO

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One NSCW basin transfer pump inoperable.	~~----------NOTE----------~~ ~~LCO 3.0.4 is not applicable.~~ ~~----------~~	
	C.1 Restore the transfer pump to OPERABLE status.	8 days
	OR	
	C.2.1 Implement an alternate method of basin transfer.	8 days
	AND	
	C.2.2 Restore the transfer pump to OPERABLE status.	31 days
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3.	6 hours
	AND	
OR UHS inoperable for reasons other than Conditions A, B, or C.	D.2 Be in MODE 5.	36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Control room air temperature not within limit.	----------~~NOTE~~---------- ~~LCO 3.0.4 is not applicable~~. ----------	
	E.1 Restore control room air temperature to within limit.	7 days
F. Required Action and associated Completion Time not met.	----------~~NOTE~~---------- ~~LCO 3.0.4 is not applicable to the unaffected unit.~~ ----------	
	F.1 ----------NOTE---------- Required Action F.1 is not applicable when entering this Condition from Condition B, D, or E. ----------	
	Lock closed the outside air (OSA) intake dampers of the affected unit and lock open the OSA intake dampers of the unaffected unit.	1 hour
	AND	
	F.2 Place the affected units(s) in MODE 3.	7 hours
	AND	
	F.3 Place the affected unit(s) in MODE 5.	37 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. Control room air temperature not within limit.	~~----------NOTE----------~~ ~~LCO 3.0.4 is not applicable.~~ ~~----------~~ G.1 Restore control room air temperature to within limit.	7 days
H. Required Action and associated Completion Time not met for operating unit.	H.1 Place the unit in MODE 3. AND H.2 Place the unit in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	The Surveillance Requirements of Specification 3.7.10 are applicable.	In accordance with applicable SRs.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Four CREFS trains inoperable. OR The CREFS train required in the emergency mode by Required Actions of Conditions A, B, C, or D not capable of being powered by an OPERABLE emergency power source.	E.1 Suspend movement of irradiated fuel assemblies. AND E.2 Suspend CORE ALTERATIONS.	Immediately Immediately
F. Control room air temperature not within limit.	~~----------NOTE----------~~ ~~LCO 3.0.4 is not applicable.~~ ~~----------~~ F.1 Restore control room air temperature to within limit.	 7 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.12.1	The Surveillance Requirements of Specification 3.7.10 are applicable.	In accordance with applicable SRs.

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources - Operating

LCO 3.8.1 The following AC electrical sources shall be OPERABLE:

a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System; and

b. Two diesel generators (DGs) capable of supplying the onsite Class 1E power distribution subsystem(s).

Automatic load sequencers for Train A and Train B ESF buses shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

----------NOTE----------
LCO 3.0.4b is not applicable to DGs.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for required OPERABLE offsite circuit. AND	1 hour AND Once per 8 hours thereafter (continued)

3.9 REFUELING OPERATIONS

3.9.1 Boron Concentration

LCO 3.9.1 Boron concentrations of the Reactor Coolant System, the refueling canal, and the refueling cavity shall be maintained within the limit specified in the COLR.

APPLICABILITY: MODE 6.

ACTIONS

~~NOTE~~
~~With the RCS boron concentration specified in the COLR for MODE 6 not met, entry into MODE 6 is not permitted.~~

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Boron concentration not within limit.	A.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	A.2	Suspend positive reactivity additions.	Immediately
	AND		
	A.3	Initiate action to restore boron concentration to within limit.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Verify boron concentration is within the limit specified in the COLR.	72 hours

3.9 REFUELING OPERATIONS

3.9.6 Residual Heat Removal (RHR) and Coolant Circulation – Low Water Level

LCO 3.9.6 Two RHR loops shall be OPERABLE, and one RHR loop shall be in operation.

APPLICABILITY: MODE 6 with the water level < 23 ft above the top of reactor vessel flange.

ACTIONS

~~NOTE~~
~~While this LCO is not met, entry into MODE 6 with water level < 23 ft above the top of the reactor vessel flange is not permitted.~~

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Less than the required number of RHR loops OPERABLE.	A.1	Initiate action to restore required RHR loops to OPERABLE status.	Immediately
	OR		
	A.2	Initiate action to establish ≥ 23 ft of water above the top of reactor vessel flange.	Immediately
B. No RHR loop in operation.	B.1	Suspend operations involving a reduction in reactor coolant boron concentration.	Immediately
	AND		
			(continued)

BASES

LCO 3.0.3 (continued)

an Applicability of "During movement of irradiated fuel assemblies in the fuel storage pool." Therefore, this LCO can be applicable in any or all MODES. If the LCO and the Required Actions of LCO 3.7.15 are not met while in MODE 1, 2, or 3, there is no safety benefit to be gained by placing the unit in a shutdown condition. The Required Action of LCO 3.7.15 of "Suspend movement of irradiated fuel assemblies in the fuel storage pool" is the appropriate Required Action to complete in lieu of the actions of LCO 3.0.3. These exceptions are addressed in the individual Specifications.

LCO 3.0.4

LCO 3.0.4 establishes limitations on changes in MODES or other specified conditions in the Applicability when an LCO is not met. It allows ~~precludes~~ placing the unit in a MODE or other specified condition stated in that Applicability (e.g., the Applicability desired to be entered) when INSERT B-1 ~~the following exist:~~

~~a. Unit conditions are such that the requirements of the LCO would not be met in the Applicability desired to be entered; and~~

~~b. Continued noncompliance with the LCO requirements, if the Applicability were entered, would result in the unit being required to exit the Applicability desired to be entered to comply with the Required Actions.~~

~~Compliance with Required Actions that permit continued operation of the unit for an unlimited period of time in a MODE or other specified condition provides an acceptable level of safety for continued operation. This is without regard to the status of the unit before or after the MODE change. Therefore, in such cases, entry into a MODE or other specified condition in the Applicability may be made in accordance with the provisions of the Required Actions.~~ ¶ The provisions of this Specification should not be interpreted as endorsing the failure to exercise the good practice of restoring systems or components to OPERABLE status before entering an associated MODE or other specified condition in the Applicability.

(continued)

INSERT B-1

unit conditions are such that the requirements of the LCO would not be met, in accordance with LCO 3.0.4a, LCO 3.0.4b, or LCO 3.0.4c.

LCO 3.0.4a allows entry into a MODE or other specified condition in the Applicability with the LCO not met when the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time. Compliance with Required Actions that permit continued operation of the unit for an unlimited period of time in a Mode or other specified condition provides an acceptable level of safety for continued operation. This is without regard to the status of the unit before or after the MODE change. Therefore, in such cases, entry into a MODE or other specified condition in the Applicability may be made in accordance with the provisions of the Required Actions.

LCO 3.0.4b allows entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate.

The risk assessment may use quantitative, qualitative, or blended approaches, and the risk assessment will be conducted using the plant program, procedures, and criteria in place to implement 10 CFR 50.65(a)(4), which requires that risk impacts of maintenance activities be assessed and managed. The risk assessment, for the purposes of LCO 3.0.4b, must take into account all inoperable Technical Specification equipment regardless of whether the equipment is included in the normal 10 CFR 50.65(a)(4) risk assessment scope. The risk assessments will be conducted using the procedures and guidance endorsed by Regulatory Guide 1.182, "Assessing and Managing Risk Before Maintenance at Nuclear Power Plants." Regulatory Guide 1.182 endorses the guidance in Section 11 of NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." These documents address general guidance for conduct of the risk assessment, quantitative and qualitative guidelines for establishing risk management actions and example risk management actions. These include actions to plan and conduct other activities in a manner that controls overall risk, increased risk awareness by shift and management personnel, actions to reduce the duration of the condition, actions to minimize the magnitude of risk increases (establishment of backup success paths or compensatory measures), and determination that the proposed MODE change is acceptable. Consideration should also be given to the probability of completing restoration such that the requirements of the LCO would be met prior to the expiration of ACTIONS Completion Times that would require exiting the Applicability.

LCO 3.0.4b may be used with single, or multiple systems and components unavailable. NUMARC 93-01 provides guidance relative to consideration of simultaneous unavailability of multiple systems and components.

The results of the risk assessment shall be considered in determining the acceptability of entering the MODE or other specified condition in the Applicability, and any corresponding risk management actions. The LCO 3.0.4b risk assessments do not have to be documented.

The Technical Specifications allow continued operation with equipment unavailable in MODE 1 for the duration of the Completion Time. Since this is allowable, and since in general the risk impact in that particular MODE bounds the risk of transitioning into and through the applicable MODES or other specified conditions in the Applicability of the LCO, the use of the LCO 3.0.4b allowance should be generally acceptable, as long as the risk is assessed and managed as stated above. However, there is a small subset of systems and components that have been determined to be more important to risk and use of the LCO 3.0.4b allowance is prohibited. The LCOs governing these system and components contain Notes prohibiting the use of LCO 3.0.4b by stating that LCO 3.0.4b is not applicable.

LCO 3.0.4c allows entry into a MODE or other specified condition in the Applicability with the LCO not met based on a Note in the Specification which states LCO 3.0.4c is applicable. These specific allowances permit entry into MODES or other specified conditions in the Applicability when the associated ACTIONS to be entered do not provide for continued operation for an unlimited period of time and a risk assessment has not been performed. This allowance may apply to all the ACTIONS or to a specific Required Action of a Specification. The risk assessments performed to justify the use of LCO 3.0.4b usually only consider systems and components. For this reason, LCO 3.0.4c is typically applied to Specifications which describe values and parameters (e.g.,RCS Specific Activity), and may be applied to other Specifications based on NRC plant-specific approval.

BASES

LCO 3.0.4 (continued)

The provisions of LCO 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS. In addition, the provisions of LCO 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that result from any unit shutdown.

INSERT B-2

~~Exceptions to LCO 3.0.4 are stated in the individual Specifications. Exceptions may apply to all the ACTIONS or to a specific Required Action of a Specification.~~

INSERT B-3

~~LCO 3.0.4 is only applicable for MODE changes when entering MODE 4 from MODE 5, MODE 3 from MODE 4, MODE 2 from MODE 3, or MODE 1 from MODE 2. Furthermore, LCO 3.0.4 is applicable when entering any other specified condition in the Applicability only while operating in MODES 1, 2, 3, or 4. The requirements of LCO 3.0.4 do not apply in MODES 5 and 6, or in other specified conditions of the Applicability (unless in MODES 1, 2, 3, or 4) because the ACTIONS of individual Specifications sufficiently define the remedial measures to be taken. In some cases (e.g., LCO 3.1.1) these ACTIONS provide a Note that states "While this LCO is not met, entry into a MODE or other specified condition in the Applicability is not permitted, unless required to comply with ACTIONS." This Note is a requirement explicitly precluding entry into a MODE or other specified condition of the Applicability.~~

Surveillances do not have to be performed on the associated inoperable equipment (or on variables outside the specified limits), as permitted by SR 3.0.1. Therefore, ~~changing MODES or other specified conditions while in an ACTIONS Condition, in compliance with LCO 3.0.4 or where an exception to LCO 3.0.4 is stated~~ is not a violation of SR 3.0.1 or SR 3.0.4 for ~~those~~ ~~Surveillances that~~ ~~do not~~ have ~~to be~~ performed ~~due to the associated~~ inoperable equipment. However, SRs must be met to ensure OPERABILITY prior to declaring the associated equipment OPERABLE (or variable within limits) and restoring compliance with the affected LCO.

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LCO 3.0.5

LCO 3.0.5 establishes the allowance for restoring equipment to service under administrative controls when it has been removed from service or declared inoperable to comply with ACTIONS. The sole purpose of this Specification is to provide an exception to LCO 3.0.2 (e.g., to not comply with the applicable Required Action(s)) to allow the performance of SRs to demonstrate:

a. The OPERABILITY of the equipment being returned to service; or

(continued)

INSERT B-2

In this context, a unit shutdown is defined as a change in MODE or other specified condition in the Applicability associated with transitioning from MODE 1 TO MODE 2, MODE 2 to MODE 3, MODE 3 to MODE 4, and MODE 4 to MODE 5.

INSERT B-3

Upon entry into a MODE or other specified condition in the Applicability with the LCO not met, LCO 3.0.1 and LCO 3.0.2 require entry into the applicable Conditions and Required Actions until the Condition is resolved, until the LCO is met, or until the unit is not within the Applicability of the Technical Specification.

BASES

SR 3.0.3 (continued)

evaluation should be used to determine the safest course of action. All missed Surveillances will be placed in the licensee's Corrective Action Program.

If a Surveillance is not completed within the allowed delay period, then the equipment is considered inoperable or the variable is considered outside the specified limits and the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon expiration of the delay period. If a Surveillance is failed within the delay period, then the equipment is inoperable, or the variable is outside the specified limits and the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon the failure of the Surveillance.

Completion of the Surveillance within the delay period allowed by this Specification, or within the Completion Time of the ACTIONS, restores compliance with SR 3.0.1.

SR 3.0.4

SR 3.0.4 establishes the requirement that all applicable SRs must be met before entry into a MODE or other specified condition in the Applicability.

This Specification ensures that system and component OPERABILITY requirements and variable limits are met before entry into MODES or other specified conditions in the Applicability for which these systems and components ensure safe operation of the unit.

The provisions of this Specification should not be interpreted as endorsing the failure to exercise the good practice of restoring systems or components to OPERABLE status before entering an associated MODE or other specified condition in the Applicability.

INSERT B-4

However, in certain circumstances, failing to meet an SR will not result in SR 3.0.4 restricting a MODE change or other specified condition change. When a system, subsystem, division, component, device, or variable is inoperable or outside its specified limits, the associated SR(s) is not required to be performed, per SR 3.0.1, which states that surveillances do not have to be performed on inoperable equipment. When equipment is inoperable, SR 3.0.4 does not apply to the associated SR(s), since the requirement for the SR(s) to be performed is removed. Therefore, failing to perform the Surveillance(s) within the specified Frequency does not result in an SR 3.0.4 restriction to changing MODES or other specified conditions of the Applicability.

(continued)

BASES

INSERT B-5

SR 3.0.4 (continued)

However, since the LCO is not met in this instance, LCO 3.0.4 will govern any restrictions that may (or may not) apply to MODE or other specified condition changes.

The provisions of SR 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS. In addition, the provisions of LCO 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that result from any unit shutdown.

INSERT B-6

The precise requirements for performance of SRs are specified such that exceptions to SR 3.0.4 are not necessary. The specific time frames and conditions necessary for meeting the SRs are specified in the Frequency, in the Surveillance, or both. This allows performance of Surveillances when the prerequisite condition(s) specified in a Surveillance procedure require entry into the MODE or other specified condition in the Applicability of the associated LCO prior to the performance or completion of a Surveillance. A Surveillance that could not be performed until after entering the LCO Applicability, would have its Frequency specified such that it is not "due" until the specific conditions needed are met. Alternately, the Surveillance may be stated in the form of a Note as not required (to be met or performed) until a particular event, condition, or time has been, reached. Further discussion of the specific formats of SRs annotation is found in Section 1.4, Frequency.

's

~~SR 3.0.4 is only applicable for MODE changes when entering MODE 4 from MODE 5, MODE 3 from MODE 4, MODE 2 from MODE 3, or MODE 1 from MODE 2. Furthermore, SR 3.0.4 is applicable when entering any other specified condition in the Applicability only while operating MODES 1, 2, 3, or 4. The requirements of SR 3.0.4 do not apply in MODES 5 and 6, or in other specified conditions of the Applicability (unless in MODES 1, 2, 3, or 4) because the ACTIONS of individual Specifications sufficiently define the remedial measures to be taken.~~

INSERT B-4

A provision is included to allow entry into a MODE or other specified condition in the Applicability when an LCO is not met due to a Surveillance not being met in accordance with LCO 3.0.4.

INSERT B-5

SR 3.0.4 does not restrict changing MODES or other specified conditions of the Applicability when a Surveillance has not been performed within the specified Frequency, provided the requirement to declare the LCO not met has been delayed in accordance with SR 3.0.3.

INSERT B-6

In this context, a unit shutdown is defined as a change in MODE or other specified condition in the Applicability associated with transitioning from MODE 1 to MODE 2, MODE 2 to MODE 3, MODE 3 to MODE 4, and MODE 4 to MODE 5.

BASES

APPLICABLE SAFETY ANALYSES (continued)

SDM satisfies Criterion 2 of 10 CFR 50.36 (c)(2)(ii). Even though it is not directly observed from the control room, SDM is considered an initial condition process variable because it is periodically monitored to ensure that the unit is operating within the bounds of accident analysis assumptions.

LCO

SDM is a core design condition that can be ensured during operation through control rod positioning (control and shutdown banks) and through the soluble boron concentration.

