

April 8, 2004

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-137
Washington, D.C. 20555

ULNRC-04977

Ladies and Gentlemen:



**DOCKET NUMBER 50-483
UNION ELECTRIC COMPANY
CALLAWAY PLANT
LICENSE AMENDMENT APPLICATION
REGARDING MODE CHANGE LIMITATIONS USING
THE CONSOLIDATED LINE ITEM IMPROVEMENT PROCESS**

AmerenUE herewith transmits an application for amendment to Facility Operating License Number NPF-30 for the Callaway Plant in accordance with the provisions of 10 CFR 50.90. 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. In addition, several other changes are also submitted to various TS requirements that reference LCO 3.0.4.

Attachment 1 contains a description of the proposed changes, the requested confirmation of applicability, and plant-specific verifications. As discussed in Attachment 1, this amendment application is consistent with the NRC-approved Industry/Technical Specification Task Force (TSTF) Standard TS (STS) Change Traveler 359, Revision 9, "Increase Flexibility in MODE Restraints."

Attachments 1 through 5 provide the Evaluation, Markup of Technical Specifications, Retyped Technical Specifications, Proposed Technical Specification Bases Changes, and Summary of Regulatory Commitments, respectively, in support of this amendment request. Attachment 4 is provided for information only in the interest of assisting NRC staff in its review of the proposed changes. Final Technical Specification Bases changes will be implemented under our program for updates per TS 5.5.14, "Technical Specification Bases Control Program," at the time this amendment is implemented. Commitments associated with the implementation of this amendment are contained in Attachment 5.

AP01

It has been determined that this amendment application does not involve a significant hazard consideration as determined per 10 CFR 50.92. Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

NRC approval of this amendment application is requested by December 1, 2004. The amendment will be implemented within 90 days after NRC approval, but in any event no sooner than January 1, 2005 and no later than March 1, 2005 to allow operator training on the revised procedures for all of the operating crews. In accordance with 10 CFR 50.91, a copy of this amendment application is being provided to the designated Missouri State official.

If you have any questions on this amendment application, please contact us.

Very truly yours,



Keith D. Young
Manager-Regulatory Affairs

Attachments:

- 1 Evaluation
- 2 Markup of Technical Specifications
- 3 Retyped Technical Specifications
- 4 Proposed Technical Specification Bases Changes (for information only)
- 5 Summary of Regulatory Commitments

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STATE OF MISSOURI)
)
COUNTY OF CALLAWAY)

SS

Keith D. Young, of lawful age, being first duly sworn upon oath says that he is Manager, Regulatory Affairs, for Union Electric Company; that he has read the foregoing document and knows the content thereof; that he has executed the same for and on behalf of said company with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

By Keith D. Young
Keith D. Young
Manager, Regulatory Affairs

SUBSCRIBED and sworn to before me this 8th day of April, 2004.



Cathy J. Crisp
Notary Public
Expiration 1-29-06
Callaway County

EVALUATION

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EVALUATION

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 (CLIP).

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

A description of the TS and TS Bases changes is provided below for the TS and TS Bases changes that directly adopt TSTF-359 Revision 9 with no variations. Section 4.2 of this Evaluation provides a description of the TS and TS Bases changes where minor variances are required to accommodate differences between the Callaway TS and the STS.

- 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, (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. The bracketed provisions in the TSTF-359 Revision 9 Bases mark-ups have been removed since the STS applicable to Callaway is NUREG-1431, Revision 2, "Standard Technical Specifications, Westinghouse Plants."
- SR 3.0.4 is revised to reflect the concepts of the changes to LCO 3.0.4. The Applicability of SR 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 SR 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. The bracketed provisions in the TSTF-359 Revision 9 Bases mark-ups have been removed since the STS applicable to Callaway is NUREG-1431, Revision 2, "Standard Technical Specifications, Westinghouse Plants."

- In TS 3.3.3, "Post Accident Monitoring (PAM) Instrumentation," the Note stating LCO 3.0.4 is not applicable is deleted.
- In TS 3.3.4, "Remote Shutdown System," the Note stating LCO 3.0.4 is not applicable is deleted.
- In TS 3.4.11, "Pressurizer Power Operated Relief Valves (PORVs)," the Note stating LCO 3.0.4 is not applicable is deleted.
- In TS 3.4.12, "Cold Overpressure Mitigation System (COMS)," an ACTIONS Note is added to indicate that the new LCO 3.0.4.b provision is not applicable when entering MODE 4. COMS is the Callaway-equivalent LCO wording for Low Temperature Overpressure Protection (LTOP) as used in the STS. The actual ACTION Note change is identical to that in TSTF-359 Revision 9.
- In TS 3.4.15, "RCS Leakage Detection Instrumentation," the Note stating LCO 3.0.4 is not applicable is deleted.
- In TS 3.4.16, "RCS Specific Activity," a Note permitting the use of the new LCO 3.0.4.c provision is substituted for the existing LCO 3.0.4 non-applicability Note in the Required Actions of Condition A.
- In TS 3.6.8, "Hydrogen Recombiners," the Note in Required Action A.1 stating LCO 3.0.4 is not applicable is deleted.
- In TS 3.7.5, "Auxiliary Feedwater (AFW) System," an ACTIONS Note is added to indicate that the new LCO 3.0.4.b provision is not applicable when entering MODE 1. The bracketed provisions around MODE 1 in the TSTF-359 Revision 9 TS and TS Bases mark-ups have been removed since Callaway does not depend upon AFW for plant startup, although the AFW system may be used during startup if the motor-driven startup feedwater pump is unavailable.
- In TS 3.8.1, "AC Sources - Operating," an ACTIONS Note is added to indicate that the new LCO 3.0.4.b provision is not applicable to diesel generators.

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, ITS 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

AmerenUE 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. AmerenUE has concluded that the justifications presented in the TSTF proposal and the safety evaluation prepared by the NRC staff are applicable to Callaway and justify this amendment for the incorporation of the changes to the Callaway TS.

4.2 Optional Changes and Variations

AmerenUE 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), except for a minor readability improvement in LCO 3.0.4 to insert the word "or" between LCO elements 3.0.4.a and 3.0.4.b to highlight the mutual exclusivity of these elements. It is noted that this "or" connector was contained in both the NRC Notice of Opportunity to Comment (67 FR 50477, 8/2/02) and in the NRC Notice of Availability (68 FR 16585, 4/4/03).

However, due to differences between the Callaway 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 (Callaway Amendment No. 133)

Prior to the approval of TSTF-359, STS 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.

AmerenUE added five special LCO 3.0.4 Notes to the TS during our ITS conversion (Callaway Amendment No. 133). The following discussions provide additional justification for deleting these five Notes:

- In TS 3.1.1, "SHUTDOWN MARGIN (SDM)," the Applicability Note is deleted. This Note requires that while the LCO is not met, entry into MODE 5 from MODE 6 is not permitted. Inadvertent boron dilution events are precluded in MODE 6 via the administrative controls of TS 3.9.2, "Unborated Water Source Isolation Valves." Inadvertent boron dilution events are not precluded by the same administrative controls in MODE 5, when event mitigation via the Boron Dilution Mitigation System (BDMS) must be credited along with analysis assumptions on SDM.

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 3.0.4.c guidance is not applicable."

NEI 03-10 further states (pages 5 and 6) that LCO 3.0.4.a and LCO 3.0.4.b 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 3.0.4.a and LCO 3.0.4.b are not applicable in this case.

Therefore, since AmerenUE does not propose to add an LCO 3.0.4.c Note to TS 3.1.1, and LCO 3.0.4.a and LCO 3.0.4.b are not applicable, this plant-specific Applicability Note prohibiting entry into MODE 5 from MODE 6 while the LCO is not met is superfluous and is therefore deleted.