The MSLB (Ref. 2) and the boron dilution (Ref. 3) accidents are the most limiting analyses that establish the SDM value of the LCO. For MSLB accidents, if the LCO is violated, there is a potential to exceed the DNBR limit and to exceed 10 CFR 100, "Reactor Site Criteria," limits (Ref. 4). For the boron dilution accident, if the LCO is violated, the minimum required time assumed for operator action to terminate dilution may no longer be applicable. The required SDM is specified in the COLR.

APPLICABILITY

In MODES 3, 4, and 5, the SDM requirements are applicable to provide sufficient negative reactivity to meet the assumptions of the safety analyses discussed above. In MODE 6, the shutdown reactivity requirements are given in LCO 3.9.1, "Boron Concentration." In MODES 1 and 2, SDM is ensured by complying with LCO 3.1.5, "Shutdown Bank Insertion Limits," and LCO 3.1.6, "Control Bank Insertion Limits."

ACTIONS

The ACTIONS table is modified by a Note prohibiting transition to a lower MODE within the Applicability ~~and entry into MODE 5 from MODE 6~~. LCO 3.0.4 already prohibits entry into MODE 4 from MODE 5 and into MODE 3 from MODE 4 when SDM requirements are not met.

A.1 MODE 5 from MODE 6,

If the SDM requirements are not met, boration must be initiated promptly. A Completion Time of 15 minutes is adequate for an operator to correctly align and start the required systems and components. It is assumed that

(continued)

BASES

ACTIONS

C.1 and C.2 (continued)

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

MODES 3, 4, or 5

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

LCO 22, 23, 24, 25. Core Exit Temperature (continued)

radial distribution of the coolant temperature rise across representative regions of the core. Power distribution symmetry was considered in determining the specific number and locations provided for diagnosis of local core problems. The two thermocouples in each channel must be located such that the pair of Core Exit Temperatures indicate the radial temperature gradient across their core quadrant. A Note specifies that each channel consists of two CETs. Two sets of two thermocouples ensure a single failure will not disable the ability to determine the radial temperature gradient.

APPLICABILITY

The PAM instrumentation LCO is applicable in MODES 1, 2, and 3. These variables are related to the diagnosis and pre-planned actions required to mitigate DBAs. The applicable DBAs are assumed to occur in MODES 1, 2, and 3. In MODES 4, 5, and 6, unit conditions are such that the likelihood of an event that would require PAM instrumentation is low; therefore, the PAM instrumentation is not required to be OPERABLE in these MODES.

ACTIONS

~~Note 1 has been added in the ACTIONS to exclude the MODE change restriction of LCO 3.0.4. This exception allows entry into the applicable MODE while relying on the ACTIONS even though the ACTIONS may eventually require unit shutdown. This exception is acceptable due to the passive function of the instruments, the operator's ability to respond to an accident using alternate instruments and methods, and the low probability of an event requiring these instruments.~~

A

Note ~~2~~ has been added in the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed on Table 3.3.3-1. The Completion Time(s) of the inoperable channel(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

(continued)

BASES (continued)

APPLICABILITY

The Remote Shutdown System LCO is applicable in MODES 1, 2, and 3. This is required so that the unit can be placed and maintained in MODE 3 for an extended period of time from a location other than the control room.

This LCO is not applicable in MODE 4, 5, or 6. In these MODES, the facility is already subcritical and in a condition of reduced RCS energy. Under these conditions, considerable time is available to restore necessary instrument control functions if control room instruments or controls become unavailable.

ACTIONS

~~Note 1 is included which excludes the MODE change restriction of LCO 3.0.4. This exception allows entry into an applicable MODE while relying on the ACTIONS even though the ACTIONS may eventually require a unit shutdown. This exception is acceptable due to the low probability of an event requiring the Remote Shutdown System and because the equipment can generally be repaired during operation without significant risk of spurious trip.~~

A

Note ~~2~~ has been added to the ACTIONS to clarify the application of Completion Time rules. Separate Condition entry is allowed for each Function listed on Table 3.3.4-1. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

A.1

Condition A addresses the situation where one or more required Functions of the Remote Shutdown System are inoperable. This includes any Function listed in Table 3.3.4-1, as well as the transfer switches and control circuits. A required Function is considered to be inoperable if one or more of its required channels is inoperable.

The Required Action is to restore the required Function to OPERABLE status within 30 days. The Completion Time is based on operating experience and the low probability of an event that would require evacuation of the control room.

(continued)

BASES

APPLICABILITY (continued)

In MODES 1 and 2, operators are alerted to an unplanned dilution event by a reactor trip on overtemperature delta-T or power range neutron flux high, low setpoint, respectively. As a protective measure in addition to HFASA, in MODE 5 with the loops not filled, unplanned dilution events are precluded by requiring the unborated water source (reactor makeup water storage tank (RMWST)) to be isolated.

ACTIONS

A.1

With one channel of HFASA inoperable, Required Action A.1 requires the inoperable channel to be restored within 48 hours. In this condition, one channel of HFASA remains available to provide protection. The 48 hour Completion Time is consistent with that required for an inoperable source range channel. Required Action A.1 is modified by a Note ~~providing an exception to LCO 3.0.4~~. When Condition A (and Required Action A.1) are applicable, the Note permits MODE changes provided that Required Action B.1 and B.2 are met. ~~LCO 3.0.4 allows MODE changes when the associated ACTIONS to be entered provide for continued operation for an unlimited period of time, or to comply with ACTIONS, or to facilitate a shutdown of the unit. The associated ACTIONS of LCO 3.3.8 provide for continued operation for an unlimited period of time. Therefore, with one channel of HFASA inoperable, LCO 3.0.4 would permit entry into the Applicability of LCO 3.3.8 and MODE changes within the 48 hour Completion Time allowed by Required Action A.1, before Condition B and Required Actions B.1 and B.2 would become applicable. In particular, when transitioning down through MODES 3, 4, and 5, the shutdown margin requirements become more restrictive to compensate for a postulated boron dilution event.~~ Required Action B.1 is a periodic verification of shutdown margin, and Required Action B.2 ensures that the unborated water source isolation valves are shut, precluding a boron dilution event. With one channel of HFASA inoperable, it is prudent to take the compensatory actions of Required Actions B.1 and B.2 if MODE changes are desired or required.

stating that LCO 3.0.4c is applicable provided that Required Actions B.1 and B.2 are met.

B.1 and B.2

With the Required Action A.1 and associated Completion Time not met, or with both channels of HFASA inoperable, the appropriate ACTIONS are to verify that the required SDM is present and isolate the unborated water source by performing

(continued)

BASES

LCO (continued)

Note 3 allows valves in the flowpath from the RMWST, through the chemical mixing tank, to the suction of the charging pumps to be open under administrative control provided the SDM requirements of LCO 3.1.1 are met and the high flux at shutdown alarm is OPERABLE. (OPERABILITY of the high flux at shutdown alarm is defined by LCO 3.3.8.) This permits the addition of chemicals to the RCS as necessary in this MODE of operation while minimizing the risk of an uncontrolled boron dilution transient.

An OPERABLE RHR loop is comprised of an OPERABLE RHR pump capable of providing forced flow to an OPERABLE RHR heat exchanger. RHR pumps are OPERABLE if they are capable of being powered and are able to provide flow if required.

APPLICABILITY

In MODE 5 with loops not filled, this LCO requires core heat removal and coolant circulation by the RHR System.

Operation in other MODES is covered by:

LCO 3.4.4, "RCS Loops — MODES 1 and 2";
LCO 3.4.5, "RCS Loops — MODE 3";
LCO 3.4.6, "RCS Loops — MODE 4";
LCO 3.4.7, "RCS Loops — MODE 5, Loops Filled";
LCO 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation — High Water Level" (MODE 6); and
LCO 3.9.6, "Residual Heat Removal (RHR) and Coolant Circulation — Low Water Level" (MODE 6).

ACTIONS

~~The ACTIONS table is modified by a Note prohibiting entry into MODE 5 with the loops not filled while the LCO is not met.~~

A.1

If only one RHR loop is OPERABLE and in operation, redundancy for RHR is lost. Action must be initiated to restore a second loop to OPERABLE status. The immediate Completion Time reflects the importance of maintaining the availability of two paths for heat removal.

(continued)

BASES

APPLICABILITY (continued)

requirements in MODES 4, 5, and 6 with the reactor vessel head in place.

ACTIONS

A

Note ~~1~~ has been added to clarify that all pressurizer PORVs are treated as separate entities, each with separate Completion Times (i.e., the Completion Time is on a component basis). ~~The exception for LCO 3.0.4, Note 2, permits entry into MODES 1, 2, and 3 with inoperable PORVs that are not capable of being manually cycled or inoperable block valves.~~

A.1

PORVs may be inoperable and capable of being manually cycled (e.g., excessive seat leakage, instrumentation problems, or other causes that do not create a possibility for a small break LOCA). In this condition, either the PORVs must be restored or the flow path isolated within 1 hour. The associated block valve is required to be closed, but power must be maintained to the associated block valve, since removal of power would render the block valve inoperable. The PORVs may be considered OPERABLE in either the manual or automatic mode. This permits operation of the plant until the next refueling outage (MODE 6) so that maintenance can be performed on the PORVs to eliminate the problem condition.

Quick access to the PORV for pressure control can be made when power remains on the closed block valve. The Completion Time of 1 hour is based on plant operating experience that has shown that minor problems can be corrected or closure accomplished in this time period.

B.1, B.2, and B.3

If one PORV is inoperable and not capable of being manually cycled, it must be either restored or isolated by closing the associated block valve and removing the power to the associated block valve. The Completion Times of 1 hour are reasonable, based on challenges to the PORVs during this time period, and provide the operator adequate time to correct the situation. If the inoperable valve cannot be restored to OPERABLE status, it must be isolated within the specified time. Because there is at least one PORV that remains OPERABLE, an additional 72 hours is provided to restore the inoperable PORV to

(continued)

BASES

APPLICABILITY (continued)

OPERABILITY of the pressurizer safety valves that provide overpressure protection during MODES 1, 2, and 3.

Low temperature overpressure prevention is most critical during shutdown when the RCS is water solid, and a mass or heat input transient can cause a very rapid increase in RCS pressure when little or no time allows operator action to mitigate the event.

The Applicability is modified by a Note stating that accumulator isolation is only required when the accumulator pressure is more than or at the maximum RCS pressure for the existing temperature, as allowed by the P/T limit curves. This Note permits the accumulator discharge isolation valve Surveillance to be performed only under these pressure and temperature conditions.

the application of LCO 3.0.4b for entry into MODE 4 as well as

ACTIONS

Two Notes modify the ACTIONS table. Note 1 prohibits entry into MODE 6 with the vessel head on from MODE 6 and MODE 5 from MODE 6 with the vessel head on. ~~Entry into MODE 4 from MODE 5 is already prohibited by LCO 3.0.4.~~ Note 2 permits entry into MODE 4 from MODE 3 with a PORV that is inoperable for the purpose of cold overpressure protection provided that RCS temperature is maintained above 275°F, and, within 36 hours, either: the PORV is restored to OPERABLE status; or, an RHR suction relief valve is placed in service so that the requirements of LCO 3.4.12 are met. Otherwise, the reactor vessel must be depressurized and vented in accordance with Required Action F.1. With only one PORV OPERABLE, the COPS remains capable of mitigating a design basis cold overpressurization event. However, the system cannot withstand a single failure of the remaining PORV. The current COPS enable temperature is established very conservatively at 350°F. However, the application of ASME Code Case N-514 would allow the enable temperature to be lowered to less than 275°F. Therefore, when entering this LCO from MODE 3 with one required PORV inoperable, maintaining RCS temperature above 275°F minimizes actual exposure to a cold overpressure event. Furthermore, requiring action within 36 hours minimizes the exposure to a single failure while allowing sufficient time to either restore the inoperable PORV or to place RHR in service. Note 2 is only applicable to the condition of entering MODE 4 from MODE 3 with one required PORV inoperable for the purpose of cold overpressure protection. If operating in MODE 4 and a failure of a required RCS relief valve occurs, Condition D applies.

INSERT B-7

(continued)

INSERT B-7

There is an increased risk associated with entering MODE 4 from MODE 5, MODE 6 with the reactor vessel head on from MODE 6, and MODE 5 from MODE 6 with the reactor vessel head on with COPS inoperable. The provisions of LCO 3.0.4b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in these circumstances.

BASES (continued)

ACTIONS

A.1

With one containment sump monitor inoperable, the remaining containment sump monitors, the containment atmosphere radioactivity monitor, and/or the containment air cooler condensate flow rate monitor will provide indications of changes in leakage. Together with these monitors, the periodic surveillance for RCS water inventory balance, SR 3.4.13.1, must be performed at an increased frequency of 24 hours to provide information that is adequate to detect leakage.

~~Required Action A.1 is modified by a Note that indicates that the provisions of LCO 3.0.4 are not applicable. As a result, a MODE change is allowed when a containment sump monitor is inoperable. This allowance is provided because other instrumentation is available to monitor RCS leakage.~~

B.1 and B.2

With two or more containment sump monitors inoperable, no other form of sampling or monitors can provide the equivalent information; however, the containment atmosphere radioactivity and/or containment air cooler condensate flow rate monitors will provide indications of changes in leakage. Together with these remaining monitors, the periodic surveillance for RCS water inventory balance, SR 3.4.13.1, must be performed at an increased frequency of 24 hours to provide information that is adequate to detect leakage.

Restoration of at least two sump monitors to OPERABLE status within a Completion Time of 30 days is required to regain most of this function and allow operation to continue under the provisions of Condition A. This Completion Time is acceptable, considering the remaining OPERABLE atmosphere radioactivity and/or condensate flow rate monitors and the Frequency and adequacy of the RCS water inventory balance required by Action B.1.

~~The Required Actions are modified by a Note that indicates that the provisions of LCO 3.0.4 are not applicable. As a result, a MODE change is allowed when two or more containment sump monitors are inoperable. This allowance is~~

(continued)

BASES

ACTIONS

B.1 and B.2 (continued)

~~provided because other instrumentation is available and additional action is required to monitor RCS leakage.~~

C.1.1, C.1.2, C.2.1, and C.2.2

With both gaseous and particulate containment atmosphere radioactivity monitoring instrumentation channels inoperable, alternative action is required. Either grab samples of the containment atmosphere must be taken and analyzed or water inventory balances, in accordance with SR 3.4.13.1, must be performed to provide alternate periodic information.

With a sample obtained and analyzed or water inventory balance performed every 24 hours, the reactor may be operated for up to 30 days to allow restoration of the required containment atmosphere radioactivity monitors. Alternatively, continued operation is allowed if the air cooler condensate flow rate monitoring system is OPERABLE, provided grab samples are taken every 24 hours.

The 24 hour interval provides periodic information that is adequate to detect leakage. The 30 day Completion Time recognizes at least one other form of leakage detection is available.

~~Required Action C.1 and Required Action C.2 are modified by a Note that indicates that the provisions of LCO 3.0.4 are not applicable. As a result, a MODE change is allowed when the gaseous and particulate containment atmosphere radioactivity monitor channel is inoperable. This allowance is provided because other instrumentation is available to monitor for RCS LEAKAGE.~~

D.1 and D.2

With the required containment air cooler condensate flow rate monitor inoperable, alternative action is again required. Either SR 3.4.15.2 must be performed or water inventory balances, in accordance with SR 3.4.13.1, must be performed to provide alternate periodic information.

(continued)

A Note permits the use of the provisions of LCO 3.0.4c. This allowance permits entry into the applicable MODE(S) while relying on the ACTIONS.

BASES (continued)

ACTIONS

~~A Note to the ACTIONS excludes the MODE change restriction of LCO 3.0.4. This exception allows entry into the applicable MODE(S) while relying on the Actions even though the Actions may eventually require plant shutdown.~~ This ~~exception~~ is acceptable due to the significant conservatism incorporated into the specific activity limit, the low probability of an event which is limiting due to exceeding this limit, and the ability to restore transient specific activity excursions while the unit remains at or proceeds to power operation.

allowance

A.1 and A.2

With the DOSE EQUIVALENT I-131 greater than the LCO limit, samples at intervals of 4 hours must be taken to demonstrate that the limits of Figure 3.4.16-1 are not exceeded. The Completion Time of 4 hours is required to obtain and analyze a sample. Sampling is done to continue to provide a trend.

The DOSE EQUIVALENT I-131 must be restored to within limits within 48 hours. The Completion Time of 48 hours is acceptable because of the low probability of an SGTR accident occurring during this period.

B.1 and B.2

With the gross specific activity in excess of the allowed limit, an analysis must be performed within 4 hours to determine DOSE EQUIVALENT I-131. The Completion Time of 4 hours is required to obtain and analyze a sample.

The change within 6 hours to MODE 3 and RCS average temperature < 500°F lowers the saturation pressure of the reactor coolant below the setpoints of the main steam safety valves and prevents venting the SG to the environment in an SGTR event. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 below 500°F from full power conditions in an orderly manner and without challenging plant systems.

(continued)

BASES

LCO (continued)

In MODE 4, an ECCS train consists of a centrifugal charging subsystem and an RHR subsystem. Each train includes the piping, instruments, and controls to ensure an OPERABLE flow path capable of taking suction from the RWST and transferring suction to the containment sump.

During an event requiring ECCS actuation, a flow path is required to provide an abundant supply of water from the RWST to the RCS via the ECCS pumps and their respective supply headers to each of the four cold leg injection nozzles. In the long term, this flow path may be switched to take its supply from the containment sump and to deliver its flow to the RCS hot and cold legs.

APPLICABILITY

In MODES 1, 2, and 3, the OPERABILITY requirements for ECCS are covered by LCO 3.5.2.

In MODE 4 with RCS temperature below 350°F, one OPERABLE ECCS train is acceptable without single failure consideration, on the basis of the stable reactivity of the reactor and the limited core cooling requirements.

In MODES 5 and 6, plant conditions are such that the probability of an event requiring ECCS injection is extremely low. Core cooling requirements in MODE 5 are addressed by LCO 3.4.7, "RCS Loops — MODE 5, Loops Filled," and LCO 3.4.8, "RCS Loops — MODE 5, Loops Not Filled." MODE 6 core cooling requirements are addressed by LCO 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation — High Water Level," and LCO 3.9.6, "Residual Heat Removal (RHR) and Coolant Circulation — Low Water Level."

ACTIONS

INSERT B-8

A.1

With no ECCS RHR subsystem OPERABLE, the plant is not prepared to respond to a loss of coolant accident or to continue a cooldown using the RHR pumps and heat exchangers. The Completion Time of immediately to initiate actions that would restore at least one ECCS RHR subsystem to OPERABLE status ensures that prompt action is taken to restore the required cooling capacity. Normally, in MODE 4, reactor

(continued)

INSERT B-8

A Note prohibits the application of LCO 3.0.4b to an inoperable ECCS centrifugal charging pump subsystem when entering MODE 4. There is an increased risk associated with entering MODE 4 from MODE 5 with an inoperable ECCS centrifugal charging pump subsystem and the provisions of LCO 3.0.4b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

BASES

ACTIONS

A.1 (continued)

~~Required Action A.1 has been modified by a Note that states the provisions of LCO 3.0.4 are not applicable. As a result, a MODE change is allowed when one recombiner is inoperable. This allowance is based on the availability of the other hydrogen recombiner, the small probability of a LOCA or SLB occurring (that would generate an amount of hydrogen that exceeds the flammability limit), and the amount of time available after a LOCA or SLB (should one occur) for operator action to prevent hydrogen accumulation from exceeding the flammability limit.~~

B.1 and B.2

With two hydrogen recombiners inoperable, the ability to perform the hydrogen control function via alternate capabilities must be verified by administrative means within 1 hour. The alternate hydrogen control capabilities are provided by the containment Hydrogen Purge System/Containment Air Dilution System. The 1 hour Completion Time allows a reasonable period of time to verify that a loss of hydrogen control function does not exist. In addition, the alternate hydrogen control system capability must be verified every 12 hours thereafter to ensure its continued availability. Both the initial verification and all subsequent verifications may be performed as an administrative check by examining logs or other information to determine the availability of the alternate hydrogen control system. It does not mean to perform the Surveillances or other testing needed to demonstrate OPERABILITY of the alternate hydrogen control system. If the ability to perform the hydrogen control function is maintained, continued operation is permitted with two hydrogen recombiners inoperable for up to 7 days. Seven days is a reasonable time to allow two hydrogen recombiners to be inoperable because the hydrogen control function is maintained and because of the low probability of the occurrence of a LOCA that would generate hydrogen in the amounts capable of exceeding the flammability limit.

(continued)

BASES

APPLICABILITY (continued)

to provide the decay heat removal function in MODE 4. Therefore, the ARVs are not required OPERABLE in MODE 4 to satisfy the safety analysis assumptions of the DBA. However, the capability to remove decay heat from an SG required OPERABLE in MODE 4 by LCO 3.4.6, "RCS Loops - MODE 4" is implicit in the requirement for an OPERABLE SG and may require the associated ARV be capable of removing that heat if the normal decay heat removal system (steam dump) is not available.

In MODE 5 or 6, an SGTR is not a credible event.

ACTIONS

A.1

With one required ARV line inoperable, action must be taken to restore OPERABLE status within 30 days. The 30 day Completion Time is reasonable considering the low probability of an SGTR event coincident with a loss of offsite power requiring the use of the ARVs and the redundant capability afforded by the remaining OPERABLE ARV lines, a nonsafety grade backup in the Steam Dump System, and MSSVs. ~~Required Action A.1 is modified by a Note indicating that LCO 3.0.4 does not apply.~~

B.1

With two or more required ARV lines inoperable, action must be taken to restore all but one required ARV line to OPERABLE status. Since the block valve can be closed to isolate an ARV, some repairs may be possible with the unit at power. The 24 hour Completion Time is reasonable to repair inoperable ARV lines, based on the availability of the Steam Dump System and MSSVs, and the low probability of an event occurring during this period that would require the ARV lines.

C.1 and C.2

If the ARV lines cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To

(continued)

BASES

LCO (continued)

inoperable, the turbine driven AFW train is to be considered inoperable. If 125 V MCC 1/2CD1M becomes inoperable, the turbine driven AFW train is to be considered inoperable.

The AFW System is configured into three trains. The AFW System is considered OPERABLE when the components and flow paths required to provide redundant AFW flow to the steam generators are OPERABLE. This requires that the two motor driven AFW pumps be OPERABLE in two diverse paths, each supplying AFW to separate steam generators. The turbine driven AFW pump is required to be OPERABLE with redundant steam supplies from each of two main steam lines upstream of the MSIVs, and shall be capable of supplying AFW to any of the steam generators. The piping, valves, instrumentation, and controls in the required flow paths also are required to be OPERABLE. The AFW pumphouse ESF supply fans and associated dampers must be OPERABLE to support operation of the motor driven pumps, and the ESF outside air intake and exhaust dampers must be OPERABLE to support operation of the turbine driven pump.

Although the AFW System can be used in MODE 4 to add to SG inventory when the SG is being used to support RCS operability requirements in accordance with LCO 3.4.6, the LCO does not require the AFW System to be OPERABLE in MODE 4.

APPLICABILITY

In MODES 1, 2, and 3, the AFW System is required to be OPERABLE in the event that it is called upon to function when the MFW is lost.

In MODE 4 the AFW System may be used for heat removal via the steam generators, but is not required since the RHR System is available in this MODE.

In MODE 5 or 6, the steam generators are not normally used for heat removal, and the AFW System is not required.

ACTIONS

INSERT B-9

A.1

If one of the two steam supplies to the turbine driven AFW train is inoperable, action must be taken to restore OPERABLE status within 7 days. The 7 day Completion Time is reasonable, based on the following reasons:

(continued)

INSERT B-9

A Note prohibits the application of LCO 3.0.4b to an inoperable AFW train when entering MODE 1. There is an increased risk associated with entering MODE 1 with an AFW train inoperable and the provisions of LCO 3.0.4b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

BASES

ACTIONS (continued)

D.1

If the control room boundary is inoperable in MODES 1, 2, 3, and 4, the CREFS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room boundary within 24 hours. During the period that the control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) will be utilized to provide physical security and to protect control room operators from potential hazards such as radioactive contamination, smoke, temperature, and relative humidity. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. These preplanned measures will include, but not necessarily be limited to, suspension of movement of irradiated fuel assemblies and/or loads over irradiated fuel assemblies within the fuel handling building. The 24-hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period and the use of compensatory measures. The 24-hour Completion Time is a typically reasonable time to test, diagnose, plan, and possibly execute a repair of most problems with the control room boundary.

E.1

With the control room air temperature outside its limit, action must be taken to restore the air temperature to within the limit within 7 days. If the control room air temperature exceeds its limit, the ability of a single train of CREFS to maintain control room temperature after a CRI may be affected. The completion time of 7 days is reasonable considering the number of CREFS trains available to perform the required temperature control function and the low probability of an event occurring that would require the CREFS operation during that time.

~~The Required Actions are modified by a Note that states LCO 3.0.4 is not applicable. In consideration of the number of redundant CREFS trains available, the small variation in temperature expected between 12 hour surveillances, and the marginal impact small temperature variations may have on the ability of a CREFS train to maintain the control room temperature within limits, an exception to LCO 3.0.4 is applicable for this condition.~~

(continued)

BASES

ACTIONS (continued)

F.1, F.2, and F.3

If the Required Actions and associated Completion Times of Conditions A, B, C, D, or E are not met, action must be taken to place the unit in a condition where the inoperable CREFS train(s) are no longer required. Locking closed the outside air (OSA) dampers in the affected unit and locking open the OSA dampers in the unaffected unit within 1 hour, ensure that all control room air intake is monitored by redundant radiogas monitors that actuate OPERABLE CREFS trains. The affected unit(s) must also be placed in MODE 3 within the following 6 hours and MODE 5 within the following 36 hours, which removes the requirement for control room protection in the event of an SI in the affected unit(s). These actions ensure that if the control room cannot be protected from all postulated accident and single failure conditions, the unit or units are placed in a MODE where the protection is no longer required. The allowed Completion Times are reasonable, based on operating experience, to perform the Required Actions and to reach the required unit conditions from full power conditions in an orderly manner without challenging unit systems.

~~All the Required Actions are modified by a Note that clarifies the application of LCO 3.0.4. Since the shutdown actions may only apply to the affected unit and the unaffected unit may continue to operate, LCO 3.0.4 does not apply to the unaffected unit in this Condition.~~

Required Action F.1 is modified by a Note that excepts Conditions B, D, and E. Conditions B, D, and E affect both units, and Required Action F.1 is based on a single affected unit. Therefore, upon entry into Condition F from Condition B, D, or E, only Required Actions F.2 and F.3 apply.

SURVEILLANCE REQUIREMENTS

SR 3.7.10.1

The CREFS is required to maintain the control room temperature ≤ 85°F in the event of a CRI. The maintenance of the control room below this temperature ensures the operational requirements of equipment located in the control room will not be exceeded. To accomplish this function, the CREFS air flow is directed through cooling coils which are supplied by the Essential Chilled Water System. The design cooling capacity of the CREFS and the limitation of the normal control room ambient temperature (before CRI) ensure the capability of the CREFS to maintain the

(continued)

BASES

ACTIONS

F.1 (continued)

temperature, and relative humidity. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. These preplanned measures will include, but not necessarily be limited to, suspension of CORE ALTERATIONS and/or movement of irradiated fuel assemblies and/or loads over irradiated fuel assemblies. The 24-hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period and the use of compensatory measures. The 24-hour Completion Time is a typically reasonable time to test, diagnose, plan, and possibly execute a repair of most problems with the control room boundary.

G.1

With the control room air temperature outside its limit, action must be taken to restore the air temperature to within the limit within 7 days. If the control room air temperature exceeds its limit, the ability of a single train of CREFS to maintain control room temperature after a CRI may be affected. The completion time of 7 days is reasonable considering the number of CREFS trains available to perform the required temperature control function and the low probability of an event occurring that would require the CREFS operation during that time.

~~The Required Actions are modified by a Note that states LCO 3.0.4 is not applicable. In consideration of the number of redundant CREFS trains available, the small variation in temperature expected between 12 hour surveillances, and the marginal impact small temperature variations may have on the ability of a CREFS train to maintain the control room temperature within limits, an exception to LCO 3.0.4 is applicable for this condition.~~

H.1 and H.2

If the Required Actions and associated Completion Times for the operating unit are not met, action must be taken to place the unit in a condition where the inoperable CREFS train(s) are no longer required. The operating unit must be placed in MODE 3 within 6 hours and MODE 5 within 36 hours, which removes the requirement for control room protection in the event of an SI in the

(continued)

BASES

ACTIONS

F.1 (continued)

of CREFS to maintain control room temperature after a CRI may be affected. The completion time of 7 days is reasonable considering the number of CREFS trains available to perform the required temperature control function and the low probability of an event occurring that would require the CREFS operation during that time.

~~The Required Actions are modified by a Note that states LCO 3.0.4 is not applicable. In consideration of the number of redundant CREFS trains available, the small variation in temperature expected between 12 hour surveillances, and the marginal impact small temperature variations may have on the ability of a CREFS train to maintain the control room temperature within limits, an exception to LCO 3.0.4 is applicable for this condition.~~

SURVEILLANCE REQUIREMENTS

SR 3.7.12.1

SR 3.7.12.1 requires that the SRs specified in LCO 3.7.10 be applicable for this LCO as well. The description and Frequencies of those required SRs are included in the Bases for LCO 3.7.10.

REFERENCES

1. VEGP Calculation No. X6CNA.09.01, Control Room HVAC Technical Specifications, October 21, 1988.

BASES

LCO (continued)

train. For the DGs, separation and independence are complete.

For the offsite AC sources, separation and independence are to the extent practical. A circuit may be connected to more than one ESF bus while the bus is being transferred to the other circuit.

APPLICABILITY

The AC sources and sequencers are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that:

a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients; and

b. Adequate core cooling is provided and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

The AC power requirements for MODES 5 and 6 are covered in LCO 3.8.2, "AC Sources — Shutdown."

ACTIONS

INSERT B-10

A.1

To ensure a highly reliable power source remains with one offsite circuit inoperable, it is necessary to verify the OPERABILITY of the remaining required offsite circuit on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action not met. However, if a second required circuit fails SR 3.8.1.1, the second offsite circuit is inoperable, and Condition D, for two offsite circuits inoperable, is entered.

A.2

Required Action A.2, which only applies if the train cannot be powered from an offsite source, is intended to provide assurance that an event coincident with a single failure of the associated DG will not result in a complete loss of safety function of critical redundant required features.

(continued)

INSERT B-10

A Note prohibits the application of LCO 3.0.4b to an inoperable DG. There is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable DG and the provisions of LCO 3.0.4b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

BASES

APPLICABLE SAFETY ANALYSES (continued)

The RCS boron concentration satisfies Criterion 2 of 10 CFR 50.36 (c)(2)(ii).

LCO

The LCO requires that a minimum boron concentration be maintained in all filled portions of the RCS, the refueling canal, and the refueling cavity while in MODE 6. The boron concentration limit specified in the COLR ensures that a core k_{eff} of ≤ 0.95 is maintained during fuel handling operations. Violation of the LCO could lead to an inadvertent criticality during MODE 6.

APPLICABILITY

This LCO is applicable in MODE 6 to ensure that the fuel in the reactor vessel will remain subcritical. The required boron concentration ensures a $k_{eff} \leq 0.95$. In MODES 1 and 2, LCO 3.1.4, "Rod Group Alignment Limits," LCO 3.1.5, "Shutdown Bank Insertion Limits," and LCO 3.1.6, "Control Bank Insertion Limits," ensure an adequate amount of negative reactivity is available to shut down the reactor. In MODES 3, 4, and 5, LCO 3.1.1, "SHUTDOWN MARGIN" ensures an adequate amount of negative reactivity is available to shut down the reactor.

ACTIONS

~~The ACTIONS table is modified by a Note prohibiting entry into MODE 6 if the RCS boron concentration specified in the COLR is not met.~~

A.1 and A.2

Continuation of CORE ALTERATIONS or positive reactivity additions (including actions to reduce boron concentration) is contingent upon maintaining the unit in compliance with the LCO. If the boron concentration of any coolant volume in the filled portions of the RCS, the refueling canal, or the refueling cavity is less than its limit, all operations involving CORE ALTERATIONS or positive reactivity additions must be suspended immediately.

Suspension of CORE ALTERATIONS and positive reactivity additions shall not preclude moving a component to a safe position or normal cooldown of the coolant volume for the purpose of system temperature control.

(continued)

BASES

LCO (continued)

Additionally, one loop of RHR must be in operation in order to provide:

a. Removal of decay heat;

b. Mixing of borated coolant to minimize the possibility of criticality; and

c. Indication of reactor coolant temperature.

An OPERABLE RHR loop consists of an RHR pump, a heat exchanger, valves, piping, instruments and controls to ensure an OPERABLE flow path and to determine the low end temperature. The flow path starts in one of the RCS hot legs and is returned to the RCS cold legs.

APPLICABILITY

Two RHR loops are required to be OPERABLE, and one RHR loop must be in operation in MODE 6, with the water level < 23 ft above the top of the reactor vessel flange, to provide decay heat removal and mixing of the borated coolant. Requirements for the RHR System in other MODES are covered by LCOs in Section 3.4, Reactor Coolant System (RCS), and Section 3.5, Emergency Core Cooling Systems (ECCS). RHR loop requirements in MODE 6 with the water level ≥ 23 ft are located in LCO 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation — High Water Level."