- In TS 3.3.1, "Reactor Trip System (RTS) Instrumentation," the Note in Condition C is deleted. This Note requires that while the LCO is not met for Function 19, 20, or 21 in MODE 5, making the Rod Control System capable of rod withdrawal is not permitted. Prior to enabling the Rod Control System or allowing any control or shutdown rod to be other than fully inserted in MODES 3, 4, or 5, plant procedures currently provide controls to maintain RCS boron concentration sufficient to preclude criticality with all control and shutdown rods fully withdrawn. These administrative controls, including immediate actions (in the event a MOSCA change has occurred) to borate or insert all rods and disable rod control whenever RCS temperature is below 500°F, would mitigate any inadvertent rod withdrawal from subcritical transient. This plant-specific Condition C Note is superfluous and is therefore deleted.
- In TS 3.4.8, "RCS Loops – MODE 5, Loops Not Filled," the Applicability 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 (TS 3.4.7) is not permitted. The intent of this Note is to retain the heat removal path afforded by the steam generators when the RHR 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 Applicability Note is deleted. This Note requires that while the LCO is not met, entry into MODE 6 from MODE 5 is not permitted. This Specification has no LCO 3.0.4.c exception and LCO 3.0.4 places no restrictions on MODE changes that are part of the shutdown of the unit. 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 Applicability 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 Callaway TS

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

- In TS 3.3.2, "Engineered Safety Features Actuation System (ESFAS) Instrumentation," the Note in the Required Actions of Condition O stating LCO 3.0.4 is not applicable is deleted. The LCO 3.0.4 Note was maintained during the conversion to the improved STS in Callaway Amendment No. 133 based on our current licensing basis at the time. Future MODE changes with an inoperable channel in this trip function (AFW Suction Transfer on Low Suction Pressure) will be evaluated pursuant to the new LCO 3.0.4.b. Since this is a more restrictive change, it should be acceptable.
- In the TSTF mark-ups, STS 3.5.3, "ECCS – Shutdown," an ACTIONS Note is added to indicate that the new LCO 3.0.4.b provision is not applicable to the ECCS high head subsystem. In the Callaway TS, the same ACTIONS Note is added but the Note uses the Callaway-specific terminology of "ECCS centrifugal charging pump subsystem." This is strictly an editorial change reflecting plant-specific terminology and should be acceptable.
- In the TSTF mark-ups, STS 3.6.9, "Hydrogen Mixing System (HMS)," is modified. The Callaway 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 Callaway TS is titled "Atmospheric Steam Dump Valves (ASDs)," and the same change is made to delete the Note in Required Action A.1. In addition, in the Required Actions of Condition D, the Note stating LCO 3.0.4 is not applicable is deleted. Future MODE changes with one or more ASDs inoperable because of excessive seat leakage will be evaluated pursuant to the new LCO 3.0.4.b. Since this is a more restrictive change, it should be acceptable.

5.0 REGULATORY ANALYSIS

5.1 NO SIGNIFICANT HAZARDS CONSIDERATION

AmerenUE has reviewed the proposed no significant hazards consideration determination (NSHCD) published in the Federal Register as part of the CLIIP. AmerenUE has concluded that the proposed NSHCD presented in the Federal Register notice is applicable to Callaway 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.

AmerenUE 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 3.0.4.a 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 3.0.4.b 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 3.0.4.c 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

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

ATTACHMENT 2

MARKUP OF TECHNICAL SPECIFICATIONS

3.0 LCO APPLICABILITY (continued)

LCO 3.0.4

INSERT
/ →

~~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 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.~~

~~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, an evaluation shall be performed 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 (continued)

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 within the limits provided in the COLR.

APPLICABILITY: MODE 2 with $k_{eff} < 1.0$,
MODES 3, 4, and 5.

NOTE

While this LCO is not met, entry into MODE 5 from MODE 6 is not permitted.

ACTIONS

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 to be within limits.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. NOTE While this LCO is not met for Function 19, 20, or 21 in MODE 5, making the Rod Control System capable of rod withdrawal is not permitted.</p> <p>One channel or train inoperable.</p>	<p>C.1 Restore channel or train to OPERABLE status.</p> <p><u>OR</u></p> <p>C.2.1 Initiate action to fully insert all rods.</p> <p><u>AND</u></p> <p>C.2.2 Place the Rod Control System in a condition incapable of rod withdrawal.</p>	<p>48 hours</p> <p>48 hours</p> <p>49 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
M. One or more Vessel ΔT Equivalent channel(s) inoperable.	M.1 Place channel(s) in trip. <u>OR</u> M.2 Be in MODE 3.	6 hours 12 hours
N. One or more Containment Pressure - Environmental Allowance Modifier channel(s) inoperable.	N.1 Place channel(s) in trip. <u>OR</u> N.2.1 Be in MODE 3. <u>AND</u> N.2.2 Be in MODE 4.	6 hours 12 hours 18 hours
O. One channel inoperable.	<div style="border: 1px solid black; padding: 5px; text-align: center;"> NOTE LCO 3.0.4 is not applicable. </div> O.1 Place channel in trip. <u>AND</u> O.2 Restore channel to OPERABLE status.	1 hour During performance of the next required COT

(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 required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action in accordance with Specification 5.6.8.	Immediately

(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 and the required auxiliary shutdown panel (ASP) controls 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 and required ASP control.

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops - MODE 5, Loops Not Filled

LCO 3.4.8 Two residual heat removal (RHR) loops shall be OPERABLE and one RHR loop shall be in operation.

NOTES

1. All RHR pumps may be removed from operation for ≤ 1 hour provided:
 - a. The core outlet temperature is maintained at least 10°F below saturation temperature.
 - b. No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.1; and
 - c. No draining operations to further reduce the RCS water volume are permitted.
2. One RHR loop may be inoperable for ≤ 2 hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation.

APPLICABILITY: MODE 5 with RCS loops not filled.

NOTE

While this LCO is not met, entry into MODE 5, Loops Not Filled from MODE 5, Loops Filled is not permitted.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR loop inoperable.	A.1 Initiate action to restore RHR loop to OPERABLE status.	Immediately

(continued)

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 solely due to excessive seat leakage.	A.1 Close and maintain power to associated block valve.	1 hour
B. One PORV inoperable for reasons other than excessive seat leakage.	B.1 Close associated block valve.	1 hour
	<u>AND</u>	
	B.2 Remove power from associated block valve.	1 hour
	<u>AND</u>	
	B.3 Restore PORV to OPERABLE status.	72 hours

(continued)

ACTIONS ^{ob} ----- NOTE -----
 LCO 3.0.4 is not applicable ^{ob} when entering MODE 4.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more safety injection pumps capable of injecting into the RCS.	A.1 Initiate action to verify a maximum of zero safety injection pumps are capable of injecting into the RCS.	Immediately
B. Two centrifugal charging pumps capable of injecting into the RCS.	B.1 Initiate action to verify a maximum of one centrifugal charging pump is capable of injecting into the RCS.	Immediately
C. 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.	C.1 Isolate affected accumulator.	1 hour

(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 sump level and flow monitoring system;
- b. One containment atmosphere particulate radioactivity monitor; and
- c. The containment cooler condensate monitoring system or one containment atmosphere gaseous radioactivity monitor.

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

ACTIONS	NOTE
LCO 3.0.4 is not applicable.	