ACTIONS

~~The ACTIONS table is modified by a Note that prohibits entry into the Applicability while this LCO is not met.~~

A.1 and A.2

If less than the required number of RHR loops are OPERABLE, action shall be immediately initiated and continued until the RHR loop is restored to OPERABLE status and to operation or until ≥ 23 ft of water level is established above the reactor vessel flange. When the water level is ≥ 23 ft above the reactor vessel flange, the Applicability changes to that of LCO 3.9.5, and only one RHR loop is required to be OPERABLE and in operation. An immediate Completion Time is necessary for an operator to initiate corrective actions.

(continued)

Enclosure 3

Vogtle Electric Generating Plant
Request to Revise Technical Specifications
Regarding Mode Change Limitations Using
The Consolidated Line Item Improvement Process

Clean-typed TS and Bases Pages

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-1 SINGLE FREQUENCY

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Perform CHANNEL CHECK.	12 hours

Example 1.4-1 contains the type of SR most often encountered in the Technical Specifications (TS). The Frequency specifies an interval (12 hours) during which the associated Surveillance must be performed at least one time. Performance of the Surveillance initiates the subsequent interval. Although the Frequency is stated as 12 hours, an extension of the time interval to 1.25 times the stated Frequency is allowed by SR 3.0.2 for operational flexibility. The measurement of this interval continues at all times, even when the SR is not required to be met per SR 3.0.1 (such as when the equipment is inoperable, a variable is outside specified limits, or the unit is outside the Applicability of the LCO). If the interval specified by SR 3.0.2 is exceeded while the unit is in a MODE or other specified condition in the Applicability of the LCO, and the performance of the Surveillance is not otherwise modified (refer to Example 1.4-3), then SR 3.0.3 becomes applicable.

If the interval as specified by SR 3.0.2 is exceeded while the unit is not in a MODE or other specified condition in the Applicability of the LCO for which performance of the SR is required, then SR 3.04 becomes applicable. The Surveillance must be performed within the Frequency requirements of SR 3.0.2, as modified by SR 3.0.3, prior to entry into the MODE or other specified condition or the LCO is considered not met (in accordance with SR 3.0.1) and LCO 3.0.4 becomes applicable.

(continued)

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1

LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2.

LCO 3.0.2

Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6.

If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required unless otherwise stated.

LCO 3.0.3

When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable. Action shall be initiated within 1 hour to place the unit, as applicable, in:

a. MODE 3 within 7 hours;

b. MODE 4 within 13 hours; and

c. MODE 5 within 37 hours.

Exceptions to this Specification are stated in the individual Specifications.

Where corrective measures are completed that permit operation in accordance with the LCO or ACTIONS, completion of the actions required by LCO 3.0.3 is not required.

LCO 3.0.3 is only applicable in MODES 1, 2, 3, and 4.

LCO 3.0.4

When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall only be made:

a. When the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time; or

(continued)

3.0 LCO APPLICABILITY

LCO 3.0.4 (continued)

b. After performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate; exceptions to this Specification are stated in the individual Specifications; or

c. When an allowance is stated in the individual value, parameter, or other Specification.

This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

LCO 3.0.5

Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

LCO 3.0.6

When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, additional evaluations and limitations may be required in accordance with Specification 5.5.15, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

(continued)

3.0 SR APPLICABILITY

SR 3.0.3 (continued)	When the Surveillance is performed within the delay period and the Surveillance is not met, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.
SR 3.0.4	Entry into a MODE or other specified condition in the Applicability of an LCO shall only be made when the LCO's Surveillances have been met within their specified Frequency, except as provided by SR 3.0.3. When an LCO is not met due to Surveillances not having been met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with LCO 3.0.4. This provision shall not prevent entry into MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

3.1 REACTIVITY CONTROL SYSTEMS

3.1.1 SHUTDOWN MARGIN (SDM)

LCO 3.1.1 SDM shall be ≥ the limit specified in the COLR.

APPLICABILITY: MODES 3, 4, and 5.

ACTIONS

----------NOTE----------
While this LCO is not met, transition to a lower MODE within the Applicability is not permitted.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SDM not within limit.	A.1 Initiate boration to restore SDM to within limit.	15 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.1.1	Verify SDM is ≥ the limit specified in the COLR.	24 hours

3.3 INSTRUMENTATION

3.3.1 Reactor Trip System (RTS) Instrumentation

LCO 3.3.1 The RTS instrumentation for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more Functions with one or more required channels inoperable.	A.1	Enter the Condition referenced in Table 3.3.1-1 for the channel(s).	Immediately
B. One Manual Reactor Trip channel inoperable.	B.1	Restore channel to OPERABLE status.	48 hours
	OR		
	B.2	Be in MODE 3.	54 hours
C. ----------NOTE---------- While this LCO is not met for Functions 1, 17, 18, or 19 in MODES 3, 4, or 5, closing the reactor trip breakers is not permitted. ---------- One channel or train inoperable.	C.1	Restore channel or train to OPERABLE status.	48 hours
	OR		
	C.2	Open RTBs.	49 hours

(continued)

3.3 INSTRUMENTATION

3.3.3 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.3 The PAM instrumentation for each Function in Table 3.3.3-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more functions with one or more required channels inoperable.	A.1 Enter the applicable Condition referenced in Table 3.3.3-1 for the channels.	Immediately
B. ----------NOTE---------- For containment isolation valve position indication, separate Condition entry is allowed for each penetration flow path. ---------- One required channel inoperable.	B.1 Restore the channel to OPERABLE status.	30 days

(continued)

3.3 INSTRUMENTATION

3.3.4 Remote Shutdown System

LCO 3.3.4 The Remote Shutdown System Functions in Table 3.3.4-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required Functions inoperable.	A.1	Restore required Function to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 4.	12 hours

3.3 INSTRUMENTATION

3.3.8 High Flux at Shutdown Alarm (HFASA)

LCO 3.3.8 Two channels of HFASA shall be OPERABLE.

APPLICABILITY: MODES 3, 4, and 5

----------NOTE----------
The HFASA may be blocked in MODE 3 during reactor startup.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel of HFASA inoperable.	A.1 ----------NOTE---------- LCO 3.0.4c is applicable provided Required Actions B.1 and B.2 are met. ---------- Restore channel to OPERABLE status.	48 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Two channels of HFASA inoperable.	B.1 Perform SR 3.1.1.1 (verify SDM).	1 hour <u>AND</u> Once per 12 hours thereafter
	<u>AND</u>	
	B.2 Perform SR 3.9.2.1 (verify unborated water source isolated).	4 hours <u>AND</u> Once per 14 days thereafter

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One RHR loop inoperable.	A.1	Initiate action to restore RHR loop to OPERABLE status.	Immediately
B. Required RHR loops inoperable. OR No RHR loop in operation.	B.1	Suspend all operations involving reduction in RCS boron concentration.	Immediately
	AND		
	B.2	Initiate action to restore one RHR loop to OPERABLE status and to operation.	Immediately
C. One or more valves used to isolate unborated water sources not secured in closed position.	C.1	Initiate action to secure valve(s) in closed position.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Verify one RHR loop is in operation.	12 hours
SR 3.4.8.2	Verify correct breaker alignment and indicated power are available to the required RHR pump that is not in operation.	7 days
SR 3.4.8.3	Verify each valve that isolates unborated water sources is secured in the closed position.	31 days

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.11 Pressurizer Power Operated Relief Valves (PORVs)

LCO 3.4.11 Each PORV and associated block valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each PORV.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more PORVs inoperable and capable of being manually cycled.	A.1	Close and maintain power to associated block valve.	1 hour
B. One PORV inoperable and not capable of being manually cycled.	B.1	Close associated block valve.	1 hour
	AND		
	B.2	Remove power from associated block valve.	1 hour
	AND		
	B.3	Restore PORV to OPERABLE status.	72 hours

(continued)

ACTIONS

----------NOTES----------

1. LCO 3.0.4b is not applicable for entry in MODE 4, entry into MODE 6 with the reactor vessel head on from MODE 6, and entry into MODE 5 from MODE 6 with the reactor vessel head on.

2. With one required PORV inoperable for the purpose of cold overpressure protection, entry into MODE 4 from MODE 3 is permitted provided that RCS temperature is maintained above 275°F, and, within 36 hours, either: the PORV is restored to OPERABLE status; or, an RHR suction relief valve is placed in service so that the requirements of LCO 3.4.12 are met. Otherwise, the reactor vessel must be depressurized and vented in accordance with Required Action F.1.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more safety injection pumps capable of injecting into the RCS.	A.1	Render all safety injection pumps incapable of injecting into the RCS.	4 hours
B. An accumulator not isolated when the accumulator pressure is greater than or equal to the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	B.1	Isolate affected accumulator.	1 hour
C. Required Action and associated Completion Time of Condition B not met.	C.1	Increase RCS cold leg temperature to > 350°F.	12 hours
	OR		
	C.2	Depressurize affected accumulator to less than the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	12 hours
D. One required RCS relief valve inoperable in MODE 4.	D.1	Restore required RCS relief valve to OPERABLE status.	7 days

(continued)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

LCO 3.4.15 The following RCS leakage detection instrumentation shall be OPERABLE:

a. The containment normal sumps level and reactor cavity sump monitors;

b. One containment atmosphere radioactivity monitor (gaseous or particulate); and

c. Either the containment air cooler condensate flow rate or a containment atmosphere gaseous or particulate radioactivity monitoring system not taken credit for in item b.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One containment sump monitor inoperable.	A.1	Perform SR 3.4.13.1.	Once per 24 hours
B. Two or more containment sump monitors inoperable	B.1	Perform SR 3.4.13.1	Once per 24 hours
	AND		
	B.2	Restore at least two containment sump monitors to OPERABLE status.	30 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Required containment atmosphere radioactivity monitor(s) inoperable.	C.1.1	Analyze grab samples of the containment atmosphere.	Once per 24 hours
	OR		
	C.1.2	Perform SR 3.4.13.1.	Once per 24 hours
	AND		
	C.2.1	Restore required containment atmosphere radioactivity monitor(s) to OPERABLE status.	30 days
	OR		
	C.2.2	Verify containment air cooler condensate flow rate monitor is OPERABLE.	30 days
D. Required containment air cooler condensate flow rate monitor inoperable.	D.1	Perform SR 3.4.15.2.	Once per 8 hours
	OR		
	D.2	Perform SR 3.4.13.1.	Once per 24 hours

(continued)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.16 RCS Specific Activity

LCO 3.4.16 The specific activity of the reactor coolant shall be within limits.

APPLICABILITY: MODES 1 and 2,
MODE 3 with RCS average temperature (T_{avg}) ≥ 500°F.

ACTIONS

----------NOTE----------
LCO 3.0.4c is applicable.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. DOSE EQUIVALENT I-131 > 1.0 µCi/gm.	A.1	Verify DOSE EQUIVALENT I-131 within the acceptable region of Figure 3.4.16-1.	Once per 4 hours
	AND		
	A.2	Restore DOSE EQUIVALENT I-131 to within limit.	48 hours
B. Gross specific activity of the reactor coolant not within limit.	B.1	Perform SR 3.4.16.2.	4 hours
	AND		
	B.2	Be in MODE 3 with T_{avg} < 500°F.	6 hours

(continued)

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.3 ECCS - Shutdown

LCO 3.5.3 One ECCS train shall be OPERABLE.

APPLICABILITY: MODE 4.

ACTIONS

----------NOTE----------
LCO 3.0.4b is not applicable to ECCS centrifugal charging pump subsystem.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required ECCS residual heat removal (RHR) subsystem inoperable.	A.1 Initiate action to restore required ECCS RHR subsystem to OPERABLE status.	Immediately
B. Required ECCS centrifugal charging subsystem inoperable. AND At least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available.	B.1 Restore required ECCS centrifugal charging subsystem to OPERABLE status.	72 hours
C. Required ECCS centrifugal charging subsystem inoperable.	C.1 Restore required ECCS centrifugal charging subsystem to OPERABLE status.	1 hour
D. Required Actions and associated Completion Times of Conditions B or C not met.	D.1 Be in MODE 5.	24 hours

3.6 CONTAINMENT SYSTEMS

3.6.7 Hydrogen Recombiners

LCO 3.6.7 Two hydrogen recombiners shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One hydrogen recombiner inoperable.	A.1	Restore hydrogen recombiner to OPERABLE status.	30 days
B. Two hydrogen recombiners inoperable.	B.1	Verify by administrative means that the hydrogen control function is maintained.	1 hour AND Once per 12 hours thereafter
	AND		
	B.2	Restore one hydrogen recombiner to OPERABLE status.	7 days
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	6 hours

3.7 PLANT SYSTEMS

3.7.4 Atmospheric Relief Valves (ARVs)

LCO 3.7.4 Three ARV lines shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required ARV line inoperable.	A.1	Restore required ARV line to OPERABLE status.	30 days
B. Two or more required ARV lines inoperable.	B.1	Restore at least two ARV lines to OPERABLE status.	24 hours
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	6 hours
	AND		
	C.2	Be in MODE 4	18 hours

3.7 PLANT SYSTEMS

3.7.5 Auxiliary Feedwater (AFW) System

LCO 3.7.5 Three AFW trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

----------NOTE----------
LCO 3.0.4b is not applicable when entering MODE 1.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One steam supply to turbine driven AFW pump inoperable.	A.1 Restore steam supply to OPERABLE status.	7 days AND 10 days from discovery of failure to meet the LCO
B. One AFW train inoperable for reasons other than Condition A.	B.1 Restore AFW train to OPERABLE status.	72 hours AND 10 days from discovery of failure to meet the LCO

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One NSCW basin transfer pump inoperable.	C.1 Restore the transfer pump to OPERABLE status.	8 days
	OR	
	C.2.1 Implement an alternate method of basin transfer.	8 days
	AND	
	C.2.2 Restore the transfer pump to OPERABLE status.	31 days
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3.	6 hours
	AND	
OR	D.2 Be in MODE 5.	36 hours
UHS inoperable for reasons other than Conditions A, B, or C.		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Control room air temperature not within limit.	E.1 Restore control room air temperature to within limit.	7 days
F. Required Action and associated Completion Time not met.	F.1 ----------NOTE---------- Required Action F.1 is not applicable when entering this Condition from Condition B, D, or E. ---------- Lock closed the outside air (OSA) intake dampers of the affected unit and lock open the OSA intake dampers of the unaffected unit.	1 hour
	AND	
	F.2 Place the affected units(s) in MODE 3.	7 hours
	AND	
	F.3 Place the affected unit(s) in MODE 5.	37 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
G. Control room air temperature not within limit.	G.1	Restore control room air temperature to within limit.	7 days
H. Required Action and associated Completion Time not met for operating unit.	H.1	Place the unit in MODE 3.	6 hours
	AND		
	H.2	Place the unit in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	The Surveillance Requirements of Specification 3.7.10 are applicable.	In accordance with applicable SRs.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Four CREFS trains inoperable. OR The CREFS train required in the emergency mode by Required Actions of Conditions A, B, C, or D not capable of being powered by an OPERABLE emergency power source.	E.1 Suspend movement of irradiated fuel assemblies. AND E.2 Suspend CORE ALTERATIONS.	Immediately Immediately
F. Control room air temperature not within limit.	F.1 Restore control room air temperature to within limit.	7 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.12.1	The Surveillance Requirements of Specification 3.7.10 are applicable.	In accordance with applicable SRs.

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources - Operating

LCO 3.8.1 The following AC electrical sources shall be OPERABLE:

a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System; and

b. Two diesel generators (DGs) capable of supplying the onsite Class 1E power distribution subsystem(s).

Automatic load sequencers for Train A and Train B ESF buses shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

----------NOTE----------
LCO 3.0.4b is not applicable to DGs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for required OPERABLE offsite circuit. AND	1 hour AND Once per 8 hours thereafter (continued)

3.9 REFUELING OPERATIONS

3.9.1 Boron Concentration

LCO 3.9.1 Boron concentrations of the Reactor Coolant System, the refueling canal, and the refueling cavity shall be maintained within the limit specified in the COLR.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Boron concentration not within limit.	A.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	A.2	Suspend positive reactivity additions.	Immediately
	AND		
	A.3	Initiate action to restore boron concentration to within limit.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Verify boron concentration is within the limit specified in the COLR.	72 hours

3.9 REFUELING OPERATIONS

3.9.6 Residual Heat Removal (RHR) and Coolant Circulation – Low Water Level

LCO 3.9.6 Two RHR loops shall be OPERABLE, and one RHR loop shall be in operation.

APPLICABILITY: MODE 6 with the water level < 23 ft above the top of reactor vessel flange.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Less than the required number of RHR loops OPERABLE.	A.1	Initiate action to restore required RHR loops to OPERABLE status.	Immediately
	OR		
	A.2	Initiate action to establish ≥ 23 ft of water above the top of reactor vessel flange.	Immediately
B. No RHR loop in operation.	B.1	Suspend operations involving a reduction in reactor coolant boron concentration.	Immediately
	AND		
			(continued)

BASES

LCO 3.0.3 (continued)

an Applicability of "During movement of irradiated fuel assemblies in the fuel storage pool." Therefore, this LCO can be applicable in any or all MODES. If the LCO and the Required Actions of LCO 3.7.15 are not met while in MODE 1, 2, or 3, there is no safety benefit to be gained by placing the unit in a shutdown condition. The Required Action of LCO 3.7.15 of "Suspend movement of irradiated fuel assemblies in the fuel storage pool" is the appropriate Required Action to complete in lieu of the actions of LCO 3.0.3. These exceptions are addressed in the individual Specifications.

LCO 3.0.4

LCO 3.0.4 establishes limitations on changes in MODES or other specified conditions in the Applicability when an LCO is not met. It allows placing the unit in a MODE or other specified condition stated in that Applicability (e.g., the Applicability desired to be entered) when unit conditions are such that the requirements of the LCO would not be met, in accordance with LCO 3.0.4a, LCO 3.0.4b, or LCO 3.0.4c.

LCO 3.04a allows entry into a MODE or other specified condition in the Applicability with the LCO not met when the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time. Compliance with Required Actions that permit continued operation of the unit for an unlimited period of time in a MODE or other specified condition provides an acceptable level of safety for continued operation. This is without regard to the status of the unit before or after the MODE change. Therefore, in such cases, entry into a MODE or other specified condition in the Applicability may be made in accordance with the provisions of the Required Actions.

LCO 3.0.4b allows entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate.

The risk assessment may use quantitative, qualitative, or blended approaches; and the risk assessment will be conducted using the plant program, procedures, and criteria in place to implement 10 CFR 50.65(a)(4), which requires that risk impacts of maintenance activities be assessed and managed. The risk assessment, for the purposes of LCO 3.0.4b, must take into account all inoperable Technical Specification equipment regardless of whether the equipment is included in the normal 10 CFR 50.65(a)(4) risk assessment scope.

(continued)

BASES

LCO 3.0.4 (continued)

The risk assessments will be conducted using the procedures and guidance endorsed by Regulatory Guide 1.182, "Assessing and Managing Risk Before Maintenance at Nuclear Power Plants." Regulatory Guide 1.182 endorses the guidance in Section 11 of NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Both documents provide general guidance for conducting the risk assessment, such as quantitative and qualitative guidelines for establishing risk management actions and example risk management actions. They also include actions to plan and conduct other activities in a manner to control overall risk, increase risk awareness by shift and management personnel, reduce the duration of the condition, minimize the magnitude of risk increases (establishment of backup success paths or compensatory measures), and determine that the proposed MODE change is acceptable. Consideration should also be given to the probability of completing restoration such that the requirements of the LCO would be met prior to the expiration of ACTIONS Completion Times that would require abandoning the Applicability.

LCO 3.0.4b may be used with single or multiple systems and components unavailable. NUMARC 93-01 provides guidance relative to consideration of simultaneous unavailability of multiple systems and components.

The results of the risk assessment shall be considered in determining the acceptability of entering the MODE or other specified condition in the Applicability, and any corresponding risk management actions. The LCO 3.0.4b risk assessments do not have to be documented.

The Technical Specifications allow continued operation with equipment unavailable in MODE 1 for the duration of the Completion Time. Since this is allowable, and in general, the risk impact in that particular MODE bounds the risk of transitioning into and through the applicable MODES or other specified conditions in the Applicability of the LCO, the use of the LCO 3.0.4b allowance should be generally acceptable, as long as the risk is assessed and managed as stated above. However, there is a small subset of systems and components that have been determined to be more important to risk, and use of the LCO 3.0.4b allowance is prohibited. The LCOs governing these systems and components contain Notes prohibiting the use of LCO 3.0.4b by stating that LCO 3.0.4b is not applicable.

LCO 3.0.4c allows entry into a MODE or other specified condition in the Applicability with the LCO not met based on a Note in the Specification which states that LCO 3.0.4c is applicable. These specific allowances permit entry into MODES or other specified conditions in the Applicability when the associated ACTIONS to be entered do not provide for

(continued)

BASES

LCO 3.0.4 (continued)

continued operation for an unlimited period of time and a risk assessment has not been performed. This allowance may apply to all ACTIONS or to a specific Required Action of a Specification. The risk assessments performed to justify the use of LCO 3.0.4b usually only consider systems and components. For this reason, LCO 3.0.4c is typically applied to Specifications which describe values and parameters (e.g., RCS Specific Activity), and may be applied to other Specifications based on NRC plant-specific approval.

The provisions of this Specification should not be interpreted as endorsing the failure to exercise the good practice of restoring systems or components to OPERABLE status before entering an associated MODE or other specified condition in the Applicability

The provisions of LCO 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS. In addition, the provisions of LCO 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that result from any unit shutdown. In this context, a unit shutdown is defined as a change in MODE or other specified condition in the Applicability associated with transitioning from MODE 1 to MODE 2, MODE 2 to MODE 3, MODE 3 to MODE 4, and MODE 4 to MODE 5.

Upon entry into a MODE or other specified condition in the Applicability with the LCO not met, LCO 3.0.1 and LCO 3.0.2 require entry into the applicable Conditions and Required Actions until the Condition is resolved, the LCO is met, or the unit is not within the Applicability of the Technical Specification.

Surveillances do not have to be performed on the associated inoperable equipment (or on variables outside the specified limits), as permitted by SR 3.0.1. Therefore, utilizing LCO 3.0.4 is not a violation of SR 3.0.1 or SR 3.0.4 for any Surveillances that have not been performed on inoperable equipment. However, SRs must be met to ensure OPERABILITY prior to declaring the associated equipment OPERABLE (or variable within limits) and restoring compliance with the affected LCO.

(continued)

BASES (continued)

LCO 3.0.5

LCO 3.0.5 establishes the allowance for restoring equipment to service under administrative controls when it has been removed from service or declared inoperable to comply with ACTIONS. The sole purpose of this Specification is to provide an exception to LCO 3.0.2 (e.g., to not comply with the applicable Required Action(s)) to allow the performance of SRs to demonstrate:

a. The OPERABILITY of the equipment being returned to service; or or

b. The OPERABILITY of other equipment.

The administrative controls ensure the time the equipment is returned to service in conflict with the requirements of the ACTIONS is limited to the time absolutely necessary to perform the allowed SRs. This Specification does not provide time to perform any other preventive or corrective maintenance.

An example of demonstrating the OPERABILITY of the equipment being returned to service is reopening a containment isolation valve that has been closed to comply with Required Actions and must be reopened to perform the SRs.

An example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to prevent the trip function from occurring during the performance of an SR on another channel in the other trip system. A similar example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to permit the logic to function and indicate the appropriate response during the performance of an SR on another channel in the same trip system.

LCO 3.0.6

LCO 3.0.6 establishes an exception to LCO 3.0.2 for support systems that have an LCO specified in the Technical Specifications (TS). This exception is provided because LCO 3.0.2 would require that the Conditions and Required Actions of the associated inoperable supported system LCO be entered solely due to the inoperability of the support system. This exception is justified because the actions that are required to ensure the unit is maintained in a safe condition are specified in the support system LCO's Required Actions. These Required Actions may include entering the supported system's Conditions and Required Actions or may specify other Required Actions.

(continued)

BASES

LCO 3.0.6 (continued)

When a support system is inoperable and there is an LCO specified for it in the TS, the supported system(s) are required to be declared inoperable if determined to be inoperable as a result of the support system inoperability. However, it is not necessary to enter into the supported systems' Conditions and Required Actions unless directed to do so by the support system's Required Actions. The potential confusion and inconsistency of requirements related to the entry into multiple support and supported systems' LCOs' Conditions and Required Actions are eliminated by providing all the actions that are necessary to ensure the unit is maintained in a safe condition in the support system's Required Actions.

However, there are instances where a support system's Required Action may either direct a supported system to be declared inoperable or direct entry into Conditions and Required Actions for the supported system. This may occur immediately or after some specified delay to perform some other Required Action. Regardless of whether it is immediate or after some delay, when a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

Specification 5.5.15, "Safety Function Determination Program (SFDP)," ensures loss of safety function is detected and appropriate actions are taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other limitations, remedial actions, or compensatory actions may be identified as a result of the support system inoperability and corresponding exception to entering supported system Conditions and Required Actions. The SFDP implements the requirements of LCO 3.0.6.

Cross train checks to identify a loss of safety function for those support systems that support multiple and redundant safety systems are required. The cross train check verifies that the supported systems of the redundant OPERABLE support system are OPERABLE, thereby ensuring safety function is retained. If this evaluation determines that a loss of safety function exists, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

LCO 3.0.7

There are certain special tests and operations required to be performed at various times over the life of the unit. These special tests and operations are necessary to demonstrate select unit performance characteristics, to perform special maintenance activities, and to

(continued)

BASES

LCO 3.0.7 (continued)

perform special evolutions. Test Exception LCO 3.1.8 allows specified Technical Specification requirements to be changed to permit performance of these special tests and operations, which otherwise could not be performed if required to comply with the requirements of these Technical Specifications. Unless otherwise specified, all the other Technical Specification requirements remain unchanged. This will ensure all appropriate requirements of the MODE or other specified condition not directly associated with or required to be changed to perform the special test or operation will remain in effect.

The applicability of the Test Exception LCO represents a condition not necessarily in compliance with the normal requirements of the Technical Specification. Compliance with the Test Exception LCO is optional. A special operation may be performed either under the provisions of the Test Exception LCO or under the other applicable Technical Specification requirements. If it is desired to perform the special operation under the provisions of the Test Exception LCO, the requirements of the Test Exception LCO shall be followed.

LCO 3.0.8

This LCO is provided to clarify the unit applicability of the LCOs and associated ACTION requirements, especially with respect to systems or components that are common to both units.

In the LCOs and Specifications, parentheses and footnotes are used to specifically identify the common systems to which individual LCOs and Specifications apply. They are considered an integral part of the applicable LCOs and Specifications and compliance with respect to the systems or components is required. In addition, parentheses and footnotes are used to identify requirements specific to one unit, and are considered an integral part of the LCOs and Specifications with which compliance is required.

In the Bases, instrument loop numbers are stated in parentheses and are provided as information only, for the purpose of assisting the TS user. Compliance with the applicable LCO and Specifications may not be a requirement for the instrument loop stated within parentheses unless the stated loop is the method by which the unit is maintained in compliance with the applicable LCOs and Specifications.

B 3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

BASES

SRs

SR 3.0.1 through SR 3.0.4 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated.

SR 3.0.1

SR 3.0.1 establishes the requirement that SRs must be met during the MODES or other specified conditions in the Applicability for which the requirements of the LCO apply, unless otherwise specified in the individual SRs. This Specification is to ensure that Surveillances are performed to verify the OPERABILITY of systems and components, and that variables are within specified limits. Failure to meet a Surveillance within the specified Frequency, in accordance with SR 3.0.2, constitutes a failure to meet an LCO.

Systems and components are assumed to be OPERABLE when the associated SRs have been met. Nothing in this Specification, however, is to be construed as implying that systems or components are OPERABLE when:

a. The systems or components are known to be inoperable, although still meeting the SRs; or

b. The requirements of the Surveillance(s) are known not to be met between required Surveillance performances.

Surveillances do not have to be performed when the unit is in a MODE or other specified condition for which the requirements of the associated LCO are not applicable, unless otherwise specified. The SRs associated with a test exception are only applicable when the test exception is used as an allowable exception to the requirements of a Specification.

Surveillances, including Surveillances invoked by Required Actions, do not have to be performed on inoperable equipment because the ACTIONS define the remedial measures that apply. Surveillances have to be met and performed in accordance with SR 3.0.2, prior to returning equipment to OPERABLE status.

(continued)

BASES

SR 3.0.1 (continued)

Upon completion of maintenance appropriate post maintenance testing is required to declare equipment OPERABLE. This includes ensuring applicable Surveillances are not failed and their most recent performance is in accordance with SR 3.0.2. Post maintenance testing may not be possible in the current MODE or other specified conditions in the Applicability due to the necessary unit parameters not having been established. In these situations, the equipment may be considered OPERABLE provided testing has been satisfactorily completed to the extent possible and the equipment is not otherwise believed to be incapable of performing its function. This will allow operation to proceed to a MODE or other specified condition where other necessary post maintenance tests can be completed.

SR 3.0.2

SR 3.0.2 establishes the requirements for meeting the specified Frequency for Surveillances and any Required Action with a Completion Time that requires the periodic performance of the Required Action on a "once per . . ." interval.

SR 3.0.2 permits a 25% extension of the interval specified in the Frequency. This extension facilitates Surveillance scheduling and considers plant operating conditions that may not be suitable for conducting the Surveillance (e.g., transient conditions or other ongoing Surveillance or maintenance activities).

The 25% extension does not significantly degrade the reliability that results from performing the Surveillance at its specified Frequency. This is based on the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the SRs. The exceptions to SR 3.0.2 are those Surveillances for which the 25% extension of the interval specified in the Frequency does not apply. These exceptions are stated in the individual Specifications. The requirements of regulations take precedence over the TS. Therefore, when a test interval is specified in the regulations, the test interval cannot be extended by the TS, and the SR includes a Note in the Frequency stating that "SR 3.0.2 is not applicable." An example of an exception when the test interval is not specified in the regulations is the Note in the Containment Leakage Rate Testing Program, "SR 3.0.2 is not applicable." This exception is provided because the program already includes extension of test intervals.

As stated in SR 3.0.2, the 25% extension also does not apply to the initial portion of a periodic Completion Time that requires performance on a "once per ..." basis. The 25% extension applies to each performance after the initial performance. The initial performance of the Required Action, whether it is a particular Surveillance or some other remedial

(continued)

BASES

SR 3.0.2 (continued)

action, is considered a single action with a single Completion Time. One reason for not allowing the 25% extension to this Completion Time is that such an action usually verifies that no loss of function has occurred by checking the status of redundant or diverse components or accomplishes the function of the inoperable equipment in an alternative manner.

The provisions of SR 3.0.2 are not intended to be used repeatedly merely as an operational convenience to extend Surveillance intervals (other than those consistent with Refueling intervals) or periodic Completion Time intervals beyond those specified.

SR 3.0.3

SR 3.0.3 establishes the flexibility to defer declaring affected equipment inoperable or an affected variable outside the specified limits when a Surveillance has not been completed within the specified Frequency. A delay period of up to 24 hours or up to the limit of the specified Frequency, whichever is greater, applies from the point in time that it is discovered that the Surveillance has not been performed in accordance with SR 3.0.2, and not at the time that the specified Frequency was not met.

This delay period provides adequate time to complete Surveillances that have been missed. This delay period permits the completion of a Surveillance before complying with Required Actions or other remedial measures that might preclude completion of the Surveillance.

The basis for this delay period includes consideration of unit conditions, adequate planning, availability of personnel, the time required to perform the Surveillance, the safety significance of the delay in completing the required Surveillance, and the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the requirements.

When a Surveillance with a Frequency based not on time intervals, but upon specified unit conditions, operating situations, or requirements of regulations (e.g., prior to entering MODE 1 after each fuel loading, or in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions, etc.) is discovered to not have been performed when specified, SR 3.0.3 allows for the full delay period of up to the specified Frequency to perform the Surveillance. However, since there is not a time interval specified, the missed Surveillance should be performed at the first reasonable opportunity.

SR 3.0.3 provides a time limit for, and allowances for the performance of, Surveillances that become applicable as a consequence of MODE changes imposed by Required Actions.

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BASES

SR 3.0.3
(continued)

Failure to comply with specified Frequencies for SRs is expected to be an infrequent occurrence. Use of the delay period established by SR 3.0.3 is a flexibility which is not intended to be used as an operational convenience to extend Surveillance intervals. While up to 24 hours or the limit of the specified Frequency is provided to perform the missed Surveillance, it is expected that the missed Surveillance will be performed at the first reasonable opportunity. The determination of the first reasonable opportunity should include consideration of the impact on plant risk (from delaying the Surveillance as well as any plant configuration changes required or shutting the plant down to perform the Surveillance) and impact on any analysis assumptions, in addition to unit conditions, planning, availability of personnel, and the time required to perform the Surveillance. This risk impact should be managed through the program in place to implement 10 CFR 50.65(a)(4) and its implementation guidance, NRC Regulatory Guide 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants." This Regulatory Guide addresses consideration of temporary and aggregate risk impacts, determination of risk management action thresholds, and risk management action up to and including plant shutdown. The missed Surveillance should be treated as an emergent condition as discussed in the Regulatory Guide. The risk evaluation may use quantitative, qualitative, or blended methods. The degree of depth and rigor of the evaluation should be commensurate with the importance of the component. Missed Surveillances for important components should be analyzed quantitatively. If the results of the risk evaluation determine the risk increase is significant, this evaluation should be used to determine the safest course of action. All missed Surveillances will be placed in the licensee's Corrective Action Program.