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required containment sump level and flow monitoring system inoperable.	A.1 <p style="text-align: center;">----- NOTE ----- Not required until 12 hours after establishment of steady state operation.</p> <hr/> Perform SR 3.4.13.1.	Once per 24 hours
	<u>AND</u> A.2 Restore required containment sump level and flow monitoring system to OPERABLE status.	30 days

(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}) \geq 500°F.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. DOSE EQUIVALENT I-131 > 1.0 μ Ci/gm.	<p style="text-align: center;">NOTE</p> <p style="text-align: center;">LCO 3.0.4 is not applicable.</p>	Once per 4 hours
	<p>A.1 Verify DOSE EQUIVALENT I-131 within the acceptable region of Figure 3.4.16-1.</p> <p><u>AND</u></p> <p>A.2 Restore DOSE EQUIVALENT I-131 to within limit.</p>	
B. Gross specific activity of the reactor coolant > 100/ \bar{E} μ Ci/gm.	B.1 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.

----- NOTE -----
An RHR subsystem may be considered OPERABLE during alignment and operation for decay heat removal, if capable of being manually realigned to the ECCS mode of operation.

INSERT
3

APPLICABILITY: MODE 4.

ACTIONS

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 Pump subsystem inoperable.	B.1 Restore required ECCS Centrifugal Charging Pump subsystem to OPERABLE status.	1 hour
C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 5.	24 hours

INSERT 3

-----NOTE-----

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

3.6 CONTAINMENT SYSTEMS

3.6.8 Hydrogen Recombiners

LCO 3.6.8 Two hydrogen recombiners shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One hydrogen recombiner inoperable.	A.1 <div style="border: 1px solid black; border-radius: 10px; padding: 5px; display: inline-block; margin: 5px;"> NOTE LCO 3.0.4 is not applicable. </div> 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. <u>AND</u> B.2 Restore one hydrogen recombiner to OPERABLE status.	1 hour <u>AND</u> Once per 12 hours thereafter 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 Steam Dump Valves (ASDs)

LCO 3.7.4 Four ASD lines shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One required ASD line inoperable for reasons other than excessive ASD seat leakage.</p>	<p>A.1</p> <div style="border: 1px solid black; border-radius: 15px; padding: 5px; width: fit-content; margin: 10px auto;"> <p style="text-align: center;">NOTE LCO 3.0.4 is not applicable.</p> </div> <p>Restore required ASD line to OPERABLE status.</p>	<p>7 days</p>
<p>B. Two required ASD lines inoperable for reasons other than excessive ASD seat leakage.</p>	<p>B.1</p> <p>Restore all but one required ASD line to OPERABLE status.</p>	<p>72 hours</p>
<p>C. Three or more required ASD lines inoperable for reasons other than excessive ASD seat leakage.</p>	<p>C.1</p> <p>Restore all but two required ASD lines to OPERABLE status.</p>	<p>24 hours</p>

(continued)

3.7 PLANT SYSTEMS

3.7.5 Auxiliary Feedwater (AFW) System

LCO 3.7.5 Three AFW trains shall be OPERABLE.

INSERT 4

APPLICABILITY: MODES 1, 2, and 3.

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 <u>AND</u> 10 days from discovery of failure to meet the LCO
B. One ESW supply to turbine driven AFW pump inoperable	B.1 Restore ESW supply to OPERABLE status.	72 hours <u>AND</u> 10 days from discovery of failure to meet the LCO
C. One AFW train inoperable for reasons other than Condition A or B.	C.1 Restore AFW train to OPERABLE status.	72 hours* <u>AND</u> 10 days from discovery of failure to meet the LCO

(continued)

*With the exception that the Completion Time associated with the Condition C entry on 2/3/04 for the turbine driven auxiliary feedwater pump has been extended on a one-time only basis to 144 hours. At the time a formal cause of the inoperability is determined, Condition D will be entered immediately.

INSERT 4

NOTE

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

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); and
- c. Load Shedder and Emergency Load Sequencer (LSELS) for Train A and Train B.

INSERT 5

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for OPERABLE offsite circuit.	1 hour
	<p><u>AND</u></p> <p>A.2</p> <p>----- NOTE ----- In Modes 1, 2, and 3, the turbine driven auxiliary feedwater pump is considered a required redundant feature.</p>	<p><u>AND</u></p> <p>Once per 8 hours thereafter</p>

(continued)

INSERT 5

-----NOTE-----

LCO 3.0.4.b is not applicable to DGs.

3.9 REFUELING OPERATIONS

3.9.1 Boron Concentration

LCO 3.9.1 Boron concentrations of all filled portions of the Reactor Coolant System and the refueling pool that have direct access to the reactor vessel, shall be maintained sufficient to ensure that the more restrictive of the following reactivity conditions is met:

- a. $A k_{eff} \leq 0.95$, or
- b. A boron concentration of ≥ 2000 ppm.

APPLICABILITY: MODE 6.

NOTE
While this LCO is not met, entry into MODE 6 from MODE 5 is not permitted.

ACTIONS

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

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.

NOTE
While this LCO is not met, entry into a MODE or other specified condition in the Applicability is not permitted.

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
	<u>OR</u> A.2 Initiate action to establish ≥ 23 ft of water above the top of reactor vessel flange.	Immediately

(continued)

ATTACHMENT 3

RETYPE TECHNICAL SPECIFICATIONS

3.0 LCO APPLICABILITY (continued)

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
- 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 Specification; 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, an evaluation shall be performed 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 (continued)

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 within the limits provided in the COLR.

APPLICABILITY: MODE 2 with $k_{eff} < 1.0$,
MODES 3, 4, and 5.

ACTIONS

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 to be within limits.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. One channel or train inoperable.</p>	<p>C.1 Restore channel or train to OPERABLE status.</p>	<p>48 hours</p>
	<p><u>OR</u></p>	
	<p>C.2.1 Initiate action to fully insert all rods.</p>	<p>48 hours</p>
	<p><u>AND</u></p>	
	<p>C.2.2 Place the Rod Control System in a condition incapable of rod withdrawal.</p>	<p>49 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>M. One or more Vessel ΔT Equivalent channel(s) inoperable.</p>	<p>M.1 Place channel(s) in trip. <u>OR</u> M.2 Be in MODE 3.</p>	<p>6 hours 12 hours</p>
<p>N. One or more Containment Pressure - Environmental Allowance Modifier channel(s) inoperable.</p>	<p>N.1 Place channel(s) in trip. <u>OR</u> N.2.1 Be in MODE 3. <u>AND</u> N.2.2 Be in MODE 4.</p>	<p>6 hours 12 hours 18 hours</p>
<p>O. One channel inoperable.</p>	<p>O.1 Place channel in trip. <u>AND</u> O.2 Restore channel to OPERABLE status.</p>	<p>1 hour During performance of the next required COT</p>

(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 required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action in accordance with Specification 5.6.8.	Immediately

(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 and the required auxiliary shutdown panel (ASP) controls shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

----- NOTE -----
Separate Condition entry is allowed for each Function and required ASP control.

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops - MODE 5, Loops Not Filled

LCO 3.4.8 Two residual heat removal (RHR) loops shall be OPERABLE and one RHR loop shall be in operation.