If a Surveillance is not completed within the allowed delay period, then the equipment is considered inoperable or the variable is considered outside the specified limits and the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon expiration of the delay period. If a Surveillance is failed within the delay period, then the equipment is inoperable, or the variable is outside the specified limits and the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon the failure of the Surveillance.

Completion of the Surveillance within the delay period allowed by this Specification, or within the Completion Time of the ACTIONS, restores compliance with SR 3.0.1.

(continued)

BASES (continued)

SR 3.0.4

SR 3.0.4 establishes the requirement that all applicable SRs must be met before entry into a MODE or other specified condition in the Applicability.

This Specification ensures that system and component OPERABILITY requirements and variable limits are met before entry into MODES or other specified conditions in the Applicability for which these systems and components ensure safe operation of the unit.

The provisions of this Specification should not be interpreted as endorsing the failure to exercise the good practice of restoring systems or components to OPERABLE status before entering an associated MODE or other specified condition in the Applicability.

A provision is included to allow entry into a MODE or other specified condition in the Applicability when an LCO is not met due to a Surveillance not being met in accordance with LCO 3.0.4.

However, in certain circumstances, failing to meet an SR will not result in SR 3.0.4 restricting a MODE change or other specified condition change. When a system, subsystem, division, component, device, or variable is inoperable or outside its specified limits, the associated SR(s) is not required to be performed, per SR 3.0.1, which states that surveillances do not have to be performed on inoperable equipment. When equipment is inoperable, SR 3.0.4 does not apply to the associated SR(s), since the requirement for the SR(s) to be performed is removed. Therefore, failing to perform the Surveillance(s) within the specified Frequency does not result in an SR 3.0.4 restriction to changing MODES or other specified conditions of the Applicability.

However, since the LCO is not met in this instance, LCO 3.0.4 will govern any restrictions that may (or may not) apply to MODE or other specified condition changes. SR 3.0.4 does not restrict changing MODES or other specified conditions of the Applicability when a Surveillance has not been performed within the specified Frequency, provided the requirement to declare the LCO not met has been delayed in accordance with SR 3.0.3.

The provisions of SR 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS. In addition, the provisions of LCO 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that result from any unit shutdown. In this context, a unit shutdown is defined as a change in MODE or other specified condition in the Applicability associated with transitioning from MODE 1 to MODE 2, MODE 2 to MODE 3, MODE 3 to MODE 4, and MODE 4 to MODE 5.

(continued)

BASES

SR 3.0.4 (continued)

The precise requirements for performance of SRs are specified such that exceptions to SR 3.0.4 are not necessary. The specific time frames and conditions necessary for meeting the SRs are specified in the Frequency, in the Surveillance, or both. This allows performance of Surveillances when the prerequisite condition(s) specified in a Surveillance procedure require entry into the MODE or other specified condition in the Applicability of the associated LCO prior to the performance or completion of a Surveillance. A Surveillance that could not be performed until after entering the LCO's Applicability, would have its Frequency specified such that it is not "due" until the specific conditions needed are met. Alternately, the Surveillance may be stated in the form of a Note as not required (to be met or performed) until a particular event, condition, or time has been, reached. Further discussion of the specific formats of SRs annotation is found in Section 1.4, Frequency.

BASES

APPLICABLE SAFETY ANALYSES (continued)

SDM satisfies Criterion 2 of 10 CFR 50.36 (c)(2)(ii). Even though it is not directly observed from the control room, SDM is considered an initial condition process variable because it is periodically monitored to ensure that the unit is operating within the bounds of accident analysis assumptions.

LCO

SDM is a core design condition that can be ensured during operation through control rod positioning (control and shutdown banks) and through the soluble boron concentration.

The MSLB (Ref. 2) and the boron dilution (Ref. 3) accidents are the most limiting analyses that establish the SDM value of the LCO. For MSLB accidents, if the LCO is violated, there is a potential to exceed the DNBR limit and to exceed 10 CFR 100, "Reactor Site Criteria," limits (Ref. 4). For the boron dilution accident, if the LCO is violated, the minimum required time assumed for operator action to terminate dilution may no longer be applicable. The required SDM is specified in the COLR.

APPLICABILITY

In MODES 3, 4, and 5, the SDM requirements are applicable to provide sufficient negative reactivity to meet the assumptions of the safety analyses discussed above. In MODE 6, the shutdown reactivity requirements are given in LCO 3.9.1, "Boron Concentration." In MODES 1 and 2, SDM is ensured by complying with LCO 3.1.5, "Shutdown Bank Insertion Limits," and LCO 3.1.6, "Control Bank Insertion Limits."

ACTIONS

The ACTIONS table is modified by a Note prohibiting transition to a lower MODE within the Applicability. LCO 3.0.4 already prohibits entry into MODE 5 from MODE 6, MODE 4 from MODE 5 and into MODE 3 from MODE 4 when SDM requirements are not met.

(continued)

BASES

ACTIONS (continued)

A.1

If the SDM requirements are not met, boration must be initiated promptly. A Completion Time of 15 minutes is adequate for an operator to correctly align and start the required systems and components. It is assumed that boration will be continued until the SDM requirements are met.

In the determination of the required combination of boration flow rate and boron concentration, there is no unique requirement that must be satisfied. Since it is important to raise the boron concentration of the RCS as soon as possible, the flowpath of choice would utilize a highly concentrated solution, such as that normally found in the boric acid storage tank, or the refueling water storage tank. However, the operator should borate with the best source available for the plant conditions.

In determining the boration flow rate, the time in core life must be considered. For instance, the most difficult time in core life to increase the RCS boron concentration is at the beginning of cycle when the boron concentration may approach or exceed 2000 ppm. Assuming that a value of 1% $\Delta k/k$ must be recovered and a boration flow rate of 30 gpm, it is possible to increase the boron concentration of the RCS by 133 ppm in approximately 55 minutes using a boric acid solution of 7000 ppm. If a boron worth of 7.5 pcm/ppm is assumed, this combination of parameters will increase the SDM by 1% $\Delta k/k$. These boration parameters of 30 gpm and 7000 ppm represent typical values and are provided for the purpose of offering a specific example.

SURVEILLANCE REQUIREMENTS

SR 3.1.1.1

In MODES 1 and 2, SDM is verified by observing that the requirements of LCO 3.1.5 and LCO 3.1.6 are met. In the event that a rod is known to be untrippable, however, SDM verification must account for the worth of the untrippable rod as well as another rod of maximum worth.

In MODES 3, 4, and 5, the SDM is verified by performing a reactivity balance calculation, considering the listed reactivity effects:

(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 MODES 3, 4, or 5 if any of the above Functions (Function 1, 17, 18, or 19 of Table 3.3.1-1) are not met.

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

LCO 22, 23, 24, 25. Core Exit Temperature (continued)

radial distribution of the coolant temperature rise across representative regions of the core. Power distribution symmetry was considered in determining the specific number and locations provided for diagnosis of local core problems. The two thermocouples in each channel must be located such that the pair of Core Exit Temperatures indicate the radial temperature gradient across their core quadrant. A Note specifies that each channel consists of two CETs. Two sets of two thermocouples ensure a single failure will not disable the ability to determine the radial temperature gradient.

APPLICABILITY

The PAM instrumentation LCO is applicable in MODES 1, 2, and 3. These variables are related to the diagnosis and pre-planned actions required to mitigate DBAs. The applicable DBAs are assumed to occur in MODES 1, 2, and 3. In MODES 4, 5, and 6, unit conditions are such that the likelihood of an event that would require PAM instrumentation is low; therefore, the PAM instrumentation is not required to be OPERABLE in these MODES.

ACTIONS

A Note has been added in the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed on Table 3.3.3-1. The Completion Time(s) of the inoperable channel(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

(continued)

BASES (continued)

APPLICABILITY

The Remote Shutdown System LCO is applicable in MODES 1, 2, and 3. This is required so that the unit can be placed and maintained in MODE 3 for an extended period of time from a location other than the control room.

This LCO is not applicable in MODE 4, 5, or 6. In these MODES, the facility is already subcritical and in a condition of reduced RCS energy. Under these conditions, considerable time is available to restore necessary instrument control functions if control room instruments or controls become unavailable.

ACTIONS

A Note has been added to the ACTIONS to clarify the application of Completion Time rules. Separate Condition entry is allowed for each Function listed on Table 3.3.4-1. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

A.1

Condition A addresses the situation where one or more required Functions of the Remote Shutdown System are inoperable. This includes any Function listed in Table 3.3.4-1, as well as the transfer switches and control circuits. A required Function is considered to be inoperable if one or more of its required channels is inoperable.

The Required Action is to restore the required Function to OPERABLE status within 30 days. The Completion Time is based on operating experience and the low probability of an event that would require evacuation of the control room.

(continued)

BASES

APPLICABILITY (continued)

In MODES 1 and 2, operators are alerted to an unplanned dilution event by a reactor trip on overtemperature delta-T or power range neutron flux high, low setpoint, respectively. As a protective measure in addition to HFASA, in MODE 5 with the loops not filled, unplanned dilution events are precluded by requiring the unborated water source (reactor makeup water storage tank (RMWST)) to be isolated.

ACTIONS

A.1

With one channel of HFASA inoperable, Required Action A.1 requires the inoperable channel to be restored within 48 hours. In this condition, one channel of HFASA remains available to provide protection. The 48 hour Completion Time is consistent with that required for an inoperable source range channel. Required Action A.1 is modified by a Note stating that LCO 3.0.4c is applicable provided that Required Actions B.1 and B.2 are met. When Condition A (and Required Action A.1) are applicable, the Note permits MODE changes provided that Required Action B.1 and B.2 are met. Required Action B.1 is a periodic verification of shutdown margin, and Required Action B.2 ensures that the unborated water source isolation valves are shut, precluding a boron dilution event. With one channel of HFASA inoperable, it is prudent to take the compensatory actions of Required Actions B.1 and B.2 if MODE changes are desired or required.

B.1 and B.2

With the Required Action A.1 and associated Completion Time not met, or with both channels of HFASA inoperable, the appropriate ACTIONS are to verify that the required SDM is present and isolate the unborated water source by performing

(continued)

BASES

LCO (continued)

Note 3 allows valves in the flowpath from the RMWST, through the chemical mixing tank, to the suction of the charging pumps to be open under administrative control provided the SDM requirements of LCO 3.1.1 are met and the high flux at shutdown alarm is OPERABLE. (OPERABILITY of the high flux at shutdown alarm is defined by LCO 3.3.8.) This permits the addition of chemicals to the RCS as necessary in this MODE of operation while minimizing the risk of an uncontrolled boron dilution transient.

An OPERABLE RHR loop is comprised of an OPERABLE RHR pump capable of providing forced flow to an OPERABLE RHR heat exchanger. RHR pumps are OPERABLE if they are capable of being powered and are able to provide flow if required.

APPLICABILITY

In MODE 5 with loops not filled, this LCO requires core heat removal and coolant circulation by the RHR System.

Operation in other MODES is covered by:

LCO 3.4.4, "RCS Loops—MODES 1 and 2";
LCO 3.4.5, "RCS Loops—MODE 3";
LCO 3.4.6, "RCS Loops—MODE 4";
LCO 3.4.7, "RCS Loops—MODE 5, Loops Filled";
LCO 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation—High Water Level" (MODE 6); and
LCO 3.9.6, "Residual Heat Removal (RHR) and Coolant Circulation—Low Water Level" (MODE 6).

ACTIONS

A.1

If only one RHR loop is OPERABLE and in operation, redundancy for RHR is lost. Action must be initiated to restore a second loop to OPERABLE status. The immediate Completion Time reflects the importance of maintaining the availability of two paths for heat removal.

(continued)

BASES

APPLICABILITY (continued)

requirements in MODES 4, 5, and 6 with the reactor vessel head in place.

ACTIONS

A Note has been added to clarify that all pressurizer PORVs are treated as separate entities, each with separate Completion Times (i.e., the Completion Time is on a component basis).

A.1

PORVs may be inoperable and capable of being manually cycled (e.g., excessive seat leakage, instrumentation problems, or other causes that do not create a possibility for a small break LOCA). In this condition, either the PORVs must be restored or the flow path isolated within 1 hour. The associated block valve is required to be closed, but power must be maintained to the associated block valve, since removal of power would render the block valve inoperable. The PORVs may be considered OPERABLE in either the manual or automatic mode. This permits operation of the plant until the next refueling outage (MODE 6) so that maintenance can be performed on the PORVs to eliminate the problem condition.

Quick access to the PORV for pressure control can be made when power remains on the closed block valve. The Completion Time of 1 hour is based on plant operating experience that has shown that minor problems can be corrected or closure accomplished in this time period.

B.1, B.2, and B.3

If one PORV is inoperable and not capable of being manually cycled, it must be either restored or isolated by closing the associated block valve and removing the power to the associated block valve. The Completion Times of 1 hour are reasonable, based on challenges to the PORVs during this time period, and provide the operator adequate time to correct the situation. If the inoperable valve cannot be restored to OPERABLE status, it must be isolated within the specified time. Because there is at least one PORV that remains OPERABLE, an additional 72 hours is provided to restore the inoperable PORV to

(continued)

BASES

APPLICABILITY (continued)

OPERABILITY of the pressurizer safety valves that provide overpressure protection during MODES 1, 2, and 3.

Low temperature overpressure prevention is most critical during shutdown when the RCS is water solid, and a mass or heat input transient can cause a very rapid increase in RCS pressure when little or no time allows operator action to mitigate the event.

The Applicability is modified by a Note stating that accumulator isolation is only required when the accumulator pressure is more than or at the maximum RCS pressure for the existing temperature, as allowed by the P/T limit curves. This Note permits the accumulator discharge isolation valve Surveillance to be performed only under these pressure and temperature conditions.

ACTIONS

Two Notes modify the ACTIONS table. Note 1 prohibits the application of LCO 3.0.4b for entry into MODE 4 as well as entry into MODE 6 with the vessel head on from MODE 6 and MODE 5 from MODE 6 with the vessel head on. There is an increased risk associated with entering MODE 4 from MODE 5, MODE 6 with the reactor vessel head on from MODE 6, and MODE 5 from MODE 6 with the reactor vessel head on with COPS inoperable. The provisions of LCO 3.0.4b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in these circumstances. Note 2 permits entry into MODE 4 from MODE 3 with a PORV that is inoperable for the purpose of cold overpressure protection provided that RCS temperature is maintained above 275°F, and, within 36 hours, either: the PORV is restored to OPERABLE status; or, an RHR suction relief valve is placed in service so that the requirements of LCO 3.4.12 are met. Otherwise, the reactor vessel must be depressurized and vented in accordance with Required Action F.1. With only one PORV OPERABLE, the COPS remains capable of mitigating a design basis cold overpressurization event. However, the system cannot withstand a single failure of the remaining PORV. The current COPS enable temperature is established very conservatively at 350°F. However, the application of ASME Code Case N-514 would allow the enable temperature to be lowered to less than 275°F. Therefore, when entering this LCO from MODE 3 with one required PORV inoperable, maintaining RCS temperature above 275°F minimizes actual exposure to a cold overpressure event. Furthermore,

(continued)

BASES

ACTIONS (continued)

requiring action within 36 hours minimizes the exposure to a single failure while allowing sufficient time to either restore the inoperable PORV or to place RHR in service. Note 2 is only applicable to the condition of entering MODE 4 from MODE 3 with one required PORV inoperable for the purpose of cold overpressure protection. If operating in MODE 4 and a failure of a required RCS relief valve occurs, Condition D applies.

A.1

With one or more safety injection pumps capable of injecting into the RCS, RCS overpressurization is possible.

Rendering the safety injection pumps incapable of injecting into the RCS within 4 hours to restore restricted coolant input capability to the RCS reflects the urgency of removing the RCS from this condition.

B.1, C.1, and C.2

An unisolated accumulator requires isolation within 1 hour. This is only required when the accumulator pressure is at or more than the maximum RCS pressure for the existing temperature allowed by the P/T limit curves.

If isolation is needed and cannot be accomplished in 1 hour, Required Action C.1 and Required Action C.2 provide two options, either of which must be performed in the next 12 hours. By increasing the RCS temperature to > 350°F, an accumulator pressure of 678 psig cannot exceed the COPS limits if the accumulators are fully injected. Depressurizing the accumulators below the COPS limit from the PTLR also gives this protection.

The Completion Times are based on operating experience that these activities can be accomplished in these time periods and that the likelihood that an event requiring COPS during this time is small.