----- NOTES -----

1. All RHR pumps may be removed from operation for ≤ 1 hour provided:
 - a. The core outlet temperature is maintained at least 10°F below saturation temperature.
 - b. No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.1; and
 - c. No draining operations to further reduce the RCS water volume are permitted.
 2. One RHR loop may be inoperable for ≤ 2 hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation.
-

APPLICABILITY: MODE 5 with RCS loops not filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR loop inoperable.	A.1 Initiate action to restore RHR loop to OPERABLE status.	Immediately

(continued)

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 solely due to excessive seat leakage.	A.1 Close and maintain power to associated block valve.	1 hour
B. One PORV inoperable for reasons other than excessive seat leakage.	B.1 Close associated block valve.	1 hour
	<u>AND</u>	
	B.2 Remove power from associated block valve.	1 hour
	<u>AND</u>	
	B.3 Restore PORV to OPERABLE status.	72 hours

(continued)

ACTIONS

NOTE

LCO 3.0.4.b is not applicable when entering MODE 4.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more safety injection pumps capable of injecting into the RCS.	A.1 Initiate action to verify a maximum of zero safety injection pumps are capable of injecting into the RCS.	Immediately
B. Two centrifugal charging pumps capable of injecting into the RCS.	B.1 Initiate action to verify a maximum of one centrifugal charging pump is capable of injecting into the RCS.	Immediately
C. 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.	C.1 Isolate affected accumulator.	1 hour

(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 sump level and flow monitoring system;
- b. One containment atmosphere particulate radioactivity monitor; and
- c. The containment cooler condensate monitoring system or one containment atmosphere gaseous radioactivity monitor.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. Required containment sump level and flow monitoring system inoperable.</p>	<p>A.1</p> <p style="text-align: center;">----- NOTE ----- Not required until 12 hours after establishment of steady state operation. -----</p> <p>Perform SR 3.4.13.1.</p> <p><u>AND</u></p> <p>A.2</p> <p>Restore required containment sump level and flow monitoring system to OPERABLE status.</p>	<p>Once per 24 hours</p> <p>30 days</p>

(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}) $\geq 500^{\circ}\text{F}$.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. DOSE EQUIVALENT I-131 > 1.0 $\mu\text{Ci/gm}$.</p>	<p>----- NOTE ----- LCO 3.0.4.c is applicable.</p>	<p>Once per 4 hours</p>
	<p>A.1 Verify DOSE EQUIVALENT I-131 within the acceptable region of Figure 3.4.16-1.</p> <p><u>AND</u></p> <p>A.2 Restore DOSE EQUIVALENT I-131 to within limit.</p>	
<p>B. Gross specific activity of the reactor coolant > 100/E $\mu\text{Ci/gm}$.</p>	<p>B.1 Be in MODE 3 with T_{avg} < 500$^{\circ}\text{F}$.</p>	<p>6 hours</p>

(continued)

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.3 ECCS - Shutdown

LCO 3.5.3 One ECCS train shall be OPERABLE.

----- NOTE -----

An RHR subsystem may be considered OPERABLE during alignment and operation for decay heat removal, if capable of being manually realigned to the ECCS mode of operation.

APPLICABILITY: MODE 4.

ACTIONS

----- NOTE -----

LCO 3.0.4.b 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 Pump subsystem inoperable.	B.1 Restore required ECCS Centrifugal Charging Pump subsystem to OPERABLE status.	1 hour
C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 5.	24 hours

3.6 CONTAINMENT SYSTEMS

3.6.8 Hydrogen Recombiners

LCO 3.6.8 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 <u>AND</u> Once per 12 hours thereafter
	<u>AND</u> 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 Steam Dump Valves (ASDs)

LCO 3.7.4 Four ASD lines shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required ASD line inoperable for reasons other than excessive ASD seat leakage.	A.1 Restore required ASD line to OPERABLE status.	7 days
B. Two required ASD lines inoperable for reasons other than excessive ASD seat leakage.	B.1 Restore all but one required ASD line to OPERABLE status.	72 hours
C. Three or more required ASD lines inoperable for reasons other than excessive ASD seat leakage.	C.1 Restore all but two required ASD lines to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. With one or more of the required ASD(s) inoperable because of excessive seat leakage.</p>	<p>D.1 Initiate action to close the Associated manual isolation valve(s).</p>	<p>Immediately</p>
	<p><u>AND</u></p> <p>D.2 Restore ASD(s) to OPERABLE status.</p>	
<p>E. Required Action and associated Completion Time not met.</p>	<p>E.1 Be in MODE 3.</p>	<p>6 hours</p>
	<p><u>AND</u></p> <p>E.2 Be in MODE 4.</p>	<p>12 hours</p>

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 3.0.4.b is not applicable when entering MODE 1.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One steam supply to turbine driven AFW pump inoperable.</p>	<p>A.1 Restore steam supply to OPERABLE status.</p>	<p>7 days <u>AND</u> 10 days from discovery of failure to meet the LCO</p>
<p>B. One ESW supply to turbine driven AFW pump inoperable</p>	<p>B.1 Restore ESW supply to OPERABLE status.</p>	<p>72 hours <u>AND</u> 10 days from discovery of failure to meet the LCO</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. One AFW train inoperable for reasons other than Condition A or B.</p>	<p>C.1 Restore AFW train to OPERABLE status.</p>	<p>72 hours* <u>AND</u> 10 days from discovery of failure to meet the LCO</p>
<p>D. Required Action and associated Completion Time for Condition A, B or C not met.</p> <p><u>OR</u></p> <p>Two AFW trains inoperable.</p>	<p>D.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>D.2 Be in MODE 4.</p>	<p>6 hours</p> <p>12 hours</p>
<p>E. Three AFW trains inoperable.</p>	<p>E.1</p> <p>----- NOTE ----- LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status. -----</p> <p>Initiate action to restore one AFW train to OPERABLE status.</p>	<p>Immediately</p>

*With the exception that the Completion Time associated with the Condition C entry on 2/3/04 for the turbine driven auxiliary feedwater pump has been extended on a one-time only basis to 144 hours. At the time a formal cause of the inoperability is determined, Condition D will be entered immediately.

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); and
- c. Load Shedder and Emergency Load Sequencer (LSELS) for Train A and Train B.

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for OPERABLE offsite circuit.	1 hour <u>AND</u> Once per 8 hours thereafter
	<p style="text-align: center;"><u>AND</u></p> <p style="text-align: center;">A.2 ----- NOTE ----- In Modes 1, 2, and 3, the turbine driven auxiliary feedwater pump is considered a required redundant feature. -----</p>	

(continued)

3.9 REFUELING OPERATIONS

3.9.1 Boron Concentration

LCO 3.9.1 Boron concentrations of all filled portions of the Reactor Coolant System and the refueling pool that have direct access to the reactor vessel, shall be maintained sufficient to ensure that the more restrictive of the following reactivity conditions is met:

- a. A $k_{eff} \leq 0.95$, or
- b. A boron concentration of ≥ 2000 ppm.

APPLICABILITY: MODE 6.

ACTIONS

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

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
	<u>OR</u> A.2 Initiate action to establish ≥ 23 ft of water above the top of reactor vessel flange.	Immediately

(continued)

ATTACHMENT 4

PROPOSED TECHNICAL SPECIFICATION BASES CHANGES
(for information only)

BASES

LCO 3.0.3
(continued)

The time limits of LCO 3.0.3 allow 37 hours for the unit to be in MODE 5 when a shutdown is required during MODE 1 operation. If the unit is in a lower MODE of operation when a shutdown is required, the time limit for reaching the next lower MODE applies. If a lower MODE is reached in less time than allowed, however, the total allowable time to reach MODE 5, or other applicable MODE, is not reduced. For example, if MODE 3 is reached in 2 hours, then the time allowed for reaching MODE 4 is the next 11 hours, because the total time for reaching MODE 4 is not reduced from the allowable limit of 13 hours. Therefore, if remedial measures are completed that would permit a return to MODE 1, a penalty is not incurred by having to reach a lower MODE of operation in less than the total time allowed.

In MODES 1, 2, 3, and 4, LCO 3.0.3 provides actions for Conditions not covered in other Specifications. The requirements of LCO 3.0.3 do not apply in MODES 5 and 6 because the unit is already in the most restrictive Condition required by LCO 3.0.3. The requirements of LCO 3.0.3 do not apply in other specified conditions of the Applicability (unless in MODE 1, 2, 3, or 4) because the ACTIONS of individual Specifications sufficiently define the remedial measures to be taken.