D.1

In MODE 4, with one required RCS relief valve inoperable, the RCS relief valve must be restored to OPERABLE status within a Completion Time of 7 days. Two RCS relief valves in any combination of the

(continued)

BASES

ACTIONS

D.1 (continued)

PORVS and the RHR suction relief valves are required to provide low temperature overpressure mitigation while withstanding a single failure of an active component.

The Completion Time considers the facts that only one of the RCS relief valves is required to mitigate an overpressure transient and that the likelihood of an active failure of the remaining valve path during this time period is very low.

E.1

The consequences of operational events that will overpressurize the RCS are more severe at lower temperature (Ref. 7). Thus, with one of the two RCS relief valves inoperable in MODE 5 or in MODE 6 with the head on, the Completion Time to restore two valves to OPERABLE status is 24 hours.

The Completion Time represents a reasonable time to investigate and repair several types of relief valve failures without exposure to a lengthy period with only one OPERABLE RCS relief valve to protect against overpressure events.

F.1

The RCS must be depressurized and a vent must be established within 12 hours when:

a. Both required RCS relief valves are inoperable; or

b. A Required Action and associated Completion Time of Condition A, C, D, or E is not met; or

c. The COPS is inoperable for any reason other than Condition A, B, C, D, or E.

The vent must be sized ≥ 2.14 square inches (based on an equivalent length of 10 feet of pipe) to ensure that the flow capacity is greater than that required for the worst case mass input transient reasonable during the applicable MODES. This action is needed to protect the RCPB from a low temperature overpressure event and a possible brittle failure of the reactor vessel.

(continued)

BASES

ACTIONS

F.1 (continued)

The Completion Time considers the time required to place the plant in this Condition and the relatively low probability of an overpressure event during this time period due to increased operator awareness of administrative control requirements.

SURVEILLANCE REQUIREMENTS

SR 3.4.12.1 and SR 3.4.12.2

To minimize the potential for a low temperature overpressure event by limiting the mass input capability, both safety injection pumps are verified incapable of injecting into the RCS, and the accumulator discharge isolation valves are verified closed and locked out.

The safety injection pumps are rendered incapable of injecting into the RCS through at least two independent means such that a single failure or single action will not result in an injection into the RCS.

The Frequency of within 4 hours after initial entry into MODE 4 from MODE 3 and prior to RCS cold leg temperature decreasing below 325°F (for the safety injection pumps) and 12 hours thereafter (for the safety injection pumps and accumulators) is sufficient, considering other indications and alarms available to the operator in the control room, to verify the required status of the equipment.

SR 3.4.12.3

Each required RHR suction relief valve shall be demonstrated OPERABLE by verifying its RHR suction isolation valves are open and by testing it in accordance with the Inservice Testing Program. This Surveillance is only required to be performed if the RHR suction relief valve is being used to meet this LCO. For Train A, the RHR suction relief valve is PSV-8708A and the suction isolation valves are HV-8701A and B. For Train B, the RHR suction relief valve is PSV-8708B and the suction isolation valves are HV-8702A and B.

The RHR suction valves are verified to be opened every 12 hours. The Frequency is considered adequate in view of other administrative controls such as valve status indications available to the operator in the control room that verify the RHR suction isolation valves remain open.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.12.3 (continued)

The ASME Code, Section XI (Ref. 8), test per Inservice Testing Program verifies OPERABILITY by proving proper relief valve mechanical motion and by measuring and, if required, adjusting the lift setpoint.

SR 3.4.12.4

The RCS vent of ≥ 2.14 square inches (based on an equivalent length of 10 feet of pipe) is proven OPERABLE by verifying its open condition either:

a. Once every 12 hours for a valve that cannot be locked.

b. Once every 31 days for a valve that is locked, sealed, or secured in position. A removed pressurizer safety valve fits this category.

The passive vent arrangement must only be open to be OPERABLE. This Surveillance is required to be performed if the vent is being used to satisfy the pressure relief requirements of the LCO 3.4.12b.

SR 3.4.12.5

The PORV block valve must be verified open every 72 hours to provide the flow path for each required PORV to perform its function when actuated. The valve must be remotely verified open in the main control room. This Surveillance is performed if the PORV satisfies the LCO.

The block valve is a remotely controlled, motor operated valve. The power to the valve operator is not required removed, and the manual operator is not required locked in the inactive position. Thus, the block valve can be closed in the event the PORV develops excessive leakage or does not close (sticks open) after relieving an overpressure situation.

The 72 hour Frequency is considered adequate in view of other administrative controls available to the operator in the control room, such as valve position indication, that verify that the PORV block valve remains open.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.12.6

Performance of a COT is required within 12 hours after decreasing RCS temperature to ≤ 350°F and every 31 days on each required PORV to verify and, as necessary, adjust its lift setpoint. The COT will verify the setpoint is within the PTLR allowed maximum limits in the PTLR. PORV actuation could depressurize the RCS and is not required.

A Note has been added indicating that this SR is required to be performed 12 hours after decreasing RCS cold leg temperature to ≤ 350°F. The 12 hours considers the unlikelihood of a low temperature overpressure event during this time.

SR 3.4.12.7

Performance of a CHANNEL CALIBRATION on each required PORV actuation channel is required every 18 months to adjust the whole channel so that it responds and the valve opens within the required range and accuracy to known input.

REFERENCES

1. 10 CFR 50, Appendix G.
2. Generic Letter 88-11.
3. ASME, Boiler and Pressure Vessel Code, Section III.
4. FSAR, Chapter 15
5. 10 CFR 50, Section 50.46.
6. 10 CFR 50, Appendix K.
7. Generic Letter 90-06.
8. ASME, Boiler and Pressure Vessel Code, Section XI.
9. Westinghouse Letter GP-13419, RHR Open Permissive Setpoint.

BASES (continued)

ACTIONS

A.1

With one containment sump monitor inoperable, the remaining containment sump monitors, the containment atmosphere radioactivity monitor, and/or the containment air cooler condensate flow rate monitor will provide indications of changes in leakage. Together with these monitors, the periodic surveillance for RCS water inventory balance, SR 3.4.13.1, must be performed at an increased frequency of 24 hours to provide information that is adequate to detect leakage.

B.1 and B.2

With two or more containment sump monitors inoperable, no other form of sampling or monitors can provide the equivalent information; however, the containment atmosphere radioactivity and/or containment air cooler condensate flow rate monitors will provide indications of changes in leakage. Together with these remaining monitors, the periodic surveillance for RCS water inventory balance, SR 3.4.13.1, must be performed at an increased frequency of 24 hours to provide information that is adequate to detect leakage.

Restoration of at least two sump monitors to OPERABLE status within a Completion Time of 30 days is required to regain most of this function and allow operation to continue under the provisions of Condition A. This Completion Time is acceptable, considering the remaining OPERABLE atmosphere radioactivity and/or condensate flow rate monitors and the Frequency and adequacy of the RCS water inventory balance required by Action B.1.

(continued)

BASES

ACTIONS (continued)

C.1.1, C.1.2, C.2.1, and C.2.2

With both gaseous and particulate containment atmosphere radioactivity monitoring instrumentation channels inoperable, alternative action is required. Either grab samples of the containment atmosphere must be taken and analyzed or water inventory balances, in accordance with SR 3.4.13.1, must be performed to provide alternate periodic information.

With a sample obtained and analyzed or water inventory balance performed every 24 hours, the reactor may be operated for up to 30 days to allow restoration of the required containment atmosphere radioactivity monitors. Alternatively, continued operation is allowed if the air cooler condensate flow rate monitoring system is OPERABLE, provided grab samples are taken every 24 hours.

The 24 hour interval provides periodic information that is adequate to detect leakage. The 30 day Completion Time recognizes at least one other form of leakage detection is available.

D.1 and D.2

With the required containment air cooler condensate flow rate monitor inoperable, alternative action is again required. Either SR 3.4.15.2 must be performed or water inventory balances, in accordance with SR 3.4.13.1, must be performed to provide alternate periodic information.

(continued)

BASES (continued)

ACTIONS

A Note permits the use of the provisions of LCO 3.0.4c. This allowance permits entry into the applicable MODE(S) while relying on the ACTIONS. This allowance is acceptable due to the significant conservatism incorporated into the specific activity limit, the low probability of an event which is limiting due to exceeding this limit, and the ability to restore transient specific activity excursions while the unit remains at or proceeds to power operation.

A.1 and A.2

With the DOSE EQUIVALENT I-131 greater than the LCO limit, samples at intervals of 4 hours must be taken to demonstrate that the limits of Figure 3.4.16-1 are not exceeded. The Completion Time of 4 hours is required to obtain and analyze a sample. Sampling is done to continue to provide a trend.

The DOSE EQUIVALENT I-131 must be restored to within limits within 48 hours. The Completion Time of 48 hours is acceptable because of the low probability of an SGTR accident occurring during this period.

B.1 and B.2

With the gross specific activity in excess of the allowed limit, an analysis must be performed within 4 hours to determine DOSE EQUIVALENT I-131. The Completion Time of 4 hours is required to obtain and analyze a sample.

The change within 6 hours to MODE 3 and RCS average temperature < 500°F lowers the saturation pressure of the reactor coolant below the setpoints of the main steam safety valves and prevents venting the SG to the environment in an SGTR event. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 below 500°F from full power conditions in an orderly manner and without challenging plant systems.

(continued)

BASES

LCO (continued)

In MODE 4, an ECCS train consists of a centrifugal charging subsystem and an RHR subsystem. Each train includes the piping, instruments, and controls to ensure an OPERABLE flow path capable of taking suction from the RWST and transferring suction to the containment sump.

During an event requiring ECCS actuation, a flow path is required to provide an abundant supply of water from the RWST to the RCS via the ECCS pumps and their respective supply headers to each of the four cold leg injection nozzles. In the long term, this flow path may be switched to take its supply from the containment sump and to deliver its flow to the RCS hot and cold legs.

APPLICABILITY

In MODES 1, 2, and 3, the OPERABILITY requirements for ECCS are covered by LCO 3.5.2.

In MODE 4 with RCS temperature below 350°F, one OPERABLE ECCS train is acceptable without single failure consideration, on the basis of the stable reactivity of the reactor and the limited core cooling requirements.

In MODES 5 and 6, plant conditions are such that the probability of an event requiring ECCS injection is extremely low. Core cooling requirements in MODE 5 are addressed by LCO 3.4.7, "RCS Loops — MODE 5, Loops Filled," and LCO 3.4.8, "RCS Loops — MODE 5, Loops Not Filled." MODE 6 core cooling requirements are addressed by LCO 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation — High Water Level," and LCO 3.9.6, "Residual Heat Removal (RHR) and Coolant Circulation — Low Water Level."

ACTIONS

A Note prohibits the application of LCO 3.0.4b to an inoperable ECCS centrifugal charging pump subsystem when entering MODE 4. There is an increased risk associated with entering MODE 4 from MODE 5 with an inoperable ECCS centrifugal charging pump subsystem, and the provisions of LCO 3.0.4b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

(continued)

BASES

ACTIONS (continued)

A.1

With no ECCS RHR subsystem OPERABLE, the plant is not prepared to respond to a loss of coolant accident or to continue a cooldown using the RHR pumps and heat exchangers. The Completion Time of immediately to initiate actions that would restore at least one ECCS RHR subsystem to OPERABLE status ensures that prompt action is taken to restore the required cooling capacity. Normally, in MODE 4, reactor decay heat is removed from the RCS by an RHR loop. If no RHR loop is OPERABLE for this function, reactor decay heat must be removed by some alternate method, such as use of the steam generators. The alternate means of heat removal must continue until the inoperable RHR loop components can be restored to operation so that decay heat removal is continuous.

With both RHR pumps and heat exchangers inoperable, it would be unwise to require the plant to go to MODE 5, where the only available heat removal system is the RHR. Therefore, the appropriate action is to initiate measures to restore one ECCS RHR subsystem and to continue the actions until the subsystem is restored to OPERABLE status.

B.1

With the required ECCS centrifugal charging subsystem inoperable, and at least 100% of the ECCS flow equivalent to a singe OPERABLE ECCS train available, the inoperable components must be returned to OPERABLE status within 72 hours. Since the 72 hour Completion Time is acceptable when the unit is in MODES 1, 2, and 3 (Ref. 5) and MODE 4 represents less severe conditions for the initiation of a LOCA, the 72 hour Completion Time is also acceptable for MODE 4. This allows increased flexibility in plant operations under circumstances when components in the required train may be inoperable, but ECCS remains capable of delivering 100% of the required flow.

C.1

With no ECCS centrifugal charging subsystem OPERABLE, due to the inoperability of the centrifugal charging pump or flow path from the RWST, the plant is not prepared to provide high pressure response to Design Basis Events requiring SI. The 1 hour Completion Time to

(continued)

BASES

ACTIONS

C.1 (continued)

restore at least one ECCS centrifugal charging subsystem to OPERABLE status ensures that prompt action is taken to provide the required cooling capacity or to initiate actions to place the plant in MODE 5, where an ECCS train is not required.

D.1

When the Required Actions of Conditions B or C cannot be completed within the required Completion Time, a controlled shutdown should be initiated. Twenty-four hours is a reasonable time, based on operating experience, to reach MODE 5 in an orderly manner and without challenging plant systems or operators.

SURVEILLANCE REQUIREMENTS

SR 3.5.3.1

The applicable Surveillance descriptions from Bases 3.5.2 for SRs 3.5.2.3, 3.5.2.4 and 3.5.2.7 apply. Note that these Surveillance descriptions were written for a specification that is applicable in MODEs 1, 2, and 3, and SR 3.5.3.1 is applicable for MODE 4. However, the descriptions provided for SRs 3.5.2.3, 3.5.2.4, and 3.5.2.7 are applicable to MODE 4 as well. SR 3.5.3.1 is modified by a Note that allows an RHR train to be considered OPERABLE during alignment and operation for decay heat removal, if capable of being manually realigned (remote or local) to the ECCS mode of operation and not otherwise inoperable. This allows operation in the RHR mode during MODE 4, if necessary.

REFERENCES

The applicable references from Bases 3.5.2 apply.

BASES

ACTIONS (continued)

B.1 and B.2

With two hydrogen recombiners inoperable, the ability to perform the hydrogen control function via alternate capabilities must be verified by administrative means within 1 hour. The alternate hydrogen control capabilities are provided by the containment Hydrogen Purge System/Containment Air Dilution System. The 1 hour Completion Time allows a reasonable period of time to verify that a loss of hydrogen control function does not exist. In addition, the alternate hydrogen control system capability must be verified every 12 hours thereafter to ensure its continued availability. Both the initial verification and all subsequent verifications may be performed as an administrative check by examining logs or other information to determine the availability of the alternate hydrogen control system. It does not mean to perform the Surveillances or other testing needed to demonstrate OPERABILITY of the alternate hydrogen control system. If the ability to perform the hydrogen control function is maintained, continued operation is permitted with two hydrogen recombiners inoperable for up to 7 days. Seven days is a reasonable time to allow two hydrogen recombiners to be inoperable because the hydrogen control function is maintained and because of the low probability of the occurrence of a LOCA that would generate hydrogen in the amounts capable of exceeding the flammability limit.

(continued)

BASES

APPLICABILITY (continued)

to provide the decay heat removal function in MODE 4. Therefore, the ARVs are not required OPERABLE in MODE 4 to satisfy the safety analysis assumptions of the DBA. However, the capability to remove decay heat from an SG required OPERABLE in MODE 4 by LCO 3.4.6, "RCS Loops - MODE 4" is implicit in the requirement for an OPERABLE SG and may require the associated ARV be capable of removing that heat if the normal decay heat removal system (steam dump) is not available.

In MODE 5 or 6, an SGTR is not a credible event.

ACTIONS

A.1

With one required ARV line inoperable, action must be taken to restore OPERABLE status within 30 days. The 30 day Completion Time is reasonable considering the low probability of an SGTR event coincident with a loss of offsite power requiring the use of the ARVs and the redundant capability afforded by the remaining OPERABLE ARV lines, a nonsafety grade backup in the Steam Dump System, and MSSVs.

B.1

With two or more required ARV lines inoperable, action must be taken to restore all but one required ARV line to OPERABLE status. Since the block valve can be closed to isolate an ARV, some repairs may be possible with the unit at power. The 24 hour Completion Time is reasonable to repair inoperable ARV lines, based on the availability of the Steam Dump System and MSSVs, and the low probability of an event occurring during this period that would require the ARV lines.

C.1 and C.2

If the ARV lines cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To

(continued)

BASES

LCO (continued)

inoperable, the turbine driven AFW train is to be considered inoperable. If 125 V MCC 1/2CD1M becomes inoperable, the turbine driven AFW train is to be considered inoperable.