Exceptions to LCO 3.0.3 are provided in instances where requiring a unit shutdown, in accordance with LCO 3.0.3, would not provide appropriate remedial measures for the associated condition of the unit. An example of this is in LCO 3.7.15, "Fuel Storage Pool Water Level." LCO 3.7.15 has 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, 3, or 4, 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., Applicability desired to be entered) when ~~the~~ *the* ~~following exist~~ *the* ~~following exist~~ *INSERT B-1*

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

(continued)

INSERT B-1 (page 1 of 2)

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

LCO 3.0.4.a 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 3.0.4.b 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 3.0.4.b, 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 Activities 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.

INSERT B-1 (PAGE 2 OF 2)

LCO 3.0.4.b 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 3.0.4.b 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 3.0.4.b 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 3.0.4.b allowance is prohibited. The LCOs governing these system and components contain Notes prohibiting the use of LCO 3.0.4.b by stating that LCO 3.0.4.b is not applicable.

LCO 3.0.4.c 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 3.0.4.c 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 3.0.4.b usually only consider systems and components. For this reason, LCO 3.0.4.c is typically applied to Specifications which describe values and parameters (e.g., Containment Air Temperature, Containment Pressure, Moderator Temperature Coefficient), and may be applied to other Specifications based on NRC plant-specific approval.

BASES

LCO 3.0.4
(continued)

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.

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. The exceptions allow 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. Exceptions may apply to all the ACTIONS or to a specific Required Action of a Specification.

LCO 3.0.4 is only applicable 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., where a plant-specific review has concluded that specific restriction on MODE changes should be included) 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.

*INSERT
B-3* →

(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, MODE 4 to MODE 5, and MODE 5 to MODE 6.

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.

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.

BASES

LCO 3.0.4
(continued)

~~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.~~

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 required testing to demonstrate:

- a. The OPERABILITY of the equipment being returned to service; 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 required testing to demonstrate OPERABILITY. 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 required testing.

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 required testing 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 required testing on another channel in the same trip system.

(continued)

BASES

SR 3.0.3
(continued)

the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon the failure of the Surveillance.

Satisfactory 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 component 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) are 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. *INSERT B-5*

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 SR 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,

(continued)

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 Surveillances 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, MODE 4 to MODE 5, and MODE 5 to MODE 6.

BASES

**SR 3.0.4
(continued)**

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.

~~SR 3.0.4 is only applicable 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 in 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.~~

BASES

APPLICABLE
SAFETY
ANALYSES
(continued)

SDM satisfies Criterion 2 of 10CFR50.36(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 sufficient. The required SDM limits are specified in the COLR.

APPLICABILITY

In MODE 2 with $k_{eff} < 1.0$ and 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."

*INSERT
B-7* →

~~The Applicability is modified by a Note stating that the transition from MODE 6 to MODE 5 is not permitted while LCO 3.1.1 is not met. This Note specifies an exception to LCO 3.0.4 and prohibits the transition when SDM limits are not met. This Note assures that the initial assumptions of a postulated boron dilution event in MODE 5 are met.~~

ACTIONS

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.

(continued)

INSERT B-7

Since this Specification has no LCO 3.0.4.c allowance, MODE 5 can not be entered from MODE 6 while not meeting the SDM limits. This assures that the initial condition assumptions of an inadvertent boron dilution event in MODE 5 are met. The risk assessments of LCO 3.0.4.b may only be utilized for systems and components, not Criterion 2 values or parameters such as SDM. Therefore, a risk assessment per LCO 3.0.4.b to allow MODE changes with single or multiple system/equipment inoperabilities may not be used to allow a MODE change into or ascending within this LCO while not meeting the SDM limits, even if the risk assessment specifically includes consideration of SDM.

BASES

ACTIONS

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

- Automatic Trip Logic.

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

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

*INSERT
B-8* →

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

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

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

The NIS power range detectors provide input to the Rod Control System and the SG Water Level Control System and, therefore, have a two-out-of-four trip logic. A known inoperable channel must be placed in the tripped condition. This results in a partial trip condition requiring only one-out-of-three logic for actuation. The 6 hours allowed to place the inoperable channel in the tripped condition is justified in Reference 5.

In addition to placing the inoperable channel in the tripped condition, THERMAL POWER must be reduced to $\leq 75\%$ RTP within 12 hours. Reducing the power level prevents operation of the core with radial power distributions beyond the design limits at a power level where DNB

(continued)

INSERT B-8

Risk assessments performed pursuant to LCO 3.0.4.b should consider the desirability of enabling the Rod Control System or allowing one or more rods to be other than fully inserted in MODES 3, 4, or 5 while one train of Function 19 (one RTB train), Function 20 (one trip mechanism for one RTB), or Function 21 (one SSPS logic train) is inoperable and the Reactor Trip System is degraded. The risk assessment should assure that, prior to enabling the Rod Control System or allowing one or more rods to be other than fully inserted in MODES 3, 4, or 5, procedural controls have been implemented to maintain the RCS boron concentration sufficient to preclude criticality with all control and shutdown rods fully withdrawn. These administrative controls apply prior to making this Applicability change (i.e., enabling the Rod Control System or allowing one or more rods to be other than fully inserted in MODES 3, 4, or 5); however, if the Applicability change took place, these controls also include immediate actions to borate or insert all rods and disable rod control whenever RCS temperature is below 500°F. This would mitigate any inadvertent rod withdrawal from subcritical transient.

BASES

ACTIONS

O.1 and O.2 (continued)

function has a two-out-of-three trip logic. Therefore, continued operation is allowed with one inoperable channel until the performance of the next monthly COT on one of the other channels, as long as the inoperable channel is placed in trip within 1 hour. Condition O is modified by a Note stating that LCO 3.0.4 is not applicable. MODE changes are permitted with an inoperable channel.

P.1

Condition P applies to the Auxiliary Feedwater Manual Initiation trip Function. The associated auxiliary feedwater pump(s) must be declared inoperable immediately when one or more channel(s) is inoperable. Refer to LCO 3.7.5, "Auxiliary Feedwater (AFW) System."

Q.1 and Q.2

Condition Q applies to the Auxiliary Feedwater Balance of Plant ESFAS automatic actuation logic and actuation relays. With one train inoperable, the unit must be brought to MODE 3 within 6 hours and MODE 4 within the following 6 hours. The Required Actions are modified by a Note that allows one train to be bypassed for up to 2 hours for surveillance testing provided the other train is OPERABLE.

R.1, R.2.1, and R.2.2

Condition R applies to the Auxiliary Feedwater Loss of Offsite Power trip Function. With the inoperability of one or both train(s), 48 hours are allowed to return the train(s) to OPERABLE status. The specified Completion Time is reasonable considering this Function is only associated with the turbine driven auxiliary feedwater pump (TDAFP), the available redundancy provided by the motor driven auxiliary feedwater pumps, and the low probability of an event occurring during this interval. If the Function cannot be returned to OPERABLE status, the unit must be placed in MODE 3 within the next 6 hours and in MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power in an orderly manner and without challenging unit systems. In MODE 4, the unit does not have any analyzed transients or conditions that require the TDAFP for mitigation.

(continued)

BASES

LCO
(continued)

19. Refueling Water Storage Tank (RWST) Level

Refueling Water Storage Tank Level is a Type A variable for determining switchover of ECCS and containment spray to the containment recirculation sumps. This level indication is provided for the operators to assist in monitoring and ensuring an adequate supply of water for safety injection and containment spray. Table 2 of Reference 5 requires all plant-specific Type A variables to meet Category 1 design and qualification criteria; however, RWST Level is specifically identified in that same table as a Type D Category 2 variable. In this specific case, as discussed in Sections 7A.3.1 and 7A.3.6 of Reference 1 and in Section 3.2 of Reference 2, the requirements of Category 1 are met.

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 ^g 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. When the Required Channels in Table 3.3.3-1 are specified on a per SG basis, then the Condition may be entered separately for each SG.

(continued)

BASES

LCO
(continued)

The controls, instrumentation, and transfer switches are required for:

- Core reactivity control (initial and long term);
- RCS pressure control;
- Decay heat removal via the AFW System and the SG ASDs; and
- RCS inventory control.

A Function of the Remote Shutdown System is OPERABLE if the required number of channels needed to support the Remote Shutdown System Function identified in Table 3.3.4-1 are OPERABLE.

The remote shutdown instruments and required ASP controls covered by this LCO do not need to be energized to be considered OPERABLE. This LCO is intended to ensure the instruments and controls will be OPERABLE if unit conditions require that the Remote Shutdown System be placed in operation.

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 the remote shutdown instruments and required ASP controls 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 and for each required ASP control. 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

(continued)

BASES

LCO
(continued)

LCO requirement for one loop in operation. An additional RHR loop is required to be OPERABLE to meet single failure considerations.

Note 1 permits all RHR pumps to be removed from operation for ≤ 1 hour. The circumstances for stopping both RHR pumps are to be limited to situations when the outage time is short and core outlet temperature is maintained at least 10°F below saturation temperature. The Note prohibits boron dilution with coolant at boron concentrations less than required to assure the SDM of LCO 3.1.1 is maintained or draining operations when RHR forced flow is stopped. Introduction of reactor makeup water into the RCS from the Chemical and Volume Control System mixing tee is not permitted when no RCS loop is in operation.

Note 2 allows one RHR loop to be inoperable for a period of ≤ 2 hours, provided that the other loop is OPERABLE and in operation. This permits periodic surveillance tests to be performed on the inoperable loop during the only time when these tests are safe and possible.

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 heatremoval 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).

~~The Applicability is modified by a Note stating that entry into MODE 5 with RCS loops not filled from MODE 5 with RCS loops filled is not permitted while LCO 3.4.8 is not met. This Note specifies an exception to LCO 3.0.4 and would prevent draining the RCS, which would eliminate the possibility of SG heat removal, while the RHR function was degraded.~~

INSERT B-9

(continued)

INSERT B-9

Since LCO 3.4.8 contains Required Actions with immediate Completion Times, it is not permitted to enter LCO 3.4.8 from either LCO 3.4.7, "RCS Loops - MODE 5, Loops Filled" or from MODE 6 unless the requirements of LCO 3.4.8 are met.

BASES (continued)

APPLICABILITY In MODES 1, 2, and 3, the PORV and its block valve are required to be OPERABLE to limit the potential for a small break LOCA through the flow path. The most likely cause for a PORV small break LOCA is a result of a pressure increase transient that causes the PORV to open. Imbalances in the energy output of the core and heat removal by the secondary system can cause the RCS pressure to increase to the PORV opening setpoint. The most rapid increases will occur at the higher operating power and pressure conditions of MODES 1 and 2. The PORVs are required to be OPERABLE in MODES 1, 2, and 3 for automatic pressure relief to fulfill the required function of minimizing challenges to the pressurizer safety valves during an inadvertent ECCS actuation event. The PORVs are also required to be OPERABLE in MODES 1, 2, and 3 for manual actuation to mitigate a steam generator tube rupture event.

Pressure increases are less prominent in MODE 3 because the core input energy is reduced, but the RCS pressure is high. Therefore, the LCO is applicable in MODES 1, 2, and 3. The LCO is not applicable in MODE 4 when both pressure and core energy are decreased and the pressure surges become much less significant. The PORV setpoint is reduced for COMS in MODES 4 (with any RCS cold leg temperature $\leq 275^{\circ}\text{F}$), 5, and 6 with the reactor vessel head in place. LCO 3.4.12 addresses the PORV requirements in these MODES.

ACTIONS

A Note ^g 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 MODE changes with inoperable PORVs or block valves as one possible recourse to remaining in the Applicability of LCO 3.4.12.

A.1

The PORVs may be inoperable because of excessive seat leakage yet capable of automatic pressure relief and capable of being manually cycled. In this condition, either the PORVs must be restored or the flow path isolated within 1 hour. The associated block valves must be closed, but power must be maintained to the associated block valves, since removal of power would render the block valve inoperable. Credit for automatic PORV operation is taken in the Reference 1 safety analysis. However, the PORVs are considered OPERABLE in either the manual or automatic mode, as long as the automatic actuation circuitry is OPERABLE and the PORV can be made available for automatic pressure relief by timely operator actions (Ref. 1). Although a PORV may be designated inoperable, it may be available for automatic pressure relief and capable of being manually opened and closed and, therefore, able to perform its required safety functions.

(continued)

BASES

LCO
(continued)

An RCS vent is OPERABLE when open with an area of ≥ 2.0 square inches.

Each of these methods of overpressure prevention is capable of mitigating the limiting COMS transient.

APPLICABILITY

This LCO is applicable in MODE 4 when any RCS cold leg temperature is $\leq 275^\circ\text{F}$, in MODE 5, and in MODE 6 when the reactor vessel head is on. The pressurizer safety valves provide overpressure protection that meets the Reference 1 P/T limits above 275°F . When the reactor vessel head is off, overpressurization cannot occur.

LCO 3.4.3 provides the operational P/T limits for all MODES. LCO 3.4.10, "Pressurizer Safety Valves," requires the OPERABILITY of the pressurizer safety valves that provide overpressure protection during MODES 1, 2, and 3, and MODE 4 above 275°F .

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.

ACTIONS

~~The ACTIONS are modified by a note to allow exception to LCO 3.0.4. MODE changes while in various conditions of this LCO are acceptable and may have an overall safety benefit as COMS analysis is more stringent in lower plant MODES based on temperature considerations.~~

INSERT B-10

A.1 and B.1

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

To immediately initiate action to restore restricted coolant input capability to the RCS reflects the urgency of removing the RCS from this condition.

C.1, D.1, and D.2

An unisolated accumulator requires isolation within 1 hour. This is only required when the accumulator pressure is at or more than the maximum

(continued)

INSERT B-10

A Note prohibits the application of LCO 3.0.4.b to an inoperable COMS. There is an increased risk associated with entering MODE 4 from MODE 5 with COMS inoperable and the provisions of LCO 3.0.4.b, 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

C.1, D.1, and D.2 (continued)

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 D.1 and Required Action D.2 provide two options, either of which must be performed in the next 12 hours. By increasing the RCS temperature to $> 275^{\circ}\text{F}$, an accumulator pressure of 648 psig cannot exceed the COMS limits if the accumulators are fully injected. *INSERT B-11*
Depressurizing the accumulators below the COMS 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 on engineering evaluations indicating that an event requiring COMS is not likely in the allowed times.

E.1

In MODE 4 when any RCS cold leg temperature is $\leq 275^{\circ}\text{F}$, 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 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.

F.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.

(continued)

INSERT B-11

Due to this Specification's Note restricting the application of LCO 3.0.4.b, Required Action D.1 can only be used if the plant is in MODE 4 when Conditions C and D are entered.

BASES

**APPLICABLE
SAFETY
ANALYSES**
(continued)

the leakage from its source to an instrument location yields an acceptable overall response time.