The AFW System is configured into three trains. The AFW System is considered OPERABLE when the components and flow paths required to provide redundant AFW flow to the steam generators are OPERABLE. This requires that the two motor driven AFW pumps be OPERABLE in two diverse paths, each supplying AFW to separate steam generators. The turbine driven AFW pump is required to be OPERABLE with redundant steam supplies from each of two main steam lines upstream of the MSIVs, and shall be capable of supplying AFW to any of the steam generators. The piping, valves, instrumentation, and controls in the required flow paths also are required to be OPERABLE. The AFW pumphouse ESF supply fans and associated dampers must be OPERABLE to support operation of the motor driven pumps, and the ESF outside air intake and exhaust dampers must be OPERABLE to support operation of the turbine driven pump.

Although the AFW System can be used in MODE 4 to add to SG inventory when the SG is being used to support RCS operability requirements in accordance with LCO 3.4.6, the LCO does not require the AFW System to be OPERABLE in MODE 4.

APPLICABILITY

In MODES 1, 2, and 3, the AFW System is required to be OPERABLE in the event that it is called upon to function when the MFW is lost.

In MODE 4 the AFW System may be used for heat removal via the steam generators, but is not required since the RHR System is available in this MODE.

In MODE 5 or 6, the steam generators are not normally used for heat removal, and the AFW System is not required.

ACTIONS

A Note prohibits the application of LCO 3.0.4b to an inoperable AFW train when entering MODE 1. There is an increased risk associated with entering MODE 1 with an AFW train inoperable, and the provisions of LCO 3.0.4b, which allow entry into a MODE

(continued)

BASES

ACTIONS (continued)

or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

A.1

If one of the two steam supplies to the turbine driven AFW train is inoperable, action must be taken to restore OPERABLE status within 7 days. The 7 day Completion Time is reasonable, based on the following reasons:

a. The redundant OPERABLE steam supply to the turbine driven AFW pump;

b. The availability of redundant OPERABLE motor driven AFW pumps; and

c. The low probability of an event occurring that requires the inoperable steam supply to the turbine driven AFW pump.

The second Completion Time for Required Action A.1 establishes a limit on the maximum time allowed for any combination of Conditions to be inoperable during any continuous failure to meet this LCO.

The 10 day Completion Time provides a limitation time allowed in this specified Condition after discovery of failure to meet the LCO. This limit is considered reasonable for situations in which Conditions A and B are entered concurrently. The AND connector between 7 days and 10 days dictates that both Completion Times apply simultaneously, and the more restrictive must be met.

B.1

With one of the required AFW trains (pump or flow path) inoperable for reasons other than Condition A, action must be taken to restore OPERABLE status within 72 hours. This Condition includes the loss of two steam supply lines to the turbine driven AFW pump. The 72 hour Completion Time is reasonable, based on redundant capabilities afforded by the AFW System, time needed for repairs, and the low probability of a DBA occurring during this time period.

The second Completion Time for Required Action B.1 establishes a limit on the maximum time allowed for any combination of Conditions to be inoperable during any continuous failure to meet this LCO.

(continued)

BASES

ACTIONS

B.1 (continued)

The 10 day Completion Time provides a limitation time allowed in this specified Condition after discovery of failure to meet the LCO. This limit is considered reasonable for situations in which Conditions A and B are entered concurrently. The AND connector between 72 hours and 10 days dictates that both Completion Times apply simultaneously, and the more restrictive must be met.

C.1 and C.2

When Required Action A.1 or B.1 cannot be completed within the required Completion Time, or if two AFW trains are inoperable, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4 within 12 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, AFW is not required since RHR is available.

D.1

If all three AFW trains are inoperable, the unit is in a seriously degraded condition with no safety related means for conducting a cooldown, and only limited means for conducting a cooldown with nonsafety related equipment. In such a condition, the unit should not be perturbed by any action, including a power change, that might result in a trip. The seriousness of this condition requires that action be started immediately to restore one AFW train to OPERABLE status.

Required Action D.1 is modified by a Note indicating that all required MODE changes or power reductions are suspended until one AFW train is restored to OPERABLE status. In this case, LCO 3.0.3 is not applicable because it could force the unit into a less safe condition.

(continued)

BASES

ACTIONS (continued)

D.1

If the control room boundary is inoperable in MODES 1, 2, 3, and 4, the CREFS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room boundary within 24 hours. During the period that the control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) will be utilized to provide physical security and to protect control room operators from potential hazards such as radioactive contamination, smoke, temperature, and relative humidity. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. These preplanned measures will include, but not necessarily be limited to, suspension of movement of irradiated fuel assemblies and/or loads over irradiated fuel assemblies within the fuel handling building. The 24-hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period and the use of compensatory measures. The 24-hour Completion Time is a typically reasonable time to test, diagnose, plan, and possibly execute a repair of most problems with the control room boundary.

E.1

With the control room air temperature outside its limit, action must be taken to restore the air temperature to within the limit within 7 days. If the control room air temperature exceeds its limit, the ability of a single train of CREFS to maintain control room temperature after a CRI may be affected. The completion time of 7 days is reasonable considering the number of CREFS trains available to perform the required temperature control function and the low probability of an event occurring that would require the CREFS operation during that time.

(continued)

BASES

ACTIONS (continued)

F.1, F.2, and F.3

If the Required Actions and associated Completion Times of Conditions A, B, C, D, or E are not met, action must be taken to place the unit in a condition where the inoperable CREFS train(s) are no longer required. Locking closed the outside air (OSA) dampers in the affected unit and locking open the OSA dampers in the unaffected unit within 1 hour, ensure that all control room air intake is monitored by redundant radiogas monitors that actuate OPERABLE CREFS trains. The affected unit(s) must also be placed in MODE 3 within the following 6 hours and MODE 5 within the following 36 hours, which removes the requirement for control room protection in the event of an SI in the affected unit(s). These actions ensure that if the control room cannot be protected from all postulated accident and single failure conditions, the unit or units are placed in a MODE where the protection is no longer required. The allowed Completion Times are reasonable, based on operating experience, to perform the Required Actions and to reach the required unit conditions from full power conditions in an orderly manner without challenging unit systems.

Required Action F.1 is modified by a Note that excepts Conditions B, D, and E. Conditions B, D, and E affect both units, and Required Action F.1 is based on a single affected unit. Therefore, upon entry into Condition F from Condition B, D, or E, only Required Actions F.2 and F.3 apply.

SURVEILLANCE REQUIREMENTS

SR 3.7.10.1

The CREFS is required to maintain the control room temperature ≤ 85°F in the event of a CRI. The maintenance of the control room below this temperature ensures the operational requirements of equipment located in the control room will not be exceeded. To accomplish this function, the CREFS air flow is directed through cooling coils which are supplied by the Essential Chilled Water System. The design cooling capacity of the CREFS and the limitation of the normal control room ambient temperature (before CRI) ensure the capability of the CREFS to maintain the

(continued)

BASES

ACTIONS

F.1 (continued)

temperature, and relative humidity. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. These preplanned measures will include, but not necessarily be limited to, suspension of CORE ALTERATIONS and/or movement of irradiated fuel assemblies and/or loads over irradiated fuel assemblies. The 24-hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period and the use of compensatory measures. The 24-hour Completion Time is a typically reasonable time to test, diagnose, plan, and possibly execute a repair of most problems with the control room boundary.

G.1

With the control room air temperature outside its limit, action must be taken to restore the air temperature to within the limit within 7 days. If the control room air temperature exceeds its limit, the ability of a single train of CREFS to maintain control room temperature after a CRI may be affected. The completion time of 7 days is reasonable considering the number of CREFS trains available to perform the required temperature control function and the low probability of an event occurring that would require the CREFS operation during that time.

H.1 and H.2

If the Required Actions and associated Completion Times for the operating unit are not met, action must be taken to place the unit in a condition where the inoperable CREFS train(s) are no longer required. The operating unit must be placed in MODE 3 within 6 hours and MODE 5 within 36 hours, which removes the requirement for control room protection in the event of an SI in the

(continued)

BASES

ACTIONS

F.1 (continued)

of CREFS to maintain control room temperature after a CRI may be affected. The completion time of 7 days is reasonable considering the number of CREFS trains available to perform the required temperature control function and the low probability of an event occurring that would require the CREFS operation during that time.

SURVEILLANCE REQUIREMENTS

SR 3.7.12.1

SR 3.7.12.1 requires that the SRs specified in LCO 3.7.10 be applicable for this LCO as well. The description and Frequencies of those required SRs are included in the Bases for LCO 3.7.10.

REFERENCES

1. VEGP Calculation No. X6CNA.09.01, Control Room HVAC Technical Specifications, October 21, 1988.

BASES

LCO (continued)

train. For the DGs, separation and independence are complete.

For the offsite AC sources, separation and independence are to the extent practical. A circuit may be connected to more than one ESF bus while the bus is being transferred to the other circuit.

APPLICABILITY

The AC sources and sequencers are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that:

a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients; and

b. Adequate core cooling is provided and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

The AC power requirements for MODES 5 and 6 are covered in LCO 3.8.2, "AC Sources — Shutdown."

ACTIONS

A Note prohibits the application of LCO 3.0.4b to an inoperable DG. There is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable DG, and the provisions of LCO 3.0.4b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

A.1

To ensure a highly reliable power source remains with one offsite circuit inoperable, it is necessary to verify the OPERABILITY of the remaining required offsite circuit on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action not met. However, if a second required circuit fails SR 3.8.1.1, the second offsite circuit is inoperable, and Condition D, for two offsite circuits inoperable, is entered.

(continued)

BASES

ACTIONS (continued)

A.2

Required Action A.2, which only applies if the train cannot be powered from an offsite source, is intended to provide assurance that an event coincident with a single failure of the associated DG will not result in a complete loss of safety function of critical redundant required features.

These features are powered from the redundant AC electrical power train. This includes motor driven auxiliary feedwater pumps. Single train systems, such as turbine driven auxiliary feedwater pumps, may not be included.

The Completion Time for Required Action A.2 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

a. The train has no offsite power supplying its loads; and

b. A required feature on the other train is inoperable.

If at any time during the existence of Condition A (one offsite circuit inoperable) a redundant required feature subsequently becomes inoperable, this Completion Time begins to be tracked.

Discovering no offsite power to one train of the onsite Class 1E Electrical Power Distribution System coincident with one or more inoperable required support or supported features, or both, that are associated with the other train that has offsite power, results in starting the Completion Times for the Required Action. Twenty-four hours is acceptable because it minimizes risk while allowing time for restoration before subjecting the unit to transients associated with shutdown.

The remaining OPERABLE offsite circuit and DGs are adequate to supply electrical power to Train A and Train B of the onsite Class 1E Distribution System. The 24 hour Completion Time takes into account the component OPERABILITY of the redundant counterpart to the inoperable required feature. Additionally, the 24 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

The RCS boron concentration satisfies Criterion 2 of 10 CFR 50.36 (c)(2)(ii).

LCO

The LCO requires that a minimum boron concentration be maintained in all filled portions of the RCS, the refueling canal, and the refueling cavity while in MODE 6. The boron concentration limit specified in the COLR ensures that a core k_{eff} of ≤ 0.95 is maintained during fuel handling operations. Violation of the LCO could lead to an inadvertent criticality during MODE 6.

APPLICABILITY

This LCO is applicable in MODE 6 to ensure that the fuel in the reactor vessel will remain subcritical. The required boron concentration ensures a $k_{eff} \leq 0.95$. In MODES 1 and 2, LCO 3.1.4, "Rod Group Alignment Limits," LCO 3.1.5, "Shutdown Bank Insertion Limits," and LCO 3.1.6, "Control Bank Insertion Limits," ensure an adequate amount of negative reactivity is available to shut down the reactor. In MODES 3, 4, and 5, LCO 3.1.1, "SHUTDOWN MARGIN" ensures an adequate amount of negative reactivity is available to shut down the reactor.

ACTIONS

A.1 and A.2

Continuation of CORE ALTERATIONS or positive reactivity additions (including actions to reduce boron concentration) is contingent upon maintaining the unit in compliance with the LCO. If the boron concentration of any coolant volume in the filled portions of the RCS, the refueling canal, or the refueling cavity is less than its limit, all operations involving CORE ALTERATIONS or positive reactivity additions must be suspended immediately.

Suspension of CORE ALTERATIONS and positive reactivity additions shall not preclude moving a component to a safe position or normal cooldown of the coolant volume for the purpose of system temperature control.

(continued)

BASES

ACTIONS

A.1 and A.2 (continued)

operations involving CORE ALTERATIONS or positive reactivity additions must be suspended immediately.

Suspension of CORE ALTERATIONS and positive reactivity additions shall not preclude moving a component to a safe position or normal cooldown of the coolant volume for the purpose of system temperature control.

A.3

In addition to immediately suspending CORE ALTERATIONS or positive reactivity additions, boration to restore the concentration must be initiated immediately.

There are no safety analysis assumptions of boration flow rate and concentration that must be satisfied. The only requirement is to restore the boron concentration to its required value as soon as possible. In order to raise the boron concentration as soon as possible, the operator should begin boration with the best source available for unit conditions.

Once actions have been initiated, they must be continued until the boron concentration is restored. The restoration time depends on the amount of boron that must be injected to reach the required concentration.

SURVEILLANCE REQUIREMENTS

SR 3.9.1.1

This SR ensures that the coolant boron concentration in all filled portions of the RCS, the refueling canal, and the refueling cavity is within the COLR limits. The boron concentration of the coolant in each volume is determined periodically by chemical analysis.

A Frequency of once every 72 hours is a reasonable amount of time to verify the boron concentration of representative samples. The Frequency is based on operating experience, which has shown 72 hours to be adequate.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 26.

2. FSAR, Subsection 15.4.6.

BASES

LCO (continued)

Additionally, one loop of RHR must be in operation in order to provide:

a. Removal of decay heat;

b. Mixing of borated coolant to minimize the possibility of criticality; and

c. Indication of reactor coolant temperature.

An OPERABLE RHR loop consists of an RHR pump, a heat exchanger, valves, piping, instruments and controls to ensure an OPERABLE flow path and to determine the low end temperature. The flow path starts in one of the RCS hot legs and is returned to the RCS cold legs.

APPLICABILITY

Two RHR loops are required to be OPERABLE, and one RHR loop must be in operation in MODE 6, with the water level < 23 ft above the top of the reactor vessel flange, to provide decay heat removal and mixing of the borated coolant. Requirements for the RHR System in other MODES are covered by LCOs in Section 3.4, Reactor Coolant System (RCS), and Section 3.5, Emergency Core Cooling Systems (ECCS). RHR loop requirements in MODE 6 with the water level ≥ 23 ft are located in LCO 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation — High Water Level."

ACTIONS

A.1 and A.2

If less than the required number of RHR loops are OPERABLE, action shall be immediately initiated and continued until the RHR loop is restored to OPERABLE status and to operation or until ≥ 23 ft of water level is established above the reactor vessel flange. When the water level is ≥ 23 ft above the reactor vessel flange, the Applicability changes to that of LCO 3.9.5, and only one RHR loop is required to be OPERABLE and in operation. An immediate Completion Time is necessary for an operator to initiate corrective actions.

(continued)

BASES

ACTIONS

A.1 and A.2 (continued)

restored to OPERABLE status and to operation or until ≥ 23 ft of water level is established above the reactor vessel flange. When the water level is ≥ 23 ft above the reactor vessel flange, the Applicability changes to that of LCO 3.9.5, and only one RHR loop is required to be OPERABLE and in operation. An immediate Completion Time is necessary for an operator to initiate corrective actions.

B.1

If no RHR loop is in operation, there will be no forced circulation to provide mixing to establish uniform boron concentrations. Reduced boron concentrations cannot occur by the addition of water with a lower boron concentration than that contained in the RCS, because all of the unborated water sources are isolated.

B.2

If no RHR loop is in operation, actions shall be initiated immediately, and continued, to restore one RHR loop to operation. Since the unit is in Conditions A and B concurrently, the restoration of two OPERABLE RHR loops and one operating RHR loop should be accomplished expeditiously.

B.3

If no RHR loop is in operation, all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere must be closed within 4 hours. With the RHR loop requirements not met, the potential exists for the coolant to boil and release radioactive gas to the containment atmosphere. Closing containment penetrations that are open to the outside atmosphere ensures that dose limits are not exceeded.

The Completion Time of 4 hours is reasonable, based on the low probability of the coolant boiling in that time.

(continued)

BASES (*continued*)

SURVEILLANCE REQUIREMENTS

SR 3.9.6.1

This Surveillance demonstrates that one RHR loop is in operation and circulating reactor coolant. The flow rate is determined by the flow rate necessary to provide sufficient decay heat removal capability and to provide mixing of the borated coolant to prevent thermal and boron stratification in the core. In addition, during operation of the RHR loop with the water level in the vicinity of the reactor vessel nozzles, the RHR pump suction requirements must be met. The Frequency of 12 hours is sufficient, considering the flow, temperature, pump control, and alarm indications available to the operator for monitoring the RHR System in the control room.

REFERENCES

NONE