The safety significance of RCS LEAKAGE varies widely depending on its source, rate, and duration. Therefore, detecting and monitoring RCS LEAKAGE into the containment area is necessary. Quickly separating the identified LEAKAGE from the unidentified LEAKAGE provides quantitative information to the operators, allowing them to take corrective action should a leak occur detrimental to the safety of the unit and the public.

RCS leakage detection instrumentation satisfies Criterion 1 of 10CFR50.36(c)(2)(ii).

LCO

One method of protecting against large RCS leakage derives from the ability of instruments to rapidly detect extremely small leaks. This LCO requires instruments of diverse monitoring principles to be OPERABLE to provide a high degree of confidence that extremely small leaks are detected in time to allow actions to place the plant in a safe condition, when RCS LEAKAGE indicates possible RCPB degradation.

This LCO is satisfied when diverse monitoring methods are available. Thus, the containment sump level and flow monitoring system, one containment atmosphere particulate radioactivity monitor, and either the containment cooler condensate monitoring system or one containment atmosphere gaseous radioactivity monitor provide an acceptable minimum.

APPLICABILITY

Because of elevated RCS temperature and pressure in MODES 1, 2, 3, and 4, RCS leakage detection instrumentation is required to be OPERABLE.

In MODE 5 or 6, the temperature is required to be $\leq 200^{\circ}\text{F}$ and pressure is maintained low or at atmospheric pressure. Since the temperatures and pressures are far lower than those for MODES 1, 2, 3, and 4, the likelihood of leakage and crack propagation are much smaller. Therefore, the requirements of this LCO are not applicable in MODES 5 and 6.

ACTIONS

The 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: the required containment sump level and flow monitoring system is inoperable; the required containment atmosphere particulate radioactivity monitor is inoperable, or the required containment atmosphere gaseous radioactivity monitor and the required containment cooler condensate

(continued)

BASES (continued)

ACTIONS
(continued)

~~monitoring system are inoperable. This allowance is provided because other instrumentation is available to monitor for RCS leakage.~~

A.1 and A.2

A primary system leak would result in reactor coolant flowing into the containment normal sumps or into the instrument tunnel sump. Indication of increasing sump level is transmitted to the control room by means of individual sump level transmitters. This information is used to provide the measurement of low leakage by monitoring level increase versus time.

With the required containment sump level and flow monitoring system inoperable, no other form of sampling can provide the equivalent information; however, the containment atmosphere particulate radioactivity monitor will provide indications of changes in leakage. Together with the atmosphere monitor, 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. A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after establishing steady state operation (stable RCS pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP seal injection and return flows). The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established.

Restoration of the required sump level and flow monitoring system to OPERABLE status within a Completion Time of 30 days is required to regain the function after the system's failure. This time is acceptable, considering the Frequency and adequacy of the RCS water inventory balance required by Required Action A.1.

B.1.1, B.1.2, and B.2

With the containment atmosphere particulate radioactivity monitoring instrumentation channel inoperable, alternative action is required. Either 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. Samples of the containment atmosphere are obtained and analyzed for gaseous and particulate radioactivity.

(continued)

BASES

LCO
(continued)

number of $\mu\text{Ci/gm}$ equal to 100 divided by \bar{E} (average disintegration energy of the sum of the average beta and gamma energies of the coolant nuclides). The limit on DOSE EQUIVALENT I-131 ensures the 2 hour thyroid dose to an individual at the site boundary during the Design Basis Accident (DBA) will be a small fraction of the allowed thyroid dose. The limit on gross specific activity ensures the 2 hour whole body dose to an individual at the site boundary during the DBA will be a small fraction of the allowed whole body dose.

The SGTR accident analysis (Ref. 2) shows that the 2 hour site boundary dose levels are within acceptable limits. Violation of the LCO may result in reactor coolant radioactivity levels that could, in the event of an SGTR, lead to site boundary doses that exceed the 10 CFR 100 dose guideline limits.

APPLICABILITY

In MODES 1 and 2, and in MODE 3 with RCS average temperature $\geq 500^\circ\text{F}$, operation within the LCO limits for DOSE EQUIVALENT I-131 and gross specific activity are necessary to contain the potential consequences of an SGTR to within the acceptable site boundary dose values.

For operation in MODE 3 with RCS average temperature $< 500^\circ\text{F}$, and in MODES 4 and 5, the offsite release of radioactivity in the event of an SGTR is unlikely since the saturation pressure of the reactor coolant is below the lift pressure settings of the main steam safety and atmospheric steam dump valves.

ACTIONS

A.1 and A.2 *A Note permits the use of the provisions of LCO 3.0.4.c. This allowance permits entry into the applicable MODE(S) while relying on the 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 plant remains at, or proceeds to, power operation.~~

This allowance

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.

(continued)

BASES

LCO
(continued)

take its supply from the containment sump and to deliver its flow to the RCS hot and cold legs.

This LCO is modified by a Note that allows an RHR subsystem 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.

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."

INSERT B-12 →
ACTIONS 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 or the steam generators. 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

(continued)

INSERT B-12

A Note prohibits the application of LCO 3.0.4.b 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 3.0.4.b, 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

APPLICABILITY
(continued)

the DBA LOCA. Also, because of the limited time in these MODES, the probability of an accident requiring the hydrogen recombiners is low. Therefore, the hydrogen recombiners are not required in MODE 3 or 4.

In MODES 5 and 6, the probability and consequences of a LOCA are low, due to the pressure and temperature limitations in these MODES. Therefore, hydrogen recombiners are not required in these MODES.

ACTIONS

A.1

With one containment hydrogen recombiner inoperable, the inoperable recombiner must be restored to OPERABLE status within 30 days. In this condition, the remaining OPERABLE hydrogen recombiner is adequate to perform the hydrogen control function. However, the overall reliability is reduced because a single failure in the OPERABLE recombiner could result in reduced hydrogen control capability. The 30 day Completion Time 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 MSLB (should one occur) for operator action to prevent hydrogen accumulation from exceeding the flammability limit.

~~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 MSLB occurring (that would generate an amount of hydrogen that exceeds the flammability limit), and the amount of time available after a LOCA or MSLB (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. 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 once per 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

(continued)

BASES

LCO
(continued)

Each nitrogen accumulator tank supplies one TDAFP control valve and one steam generator atmospheric steam dump valve. The tanks must be maintained at a pressure sufficient to ensure a five hour supply for the ASDs and the TDAFP flow control valves to be considered OPERABLE. The five hour supply is the minimum required for mitigation of a SBO or SGTR (Ref. 4).

APPLICABILITY

In MODES 1, 2, and 3, the ASD lines are required to be OPERABLE.

In MODE 4, the pressure and temperature limitations are such that the probability of a SGTR event requiring ASD operation is low. In addition, the RHR system is available to provide the decay heat removal function in MODE 4. Therefore, the ASD lines are not required to be OPERABLE in MODE 4.

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

ACTIONS

A.1

With one required ASD line inoperable for reasons other than excessive ASD seat leakage, action must be taken to restore the ASD line to OPERABLE status within 7 days. The 7 day Completion Time allows for the redundant capability afforded by the remaining OPERABLE ASD lines, a nonsafety grade backup in the Condenser 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 required ASD lines inoperable for reasons other than excessive ASD seat leakage, action must be taken to restore all but one required ASD line to OPERABLE status. Since the manual isolation valve can be closed to isolate an ASD, some repairs may be possible with the unit at power. The 72-hour Completion Time is reasonable to repair inoperable ASD lines, based on the availability of the Condenser Steam Dump System and/or MSSVs, and the low probability of an event occurring during the restoration period that would require the ASD lines.

C.1

With three or more required ASD lines inoperable for reasons other than excessive ASD seat leakage, action must be taken to restore all but two

(continued)

BASES

ACTIONS

C.1 (continued)

required ASD lines to OPERABLE status. Since the manual isolation valve can be closed to isolate an ASD, some repairs may be possible with the unit at power. The 24 hour Completion Time is reasonable to repair inoperable ASD lines, based on the availability of the Condenser Steam Dump System and MSSVs, and the low probability of an event occurring during this period that would require the ASD lines.

D.1 and D.2

Requiring a 30 day limit for restoring an ASD valve to OPERABLE status from inoperable, due to excessive seat leakage from the valve, provides assurance that the required number of ASDs will be available for plant cooldown. This action limits the period in which a manual isolation valve is closed due to excessive seat leakage of the ASD and minimizes the delay associated with manually opening a closed manual isolation valve (due to excessive seat leakage of the ASD). Required ACTIONS D.1 and D.2 are modified by a Note indicating that LCO 3.0.4 does not apply

E.1 and E.2

If the required ASD line(s) 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 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.

**SURVEILLANCE
REQUIREMENTS**

SR 3.7.4.1

To perform a controlled cooldown of the RCS, the ASDs must be able to be opened remotely and throttled through their full range. This SR ensures that the ASDs are tested through a full control cycle as described in the Inservice Test Program.

The conditions that best verify the operability of the ASDs is with the manual isolation valve open and nominal steam line operating pressure and temperature. The ASDs are designed such that steam line pressure acts on top of the valve plug. When the valve is required to move to the open position the actuator must act against steam line pressure. For this surveillance requirement to best verify the operational readiness of the

(continued)

BASES (continued)

INSERT B-13 →
ACTIONS 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 multiple Conditions 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 two Essential Service Water supply lines in the turbine driven AFW train inoperable, action must be taken to restore the inoperable ESW supply line to OPERABLE status within 72 hours. One inoperable ESW supply line in the turbine driven AFW train does not render TDAFP inoperable since the turbine driven AFW train is provided with redundant ESW supply lines. The 72 hour Completion Time is reasonable, based on the following reasons:

- a. The redundant OPERABLE Essential Service Water supply line in the turbine driven AFW train;
- b. The availability of the preferred nonsafety grade Condensate Storage Tank supply;

(continued)

INSERT B-13

A Note prohibits the application of LCO 3.0.4.b 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 3.0.4.b, 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

**LCO
(continued)**

Initiating a DG start upon a detected undervoltage condition, tripping of the incoming offsite power upon a detected undervoltage or degraded voltage condition, shedding of nonessential loads, and proper sequencing of loads are required functions of LSELS and required for DG OPERABILITY. OPERABILITY of the undervoltage and degraded voltage instrumentation functions is addressed in LCO 3.3.5, "Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation."

The AC sources in one train must be separate and independent (to the extent possible) of the AC sources in the other 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 provided the appropriate LCO Required Actions are entered for loss of one offsite power source.

APPLICABILITY

The AC sources LSELS trains 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."

**INSERT B-14 →
ACTIONS 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 the second required circuit fails SR 3.8.1.1, the second offsite circuit is inoperable, and Condition C, for two offsite circuits inoperable, is entered.

(continued)

INSERT B-14

A Note prohibits the application of LCO 3.0.4.b 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 3.0.4.b, 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)**

3. After the level has been lowered to below the cavity seal/shield ring, further draining of the area enclosed by the inside diameter of the ring is performed via the RHR connection to the Chemical and Volume Control letdown line.

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 the filled portions of the RCS and the refueling pool, that have direct access to the reactor vessel while in MODE 6. The boron concentration limit ensures that a core k_{eff} of ≤ 0.95 is maintained during fuel handling operations, and shall in all cases be ≥ 2000 ppm. 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 $k_{eff} \leq 0.95$. Above MODE 6, LCO 3.1.1, "SHUTDOWN MARGIN (SDM), LCO 3.1.5, "Shutdown Bank Insertion Limits," and LCO 3.1.6, "Control Bank Insertion Limits," ensure that an adequate amount of negative reactivity is available to shut down the reactor and maintain it subcritical.

INSERT
B-15 →

The Applicability is modified by a Note stating that transition from MODE 5 to MODE 6 is not permitted while the LCO is not met. This Note specifies an exception to LCO 3.0.4 and prohibits the transition when boron concentration limits are not met. This Note assures that core reactivity is maintained within limits during fuel handling operations.

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 and the refueling pool that have direct access to the reactor vessel, 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. Operations that individually add limited positive reactivity (e.g., temperature fluctuations, inventory addition, or temperature control fluctuations), but when combined with all other operations affecting core reactivity (e.g.,

(continued)

INSERT B-15

This Specification has no LCO 3.0.4.c exception and LCO 3.0.4 places no restrictions on MODE changes that are part of the shutdown of the unit. However, since this Specification has Required Actions with immediate Completion Times, entering MODE 6 will not be permitted unless the boron concentration limits of this LCO are met. This will assure that the core reactivity is maintained within limits during fuel handling operations. The risk assessments of LCO 3.0.4.b may only be utilized for systems and components, not Criterion 2 values or parameters such as Mode 6 Boron Concentration. Therefore, a risk assessment per LCO 3.0.4.b to allow MODE changes with single or multiple system/equipment inoperabilities may not be used to allow a MODE change into this LCO while not meeting the Mode 6 Boron Concentration limits, even if the risk assessment specifically includes consideration of the Mode 6 Boron Concentration.

BASES

LCO
(continued)

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 RCS temperature. The flow path starts in one of the RCS hot legs and is returned to the RCS cold legs. An OPERABLE RHR loop must be capable of being realigned to provide an OPERABLE flow path.

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. 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 \geq 23 ft are located in LCO 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation - High Water Level." Additional RHR loop requirements in MODE 6 with the water level \geq 23 feet above the top of the reactor vessel flange are located in FSAR 16.1.2.1, "Flow Path-Shutdown Limiting Condition For Operation."

INSERT
B-16

The Applicability is modified by a Note stating that entry into a MODE or other specified condition in the Applicability is not permitted while the LCO is not met. This note specifies an exception to LCO 3.0.4 and would prevent the transition into MODE 6 with less than 23 feet of water above the top of the vessel flange while the RHR function was degraded.

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 restored to operation in accordance with the LCO or until \geq 23 ft of water level is established above the reactor vessel flange. When the water level is \geq 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. Suspending positive reactivity additions that could result in failure to meet the minimum boron concentration limit is required to assure continued safe operation. Introduction of coolant inventory must be from sources that

(continued)

INSERT B-16

Since LCO 3.9.6 contains Required Actions with immediate Completion Times related to the restoration of the degraded decay heat removal function, it is not permitted to enter this LCO from either MODE 5 or from LCO 3.9.5, "RHR and Coolant Circulation - High Water Level" unless the requirements of LCO 3.9.6 are met.

ATTACHMENT 5

SUMMARY OF REGULATORY COMMITMENTS

SUMMARY OF REGULATORY COMMITMENTS

The following table identifies those actions committed to by AmerenUE in this document. Any other statements in this submittal are provided for information purposes and are not considered to be commitments. Please direct questions regarding these commitments to Mr. Dave E. Shafer, Superintendent Licensing, (314) 554-3104.

COMMITMENT	Due Date/Event
The proposed changes to the Callaway Technical Specifications will be implemented within 90 days after NRC approval, but in any event no sooner than January 1, 2005 and no later than March 1, 2005.	Within 90 days after NRC approval, but no sooner than January 1, 2005 and no later than March 1, 2005.
The proposed changes to the Callaway TS Bases will be implemented pursuant to the TS 5.5.14 Bases Control Program at the time the amendment is implemented.	Upon implementation of the license amendment.